Industry Trends Report

Auto Physical Edition

Volume Seventeen Number Three **Q3 2017**
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Industry Trends Report

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The Industry Trends Report is published by Mitchell.

Volume Seventeen Number Three

A Message from the CEO

AR Meets AI

Alex Sun
President and CEO, Mitchell

Welcome to the Q3 edition of the 2017 Mitchell Auto Physical Damage Industry Trends Report. As you may remember from our last issue, we looked at several applications for artificial intelligence and how it's beginning to be used in the Property & Casualty and Collision Repair industries today. This quarter, we continue that conversation by focusing on how merging augmented reality and artificial intelligence along with advancements in smart glasses may provide new opportunities for process improvements in the industry, from streamlining workflows to complex vehicle repairs.

In this issue, we examine how artificial intelligence is being used to simplify the auto claims workflow. With more complex cars on the road, it's no surprise that auto claim volume and loss costs have increased substantially in recent years. By leveraging A.I. and visual computing to analyze photos, for example, A.I.- enabled workflow solutions can use machine learning technology to minimize estimate errors and maximize reviewer efficiency.

This quarter we also look at the trends in consumer behavior, specifically as it relates to mobile technology. As smartphone ownership has taken off, consumer self-service expectations have risen, meaning insurance carriers have had to adjust to a new normal throughout the claims journey. We share how mobile First Notice of Loss solutions can go a long way toward securing customer loyalty.

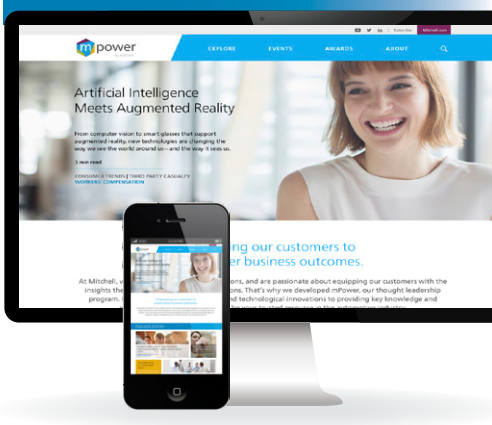
Before I sign off, I'm excited to announce that in the next quarter we'll be launching a consolidated thought leadership site where you'll be able to find not only articles from past reports, but also fresh perspectives on what's trending in the industry. While our report will still be available in PDF format, you'll be able to access all our articles and more on our new site, to learn more about what's making an impact today and in the future. I look forward to sharing news of our live site with you soon.

Alex Sun
President and CEO
Mitchell

mpower
by Mitchell

Mitchell's new website for the latest ITR content & thought leadership.

Coming in Q4



AUGMENTED REALITY MEETS ARTIFICIAL INTELLIGENCE:

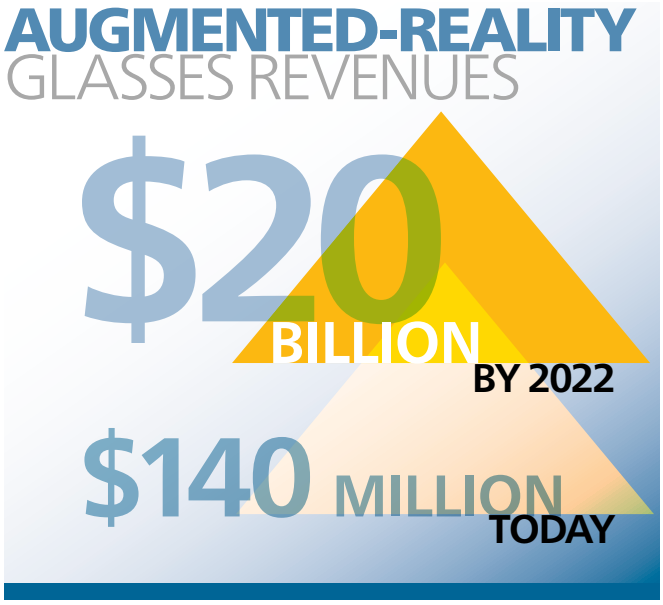
How New Ways of Seeing the World Are Changing Insurance

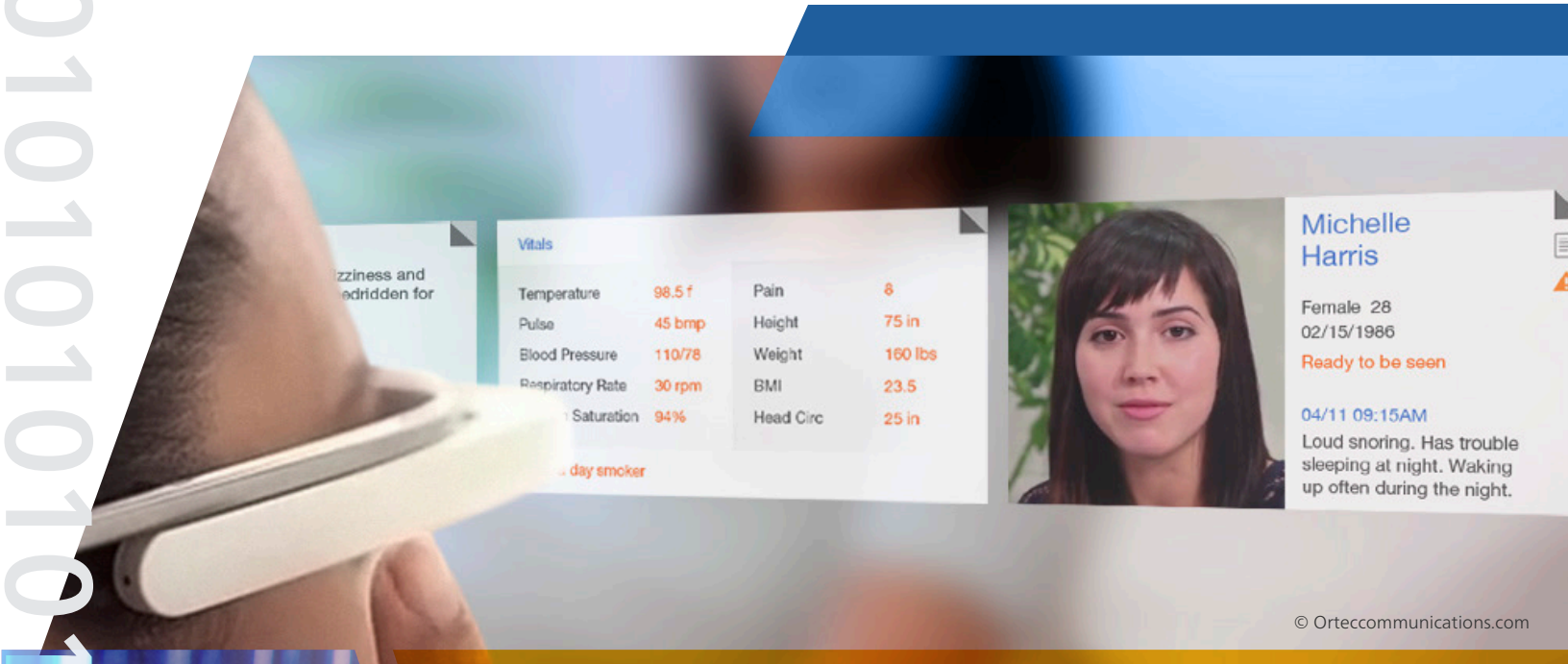
By Alex Sun
President and CEO,
Mitchell International

From Microsoft's sophisticated HoloLens to Snap Inc.'s somewhat frivolous Spectacles, we're seeing a marked increase in smart glasses coming to market. Now, with the recent introduction of Google Glass Enterprise Edition, the technology may have found a mainstream application. In fact, Research and Markets predicts the market for smart, augmented reality glasses revenues will grow from about $140 million today to almost $20 billion by 2022.

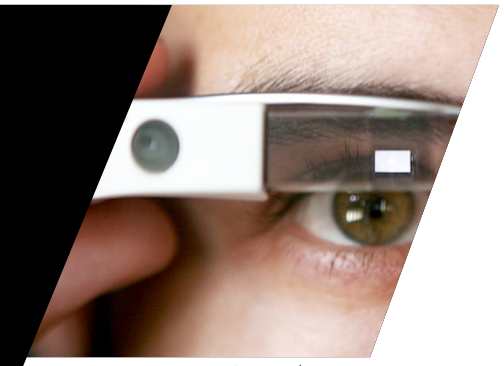
According to Robert Scoble and Shel Israel, authors of "The Fourth Transformation," we're entering a new stage in technology transformation, one in which augmented reality and artificial intelligence are merging, and smart glasses are leading the way. With that, **we may even see a move away from devices we carry—smart phones—to devices we wear**—smart glasses, or eventually, contact lenses and looking far into the future, perhaps ocular implants.

So what does this have to do with the Property & Casualty and collision repair industries? A lot, it turns out. **Smart glasses may change the way people in the insurance ecosystem work**—streamlining workflows, ensuring complex vehicle repairs are done correctly, and possibly even reinventing the healthcare paradigm.





AUGMENTED REALITY + THE ENTERPRISE



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SMART GLASSES HIT THEIR STRIDE

In 2013, 8,000 or so Google Glass enthusiasts thought the first iteration of the devices were cool enough to shell out $1,500 each for them. While Explorers, as the new owners were called, may have been pretty happy with the devices, people around them found them more bothersome than cool. People had privacy concerns. They were understandably uncomfortable with the idea that they might be photographed or videoed, and some businesses responded by banning them altogether.

It was clear from the get-go that Google missed its target audience. The general public wasn't ready—**the enterprise would have been a much better fit.** Competitors learned from Google's experience: smart helmet maker Daqri circumvented consumer acceptance and privacy issues by using similar technology to guide workers in high-risk environments.

When Google reintroduced Google Glass this past July, this time focused on workplace applications, the audience was a better fit and the market was ready. Google Glass Enterprise Edition is better in many ways. The technologies behind it—**augmented reality and natural language processing**—are more advanced, they offer more computer power, and it no longer has integrated frames. It can be worn with any eyewear, including safety glasses.

More than 50 companies are already using it, including GE, DHL, Boeing, Volkswagen, and numerous healthcare companies, and the applications are endless. GE Aviation employees, for example, use it to guide airplane repairs and inspections. It's much safer—they don't have to climb ladders with paper instructions in their hands.

© Edgylabs.com

There are likely to be many use cases for smart glasses in the P&C and collision repair industries. One can see how **collision repairers could use the glasses to guide them through increasingly complex repair procedures,** ensuring they are done correctly and the vehicle is safe and road-worthy. They might even use the photography function to document the vehicle before and after repair. Healthcare workers are already using the glasses to dictate notes in real time. Not only do they get to spend more time focused on patient care, their notes are more accurate—both things that may enhance quality of care.

ARTIFICIAL INTELLIGENCE GETS IN ON THE ACTION

Artificial intelligence is a broad term that encompasses many different technologies. Computer vision is just one. Computer vision is the technology that allows connected and driverless cars to "see" obstacles and avoid them, but it has many other applications as well. In fact, Mitchell is exploring a computer vision application that uses image recognition to confirm repair vs. replace decisions.

Recently, computer vision researchers at Carnegie Mellon demonstrated the ability to detect and understand small movements, such as a person using his thumbs to text, in real time—even in a large group of people. This is an important advancement. Looking toward a future when computers will be embedded in everything, this type of technology could allow us to interact with them in new ways—by pointing, for example, instead of by speaking or keying in text.

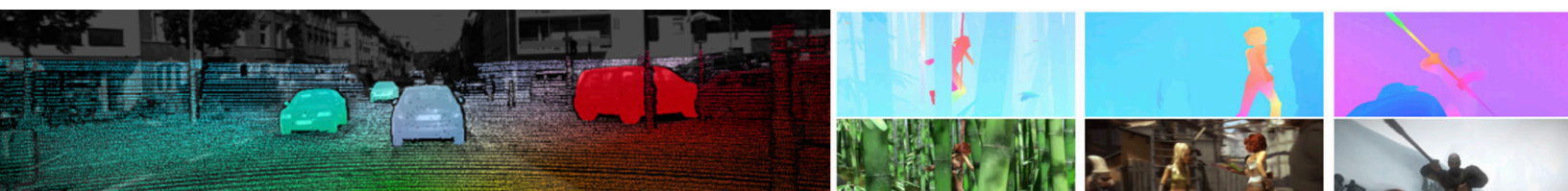
Another potential application: you are driving your computer vision-enabled connected car or riding in an autonomous vehicle. There is a crowd of people standing on the curb near an intersection. Sophisticated computer vision could be able to predict, based on the smallest gestures, that one of the people in the crowd was about to step into oncoming traffic, and you or your car could respond accordingly.

AUGMENTED REALITY + COMPUTER VISION

TECHNOLOGY'S NEW POWER COUPLE

Now imagine putting the powerful computer vision I've just described into the smart glasses form factor. Computer vision, backed by machine learning algorithms could conceivably **take in real-time information about the environment,** evaluate it against thousands of examples in its database, and **push immediate reccomendations** to you **via augmented reality.** If the pedestrian were wearing computer vision-enabled smart glasses, they could receive an alert advising them not to step into traffic.

Other examples: instead of an automotive repairer just getting guidance on the next step in a given repair procedure, they could get **real-time evaluation** of ancillary problems detected by computer vision. A worker crossing a factory floor might be warned of an impending risk—a slippery floor that should be avoided. A surgeon in an operating room might be guided through the process and **advised on the best way to address the unpredictable variables** that are likely to arise. It might even take into consideration the individual patient's genetic background and health history.



While the scenarios I've described are futuristic, especially in such a small form factor, the two technologies are already coming together—in agribusiness, of all places. Huxley is using a combination of augmented reality and artificial intelligence to monitor plant growth in greenhouses, maintain optimal environmental conditions, and recommend harvest dates.

As individual disciplines, augmented reality and artificial intelligence both have valuable applications in the broad P&C claims ecosystem today, but we're a long way from realizing their full potential. I suspect that when combined, the real-world applications for the two technologies will far surpass anything I've imagined here.

Either way, I'm looking forward to seeing the future unfold.

Artificial Intelligence—Ready to Simplify the Auto Claims Workflow

By Olivier Baudoux
Vice President, Global Product Management - Auto Physical Damage Solutions

As with any new technology, however, A.I. adoption as a standard part of the claims workflow will only reach critical mass when implemented with usability and practicality.

The P&C industry has been buzzing for a while about the emergence of "smart" technology entering the claims workflow—from natural language processing to machine learning and artificial intelligence, the frequent tech talk has left us all bracing for the new paradigm. But with all of this discussion about technology getting smarter, how do we ensure that we are "smart" about how we use it? Exactly how and where do we first implement technologies like artificial intelligence to improve day-to-day claims workflow and decision-making? While artificial intelligence promises to be transformational over the long-term, A.I. must first gain traction by making tangible improvements that expedite and simplify the auto claims workflow.

To know where to apply A.I. first, we have to remind ourselves of the immediate problems that A.I. is best-suited to remediate. Fortunately or unfortunately, there is no shortage of opportunity. As Ryan Mandell, Director of Performance Consulting for Mitchell Auto Physical Damage Solutions explains, "With rapidly changing conditions that put more drivers and more complex cars on the road, it's no surprise that auto claim volume and loss costs have increased substantially in recent years." This naturally creates a challenge for carriers to improve claims outcomes while simultaneously absorbing a heavier workload and maintaining estimate accuracy and repair quality. Artificial intelligence, however, is ready to tackle the challenge with specific, tangible solutions.

"With rapidly changing conditions that put more drivers and more complex cars on the road, it's no surprise that auto claim volume and loss costs have increased substantially in recent years."

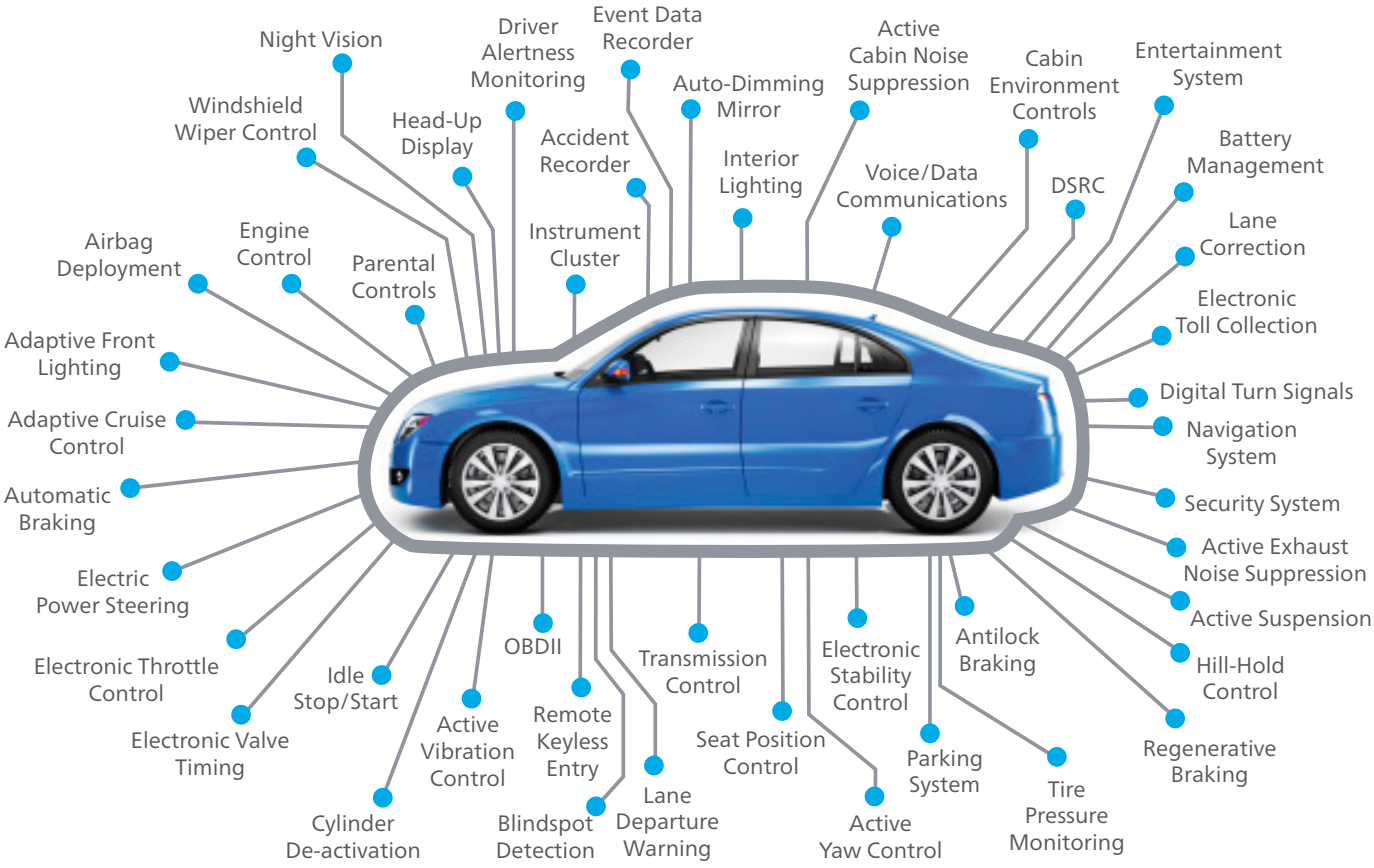
Ryan Mandell,
Director of Performance Consulting for Mitchell
Auto Physical Damage Solutions

Find the Needles in the Haystack

One of the rapidly changing conditions is the abundance of new data from new sources. Data from sensors in our cars, consumers' mobile devices, repair facilities diagnostic tools—we have no shortage of opportunity to look more closely at claims and repair details. But therein lies the problem. While this data revolution offers unprecedented insight, without the proper tools to quickly sort and find meaningful information in the context of a claim, we are left to manually search for needles in an ever-growing haystack. This is where A.I. is ready to help. Artificial Intelligence technology can find patterns amidst massive amounts of data that would otherwise escape our attention. With A.I.-enabled solutions, carriers can identify claims that need closer attention, like finding patterns in repair/replace decisions that produce better results, giving them the power to focus resources where they are most impactful.

Assist and Expedite

Better still, once the meaningful data is identified, A.I. can help to elevate the right information in a way that assists and expedites workflow processes. By leveraging A.I. and visual computing to analyze photos, for example, A.I.-enabled workflow solutions can use machine learning technology to minimize estimate errors and maximize reviewer efficiency. One such initiative is the **Mitchell Assisted Review project**, which was launched in October 2016 to accomplish exactly this goal. By utilizing millions of damaged vehicle photos, computers are "trained" to recognize vehicle damage and use computer vision to double-check repair vs replace decisions. This will help carriers achieve better estimate consistency, maintain estimate quality and be more selective about sending appraisers into the field, all while improving cycle times and productivity.



Keep it Simple Stupid

As with any new technology, however, A.I. adoption as a standard part of the claims workflow will only reach critical mass when implemented with usability and practicality. As part of the **Mitchell Assisted Review project**, for example, User Experience (UX) designers are working hand in hand with artificial intelligence technologists to design solutions that highlight repair/replace outliers in a way that makes sense within the claims workflow. Reviewers have neither the time nor the inclination to take on complex and time-consuming new technology tools, so for A.I.-enabled solutions to be effective, estimates in need of review must be easy to spot, easy to understand and, most importantly, easy to act upon within the review workflow. Making A.I. technology easy and practical for the claims professionals who will interact with it on a daily basis is key to unlocking the technology's full potential. The more the solutions are used, the smarter the technology becomes, thus allowing for constant improvements in efficiency, accuracy and consistency while providing increasingly better insight with which to inform estimating guidelines that reinforce trust and acceptance.

Taking the First, Smart Steps

Artificial intelligence has lofty potential for auto claims, but to reach its grand vision A.I. must first —ironically—be smart. By starting with tangible, meaningful solutions that make measurable day-to-day improvements, carriers and claims professionals stand to experience big gains in short order. With insights from an avalanche of data, quickly identified and elevated within an easy to use workflow, artificial intelligence-enabled solutions are poised and ready to make a lasting impact on auto repair claims processing and claims outcomes.

By leveraging A.I. and visual computing to analyze photos, for example, A.I.-enabled workflow solutions can use machine learning technology to minimize estimate errors and maximize reviewer efficiency.

Consumer Self-Service Expectations are the New Normal

By Saundra Knight
Senior Manager, Product Marketing, Auto Physical Damage Solutions

Mitchell offers several FNOL solutions to help carriers implement seamless mobile FNOL capabilities.

In 2016, smartphone ownership for individuals 13 years of age and older surpassed 81% in the United States, effectively reaching full market saturation. The remaining 19% represent either "technology laggards," unlikely ever to use smartphones, or those who are still in grade school and simply without a smartphone yet. This means that essentially every current and future insurance customer is already walking around with the Internet in his/her pocket, well-conditioned to expect information and service, anywhere and anytime—with no more effort than the swipe of a finger.

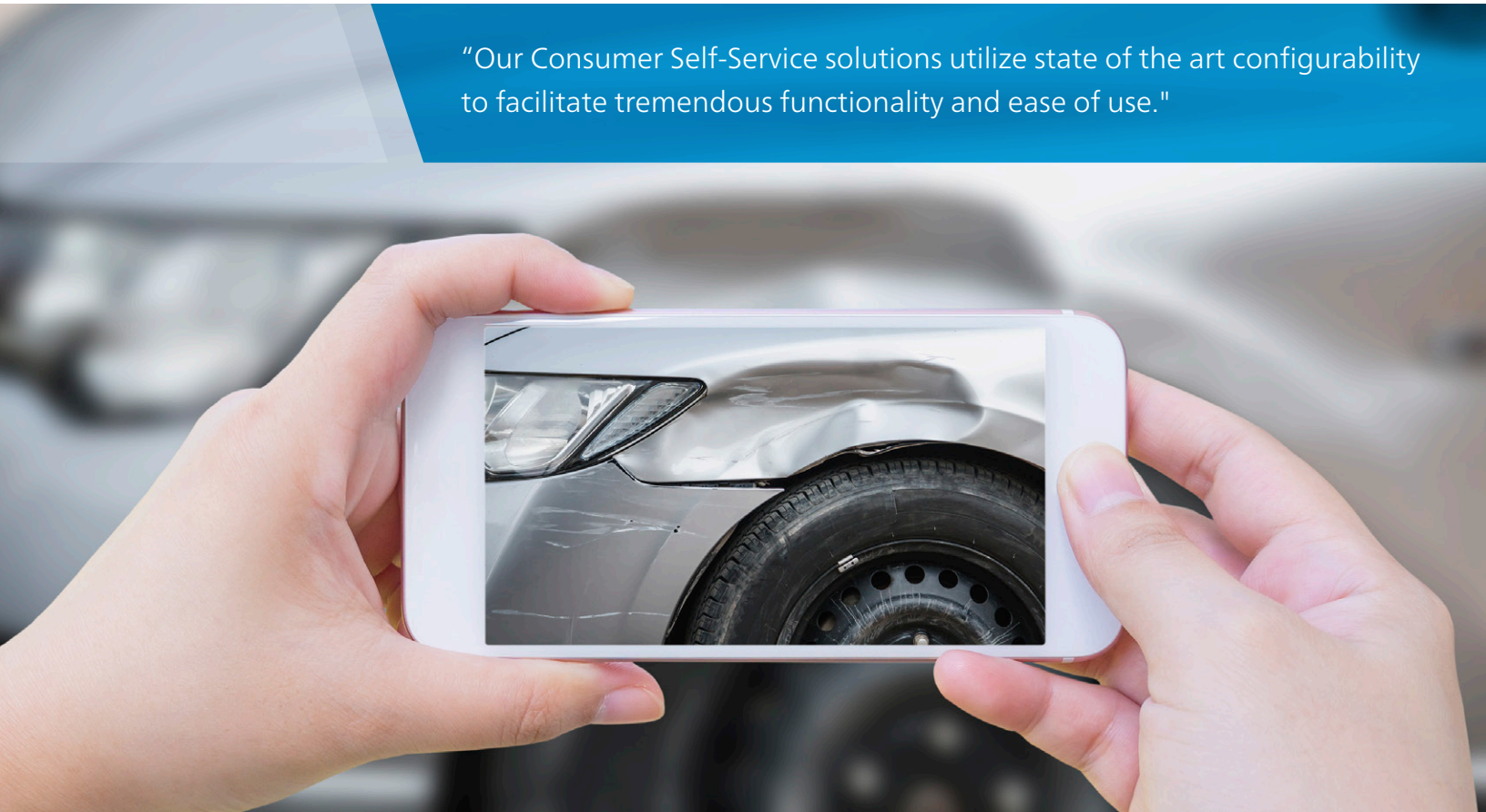
So let's put that impact into perspective. Mobile technology influenced changes in our way of life and in market dynamics unlike any other technology in a century. Hardware components and software systems originally developed for smartphones are the same technologies that give our cars backup cameras and power the Internet of Things in our homes. Yet, while mobile technology has changed the commercial products we use, the permanent changes in consumer behavior that stem from those products is perhaps even more impactful. As one of the few products available across geographic, socioeconomic and demographic boundaries, it took just under 10 years for smartphones to reach market saturation. This means that every current and future insurance customer is already part of a global community in which access to virtually anything, through an internet-connected piece of glass, is commonplace. Easy, self-serve, any-time interaction is the new normal—this means insurance carriers in every market must adjust for "new normal"

consumer expectations throughout the claims journey, or risk losing customers.

According to a recent report by Fujitsu, "39% of the UK residents it surveyed would consider leaving their providers if they do not offer up-to-date technology." Increasingly, attracting and keeping insurance customers will depend heavily on how well providers can do business as seamlessly across devices and mediums as consumers do. This demand applies not just to policy shopping or coverage modifications, but also to touch points throughout the claims workflow. As Kate Leggett, Vice President and Principal Analyst at Forrester Research reports, "Customers demand accurate, relevant, and complete answers to their questions upon first contact—served up as painlessly as possible—so they can get back to what they were doing before the issue arose." This explains why an intuitive, mobile First Notice of Loss solution (FNOL) can go a long way toward securing customer loyalty.

Imagine a minor, single car collision with a mailbox, for example. No one wants to follow a clumsy exit out of the driveway with a lost morning of work or a late school drop-off because of a cumbersome claims reporting process. Consumers expect service providers to help minimize disruption to their routine, and this means offering consumers what they are increasingly expecting—a few clicks or swipes of a mobile device to file a claim, obtain an estimate, have the repair started, and "get back to what they were doing before the issue arose."

This is why Mitchell offers several FNOL solutions to help carriers implement seamless mobile FNOL capabilities. To successfully meet consumer demand, carriers not only need an intuitive, device-agnostic mobile interface to make FNOL fast and easy, they need flexible, customizable tools and integration options to fit an array of business models. "Our Consumer Self-Service solutions utilize state of the art configurability to facilitate tremendous



"Our Consumer Self-Service solutions utilize state of the art configurability to facilitate tremendous functionality and ease of use."

functionality and ease of use. FNOL presents the carrier-configured questions, at just the right time, using the carrier's portfolio, the consumer's policy information and the accident scenario, to arrive at the right inspection channel. FNOL can even determine carrier-specific decisions that are often attributed to an adjuster, such as coverage and liability for the claim, based on carrier logic," said Caitlin Rios, Senior Product Manager, Mitchell Auto Physical Damage Solutions.

Depending on the severity of the accident and the carrier's configurations, a consumer can simply submit a claim and start the estimate and repair process, or she can expedite the process further with Photo Estimating—capturing images directly from a mobile device during the FNOL process, using guided photo capture tools. Additionally, seamless FNOL interactions can meet consumer demand immediately after an incident, while further integration in repair and estimate workflow makes it possible to anticipate a consumer's needs at other times in the claims process. Let's take our mailbox incident, for example. After a driver uses Mitchell's FNOL solution to file a claim before heading to work (on time), she then drops the car off at the recommended repair facility during her lunch hour where a pre-arranged rental vehicle is waiting. That evening, she can view the estimate and repair status on a tablet or other mobile device from the living room couch.

This is the level of "disruption" that consumers increasingly expect when interacting with service providers—quick, self-service interactions that allow them to do their business and return to their regularly scheduled activities. Insurance providers who do not adequately anticipate the influence that mobile behaviors have on their customers' expectations may be doing so at their own peril.

As a 70-year industry leader, Mitchell knows the importance of understanding changes in the marketplace and the forces behind them. As technologies emerge and behaviors change, so too must product and service providers evolve. Since "mobile" is now the primary context in which consumers communicate and obtain information, carriers must also think about the claims workflow in the mobile context. Today's insurance customer may consider mobile tools a policy benefit, but tomorrow's customer will consider it a minimum requirement. By getting ready now, with solutions that embrace mobile's opportunity to improve efficiency and customer satisfaction at all stages of the claims process, insurance providers will establish more than customer loyalty, they will establish the new normal.

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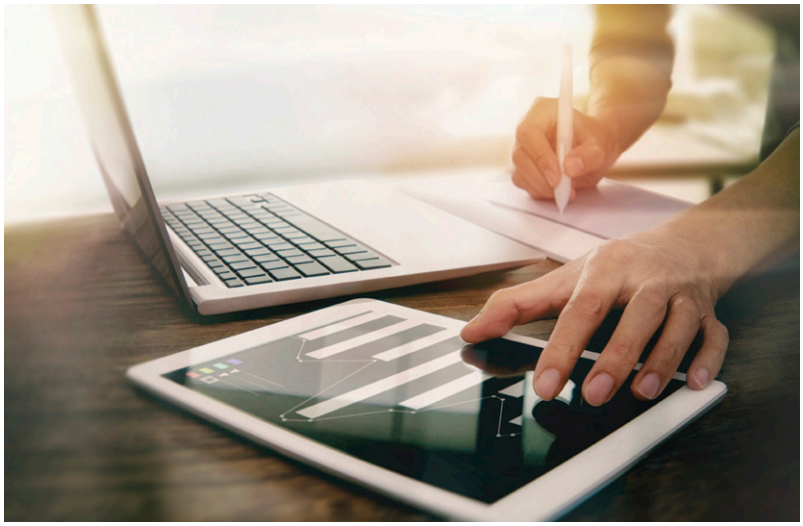
Comscore 2017 US Cross Platform Future in Focus

Today's insurance customer may consider mobile tools a policy benefit, but tomorrow's customer will consider it a minimum requirement.

Mitchell Claims Performance Consulting: The Confluence of Data Science and Industry Expertise

By Ryan Mandell
Director, Performance Consulting, Auto Physical Damage Solutions, Mitchell



One of the most critical factors in developing an accurate performance analysis is determining how best to benchmark each Key Performance Indicator (KPI).

Claims Performance Consulting is a combination of services that Mitchell offers its insurance clients to positively impact overall claims outcomes using "contextual data science." Rather than simply providing access to data and interpretation through our advanced analytics offerings, we work closely with clients to answer questions and provide actionable insights, because we understand that our partners deserve more than charts and spreadsheets from a relationship with Mitchell.

We offer a holistic approach to Claims Performance Consulting that starts with listening to our clients' needs and understanding their business. Each organization faces unique challenges, and no two clients are alike. In order to provide the most comprehensive, customized solutions, we must first gain a deep understanding of our clients' businesses. We begin by working with senior leadership teams to develop a comprehensive strategy for the year ahead based, in part, on guidance from our deep knowledge of industry trends and best

Contextual Data Science

[kon-teks-choo-uhl dat-uh si-yuns]

noun

1. A fusion of systematic computational analysis and practical human experience used to provide clients with deep, holistic insights.

"As a former APD claims leader, one of my biggest challenges was the time it took to consolidate data. I felt like I spent 80% of my time gathering information, with only 20% left over to analyze it. That's why claims performance consulting is so important–it's about working with clients to not only understand what's important, but why. More so, it's about consolidating results, simplifying analyses and visualizations, and providing expert guidance. It's what I wish I had when I was on the insurance side."

– Nate Raskin, Senior Manager, Analytics
17+years experience in auto physical damage analytics, business consulting & claims management

practices. Once the strategy is established, our team provides consistent support through such channels as training modules, facilitation of calibration activities, hands on workshops, and development of continuous improvement devices. Semi-annual executive consulting reviews are conducted in order to assure sustained goal alignment and to identify new opportunities as well as areas of success to celebrate within the clients' organizations.

The Mitchell teams' experiences are as diverse as our portfolio, which affords us the ability to provide our clients with actionable insights guided by real world experiences. Our team members have held positions ranging from field appraisers to claims executives in addition to serving in leadership roles throughout the collision repair, consulting, financial services, and parts industries. By combining technical expertise in analytics with practical industry know-how, Mitchell is able to add contextual understanding to our analysis, giving clients a much richer experience and a platform for achieving measurable results in an efficient timeframe.

One of the most critical factors in developing an accurate performance analysis is determining how best to benchmark each Key Performance Indicator (KPI). Historically, we have always relied on whole-market aggregate data from our insurance clients to form "Industry" standards for each KPI. While the depth of this data is significant, it falls short of providing a true apples-to-apples comparison – this is where Mitchell's team of diverse experts come in. Our data scientists and industry veterans have worked hand-in-hand to give clients a more relevant comparison by developing a proprietary, patent-pending benchmarking system using a statistical "Synthetic Peer." By benchmarking each carrier's KPIs against a synthetic peer, we are able to weight our industry data in a variety of categories to create a "genetic copy" of the client. This lets us determine, with much deeper accuracy, how a client is performing for each KPI. This method of relevant benchmarking compares equivalent businesses, not every business.

"Many of our customers are extremely reliant on the data that Mitchell provides to help run their operations. Due to that, I have been involved with our new data team from its inception, providing various customer testimonials and input that helped to launch our Tableau data solution.

Recently, a client provided feedback, telling us that by utilizing the data and visualizations Mitchell provided, executive management could see the business case to hire two new staff appraisers in a key growth state, and keep an eye on the need and potential to add more."

– Edward Famiglietti, Sr. Client Service Manager
15+ years P&C experience including client services and licensed auto physical damage appraisal–field estimating and desk review

Our experts understand the complexity of our clients' businesses, and that performing an analysis based on a comparison of disparate organizations is quite simply an antiquated way of achieving measurable results. With our new benchmarking approach, Mitchell is now able to ensure that each carrier is measured with relevant comparisons, customized to its business. This allows Mitchell to quickly and easily identify workflow or decision levers that will impact claims performance and ensure that market trend and claims performance insights are shaped by both sound data AND industry experience.

Unlike other consulting services that simply recommend changes, we actually work to implement action plans alongside our clients and measure the effect of those changes on the organizations.

Mitchell Claims Performance Consulting services don't simply stop at providing actionable insights; we believe in developing specific tactics and assisting our clients in actually taking the actions prescribed by our analyses. This is where the real world success of our team kicks into high gear. Unlike other consulting services that simply recommend changes, we actually work to implement action plans alongside our clients and measure the effect of those changes on the organizations.

"At Mitchell, we believe that creating a culture that values and takes action on customer analytics is essential to creating true partnerships. By creating actionable analytics, we are in a unique position to unlock insights that will assist our customers in making sound and informed business decisions. As vehicle technology is changing at a rapic pace, understanding analytics has never been more important.

–Tom Reid, Sr. Director, Client Services, Auto Physical Damage Solution
20+ year veteran of P&C client services and auto physical damage claims management

Partnerships are not created based on transactions, but rather on the collaborative achievement of common goals. Our consulting services are built on this foundation and a commitment to long term, mutual success. With an industry in a constant state of flux, true partnerships are now more important than ever. Mitchell's ability to utilize contextual data science to positively impact claims outcomes through consultative services embodies our commitment to client partnership.

Synthetic Peer Benchmark

[sin-theh-tik peer bench-mahrk]

noun

1. A process for providing insurance clients with an understanding of their claims performance relative to an algorithmically derived carrier with equivalent geographic and vehicle make-up.
2. An "apples to apples" comparison of equivalent claims achieved through contextual data science.

About the author…

Ryan Mandell
Director, Performance Consulting,
Auto Physical Damage Solutions
Mitchell

Ryan Mandell is the Director of Claims Performance for Mitchell International. Ryan has spent his entire career in the automotive industry and has a wide array of experiences ranging from field claims appraiser, body shop manager, and most recently as a regional director for a large recycled parts supplier in the Pacific Northwest. In his current role, Ryan works hand in hand with insurance executives and material damage leaders to provide actionable insights and consultative direction for their claims organizations. Ryan earned his Master of Arts degree from Northern Arizona University and his Bachelor of Arts from the University of San Diego. Ryan also received the Accredited Automotive Manager designation from the Automotive Management Institute in 2016 and maintains ASE Certifications as both a collision damage estimator and parts specialist. In 2015, he was selected as one of the top 40 Business and Community Leaders in the South Puget Sound under the age of 40 by Washington's Business Examiner Magazine.

Mitchell Diagnostics

Mitchell Diagnostics Enables Safe, Proper Repairs

By Jack Rozint
Vice President of Sales and Service, Mitchell

As a Mitchell customer since the 1960s, Walat was confident in Mitchell and liked that Mitchell Diagnostics is able to calibrate sensors and clear codes

If you've attended an industry event or picked up a trade publication in the past year, you're aware that pre- and post-repair vehicle scanning is a hot topic that is not going anywhere. Although vehicle scanning can enable safe and proper repairs, some repair facilities hesitate to invest in diagnostics equipment due to questions about which solution can offer the best opportunities to properly complete diagnostic work in-house.

Mitchell Diagnostics, the first comprehensive vehicle diagnostic system designed specifically for the collision repair and automotive claims process, can help to answer these questions by improving repair facility efficiency and by providing thorough scanning documentation, which streamlines the claims process. Just ask Harry Walat, owner of Collision Technique Center in Wauconda, Illinois, who recently started using Mitchell Diagnostics.

The Repair Facility:

The 10,000-square-foot facility employs 12 people and sees an average of 100–120 cars per month, many foreign made. Collision Technique Center is a Mercedes-Benz certified repair facility.

The Problem:

"We were spending between 8–10 hours per week driving to and from dealerships in order to have the vehicles properly scanned," Walat said. "And that's not including the time in which someone was waiting around—if the dealership would even let us wait." Multiple trips to and from the same dealership

for the same vehicle further extended the facility's turnaround time.

Additionally, Collision Technique Center found it difficult to adequately communicate to insurers and document the need for repairs that are otherwise not immediately apparent, increasing the likelihood that it would not be paid for a repair that was necessary to ensure the customer's safety.

"We were on the phone with an insurance representative a few days ago in connection with a request to be reimbursed for a repair," Walat said. "The representative wanted us to take a picture of the light on the dashboard. The problem was since there were so many tripped codes, there wasn't a light on the dash."

Without consistent, reliable documentation, ensuring that shops are consistently reimbursed for all repairs can be difficult, despite the necessity for a safe repair.

"I'm big on safety," Walat said. "I'm not putting a customer in a vehicle that I wouldn't put my kids in."

Collision Technique Center,
Wauconda, Illinois

The Solution:

Walat prides himself on being ahead of industry trends, so as the first system designed specifically for the collision repair and automotive claims process, Mitchell Diagnostics caught his attention. Though Walat already had a scanner at his repair facility, it had limited capabilities and could not complete all needed operations, such as calibration of sensors or clearing codes. As a Mitchell customer since the 1960s, Walat was confident in Mitchell and liked that Mitchell Diagnostics is able to calibrate sensors and clear codes, so he decided to become an early adopter of Mitchell Diagnostics.

The Review:

Collision Technique Center foreman Don Sperling said that Mitchell Diagnostics makes his life easier. He can plug Mitchell Diagnostics in, walk away, and tend to other work while a pre- or post-scan runs. When he comes back, the scan report is ready and waiting for him. "The scan report spells everything out for me," Sperling said. "It breaks everything down and shows exactly what's wrong."

Mitchell Diagnostics' unique scan report format breaks down the scan results into different categories and subcategories. This is particularly helpful when a repair technician has a hunch as to what might be wrong with the vehicle, as he can focus on the specific area and view the vehicle's electronic control units report for that area.

Collision Technique Center chose model MD-350, which includes a camera imbedded in the device that makes snapping photos and sending them to an insurer quick and easy.

"It's hard to discredit a photo. A photo is real" Walat said.

Mitchell Diagnostics provides Walat instant documentation by sending the report directly to his desktop, from which he can print it, email it, or attach it to a claim or repair order.

The Results:

After the phone call with the insurance representative, Walat had the representative come into the facility for a Mitchell Diagnostics demonstration. The foreman, Sperling, plugged the device into the vehicle and showed the representative the resulting scan report.

"The scan report showed him everything—it showed eight codes," Walat said. "He snapped a photo and we were paid. Easy as that."

Walat said that on the low side being able to perform scans using Mitchell Diagnostics saves his repair facility 10 hours a day. Using Mitchell Diagnostics also ensures that he's doing the safest repair possible.

"We've been scanning for years, "Walat said, "but never with the ease and success we experience with Mitchell Diagnostics so far. I think in the end, using Mitchell Diagnostics is going to be more cost effective and save both us and the insurers money," Walat said.

"The scan report showed him everything—it showed eight codes," Walat said. "He snapped a photo and we were paid. Easy as that."

Mitchell Diagnostics | Scan Report
Scan on 6/16/2017 5:22:43 AM

Scan Tool ID: C3HGOW2117018659ML
Scan ID: 617246
Software Version: 2.10.0.14

2006 Nissan 350Z Base 3.5

VIN

JN1AZ79D96M306735

Verified

System Summary	
Total Systems Scanned	**7**
Systems w/ DTCs	4
Systems w/ Errors	1
Systems w/ No DTCs	2

Code Summary	
Current Code Types	3
Other Code Types	1
Pending Code Types	1
History Code Types	1

Diagnostic Trouble Codes

Current Code Types

System	DTC	Code Status
Secondary Controller ENGINE	P1084 Exhaust Valve Timing Circuit Bank 2	Read Codes
Secondary Controller BODY CONTROL (TPMS)	C1725 Low Battery Front-Right	Current Codes
	C1726 Low Battery Rear-Right	Current Codes

Other Code Types

System	DTC	Code Status
Secondary Controller INSTRUMENT CLUSTER	U1000 CAN Communication Faulty Malfunction	Other Codes

Pending Code Types

System	DTC	Code Status
Primary Controller PCM	P0300B Misfire Detected	Fail Since Clear

History Code Types

System	DTC	Code Status
Primary Controller PCM	P0122B Throttle Position Sensor Circuit Volts Low	History Codes

Communication Errors

System	Error
Secondary Controller TPMS	Communication Error: Communication failure or no controller available. Please verify that cables are plugged in properly

No Diagnostic Trouble Codes

Secondary Controller ABS
Secondary Controller AIRBAG

Powered by mitchell

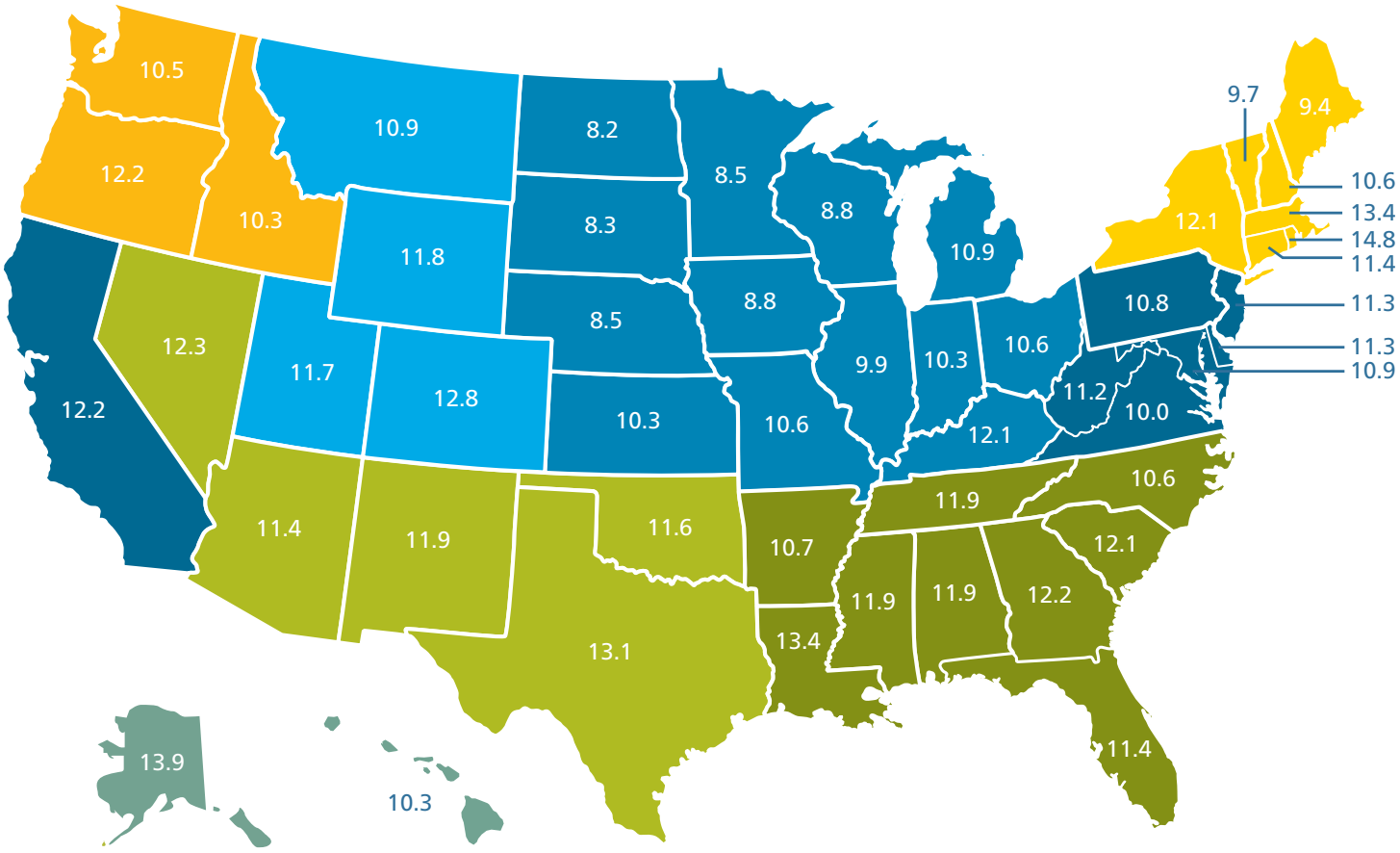
U.S. Length of Rental—Q2 2017

By Dan Friedman
Assistant Vice President, Collision Industry Relations and Sales, Enterprise Rent-A-Car

Colorado was impacted by another round of hail storms that created capacity issues.

Average Length of Rental (LOR) in the 2nd Quarter 2017 landed at 11.54 days, representing only a fractional rise of .07 days versus the 2nd Quarter of 2016. This is a continuation of the trend we began to see in the 1st Quarter of 2017 when the rate of increase dipped to a multi-year low of .2 days. As with Q1, there was very little consistency between regions and states which suggests that the flat U.S. number is not reflective of a true national trend. While the Mountain and Pacific regions increased .9 and .8 days respectively, the Southwest declined -.6 days. For individual states, the largest increase was generated by Alaska (1.91 days) while the largest drop occurred in Texas (-.83 days). The delta for average length of rental ranged from a high of 12.7 days in the Southwest to a low of 10.2 in the Midwest. At the state level, the outliers were Rhode Island at 14.87 days and North Dakota at 8.77. At least 17 states deviated significantly from the U.S. in terms of year over year change, further demonstrating the lack of consistency. Alaska (1.91), Colorado (1.3) and Idaho (1.21) produced the largest increases although Idaho remained below overall U.S. average at 10.33 days. Colorado was impacted by another round of hail storms that created capacity issues. States with the most significant dips included Texas (-.83), Washington D.C. (-.77), Florida (-.54) and West Virginia (-.46), although Texas remained above U.S. average at 13.08 days. We predicted in last quarter's report that Texas would improve in Q2 as it continues to recover from severe hail storms and flooding in Spring of 2016 and anticipate the trend will continue into Q3.

U.S. Average Length of Rental (LOR) by State
Q2 2017



Average Billed Days for U.S.		
Q2 2016	Q2 2017	Change
11.5	11.5	0.0

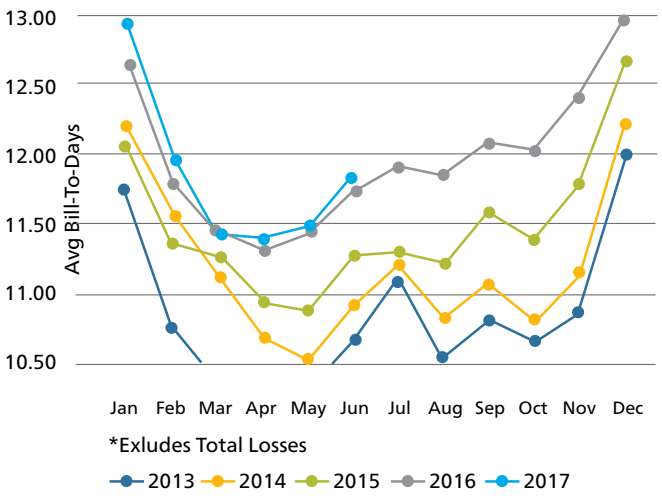
As with Q1, there was very little consistency between regions and states which suggests that the flat U.S. number is not reflective of a true national trend.

Average Billed Days for U.S.			
Region	Q2 2016 LOR	Q2 2017 LOR	Change
California	12.0	12.2	0.2
Mid-Atlantic	10.6	10.7	0.1
Midwest	10.0	10.2	0.2
Mountain	11.1	12.0	0.9
Northeast	11.9	12.2	0.3
Northwest	10.4	11.0	0.6
Pacific	10.5	11.3	0.8
Southeast	12.0	11.9	-0.1
Southwest	13.3	12.7	-0.6

Average Length of Rental for Repairable Vehicles

Although growth leveled off throughout the first 6 months of Calendar 2017, largely as a result of short term weather events, we anticipate a continuation of the long term increase reflected in the five-year trend graph. The core factors driving cycle time (miles driven, claim frequency and repair complexity) remain impactful, particularly as the percentage of vehicles with advanced technology increases. As mentioned in previous updates, regardless of how the market is defined, there remains a significant delta between average and best in class. Shops that focus on building a culture of training, proper utilization of the ARMS® Auto Application and consistent execution of a robust scheduling strategy, routinely outperform market averages.

US Industry Avg Length of Rental



**Excludes Total Losses*

Canada

Canada's Length of Rental (LOR) for Q2 2017 was 10.7 days, a .9 day increase over Q2 2016. For context, this result was .8 days less than the United States Q2 result, which finished at 11.5 days. Although the overall U.S. number remains higher than Canada, it is worth noting that the U.S. metric increased only fractionally from Q2 2016 to Q2 2017.

Similar to the US, Canada witnessed significant variance in the regional (provincial) results. Unlike Canadian Q1 results, this variance was more applicable to actual LOR results than LOR trends. Every Canadian province saw an increase to its LOR in Q2. In Q1, we saw Newfoundland post a 1 day decrease.

Overall LOR ranged from a low of 8.9 days in PEI to a high of 11.7 days in Newfoundland. Provinces that outperformed the national average included PEI, New Brunswick, Quebec and Nova Scotia.

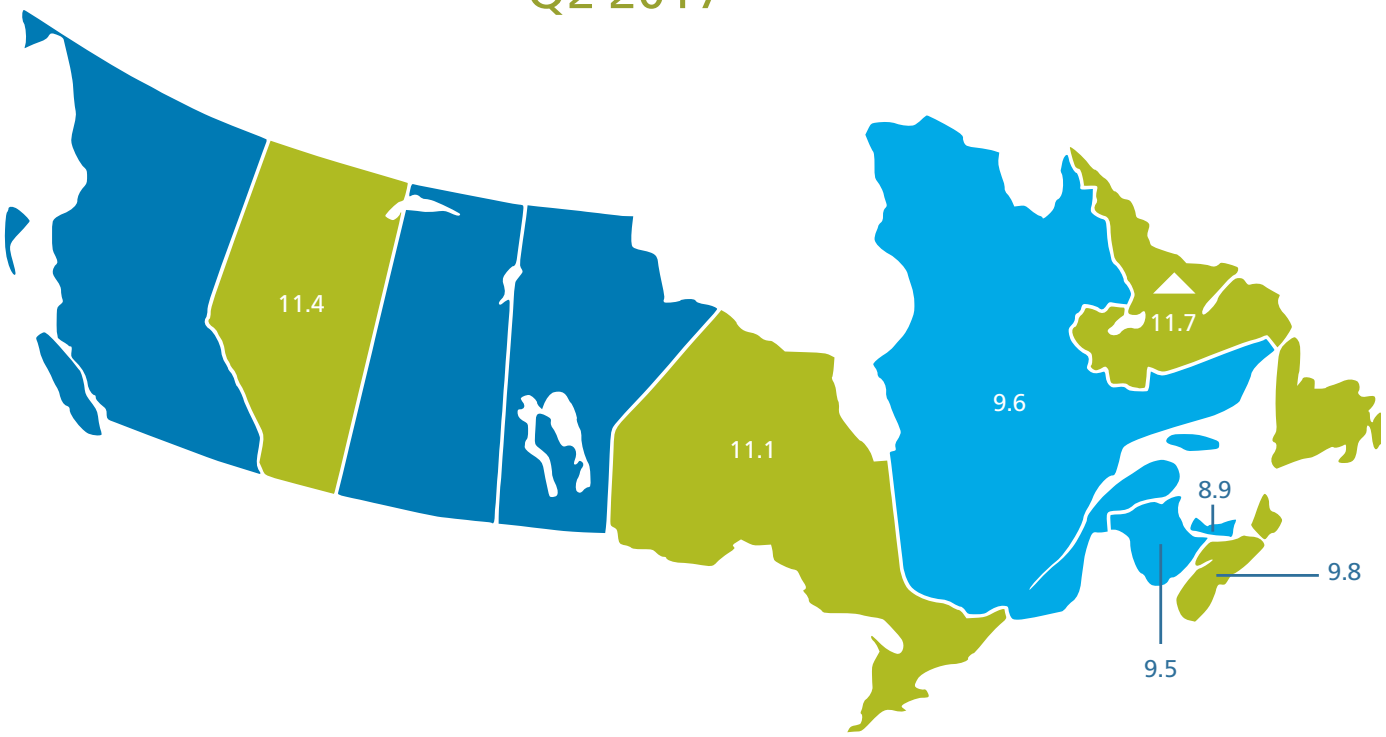
From a trend perspective, Quebec, Nova Scotia and New Brunswick each posted increases of less than 1 day. On the other side of the trend line, Ontario, Alberta, PEI and Newfoundland each witnessed a LOR increase of greater than 1 day over Q2 2016. The LOR trend in Canada continues to increase on a quarterly basis. Kilometers driven, claims frequency and complexity of repair remain core drivers of LOR trends. New car sales (and their associated complexity of repair) continue their record setting ways in Canada. Automakers increased their June 2017 sales 6.5% over June 2016. Since the start of 2016, Canadian car sales are up 5%, marking the first time over 1 million cars have been purchased in the first half of the year

(source: Reuters).

Collision centers that invest in training, proper use of the ARMS® Auto Application (and its associated reporting features), and robust scheduling strategy routinely outperform LOR market averages.

Shops that focus on building a culture of training, proper utilization of the ARMS® Auto Application and consistent execution of a robust scheduling strategy, routinely outperform market averages.

Canadian Average Length of Rental by Province
Q2 2017



Year-Over-Year Change

Source: Enterprise Rent-A-Car. Includes ARMS® Insurance Company Direct Billed Rentals; Excludes Total Loss Vehicles.

Average Billed Days for Canada		
Q2 2016	Q2 2017	Change
9.8	10.7	0.9

The quarterly LOR summary is produced by Dan Friedman, Assistant Vice President Collision Industry Relations and Sales at Enterprise Rent-A-Car. Dan has 21 years of experience with Enterprise working within the collision repair industry. Through its ARMS® Automotive Suite of Products, Enterprise provides collision repair facilities with free cycle time reporting with market comparisons, free text/email capability to update their customers on vehicle repair status, and online reservations. More information is available at ***armsautosuite.com*** *or by contacting Dan Friedman at* ***Daniel.Friedman@ehi.com.***

Average Billed Days for Canada			
Province	Q2 2016 LOR	Q2 2017 LOR	Change
Alberta	10.3	11.4	1.1
Ontario	9.9	11.1	1.2
Quebec	8.9	9.6	0.7
Newfoundland and Labrador	10.3	11.7	1.4
New Brunswick	8.6	9.5	0.9
Nova Scotia	9.1	9.8	0.7
Prince Edward Island	7.6	8.9	1.3

New Vehicle Sales

WardsAuto 10 Best-Selling U.S. Cars and Trucks

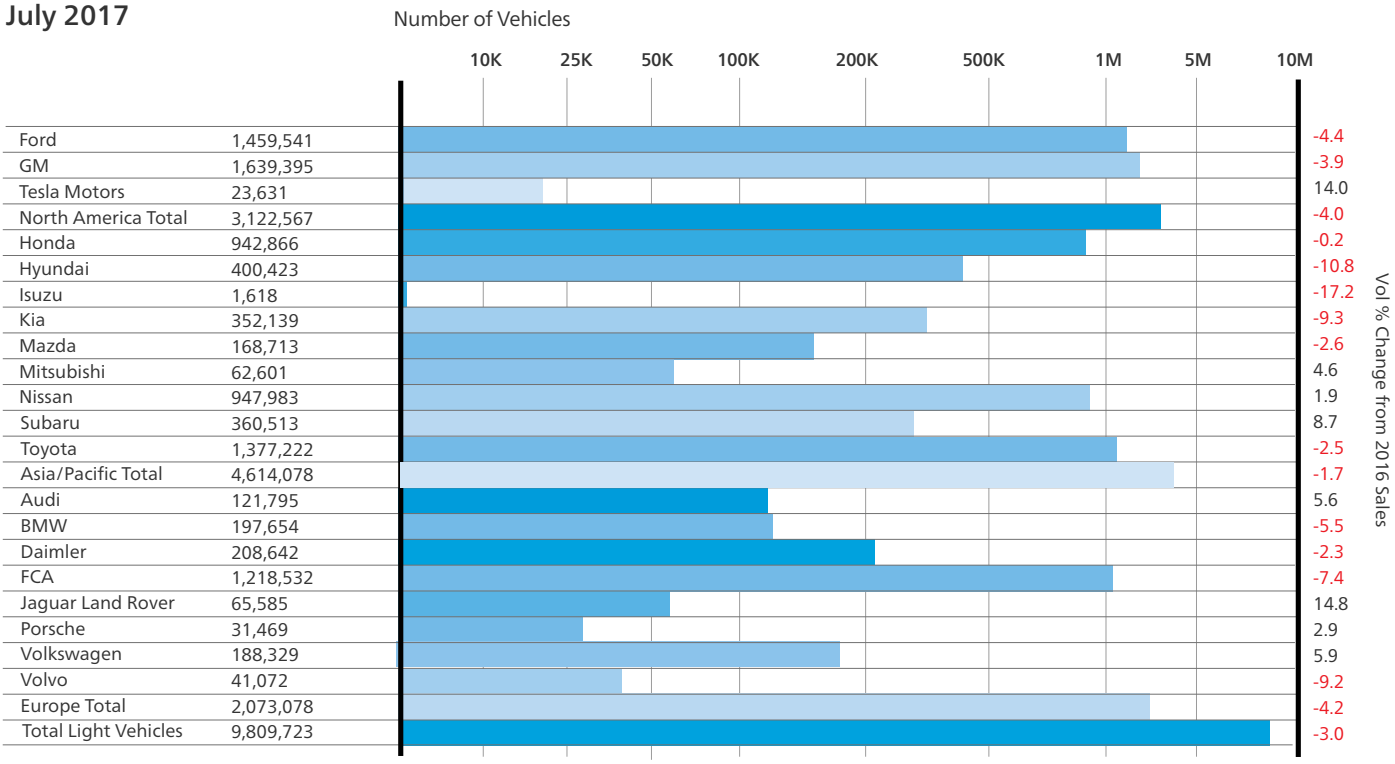
As of July 2017

Cars		Trucks/Vans/SUVs	
Civic	212,446	F-Series	465,153
Camry	210,724	Silverado	308,906
Corolla	192,196	Ram Pickup	279,844
Accord	190,994	Rogue	228,114
Altima	168,598	RAV4	226,570
Sentra	131,298	CR-V	219,017
Fusion	121,111	Escape	184,672
Cruze	117,466	Explorer	157,080
Elantra	113,539	Equinox	156,978
Focus	99,226	Grand Cherokee	135,403

Source: WardsAuto InfoBank

WardsAuto U.S. Light Vehicle Sales by Company

July 2017



Light vehicles are cars and light trucks (GVW Classes 1-3, under 14,001 lbs.). DSR is daily sales rate. Tesla Motors monthly sales estimated.
Source: *WardsAuto InfoBank*

Current Used Vehicle Market Conditions

June 2017 Kontos Kommentary

By Tom Kontos

Executive Vice President,
ADESA Analytical Services

The following commentary is produced monthly by Tom Kontos, Executive Vice-President, ADESA Analytical Services. ADESA is a leading provider of wholesale used vehicle auctions and ancillary remarketing services.

As part of the KAR Auction Services family, ADESA works in collaboration with its sister company, Insurance Auto Auctions, a leading salvage auto auction company, to provide insights, trends and highlights of the entire automotive auction industry.

Wholesale Used Vehicle Price Trends

	Average Prices ($/Unit)			Latest Month Versus	
	Jun-17	May-17	Jun-16	Prior Month	Prior Year
Total All Vehicles	$11,067	$11,140	$10,571	-0.7%	4.7%
Total Cars	$8,808	$8,955	$8,562	-1.6%	2.9%
Compact Car	$6,744	$6,836	$6,465	-1.3%	4.3%
Midsize Car	$7,781	$7,967	$7,658	-2.3%	1.6%
Fullsize Car	$7,747	$8,395	$7,367	-7.7%	5.2%
Luxury Car	$13,817	$13,767	$13,078	0.4%	5.6%
Sporty Car	$14,420	$14,310	$14,274	0.8%	1.0%
Total Trucks	$13,194	$13,247	$12,595	-0.4%	4.8%
Mini Van	$9,243	$9,117	$7,830	1.4%	18.0%
Fullsize Van	$12,859	$13,360	$12,500	-3.8%	2.9%
Compact SUV/CUV	$10,567	$10,877	$10,882	-2.8%	-2.9%
Midsize SUV/CUV	$11,702	$11,860	$11,118	-1.3%	5.3%
Fullsize SUV/CUV	$13,995	$14,077	$13,657	-0.6%	2.5%
Luxury SUV/CUV	$19,186	$19,321	$18,842	-0.7%	1.8%
Compact Pickup	$9,651	$9,368	$8,718	3.0%	10.7%
Fullsize Pickup	$16,953	$16,778	$15,836	1.0%	7.1%

Source: ADESA Analytical Services. May data revised.

Summary

Average wholesale prices in June were down versus May but up on a year-over-year basis. However, drilling down into the data once again clearly reveals price softening on a year-over-year basis when accounting for sale type, vehicle age, model class and mileage.

Details

According to ADESA Analytical Services' monthly analysis of Wholesale Used Vehicle Prices by Vehicle Model Class, wholesale used vehicle prices in June averaged $11,067 -- down 0.7% compared to May and up 4.7% relative to June 2016. Compact and fullsize pickup trucks and minivans showed significant average price gains for the month, while most other model classes registered month-over-month declines or modest increases. (Note: the year-over-year growth in minivan prices is exaggerated by newer models as discussed in January's report.)

Average wholesale prices for used vehicles remarketed by manufacturers were down 1.0% month-over-month and down 1.9% year-over-year. Prices for fleet/lease consignors were down 1.1% sequentially and up 3.2% annually. Average prices for dealer consignors were up 0.9% versus May and up 7.7% relative to June 2016.

Price softening continues to be evident when holding constant for sale type, model-year age, mileage, and model class segment:

Fleet/Lease Sales of Three-MY-Old Units w/36k-45k Miles				
	Average Prices		Y/Y	Y/Y
Model Class	Jun-17	Jun-16	$	%
Midsize Car	$11,474	$11,990	1.2	-4.3
Midsize SUV/CUV	$19,723	$20,532	0.7	-3.9

As the table shows, average prices for both of these two bellwether car and truck segments were down by about four percent year-over-year, reflecting growth in off-lease supply.

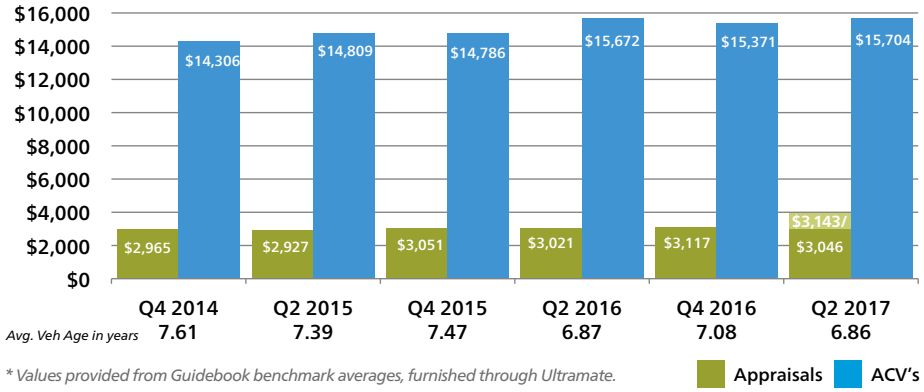
June CPO sales were down 6.6% month-over-month and 0.8% year-over-year according to figures from Autodata, but remain up 1.2% on a year-to-date basis.

[1] The analysis is based on over seven million annual sales transactions from over 150 of the largest U.S. wholesale auto auctions, including those of ADESA as well as other auction companies. ADESA Analytical Services segregates these transactions to study trends by vehicle model class, sale type, model year, etc.

Appraisal Values

The initial average appraisal value, calculated by combining data from all first and third-party repairable vehicle appraisals uploaded through Mitchell systems in Q2 2017, was $3,046. Continued development suggests a final Q2 2017 average appraisal value of $3,143, which represents an increase of $122 compared to the same quarter last year.

Average Appraisal Values, ACVs and Age | All APD Line Coverages*

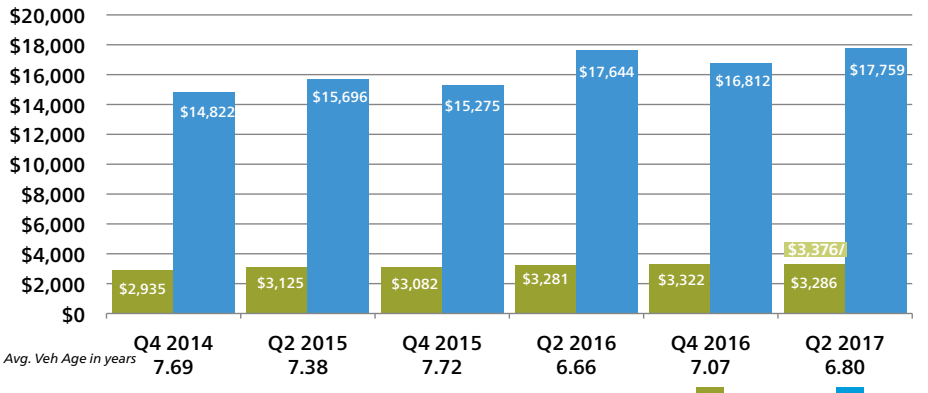


** Values provided from Guidebook benchmark averages, furnished through Ultramate.*

Comprehensive Losses

In Q2 2017, the average initial gross appraisal value for comprehensive coverage estimates processed through our servers was $3,286, compared to $3,281 in Q2 2016. Factoring for development produces an increase in the adjusted value to $3,376.

Average Appraisal Values, ACVs and Age Comprehensive Losses*

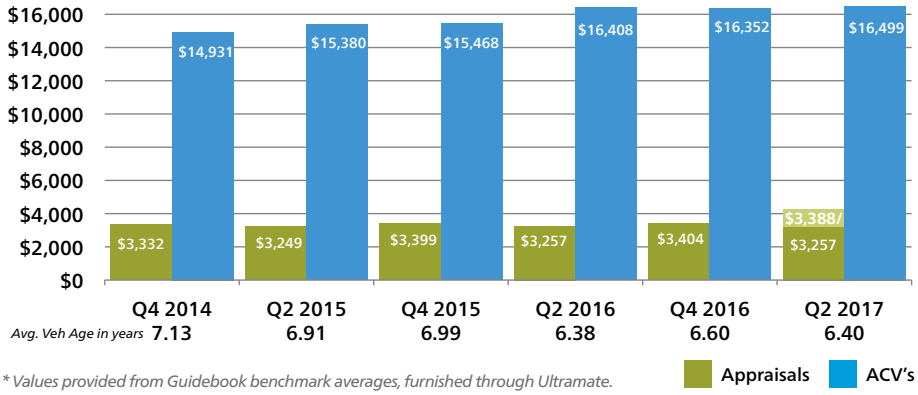


** Values provided from Guidebook benchmark averages, furnished through Mitchell Estimating.*

Collision Losses

Mitchell's Q2 2017 data reflects an initial average gross collision appraisal value of $3,257, which matches the same period last year. However, continued development suggests a final Q2 2017 average gross collision appraisal value of $ 3,388, which represents an increase of $131 over the same quarter last year.

Average Appraisal Values, ACVs and Age Collision Coverage*

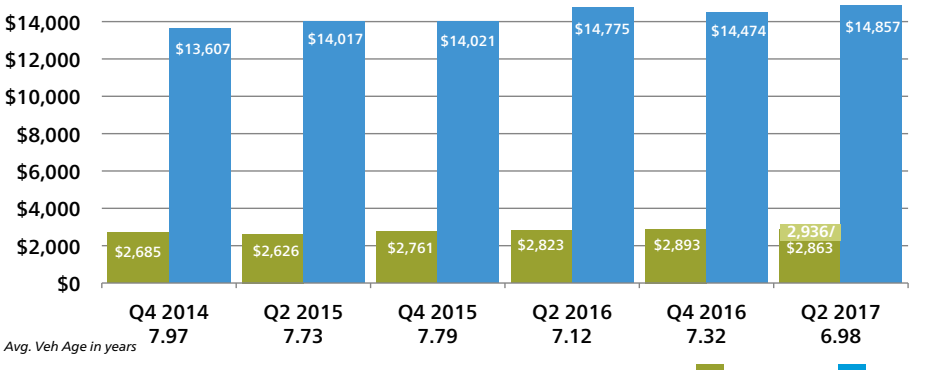


** Values provided from Guidebook benchmark averages, furnished through Ultramate.*

Third-Party Property Damage

In Q2 2017, our initial average gross third-party property damage appraisal was $2,863 compared to $2,823 in Q2 2016, reflecting a $40 initial increase between these respective periods. Factoring for development yields an anticipated Q2 2017 adjusted appraisal value of $ 2,936, a $113 increase in average severity over Q2 2016.

Average Appraisal Values, ACVs and Age Auto Physical Damage*



** Values provided from Guidebook benchmark averages, furnished through Mitchell Estimating.*

View the
Casualty Edition

Supplements

EDITOR'S NOTE

As it generally takes at least three months following the original date of appraisal to accumulate most supplements against an original estimate of repair, we report (and recommend viewing supplement information) three months' after-the-fact, to obtain the most accurate view of this data.

In Q2 2017, 38.1% of all original estimates prepared by Mitchell-equipped estimators were supplemented one or more times. In this same period, the pure supplement frequency (supplements to estimates) was 59.03%, reflecting a 2.01 point increase from that same period in 2016. The average combined supplement variance for this quarter was $870, $8.15 lower than in Q2 2016.

Average Supplement Frequency and Severity

Date	Q4/14	Q2/15	Q4/15	Q2/16	Q4/16	Q2/17	Pt. Change	% Change
% Est. Supplement	35.23	34.20	36.58	39.07	41.29	38.10	-0.97	-2%
% Supplement	49.22	49.09	52.53	57.02	61.03	59.03	2.01	4%
Avg. Combined Supp. Variance $	814.27	873.79	904.88	878.15	919.26	870	-8.15	-1%
% Supplement $	27.46	29.86	29.66	29.06	29.5	28.56	-0.50	-2%

Average Appraisal Make-Up

This chart compares the average appraisal make-up as a percentage of dollars, constructed by Mitchell-equipped estimators. These data points reflect a 'trade off'; in comparing Q2 2017 to the same period last year, there was only minimal shifting (less than 1%) between categories.

% Average Appraisal Dollars by Type

Date	Q4/14	Q2/15	Q4/15	Q2/16	Q4/16	Q2/17	Pt. Change	% Change
% Average Part $	45.25	43.23	45.91	43.09	46.07	43.11	0.02	0%
% Average Labor $	43.42	45.71	42.84	45.96	42.72	45.88	-0.08	0%
% Paint Material $	10.38	10.55	10.29	10.19	9.99	10.21	0.02	0%

Parts Analysis

Parts Type Definitions

Original Equipment Manufacturer (OEM)

Parts produced directly by the vehicle manufacturer or their authorized supplier, and delivered through the manufacturer's designated and approved supply channels. This category covers all automotive parts, including sheet metal and mechanical parts.

Aftermarket

Parts produced and/or supplied by firms other than the Original Equipment Manufacturer's designated supply channel. This may also include those parts originally manufactured by endorsed OEM suppliers, which have later followed alternative distribution and sales processes. While this part category is often only associated with crash replacement parts, the automotive aftermarket also includes a large variety of mechanical and custom parts.

Non-New/Remanufactured

Parts removed from an existing vehicle that are cleaned, inspected, repaired and/or rebuilt, usually back to the original equipment manufacturer's specifications, and re-marketed through either the OEM or alternative supply chains. While commonly associated with mechanical hard parts such as alternators, starters and engines, remanufactured parts may also include select crash parts such as urethane and TPO bumpers, radiators and wheels.

Recycled

Parts removed from a salvaged vehicle and re-marketed through private or consolidated auto parts recyclers. This category commonly includes all types of parts and assemblies, especially body, interior and mechanical parts.

EDITOR'S NOTE

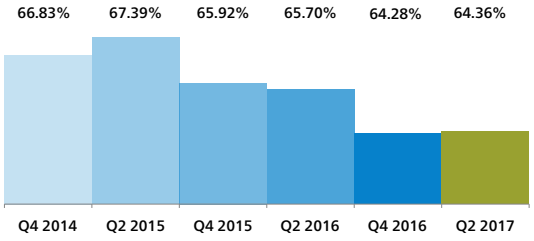
While there isn't a perfect correlation between the types of parts specified by estimators and those actually used during the course of repairs, we feel that the following observations are directionally accurate for both the insurance and auto body repair industries. This section illustrates the percentage of dollars allocated to each unique part-type.

As a general observation, recent data show that parts make up 46% of the average value per repairable vehicle appraisal, which represents nearly $1,400 in average spend per estimate.

Original Equipment Manufacturer (OEM) Parts Use in Dollars

In Q2 2017, OEM parts represented 64.36% of all parts dollars specified by Mitchell-equipped estimators. This represents a 1.34% relative decrease from Q2 2016.

Parts-New



MITCHELL SOLUTION:

Mitchell QRP™

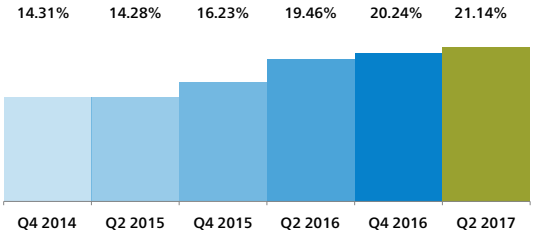
Mitchell's Quality Recycled Parts (QRP) program is the most comprehensive source for finding recycled parts, providing online access to a parts database compiled from a growing network of more than 800 of the highest quality recyclers in North America and Canada. QRP is fully integrated with UltraMate / UltraMate Premier Suite for total ease-of-use.

For more information on QRP, visit Mitchell's website at www.mitchell.com

Aftermarket Parts Use in Dollars

In Q2 2017, 21.14% of all parts dollars recorded on Mitchell appraisals were attributed to Aftermarket sources, up 1.68 points from Q2 2016.

Parts-Aftermarket



MITCHELL SOLUTION:

Mitchell MAPP™

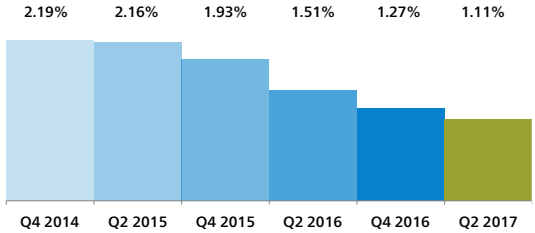
Mitchell Alternate Parts Program (MAPP) offers automated access to nearly 100 Remanufactured and Aftermarket part types from over 700 suppliers ensuring shops get the parts they need from their preferred vendors. MAPP is fully integrated with UltraMate / UltraMate Premier Suite for total ease-of-use.

For more information on MAPP, visit Mitchell's website at www.mitchell.com

Remanufactured Parts Use in Dollars

Currently listed as "Non-New" parts in our estimating platform and reporting products, Remanufactured parts currently represent 3.82% of the average gross parts dollars used in Mitchell appraisals during Q2 2017. This reflects a decrease over this same period in 2016.

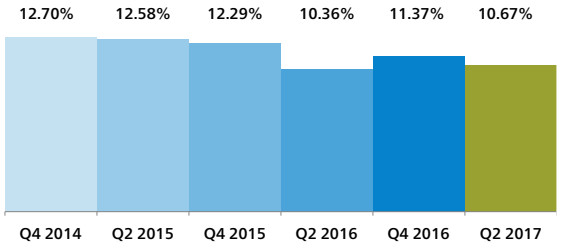
Parts-Remanufactured



Recycled Parts Use in Dollars

Recycled parts constituted 10.67% of the average parts dollars used per appraisal during Q2 2017, reflecting a slight increase from Q2 2016.

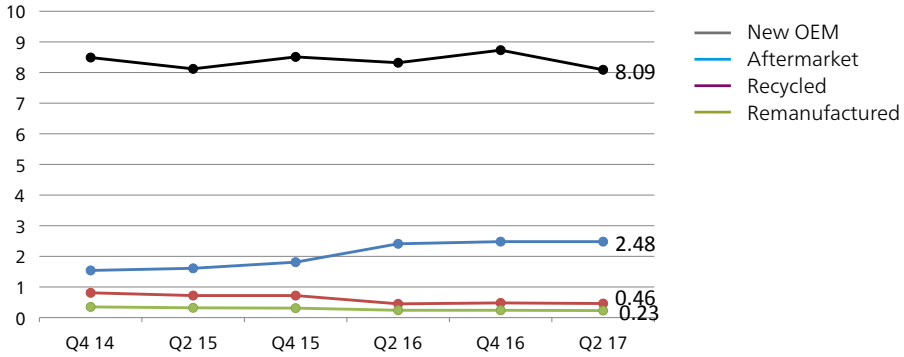
Parts-Recycled



The Number of Parts by Part Type

In order to capture another aspect of parts use, we calculate the number of parts used by part type on a repairable estimate. In comparing Q2 2017 to the same quarter in 2016, aftermarket parts usage increased to an average 2.48 parts per estimate, while new OEM parts usage decreased.

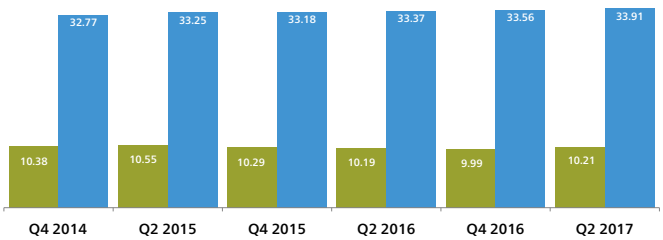
Number of Parts by Part Type



Paint and Materials

During Q2 2017, Paint and Materials made up 10.21% of our average appraisal value, representing a slight increase from Q2 2016. Represented differently, the average paint and materials rate—achieved by dividing the average paint and materials allowance per estimate by the average estimate refinish hours—yielded a rate of $33.91 per refinish hour in this period, compared to $33.37 in Q2 2016.

Paint And Materials, By Quarter



EDITOR'S NOTE

It is commonly understood within the collision repair and insurance industries that a very large number of recycled "parts" are actually "parts-assemblies" (such as doors, which in fact include numerous attached parts and pieces). Thus, attempting to make discrete comparisons between the average number of recycled and any other parts types used per estimate may be difficult and inaccurate.

Adjustments

In Q2 2017, the percentage of adjustments made to estimates was down compared to the same period last year. The frequency of betterment taken decreased by 10%, while the average dollar amount of the betterment taken decreased by 1% to $134.44. Appearance allowance frequency decreased by 9%, while the dollar amount of that appearance allowance decreased to $218.13.

Adjustment $ and %s

Date	Q4/14	Q2/15	Q4/15	Q2/16	Q4/16	Q2/17	Pt/$ Change	% Change
% Adjustments Est	2.89	2.82	3.02	2.97	2.88	2.69	-0.28	-9%
% Betterment Est	2.37	2.23	2.45	2.19	2.2	1.98	-0.21	-10%
% Appear Allow Est	0.41	0.44	0.43	0.55	0.52	0.5	-0.05	-9%
% Prior Damage Est	2.79	2.98	2.52	2.48	2.26	2.26	-0.22	-9%
Avg. Betterment $	121.56	124.15	124.06	135.76	135.99	134.44	-1.32	-1%
Avg. Appear Allow $	208.13	210.92	211.45	220.09	214.52	218.13	-1.96	-1%

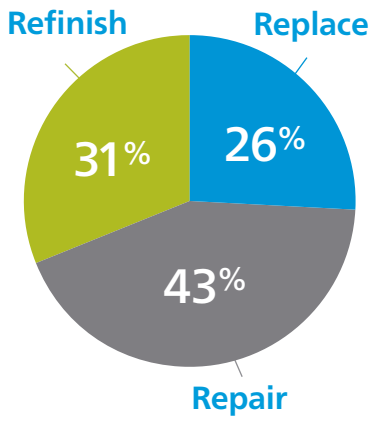
Labor Analysis

For YTD 2017, average body labor rates have risen across all survey states compared to 2016.

Average Body Labor Rates and Change by State

	2016	2017 YTD	$ Change	% Change
Arizona	51.09	51.42	$ 0.33	1%
California	55.49	56.62	$ 1.13	2%
Florida	42.94	43.18	$ 0.24	1%
Hawaii	50.24	51.46	$ 1.22	2%
Illinois	51.98	52.11	$ 0.13	0%
Michigan	46.27	46.59	$ 0.32	1%
New Jersey	47.84	47.98	$ 0.14	0%
New York	49.07	49.27	$ 0.20	0%
Ohio	46	47.81	$ 1.81	4%
Rhode Island	45.96	46.79	$ 0.83	2%
Texas	45.74	45.96	$ 0.22	0%

Percent of average labor hours by type



Total Loss

The chart below illustrates the total loss data for both vehicle age and actual cash value of total loss vehicles processed through Mitchell servers.

Average Vehicle Age in Years

Vehicles	Q4/14	Q2/15	Q4/15	Q2/16	Q4/16	Q2/17
	Average Vehicle Age in Years					
Convertible	12.83	12.35	12.74	12.79	13.47	12.94
Coupe	12.11	11.94	12.3	11.98	12.46	12.01
Hatchback	8.59	8.25	8.1	7.72	8.29	7.95
Sedan	10.53	10.26	10.47	10	10.54	10.18
Wagon	10.17	10.02	10.66	10.36	11.05	10.86
Other Passenger	12.67	13.04	12.2	10.87	4.49	4.57
Pickup	12.69	12.63	13.24	12.89	13.6	13.48
Van	11.49	11.29	11.76	11.42	11.87	11.67
SUV	10.42	10.2	10.47	10.1	10.74	10.38

Average Vehicle Total Loss Actual Cash Value

Vehicles	Q4/14	Q2/15	Q4/15	Q2/16	Q4/16	Q2/17
	Average Actual Cash Value					
Convertible	9,575.86	10,163.23	10,245.21	10,023.98	9,955.32	9,388.58
Coupe	7,686.78	7,958.80	8,074.13	8,089.15	7,827.83	7,934.44
Hatchback	8,216.17	8,477.33	8,604.16	8,501.80	7,895.81	7,669.65
Sedan	7,577.53	7,803.98	7,723.94	7,800.33	7,315.87	7,225.08
Wagon	6,870.76	6,926.95	6,762.68	6,735.01	6,413.34	6,416.03
Other Passenger	17,769.01	14,698.45	18,002.34	18,937.53	18,840.05	18,836.61
Pickup	10,508.74	11,101.02	11,375.06	11,688.84	11,491.02	11,370.35
Van	6,044.28	6,248.82	6,409.64	6,600.89	6,656.11	6,422.12
SUV	9,453.64	9,809.46	10,050.35	10,131.81	9,773.62	9,569.60

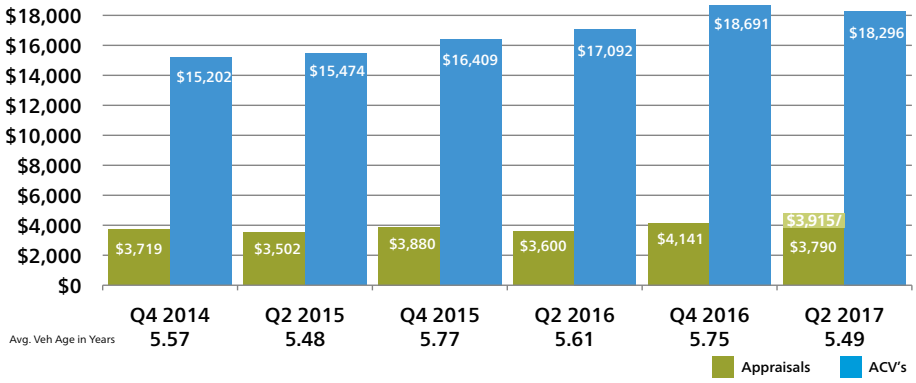
EDITOR'S NOTE

At the request of our customers and friends in Canada, we are pleased to provide the following Canada-specific statistics, observations, and trends. **All dollar-figures appearing in this section are in CDN$.** This data is the product of upload activity from body shops, independent appraisers, and insurance personnel, more accurately depicting insurance-paid loss activity, rather than consumer direct or retail market pricing.

Canadian Appraisal Severity

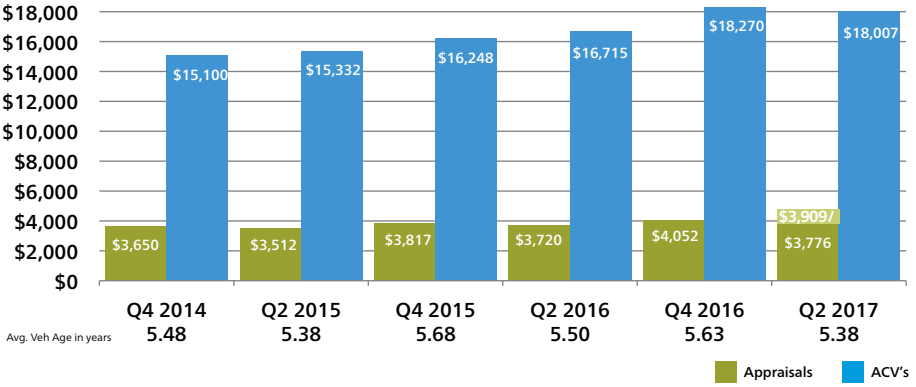
Average Appraisal Values Severity Overall

The average gross initial appraisal value, calculated by combining data from all first and third party repairable vehicle appraisals uploaded through Mitchell Canadian systems in Q2 2017, was $3,790 - a $190 increase from Q2 2016. Factoring for development yields an anticipated increase to $3,915.



Collision Losses

The average initial gross collision appraisal value uploaded through Mitchell Canadian systems in Q2 2017 was $3,776, a $56 increase from the same period last year. Factoring for development yields an anticipated increase to $3,909, which represents a $189 increase from Q2 2016.



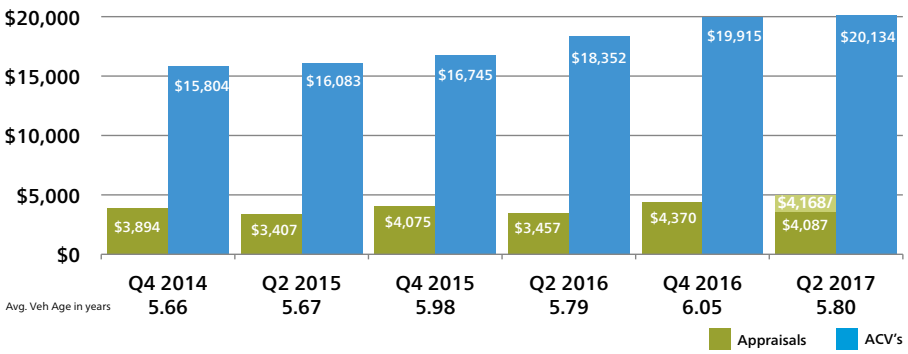
Canadian Average Appraisal Make-Up

This chart compares the average appraisal make up as a percentage of dollars. These data points reflect an increase in parts, with slight decreases in labour and paint when comparing Q2 2017 to the same period last year.

Date	Q4/14	Q2/15	Q4/15	Q2/16	Q4/16	Q2/17	Pt/$ Change	% Change
% Average Part $	44.65	43.65	45.68	45.28	47.05	45.88	0.6	1%
% Average Labour $	44.16	44.33	42.78	42.99	41.61	42.73	-0.26	-1%
% Paint Material $	8.28	8.68	8.18	8.82	7.89	8.46	-0.36	-4%

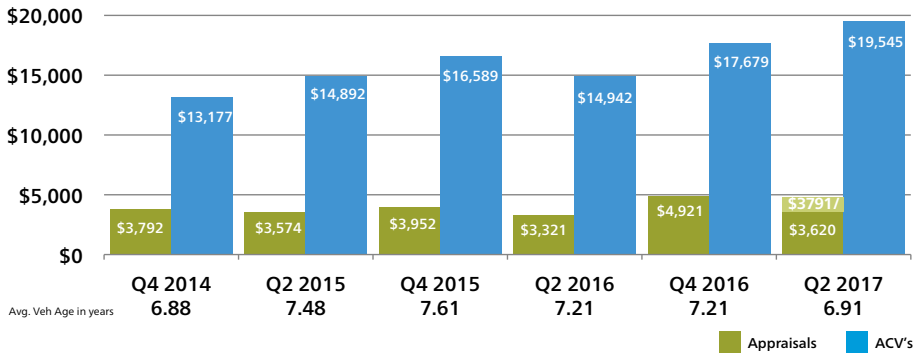
Comprehensive Losses

In Q2 2017, the average initial gross Canadian appraisal value for comprehensive coverage estimates processed through our servers was $4,087, which represents an increase of $630 compared to Q2 2016. Factoring for development, the anticipated final average appraisal value will be $4,168.



Third-Party Property Damage

In Q2 2017, our Canadian industry initial average gross third-party property damage appraisal was $3,620, which represents an increase of $299 from Q2 2016. Factoring for development, we anticipate a final value of $3,791.



About Mitchell in Canada…

For more than 20 years, Mitchell's dedicated Canadian operations have focused specifically and entirely on the unique needs of collision repairers and insurers operating in the Canadian marketplace. Our Canadian team is known for making itself readily available, for being flexible in its approach to improving claims and repair processes, and for its 'second to none' commitment to customer support. Headquartered in Toronto, with offices across Canada, Mitchell Canada delivers state-of-the-art, multi-lingual collision estimating and claims workflow solutions (including hardware, networks, training, and more), world-class service, and localized support.

Canadian Supplements

In Q2 2017, 47.66% of all original estimates prepared by Mitchell-equipped Canadian estimators were supplemented one or more times. In this same period, the pure supplement frequency (supplements to estimates) was 74.04%, which represents a 5% drop compared to the same period last year. The average combined supplement variance for this quarter was $851.08, $24.84 higher than in Q2 2016.

Date	Q4/14	Q2/15	Q4/15	Q2/16	Q4/16	Q2/17	Pt/$ Change	% Change
% Est Supplements	49.51	51.4	52.65	50.14	51.45	47.66	-2.48	-5%
% Supplements	67.86	78.79	82.1	78.27	91.32	74.04	-4.23	-5%
Avg Combined Supp Variance	841.31	842.58	831.93	826.24	1,035.55	851.08	24.84	3%
% Supplement $	22.62	24.06	21.44	22.95	25.01	22.46	-0.49	-2%

Canadian Adjustments

In Q2 2017, the average frequency of betterment taken on estimates decreased, while the dollar amount of that betterment increased to $449.07, the highest of all charted values. Appearance allowances were also down, and the dollar amount of those allowances decreased by 17% when compared to Q2 2016.

Date	Q4/14	Q2/15	Q4/15	Q2/16	Q4/16	Q2/17	Pt/$ Change	% Change
% Adjustments Est	1.77	1.8	1.97	1.96	2.14	1.48	-0.48	-24%
% Betterment Est	1.58	1.5	1.71	1.63	1.82	1.27	-0.36	-22%
% Appear Allow Est	0.2	0.3	0.25	0.32	0.34	0.21	-0.11	-34%
% Prior Damage Est	0.11	0.23	0.19	0.24	0.22	0.21	-0.03	-13%
Avg. Betterment $	247.54	273.76	371.18	271.31	399.78	449.07	177.76	66%
Avg. Appear Allow $	208.21	236.69	277.13	343.74	288.84	286.29	-57.45	-17%

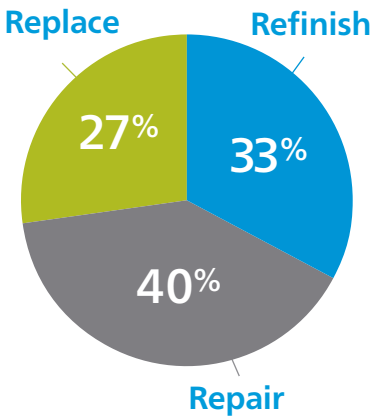
Canadian Labor Analysis

This data reflects the percentage of labor dollars utilized in the creation of Mitchell appraisals by Canadian estimators. With the exception of Alberta, labor rates increased across the other provinces and territories.

Average Body Labor Rates and Change by Province

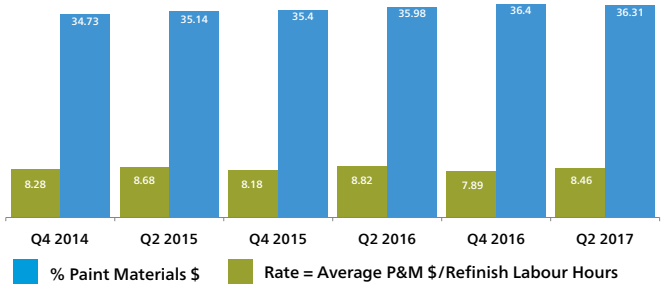
	2016	YTD 2017	$ Change	% Change
Alberta	76.17	74.91	$(1.26)	-2%
Newfoundland & Labrador	63.23	64.42	$1.19	2%
Northwest Territories	93.48	94.02	$0.54	1%
Nova Scotia	59.51	59.98	$0.47	1%
Ontario	57.59	57.81	$0.22	0%
Quebec	52.7	53.75	$1.05	2%
Yukon Territory	95.58	95.63	$0.05	0%

Labor Operations

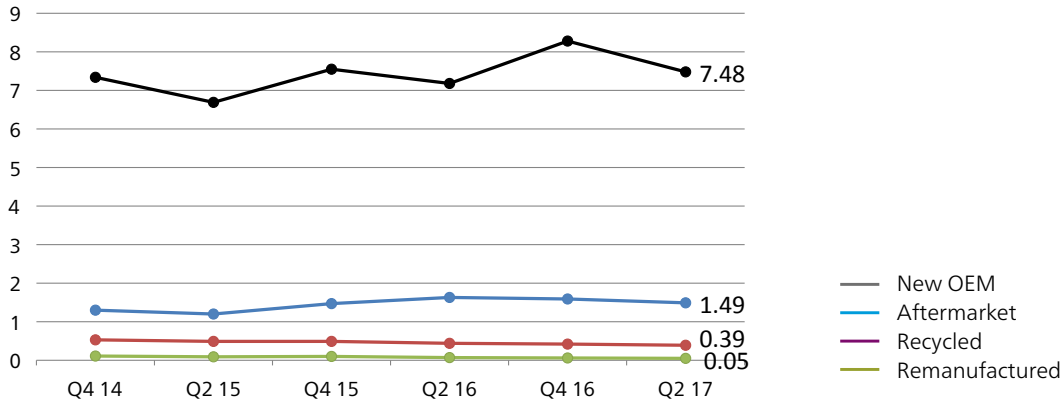


Canadian Paint and Materials

For Q2 2017, Paint and Materials made up 8.46% of our average appraisal value. Represented differently, the average paint and materials hourly rate rose to $36.31 per hour compared to Q2 2016.



Canadian Number of Parts by Part Type



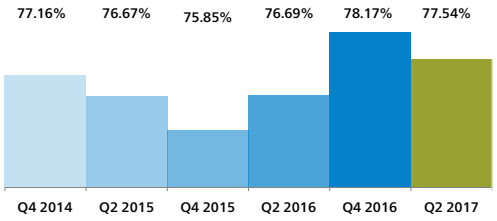
Canadian Parts Utilization

All data reflects the percentage of part-type dollars utilized in the construction of Mitchell appraisals by Canadian estimators.

Original Equipment Manufacturer (OEM) Parts Use in Dollars

In Q2 2017, OEM parts use increased slightly compared to Q2 2016.

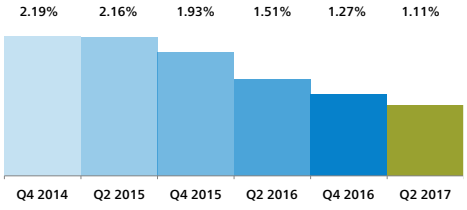
Parts-New



Remanufactured Parts Use in Dollars

Remanufactured parts use in Canada dropped to 1.11% for Q2 2017, which represents the lowest percentage of part dollars in the charted quarters.

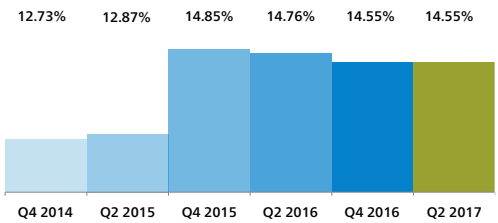
Parts-Non-New



Aftermarket Parts Use in Dollars

Aftermarket parts use in Q2 2017 decreased slightly compared to the same period last year, coming in at 14.55%.

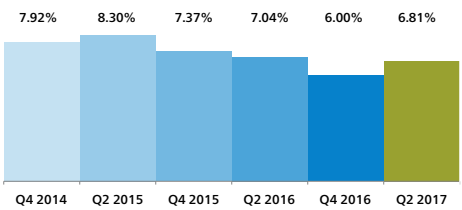
Parts-Aftermarket



Recycled Parts Use in Dollars

In Q2 2017, recycled parts use in Canada decreased as a percentage of part dollars when compared to Q2 2016.

Parts-Recycled



Mitchell San Diego Headquarters

6220 Greenwich Dr.
San Diego, CA 92122

Mitchell empowers clients to achieve measurably better outcomes. Providing unparalleled breadth of technology, connectivity and information solutions to the Property & Casualty claims and Collision Repair industries, Mitchell is uniquely able to simplify and accelerate the claims management and collision repair processes.

As a leading provider of Property & Casualty claims technology solutions, Mitchell processes over 50 million transactions annually for over 300 insurance companies/claims payers and over 30,000 collision repair facilities throughout North America. Founded in 1946, Mitchell is headquartered in San Diego, California, and has approximately 2,000 employees. The company is privately owned primarily by KKR, a leading global investment firm.

For more information on Mitchell, visit **www.mitchell.com.**

Mitchell in the News

How Chatbots Can Settle an Insurance Claim in 3 Seconds

VentureBeat included an article by Alex Sun about how artificial intelligence can transform both the customer experience and the claims process for insurance companies.

Read More.

Mitchell Announces Closing of $70 Million First-Lien Term Loan

BodyShop Business included Mitchell's announcement of the closing of a $70 million senior secured first lien term loan to continue the track record of investing in technologies and companies that drive better outcomes in the markets we serve.

Read More.

Mitchell's Next Frontier

FenderBender interviewed Jack Rozint to discuss the numerous ways Mitchell plans to leverage new technology in 2017.

Read More.

Safe Driving

Canadian Underwriter included an article by Jack Rozint about how new vehicle safety features, including crush-resistant materials and driver-assist technologies, are reducing highway risk, but they also present a challenge to collision repair providers.

Read More.

A Severe Future?

Autosphere.ca interviewed Hans Littooy about the impact of special materials on severity and what that can mean for premiums.

Read More.

For More Mitchell News:

Press Releases **Mitchell International** **Mitchell_Intl** **MitchellPBM** **MitchellRepair** **Mitchell Claims**

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Industry Trends Report

The Industry Trends Report is a quarterly snapshot of the auto physical damage collision and casualty industries. Just inside—the economy, industry highlights, plus illuminating statistics and more. Stay informed of ongoing and emerging trends impacting the industry, and you, with the Industry Trends Report!

Questions or comments about the Industry Trends Report may be directed to:

Rebecca Janzon
Marketing Director, Mitchell Auto Physical Damage
rebecca.janzon@mitchell.com

Additional Contributors:

Kontos Kommentary is produced monthly by Tom Kontos, Executive Vice-President, ADESA Analytical Services. ADESA is a leading provider of wholesale used vehicle auctions and ancillary remarketing services. As part of the KAR Auction Services family, ADESA works in collaboration with its sister company, Insurance Auto Auctions, a leading salvage auto auction company, to provide insights, trends and highlights of the entire automotive auction industry.

For more information about Enterprise Rent-A-Car Average Length of Rental and to access your market and shop numbers please contact daniel.friedman@ehi.com.