



 **DATA**RPM™
a  Progress® company

RECALLS IN THE AUTOMOBILE INDUSTRY-
Creating a Million Dollar Dent

INTRODUCTION

Do you remember the last time you read about an 'Automobile recall' in the papers? We are sure you don't have to stretch your memory long enough. Automobile Recalls have become like a norm today, as if to say if you don't recall a new vehicle, there could be a flaw in there! Ironic huh?

Did you know in 2013 there were more vehicles recalled than vehicles sold! By the end of May 2014, more than 20 million vehicles were recalled in the United States, with General Motors itself accounting for 13.8 million of these. Nothing could beat the all-time record of more than 62 million vehicles recalled in 2014— a higher total than the previous three years combined.

It would have been nice if none of these would have been grave enough issues which could potentially cause a threat to human lives. But the unfortunate truth is that some of the defects have cost lives. And in some cases, the automakers knew there was danger before the cars were even released for sale.

Why was nothing done to pre-empt these issues?

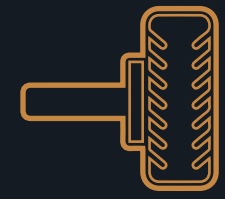
Why are recalls becoming so common in the auto-industry?

Most importantly, can we really trust our so called 'Secure Automobiles' which are an outcome of a complex technical maze that could go wrong?

Here, we discuss Automobile Recalls and the severity of having faulty vehicles zooming across our roads. We will also throw light on how Automobile Makers should deal with recalls to predict and prevent them, thus making a huge difference in the lives of the Automobile Worker – Introducing our 'Recall Auto Acer' .

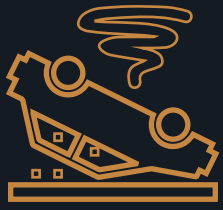


Of the Biggest Recalls in the History



Toyota's Out-of-Control Gas Pedals

was the costliest recall ever recorded - Estimated cost of the blunder was **\$5 billion+ with 9 million** vehicles recalled. Toyota went into crisis mode and issued two separate recalls in 2009 and 2010 to "reconfigure" the accelerator setup.



Ford's Failure-to-Park Recall

is the largest auto industry recall with **21 billion** vehicles recalled after a safety defect in their transmission system caused more than 6,000 accidents, 1,700 injuries and 98 deaths. Ford ended up losing around **\$1.7 billion**



The Takata Seat-belt Scandal

which lead to **8.3 million** vehicles being recalled. As almost every major auto manufacturer was using seat-belts produced by the Takata Corporation of Japan. Replacement mechanisms for more than 8 million of their vehicles resulted at an estimated cost of **\$1 billion**



Fiery Ford Switches

14 million vehicles recalled on discovering the possible malfunction of a Cruise Control switch which could start a fire. Ford lost **\$280 million**



Ford Ignition Fiasco

8.7 million vehicles were recalled. With faulty ignition switches that could create a short circuit, leading to a possible full-blown fire. Ford had to pay a hefty price of **\$200 million**

What is an AUTOMOBILE RECALL?



An automotive recall is the manufacturer's way of telling you that your vehicle might have a serious fault which can cause a potential threat to life or property.



Any vehicle model which has a safety related defect or does not comply with the federal safety standard, requires the automaker to alert the owners of the problem and usually provide a free repair.

Repercussions of not doing an AUTOMOBILE RECALL



Irreversible damage on Customer Loyalty and Satisfaction – The 2016 Customer Satisfaction Index reveals that Customer satisfaction with recall service stands at 781 on a 1,000-point scale, down from 789 in 2015. In comparison, satisfaction among customers with non-recall servicing averages 809 in 2016.



Abrasion of the car manufacturer's Brand and Reputation-Toyota's recent stream of gas pedal recalls resulted in Toyota's stock prices dropping by more than 20% equivalent to \$35 billion



Ensuring highway safety- Traffic crashes are the number one killer of Americans under age 34



Difference Between SAFETY RELATED DEFECT AND NON-SAFETY RELATED DEFECT

Safety Related Defect

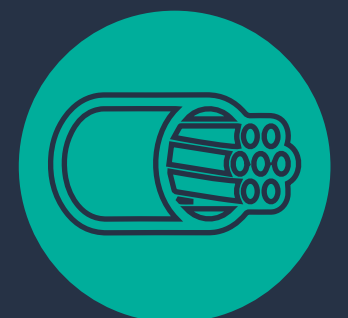
Any problem that exists in a motor vehicle/ item of motor vehicle equipment, which poses a risk to motor vehicle safety, and may exist in a group of vehicles of the same design or manufacture, or items of equipment of the same type and manufacture.



Accelerator controls that may break or stick.



Wheels that crack or break, resulting in loss of vehicle control.



Wiring system problems that result in a fire or loss of lighting.

Non-Safety Related Defect

Any exterior or cosmetic defect that may reduce the overall performance/ quality of the vehicle but doesn't cause any potential damage to life



Air conditioners and radios that do not operate properly.



Quality of paint or cosmetic blemishes.



Excessive wear & tear of leather / fabric used in the seats

HOW CAN AUTO RECALLS BE PREVENTED?

1 Only 8% of auto executives use advanced Predictive Analytics to help prevent, prepare for, and manage recalls. *Deloitte

2 Using the Predictive Analytics platform in 2012, General Motors responded to a faulty valve warranty repair by inviting all the vehicle owners about the defect. The auto maker had used its database for 20 % of field actions in 2013, up from 5% in 2012, and watched as the average action has shrunk by 40%.

3 Predictive Analytics = Savings of \$50 billion/ year

Predictive Maintenance Can Occur During Two Different Points In The Lifecycle Of A Vehicle: While It's Being Made And Out In The Field

While A Vehicle Is Still In The Factory, Predictive Maintenance On Existing Or Delivered Products Can:

- Help identify in-line defects
- Correct them before the vehicle is delivered to the customer
- Provide information about defects to industrial engineers who can fix the processes that caused the defects

Result?

- Reduction of Warranty Costs & Risk of Recalls.
- If a defect costs \$100 to fix, and it occurs 500 times a day on a line that runs 340 days per year, the annual cost of that defect is **\$17 million**. Even a **25%** reduction would save the manufacturer \$4.25 million per year. And this is just for one defect!!

Once In The Field, Predictive Maintenance Model Can Be Derived Based On Multiple Data Sources:

- Data collected from connected vehicles & service records
- Test data on parts that have been replaced and even social media.
- This data can be used to identify and solve problems faster – to either avoid a recall or initiate it sooner.

Result?

- According to leading Original Equipment Manufacturer, implementing a recall sooner can be worth more than **\$1 million** per day.

Future of Automotive Servicing with Predictive Maintenance



Tesla, the electric car company, made it to the headlines recently as it addressed a potential recall situation 'Smartly' as it released a fix "over-the-air" or OTA as compared to how a traditional car company addressed a similar situation.

With the automotive market size in the range of 12-15 million new vehicles/ year, automotive OEMs have petabytes of data stacked with them. It is imperative to convert this raw data into some sort of meaningful information which can then be leveraged to address fault issues, potential warranty problems and the holy grail of reducing/eliminating recall situations.



Automotive recalls, which are increasingly prompted by software issues, costed the industry about \$9 billion in 2014.



Cars of the Future- Connected Cars using PdM-
The connected car uses Predictive & Smart Analytics approaches, with which manufacturers can predict potential car failures and identify reasons to perform timely maintenance that can eliminate recalls altogether



According to Scott Frank, VP of marketing for Airbiquity, "The ability to leverage vehicle connectivity to do software updates from the cloud is absolutely huge, and it's doing to save hundreds of millions of dollars – collectively, billions of dollars a year in the industry".



According to McKinsey's survey of 2,000 new-car buyers "13% of buyers are no longer prepared to even consider a new vehicle without Internet access, and more than a quarter already prioritize connectivity over features such as engine power and fuel efficiency".



Transform from Preventive to Predictive Maintenance with DataRPM

- Predictive Maintenance will help Companies save \$630 Billion by 2025 (McKinsey).
- Using DataRPM's Cognitive Predictive Maintenance Platform, you can predict potential issues with your assets much ahead of time.
 - Smooth operations by reducing planned downtime
 - Maximize asset utilization optimizing your inventory & field personnel
 - Empower key decision makers with real time insights
 - Drastically reduce risks with improved safety of equipment
 - A Scalable and User friendly interface with service availability on cloud as well as on premise

Join hundreds of customers who are enjoying 300% increase in prediction accuracy, 30 times faster with a combined savings of \$37M by Automating Predictive Maintenance. We teach your Machines to Automate Predictive Maintenance.

Are you ready to make your auto industry worker a

PdM SUPER HERO?

Talk to us today to get started!



Introducing
AUTO RECALL ACER

ABOUT DATARPM

DataRPM's award-winning Cognitive Predictive Maintenance Platform automates Data Science for the Industrial IoT by using Meta-Learning, which is forging a new frontier as the next evolution in Machine Learning. DataRPM's patent-pending technologies help asset-based industries predict & prevent asset failures, minimize maintenance costs, optimize inventory & resource utilization, predict & prevent quality issues in production, forecast & minimize warranty claims, and reduce risks in the most rapid manner with high accuracy and while delivering multiple significant annual cost savings to companies' bottom lines. Company is headquartered in Redwood City, California with offices in US, UK, and India. Customers include industry leaders like Jaguar Land Rover, GE, Cisco, Orange, & fortune 1000 global industrial companies.

To Know More

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