



## Leveraging unstructured web data to improve pricing for automotive recall insurance

Automotive recalls are increasing in frequency, with recall rates rising by 76% from 2015 to 2016 (1). Recall represents a multi-billion dollar risk for manufacturers, and as numbers continue to climb, the demand for new insurance products that can help manufacturers manage the risk is increasing.

### **NEW SOURCES OF DATA ARE NEEDED**

For insurers looking to expand into new areas of recall, or enter the line at all, finding the right data to make pricing decisions can be difficult.

Cytora helps insurers overcome this challenge by capturing and analysing unstructured web data, such as news articles and reports from regulatory bodies, providing insurers with previously hidden attributes that are powerfully predictive of loss frequency and severity. These attributes, often unobvious and counter-intuitive, can allow insurers to achieve a superior price.

### **EMPLOYEE SATISFACTION AS A RATING ATTRIBUTE**

Cytora collected all reports of automotive recalls (Figure 1) in the US and UK from 1994 to 2016 and analysed various web sources to identify rating attributes which impacted the recall rate of each manufacturer. We found there to be a strong correlation between employee satisfaction and the recall rate for a given manufacturer: manufacturers with higher employee satisfaction ratings were less likely to issue a recall.

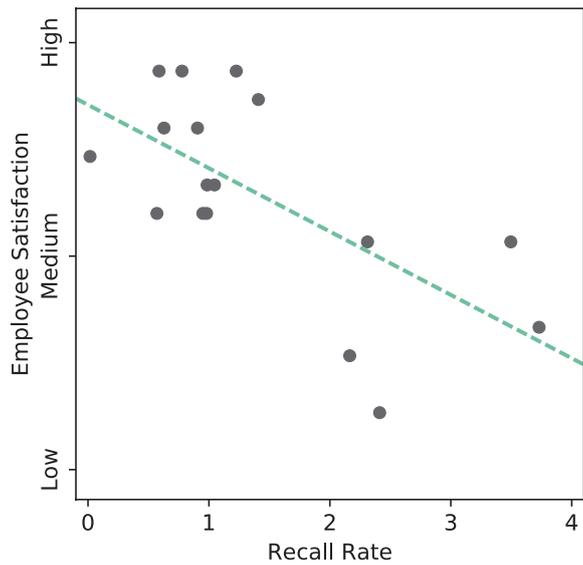
### **CEO APPROVAL NOT LINKED TO RECALL RATE**

There was no correlation between recall rate and CEO approval ratings (Figure 2), and there may be several reasons why. The key benefit of leveraging machine learning against unstructured data is that it enables insurers to obtain many additional risk attributes quickly and at scale; some may yield predictive insight, and others can be marked as distractions that may have incorrectly weighted a pricing model.

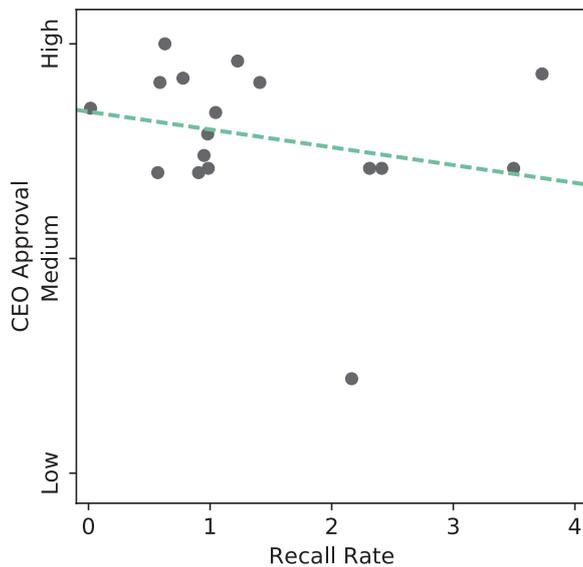
A shift towards data oriented pricing powered by machine learning is the biggest opportunity for insurers to gain a competitive advantage; in a recent survey by PWC, 49% of insurance executives agreed that data analytics is the key competitive differentiator in insurance (2).

References:

1. Stericycle ExpertSolutions; <https://goo.gl/1BT7Ze>
2. PWC; <https://goo.gl/dornwE>



**Figure 1:** For each car manufacturer we show the employee satisfaction rating (Y axis) against the recall rate (X axis). The recall rate is calculated as the number of cars recalled as a fraction of the number of cars produced over a period. Cytora found there to be a strong and statistically significant negative correlation between employee satisfaction and the potential of a recall.



**Figure 2:** For each car manufacturer we show the CEO approval rating (Y axis) against the recall rate (X axis). The recall rate is calculated as the number of cars recalled as a fraction of the number of cars produced over a period. Cytora found no statistically significant correlation between CEO approval and the potential of a recall.



## About Cytora

Cytora is a leading data analytics provider to the insurance industry. The Cytora Risk Engine transforms thousands of data points into a quantified view of commercial risk. We enable insurers to enter new lines without loss history and write more business in existing lines through superior risk differentiation.

Founded in 2014 by a multidisciplinary team and spun out of the University of Cambridge, we believe the future of risk modelling combines dynamic data collection with top-down modelling. This approach allows new segments of economic activity to be quantified, modelled and insured.

Today we deliver data and insight to insurers across the underwriting lifecycle, with clients using our proprietary data analytics in both Europe and North America.

## Underwrite without claims history.

For more information please contact us.

Andrzej Czapiewski  
Chief Commercial Officer  
[andrzej@cytora.com](mailto:andrzej@cytora.com)

Michael Ginzo  
Head of Data Analytics  
[michael@cytora.com](mailto:michael@cytora.com)