



Telematics Benefits in Periods of Global Uncertainty

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Introduction

With the outbreak of COVID-19 we are living through one of the greatest upheavals that the modern world has seen. As of 9th June the novel coronavirus has impacted 213 countries infecting over 7 million individuals and causing over 409,000 deaths.

In order to reduce the spread of infection most countries implemented a 'lock-down' of some description limiting the movement of people, goods and services. As well as precipitating a global recession this has had very sudden and specific effects on motor insurance.

If these effects are not understood and monitored then an insurance company cannot make fully informed decisions and this has a direct impact on profitability.

As described below telematics can provide a much needed near real-time view on what is happening as we move through these turbulent times and can help us avoid the many pitfalls along the route.

Getting a Grip on Uncertainty

Telematics has long been used to improve motor profitability as shown below:

Material profitability benefits for insurers



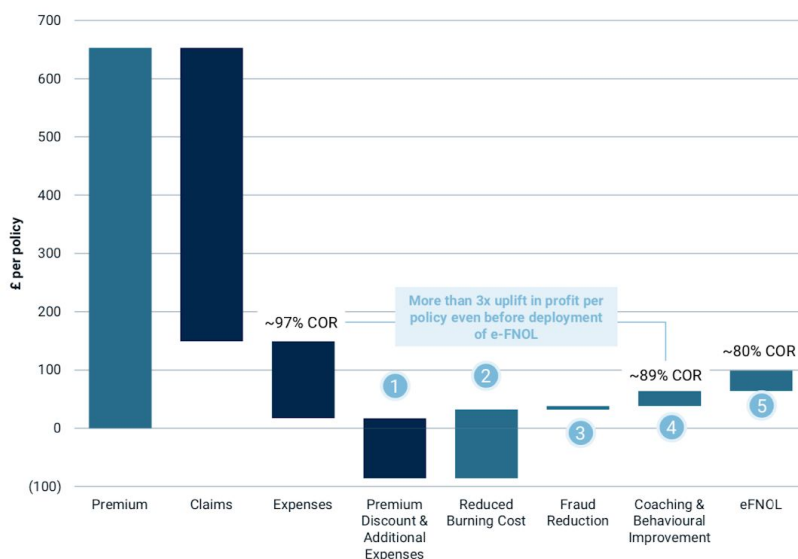
Through more accurate risk selection and behavioural evolution, connected insurance products can deliver significant profit benefits for both telematics and traditional books

Shift towards connected insurance product set delivers material product uplift for the insurer driven by a number of factors:

- 1 Versus baseline unadjusted pricing, more accurate risk scoring typically allows for lower premium value
- 2 This is more than offset by reduced burn cost through better risk experience
- 3 Additional fraud reduction through telematics is derived from knowledge of overnight address and applicable to broader book
- 4 Behavioural conditioning drives further improvement in loss performance
- 5 e-FNOL experience is less mature, but given bodily injury and soft tissue loading, impact can be highly material

Importantly, a number of these learnings can also be applied to the insurers' traditional book as well

Representative view of profit uplift from portfolio shift to connected insurance proposition¹

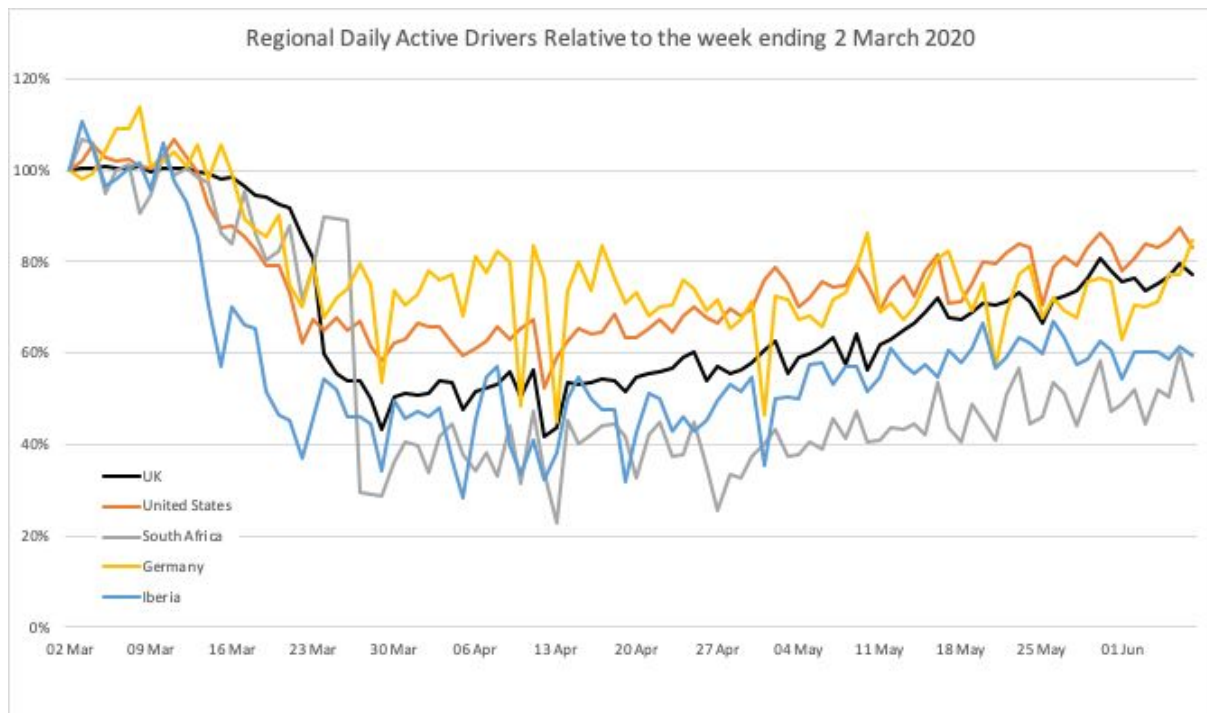


This is partly driven by a self-selection benefit where drivers fundamentally believe that they are better than average (and in a way that is not currently predicted by traditional risk factors) choose to purchase a telematics policy and allow themselves to be monitored. In doing so they declare themselves to be confident that they are better than average and also by continuing to be monitored they expose themselves to the Hawthorne (or Big Brother) effect where-by the mere fact that they are being monitored tends to prevent them from doing dangerous things and further improves the risk. Over time this benefit can be further grown with suitable coaching and behavioural feedback and in addition cost reductions and reduced leakage can be achieved at point of claim through e-FNOL and Fraud strategies.

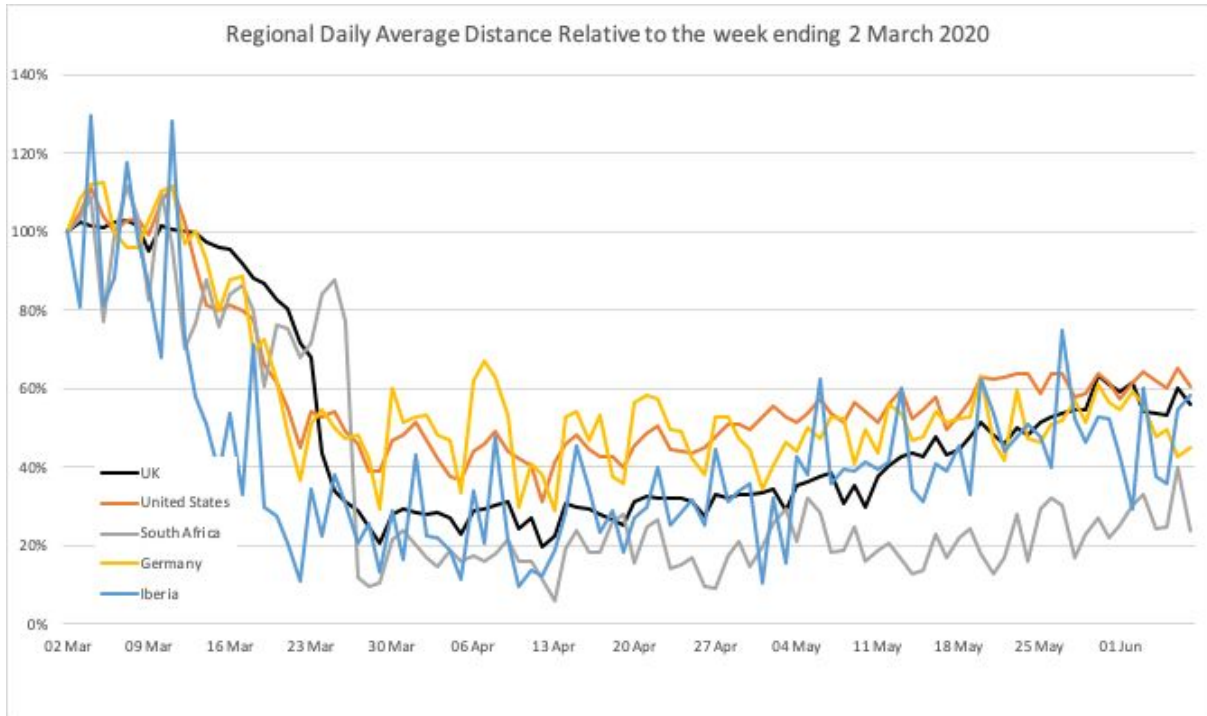
However, when we enter a period of disruption or uncertainty as we did with the lock-downs due to COVID-19 in March 2020 then the fact that you are recording and understanding the behaviour of your policyholders on a daily basis can make a big difference to your level of understanding of the impact of the changes. Some of these direct, and indirect effects are described below.

Exposure

The chart below shows the relative number of drivers on the road recorded across the Floop Clients split by territorial region. Everything is expressed as a percentage of the same weekday in the last week of February.



From this chart it is clear that lockdowns started at slightly different times and with differing levels of severity in various countries. However, it is usually mileage rather than drivers that would be the best measure of changing exposure and that can also be measured through telematics. In addition to getting a true relative measure you probably want to include only those users who recorded trips prior to COVID-19 lockdowns to ensure that any results are not unduly biased by new business sales.



This shows that the mileage drop was significantly greater than the drop in active drivers (ie whilst there were undoubtedly fewer people driving each day those who were left on the roads were also doing fewer trips and, on average, the trips were shorter). It is also clear that the recovery in miles per day per per-COVID user is much slower than would be assumed from a pure count of active users.

With even a basic telematics policy, or regular mileage verification, an insurer can therefore get a good idea of the basic level of exposure on a daily, weekly or monthly basis.

However, without a fuller understanding of the detail underlying this reduction in road usage fundamental errors in assumed risk changes can be made.

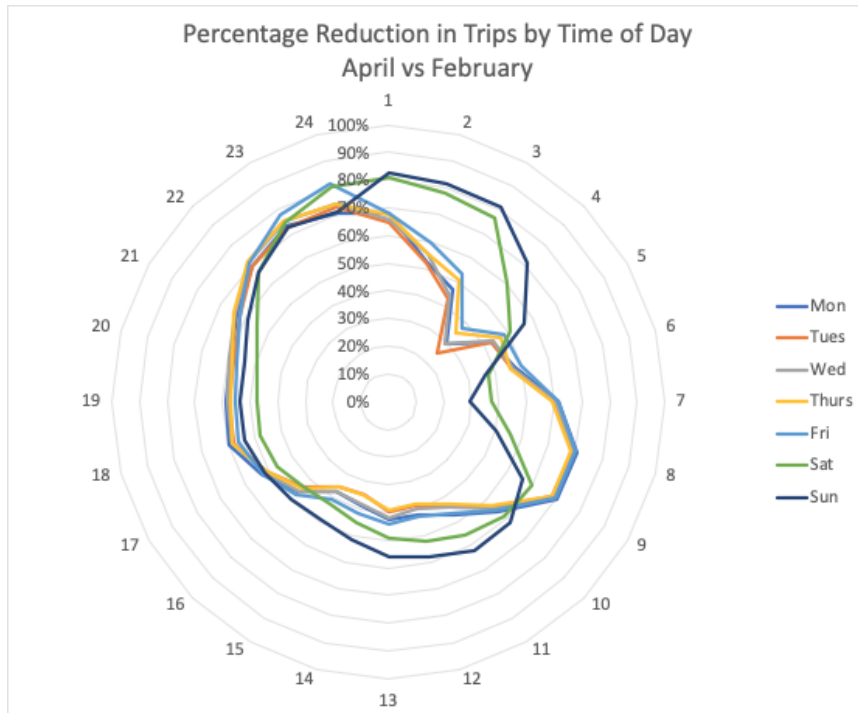
Behavioural and Contextual Risk

When there are fundamental shifts in a system this can result in significant changes in behaviour which can have a profound impact on the overall level of risk. In the case of the

effect of COVID-19 we saw a sudden lack of commuting as people were put on leave or worked from home. This has had a number of knock-on effects which can be monitored in some detail with telematics:

Time of Day

The times of day that people do still drive has changed significantly with a large drop in the miles travelled in commuting times as well as the evening and early morning when people used to travel to / from eating & drinking with friends.



These nighttime and commuting trips are typically the most risky both in terms of claims frequency and severity so this change in mix will further improve the underlying performance of the book.

Location

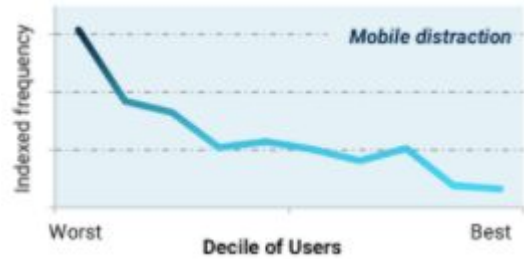
In most countries the lock-downs prevented people from moving between residences as well as going on holiday etc. This has led to a shift in driving patterns with a larger proportion of the remaining miles being carried out in more risky urban areas rather than on the safest roads, the major highways. This contextual risk is therefore larger than before and reduces the benefit that could be perceived from a simple drop in number of trips or total mileage.

Driver Behaviour

Obviously telematics can also be used to monitor the actual behaviour of those drivers who remained on the road post-COVID, and there is evidence that when the traffic

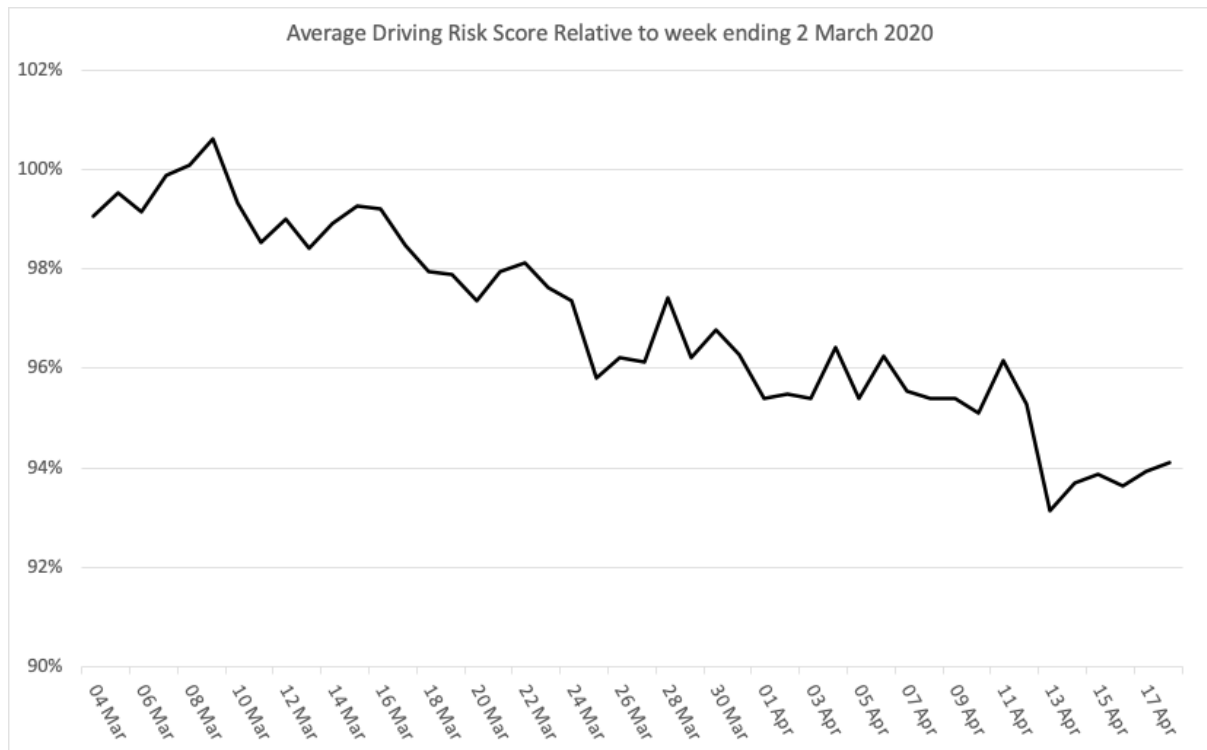
reduced those drivers who remained were able to drive faster and more aggressively. At a broad level this was reported in the press as increases in speeding violations but telematics can assist in identifying those drivers in your portfolio and give you the ability to intervene.

In addition, there is evidence from smartphone based telematics that since mid-march there has been an increase in the usage of mobiles whilst driving and this is highly correlated with an increase in accidents.



This combination of increases in speed and distraction appears to be driving a shift in accidents from minor bumps to more deaths and major injuries.

The combined effect of these factors can have a significant effect on the actual level of risk and can lead to a pure mileage estimation being nearly 10% wrong.



Fraud

In periods of economic downturn it is usual for instances of fraud to increase. Some of this is accidental but it can be planned.

Examples of accidental fraud in a post-COVID world could be young drivers moving back with their parents but forgetting to notify the insurer of their new risk address. These address misstatements often cost insurers ~1% of their premium so quick identification of where the drivers are based from telematics can assist in reducing this leakage.

However, more importantly when people are financially stressed, as will be the case during the recession we are entering, they are also more likely to increase the value of a claim if they have one. Knowledge of the impact in near real time and the ability to collect accurate details of injuries of third parties (along with the detailed telematics traces of speed and deceleration) at the roadside rather than later that day (or week) can make a significant difference in mitigating this type of fraud and reduce elements of the claim by up to 50%.

Claims

Auto claims are generally proportionate to the exposure but the changes in Time of Day, Speed, Location and Distraction as well as the economic downturn as we go through 2020 will have a profound effect on the mix of claims in the portfolio as well as the pure frequency.

We would expect:

- A reduction in claims frequency per policy of up to 75% in line with the reduced exposure and other risks despite an increase in accidents per mile travelled as people drive faster and are more distracted through the use of their phones.
- An increase in pedestrian/cyclist involvement in accidents as the journey mix moves from highways to city roads.
- A significant increase in the proportion of claims including serious injury or death while the roads are clearer and people continue to use their mobile phones. This is already painfully apparent in the USA where some states are seeing a 4x increase in the proportion of accidents involving a fatality since COVID-19.

Month ▾	Crashes	Fatal Crashes
2020-04	3,043	25
2020-03	6,164	27
2020-02	8,431	18
2020-01	9,907	19
2019-12	13,640	25

- A reduction in fire / theft claims as people stay at home with their vehicles.

- An increase in unfounded claims for injury as a result of a motor accident as the recession starts to bite.
- A temporary reduction in windscreen repair claims whilst repair shops are closed for COVID-19 leading to an apparent increase in average cost for the windscreen peril (since windscreen replacements will still be carried out).
- Significant increases in claims processing times with many repairs unable to be carried out leading to increased costs for replacement car hire etc

and it will be vital to monitor these as closely as possible using all technology available.

Effect on Reserving

The combination of all of the effects mentioned above could have a significant effect on the projections of reserves (and capital requirements) depending on the level of data and understanding that the reserving actuary has available.

However, we are not without precedent for this... and oddly these events seem to have an interesting habit of occurring every decade or so... just long enough apart for most people to forget...

- In 2000, we had petrol strikes in the UK which led to a significant drop in mileage as people simply couldn't fill up
- In 2010/11, we had the financial crisis and the period when petrol prices rose from 120p per litre to over 140p leading to affordability being an issue and people reducing their driving where-ever they could
- In 2020, we have COVID-19

Clearly neither of the previous examples led to the same scale of mileage drop as we are seeing in 2020 but they do give an indication of how we can cope in terms of modelling.

Reduced Claims Reported

The reduced mileage exposure, even with the increased per mile risk will lead to a significant reduction in the number of claims reported. Reduced volumes typically increase the level of uncertainty in the results of the projections and tend to lead to larger safety margins being used. However, in the absence of telematics e-FNOL data can we be certain that the reduced volumes are true or is some of the effect due to any new processes that the insurance company has had to implement as part of their own staff lockdown and remote working policies. Typically all these uncertainties will lead to the prudent actuary over-estimating the incurred but not yet reported reserves unless they have more certain data to work with.

Mix of Perils and Claim Size

The changing road usage coupled with the economic downturn will certainly have an impact on the mix of perils and likely average cost per claim. This is far harder to forecast and has a much longer time to mature than claims frequency and can cause significant problems for reserving actuaries. We saw an example of this in the UK around 2008-10 when whiplash claims started escalating. Actuaries were unprepared and initially ignored the 'blip' in the data, then when the trend continued they overcorrected and ended up significantly over-reserving leading to large reserve releases in later years when many of the whiplash claims were not as bad as expected. Unstable results can have capital implications as well as impacting on financial results so every effort should be made to understand the nature of these changes and ensure all relevant data is used in the projections.

Increased Settlement Time

Changes in process are well known to have a significant effect on claims reserves as they affect the claims development triangles that are used to project the ultimate claims costs. This is true of both frequency and average cost per claim and is particularly damaging in the first few months of any change. To a certain extent the effect of this can be mitigated by using a-priori methods such as the Bornhuetter-Ferguson but by definition these need a prior assumption which is hard to accurately predict without the relevant real-time telematics data.

These changes will be particularly extreme as we traverse the COVID-19 lockdown as many companies have had to change their working methods completely with a sudden switch to home working which has severely taxed their IT and telephony systems. This, whilst specific to each company, can at least be monitored and understood and therefore the effect on reserves could be predicted even on a traditional book of business.

However, in addition there is the effect of the lockdown on the suppliers; claims adjusters, repair shops, lawyers etc and all of these will be much harder to predict and the effect will depend on how well each company sets the initial reserves and their general corporate reserving philosophy (both for case estimates and IBNR).

Looking to The Future

All models rely on input factors to help standardise the outputs. In the case of motor insurance we are usually interested in predicting the relative risk for an individual due to their age etc. and basing the overall rate on desired profitability and expected claims

inflation. It is this latter issue where the errors arise since claims inflation, both frequency and severity is generally forecast with broad brush assumptions and moving forward we will need to allow for socio-economic factors in these projections to avoid mis-forecasting 2021 and other future claims from an artificially low 2020.

Effect on Customer Demand

Typically motor insurance is a 'grudge purchase'. Customers are forced to buy it by law, they don't believe that they will ever need it, they want to pay as little as possible for it and when they do need to use it they often don't believe they were treated well enough at the point of claim. This means people often shop around for the best deals and consumer groups work to ensure that insurers treat customers fairly.

The sudden 'realisation' that people are driving much less than usual through COVID-19 has brought it home to drivers and consumer groups alike that this could be a very profitable year for motor insurers globally as they have taken a premium for an estimated exposure (as previously declared by the driver in terms of expected mileage or predicted exposure from previous years) but the actual exposure is in reality much less. There are, of course, some exceptions to this rule such as compulsory insurance in Japan which is sold on a smoothed no-profit/no-loss basis but these are few and far between. This perception has led to interest in a number of options.

Premium Adjustments for Standard Policies

In the light of these significant reductions in exposure it is perhaps not surprising that consumer groups in the United States are already calling for premium reductions and/or refunds as reported in the [Insurance Journal](#) online.

The directors of the Consumer Federation of America and the Center for Economic Justice last week sent a letter to state insurance commissioners asking them to direct insurance carriers to offer customers "premium offset payments."

"The likelihood of a motor vehicle accident drops radically when the number of cars on the road drops radically," stated J. Robert Hunter, director of insurance for the Consumer Federation. "Consumers who paid auto insurance premiums based on driving an estimated 1,000 miles a month but who are now driving 200 miles a month because they are forced to work at home or their business has closed should get relief from their auto insurers."

Specifically, the letter asks regulators to direct auto insurers to offer premium relief to any policyholder who can demonstrate or attest that their miles driven has been impacted because of COVID-19 safety measures.

Many US based insurers, and a few in the UK have now provided their customers with monthly premium rebates on one of the following bases depending on their perception of 'fairness' to their customers:

- Flat monetary amount (the same to everyone)
- Percentage return of the paid premium
- Variable rebate depending on 'financial need'
- Increased rebate for 'Key workers'

Since these are generally based around reduced risk in a single month there are now calls for them to be repeated each month based on the continued level of reduced risk. However, without accurately monitoring the driving distance & behaviours it is hard to create a truly fair way of rebating to each customer.

Pure Pay As You Drive

Many insurers and MGA's such as MileAuto, ByMiles, MetroMile have geared up to increase supply of their pure mileage based propositions where the customers pay for a certain (or the actual) number of miles each month.

This can work well to monitor the exposure for new policies and the same techniques could be used to monitor traditional policies in order to calculate the 'correct' level of rebate for the actual miles driven compared to the estimated exposure at the start of the year. It is particularly valuable where the customers have significant privacy concerns and do not want the insurer to record their behaviours or where they drive. However, only monitoring the mileage can lead to a significant error in the understanding of the complete risk (as detailed above) and over the COVID-19 period this would likely result in reduced profit or even a loss.

Pay How You Drive

The full understanding of any changes in risk is really only available from a Pay How You Drive policy where you measure the mileage as well as where, when and how you drive. Analysis by The Floop has shown that incorporating the behavioural factors (including distraction) on top of a pure mileage based proposition can add in excess 25% to the understanding of risk for claims frequency alone and a further 10% on average claim size. This understanding can then, of course be applied back to the insurers traditional book at an overall level to gain a leveraging effect.

If you want to have a more in depth conversation as to how The Flow can assist you in understanding these changes and reaping the benefits please contact me at andy.goldby@theflow.com