

**Intelligent Speed
Adaption -
Drivers'
experiences**

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Research conducted by 2CV

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Executive Summary

This report outlines results of drivers' attitudes from Southwark Council and Kensington & Chelsea Council to driving with Intelligent Speed Adaption (ISA).

The Voluntary ISA system tested in this trial has been conceptually well received, even though users have encountered various technical problems. Drivers, Driver Managers and Fleet Managers have a general optimism about using ISA and see a potential positive role for it within councils and as more broadly across all cars in London (possibly backed by legislation).

While many of the negative preconceptions that respondents talked about in previous research were borne out they did not prove to be gross negatives (i.e. speeding for safety is not commonly a problem that is encountered).

There is an initial period where a driver must adapt to being governed to the speed limits but after learning the quirks of the system, drivers feel quite comfortable about operating their vehicles. While the learning period is quite brief, there is a need for guidance and training to help them answer questions they have about the operation of an ISA vehicle.

In order to ensure that drivers are using the system and not taking advantage of the voluntary override (which would render the system redundant), monitoring the system should be made easy for managers who have limited time.

In addition, specific attention should be made to inform other drivers on the road about how the ISA system works and the council vehicles must be able to visually communicate to others on the road that council drivers are completely governed to the speed limit.

Training sessions and educational materials would greatly help to make drivers feel more confident and to reinforce the benefits and theory behind what the ISA system is meant to do which will help drivers become more engaged with the initiative. Since council workers are required to drive as part of their job, it will serve as motivating to know that they are helping out in some way rather than being punished, but ultimately they will participate if their job requires them to do so.

Objectives

Key objectives for this research were to:

see whether perceptual barriers found in previously conducted research were obstacles once someone has driven an ISA-equipped vehicle, with a focus on:

impact on “speeding for safety”

increased journey times

imagined erratic and jerky driving

expected loss of fun

understand how Royal Borough of Kensington and Chelsea/ Southwark drivers and managers found the system

get a picture of what it feels like to drive with ISA installed

understand pros and cons of the system

explore possible refinements/ improvements

add insight from firsthand experience of ISA to the research conducted to date

Methodology

This project uses a qualitative methodology consisting of depth interviews. Fieldwork was concluded in December 2009.

For the interviews, we spoke to Drivers, Fleet Managers and Driver Managers who worked for either Southwark or Kensington and Chelsea councils. Describe the ISA system they were trialling, for how long etc.

Sample

In total, eight interviews of 45-60 minutes duration were conducted with Drivers, Fleet Managers and Driver Managers.

#	Position	Location
1	Driver	Southwark Council
2	Driver	Southwark Council
3	Fleet Manager	Southwark Council
4	Fleet Manager	Southwark Council
5	Driver Manager	Southwark Council
6	Driver Manager	Southwark Council
7	Driver	Kensington & Chelsea
8	Driver	Kensington & Chelsea

Background

Earlier this year, 2CV conducted research to understand the initial reactions to the ISA concept and to explore design ideas for improvements (with a specific focus on user interface). This initial research was conducted with drivers of various types (personal and professional) throughout the city. Participants in the first stage of ISA research did not actually drive an ISA fitted system (although they did evaluate a mock up of the ISA screen complete with user interface) and were therefore establishing opinions based on hypothetical situations and responding to what they imagined ISA would feel like to drive.

This research showed that people had significant worries about driving with the system and a resistance to being 'forced' to use a speed regulating device. While the research looked at feelings towards advisory, regulatory and voluntary versions of ISA, there was reluctance to accept any variation of the system. There was a general feeling that it would make drivers feel like they were being 'singled out' or being used as an example.

The prior research also impacted the visual direction of the UI and confirmed that the 'smileys' work to communicate appropriate speed levels across the board. In addition, the physical aesthetics of the onboard system were considered too similar to other technological devices (e.g. SatNav, TomTom) and therefore would not be suitable as a permanent fixture in a vehicle because people felt like it would be stolen.

This second phase of ISA research confirms many of the feelings and preconceptions that people thought would come with driving a speed regulated vehicle and further explore on improvements that can be made to the system.

This research was conducted with Fleet Managers, Driver Managers and Drivers working for councils within two London boroughs. Important to remember is that driving is not the main profession of a driver, rather they are a skilled worker in another area which requires driving as a means to get from place to place to perform job functions. We spoke to drivers with various professions from Pest Control to Lighting Engineers. Ultimately, these positions often vary in regards to the amount and type of driving that is done. Some drivers make very short and sporadic stops throughout the day without time constraints, while other drivers may be rushing to make an appointment or responding to emergencies.

Driver Managers (DMs) are responsible for making sure the drivers have support and also to monitor schedules to respond to the needs within the borough. Driver Managers are also concerned with the degree of quality that their employees are carrying out in their jobs.

Fleet Managers (FMs) are ultimately responsible for making sure that the entire fleet is working as cost effectively as possible while continually ensuring that the needs within the borough and council are being met. Very often the Fleet Manager is also responsible for making sure that specific initiatives (such as reduction of CO2 emissions) are being carried out.

Results

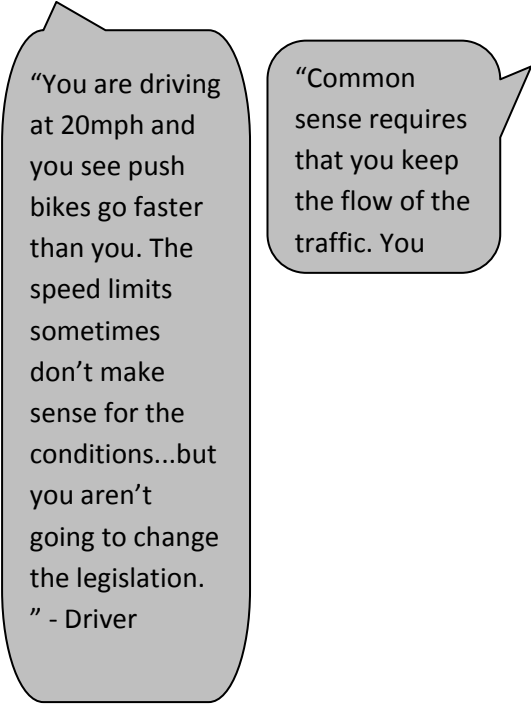
Overall, the response to the on board voluntary ISA system was positive from all quarters. All three groups of council respondents felt that ISA is a good idea in theory but that in practice the system suffers from some minor technological setbacks that they expect can be solved.

Every person we spoke to was able to identify benefits of the initiative and spoke very positively about where they see ISA in the future. Fleet managers saw the most direct benefit to themselves, while for the drivers benefits are quite deferred: ISA might be good for the council or good for London but has little benefit for them.

The aforementioned research around the advisory ISA system, revealed that many people had preconceived notions about how it would feel (both emotionally and physically) to drive a fitted vehicle. In most cases these ideas were not far off from what was experienced during the trial. The chart below outlines some of the more prevalent expectations for ISA and how they played out both in pre trial research as compared to the actual driving experience in trial.

Expected Experience	Pre trial	Post trial
Speeding for safety	This was commonly mentioned by drivers who worried that the system would limit their ability to accelerate out of danger (e.g. to move out of the way of emergency vehicles or to accelerate through a cross road if you become aware of an impending collision).	While none had encountered a situation in which this proved a problem, it remains as a hypothetical barrier to ISA: they still worry about it even though they have not experienced it.
Increased journey times	People imagined that if you are travelling slower you will arrive later than if you are speeding (although there were some contrary comments, that ISA could help to reduce congestion and traffic jams).	Journey time is not an issue for drivers who make short and sporadic trips. Increased journey time is however a big issue for time sensitive jobs which rely on going quickly from location. Drivers often feel frustrated when having to travel with the slow traffic when they could go faster. That said, most would blame lack of punctuality on the system they have been asked to use so we feel this is less of a problem for professional drivers forced to use ISA by their employers than it would be for private drivers.
Imagined erratic driving	It was hard for drivers to imagine the way the system felt without actually driving it. Most worried about the smoothness of speed transition.	When the system is working, the actual physical feeling is fine. Drivers report it having been surprisingly smooth and not as erratic as they would have expected. That said, there's a sense that technical problems with the system lead to massive and sudden changes in the speed cap imposed by ISA which leads to an inconsistent experience and causes far more erratic driving.

<p>Loss of fun</p>	<p>Most felt that controlling speed and particularly not being able to speed up quickly would limit how enjoyable driving is. For this reason, ISA was not a welcome idea for personal cars.</p>	<p>The drivers see themselves as professionals so fun driving is not a part of their job. For some drivers, the ISA system actually makes driving less stressful as they do not need to worry about time constraints.</p> <div data-bbox="938 443 1460 719" style="border: 1px solid black; border-radius: 15px; padding: 10px; background-color: #e0e0e0;"> <p>“If you are stressed about going somewhere, your stress level may go down from driving this because you know that you will eventually get there.” - Driver</p> </div>
<p>Annoying other drivers</p>	<p>Drivers were worried about being subject to aggressive behaviour (both verbal and physical) on the road. There was a specific worry about being cut up and overtaken on the road, making driving both dangerous and stressful.</p>	<p>Drivers did feel significant pressure in traffic as other drivers on the road do not recognise the limitations of an ISA car and are for the most part unaware of legal speed limits. There are a number of “hotspots” cited for this. For example the speed limit on Albany Road is regularly flouted by private motorists, meaning that drivers with ISA installed invariably drive far slower than the rest of the traffic.</p> <p>While this problem exists even when ISA is working perfectly, it is exacerbated when ISA does not work correctly (either when it mistakenly only allows 20mph in a 30mph zone or if the road marking are inconsistent with the actual legal speed, i.e. the speed limit is 30 but the signs say 40)</p> <p>In these situations, the council workers are seen to be disrupting traffic with overcautious, antisocially slow driving and as a result are subject to antisocial and aggressive behaviour from other drivers.</p>
<p>Disempowerment</p>	<p>Directly challenges peoples self perception as good drivers. In addition, it can be patronising to be required to have the device fitted in your vehicle by a specialist. Many drivers understood beforehand that the device would be monitored and so there is a sense that they are being watched, further contributing to this sense of disempowerment.</p>	<p>At times, driving can be particularly stressful at which point the driver must make a decision to override the system or deal with the stress of having it on during critical moments. This is coupled with a feeling of ‘big brother’ or that bosses are spying on them.</p>

		
Sours workers relations	In some cases, a worker may feel like they are being punished or singled out.	This is only true with certain personality types. Because the individuals using ISA volunteered to do so, there was no conflict as a result.

For private drivers (in previous research) expected to install ISA into their cars themselves, many of these problems constitute gross negatives. However, the drivers we spoke to were driving as part of their jobs and are much more resigned to just following instructions. In addition, while the preconceptions about problems were validated by this research (in the sense that the things drivers expected to be problems did turn out to be problems in actuality), they were *real* problems, but not necessarily *serious* problems.

What it *feels* like to drive with ISA

Drivers felt that the first month of using ISA was the most difficult as they were left to deal with many of the technical difficulties (which they were not expecting) while simultaneously dealing with the social constraints of being on the road with other drivers. The workers we spoke to had been using the system for around three months and have since graduated from the initial learning experience which lasts for about one month.

The first sensation that the driver learned to cope with was the feeling of speed 'cutting out' which was mostly experienced by seeing things around you speed up and physically feeling like the system has slowed down. The fact that most drivers are 'flooring it' means that the drivers themselves do not feel as if they are controlling the speed change and so are not entirely sure of when to expect it. This can be particularly dangerous if the drivers are not paying attention to the speed limits while they are driving. This results in the driver having to constantly interact with the user interface.

More significantly, if they drive with their foot on the floor, potentially serious problems may occur. Particularly, if the ISA system loses connection to satellite, the driver will continue to accelerate regardless of the speed limit labouring under the assumption that ISA should be keeping him on or under the limit.

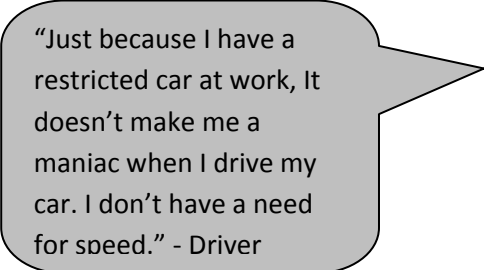
UI??/HMI (Human Machine Interface)

None of the drivers expressed disappointment with the user interface. They felt that it provided all of the information they needed to have with them while being easy to understand and in some cases even fun. For a few of the drivers there is a love/hate relationship built around the smiley face which results in them talking 'to it' and not 'at it'.

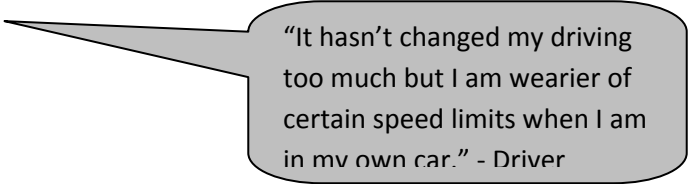
While there are technical issues that come into play with the HMI (placement, signal etc.) the only improvement suggested for the UI is the addition of a voice that would tell drivers the speed limit thereby removing the need to constantly look at the screen while they are driving.

Switching Cars

One of the worries that people had in the first round of research is that a driver may become over reliant on the system and it would be difficult for them to switch from an ISA vehicle to a normal car. Every driver we spoke to drove both a work vehicle and a personal vehicle every day and so they were able to speak about whether this played a role in their driving before and after work hours. For the most part, drivers did not feel that the ISA system impaired their driving of a personal car but they did admit to emotional difference of switching after driving ISA for an entire day. Most often they felt that they had more fun driving their own cars afterwards and they gained back a sense of control as a result.



"Just because I have a restricted car at work, It doesn't make me a maniac when I drive my car. I don't have a need for speed." - Driver



"It hasn't changed my driving too much but I am wearier of certain speed limits when I am in my own car." - Driver

The most telling result of this switching was that drivers felt more aware of the speed limits and experienced sensitivity to their own speed as compared to those around them. They felt more aware of the 'unwritten rules' of driving and more clearly saw the influence that other drivers had on their own speeds.

Benefits

ISA has many perceivable benefits that are both motivating and justifiable for people in different positions within the council. Since the system has been implemented as a part of their job, they ultimately view the benefits in relation to how it will affect their work. For this reason what is pertinent and tangible for fleet managers may not be as relevant for the drivers themselves.

The chart below outlines some of the benefits described by FMs, DMs and drivers and shows the importance of these benefits to the individual and their positions. An indifference to the benefit means that they may or may not see it as an advantage but that it is not significant to their role within the council.

Type of Benefit	Fleet Managers	Driver Managers	Drivers
Reduces instances of illegal behaviour	✓	✓	✓
Reduce wear on vehicle	✓	✘	✘
Environmentally friendly	✓	-	-
Possible lower insurance	✓	-	-
Improved Safety	✓	✓	✓
Helps enforce the law	✓	-	-
Other financial Benefits	✓	✓	✘

✓= Important

✘ = Not important

- = Indifferent

Drivers vs. Managers

The drivers and managers have very different responsibilities when it comes to ISA but they all see themselves as important to the council and try to do their jobs well. This left everybody quite open to using the system because they ultimately saw that if it would benefit the council it would become an inevitable addition to every vehicle and they were happy to fall in line and comply. The importance to be professional and 'do your job' is extremely apparent and there is also a sense of pride that goes with being an employee of the council. If ISA were installed across the board the people we spoke to would support the decision just as part of them "doing their jobs".

Fleet Managers ultimately get the most benefit out of the system because more than 'doing the job' they constantly have to back up their decisions. This happens through a constant cost/benefit analysis that they use to help them perform their own job better and takes into account the changes and requirements that will be needed in order to improve the job for everybody else.

Reduces Instances of Illegal Behaviour

Every respondent agreed that speeding is illegal and that ISA (if it works) ensures that the driver follows the legal speed limits. This is important for all levels as it directly translates to manpower. Not only do the FMs and DMs want their drivers to abide by the law, but they also need them to be able to work. If a driver gets four tickets they are let go and must be replaced. In addition, every council vehicle has contact information on the back for citizens to report a Driver's conduct.

Reduce wear on vehicle

For fleet managers who are in charge of making sure all vehicles are in order, this is a particularly important factor as they do not want to repeatedly replace or service vehicles. They see that ISA potentially reduces excessive acceleration and braking and therefore reduces component wear.

Environmentally friendly

While it was generally agreed that an environmentally friendly car can be beneficial for everybody, it is an especially salient incentive for FMs who are looking to verify that they are making steps towards reducing CO2 emissions across the fleet (note that reaching environmental targets can count as performance objectives in certain council roles). Drivers and DMs were not particularly concerned with this on a professional level (although they did see how it may be a benefit for the council overall) and their response varied by individual as

some were motivated by being more environmentally friendly while others found cost efficiency to be a more motivating factor.

Possible lower insurance

As most respondents felt that ISA will only be accepted by the masses if an incentive is offered, it was natural for them to link ISA's inherent safety benefits to a possible reduction in insurance prices. Managers were especially keen on this proposal because they are often dealing with insurance costs and saw this as a way to help them do their job better. For drivers, lower insurance was not necessarily a work benefit but would encourage them to buy into using the system if it were to be rolled out across London. Many drivers thought of lower prices as a personal benefit and would sign up their family members in an effort to have reduced prices. Lowering insurance prices for their children and families was especially enticing and motivating for everybody.

"The youngsters in college get charged terrible prices for insurance and if I could get my son into a governed car, I bet it would lower the rates." - Driver

Improved safety

Every person we spoke to recognise the benefit of ISA as a safety tool with the potential to decrease the number of accidents on council roads. It is generally accepted that a person is safer if they are driving at the set limit and that speeding can often result in accidents. While the drivers feel they are safe travelling at slower speed, they do worry that they will be responsible for other accidents. Requiring everybody to have the system would prevent these types of accidents from occurring.

"I have had people just zoom past me. I am not worried about my safety but I worry about the people who overtake me. There have been some close calls." - Driver

Helps enforce the law

Irrespective of attitudes to the usefulness of speed limits and speed enforcement, no one wants to get caught and punished for illegal activity. The desire to avoid punishment and be seen as law abiding is even stronger when driving is specifically for work and when if one is caught too often one will lose one's job.

In some instances, using the ISA system has helped drivers follow the rules and even alerted them to speed limits that they were previously unaware of. This experience is the basis for drivers feeling there is a need for those who have previously been ticketed to be required to use ISA or for new drivers to learn the speed limits and rules of the road as a preventive measure.

Other financial benefits

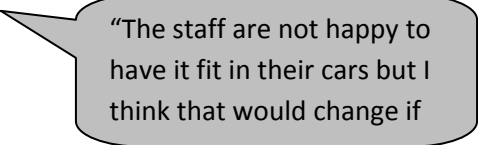
In addition to long term savings in relation to preventative wear and tear, most people see the ISA system translating to better fuel efficiency and less money spent on petrol. Less stress on the engine also results in longer lasting vehicles and more time between replacements. From a purely financial aspect, managers are interested in seeing how ISA can pay for itself. If ISA is to move forward, they would like to receive information about how it specifically can help them meet financial goals for their fleet.

The reduction of staff turnover can also be a positive result of having ISA fitted vehicles. Employees with multiple driving offenses are ultimately let go and this can create a financial burden of hiring and training new staff. By preventing drivers from speeding, there is little to no chance that they will be pulled over for a speeding offence.

Obstacles

Lack of information

Part of the initial problem of introducing ISA as a physical entity into a vehicle is that little information is known about the actual system. For drivers and DMs, they were told the 'what' but not the 'why' of the trial. Many FMs and DMs felt that they did not have the information in the right format to pass on to drivers which ultimately resulted in the drivers not being fully informed about the reasons for the system and lacking instruction about operating the machine. Most drivers did not know what to expect and so the first month was particularly difficult as they were left to their own devices to deal with problems.

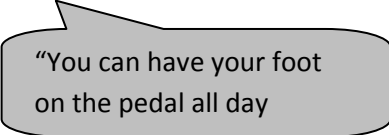


"The staff are not happy to have it fit in their cars but I think that would change if

If ISA is rolled out in the future, information about how it is operated and the benefits of ISA must be packaged in a way that is easy to understand, can be filtered down from FMs to DMs to Drivers in a clear and concise way. This will not only give everybody confidence about driving ISA (by use of instructions) but may also serve to motivate individuals through knowledge of the benefits and reasons why the council has introduced it into vehicles. Currently there is little incentive for drivers to use ISA because they have not been told why they should be using it. For the most part they understand how it works and what it is meant to do but they have not been given a real reason to support ISA. Ultimately, the drivers could be the most influential when it comes to selling the ISA to other drivers in the borough.

Over-reliance on the system

If a driver uses the system for a longer period of time they can start to rely on the system to regulate their speed without having to think about their actions. This has manifested itself both psychologically and physically as the drivers constantly 'flooring' the pedal. The lack of pedal feedback can sometimes result in unintended speeding if ISA cuts out while the pedal is completely pressed.



"You can have your foot on the pedal all day

Technical Problems

In most cases, ISA works well in that it is able to detect the correct speed limit, and can for the most part be forgotten about by drivers. However, there are legitimate issues identified that warrant a system override and ultimately hurt the credibility of the system.

"I think the issues can be worked out. It once cut me down to 30 mph on a 50 mph road. Obviously you have the off switch so you can use that when you absolutely need it." - Driver

Misreading speed limits is a technical problem that is inherent to the system programming. This mostly occurs on smaller streets or areas that have undergone changes due to construction.

Loss of signal under bridges bypasses and in areas with many high rises. Signal loss was reportedly higher in Kensington & Chelsea than in Southwark in part because of the layout of the area and the abundance of higher buildings.

The placement of the system (onboard computer) has better connectivity when it is placed higher in the vehicle as opposed to under the dash. Most drivers felt that the system would be best placed behind the rear-view mirror or on top of the vehicle to solve the problem of reception. However they also recognised that a visible system would provoke theft.

Delay in pick up for manual override (even if used to get out of the way, it would not kick in fast enough to prevent an accident)

HMI can be easily mistaken for a SAT/NAV or GPS and therefore prevents a risk of theft

Concerns around cost

For fleet managers, the decision to roll out ISA across all vehicles is likely to come down to a cost/ benefit analysis. There is a concern that the device will prove more expensive than expected and it will cost more to implement than it would save. This is particularly problematic as it is expected that it will be very difficult to accurately calculate savings.

Interestingly, it is deemed in some quarters that this cost benefit analysis would be overridden if deemed to be politically expedient by elected council members.

Concerns around delivery

Managers are also concerned that TfL would not be able to deliver a sufficient number of units in a timely fashion and that perhaps by the time enough units had been delivered DfT/ central government would have developed a parallel system.

ISA Override

One major source of conflict for the functionality of ISA is the override switch which allows the driver to turn the system off. Partially, there is criticism about the ability to switch it off at all as this negates the purpose of having it in the vehicle. This especially comes from the managers. During the research, we found that drivers do indeed turn the system off and that DMs suggest that this happens more often than the drivers like to admit.

From the driver's perspective, technical issues such as loss of aerial connection or inconsistency in speed allowances justifies turning the system off but they are also likely to

succumb to pressure from other drivers. If they are being hooted at by other drivers for travelling too slowly, it is likely that they will want to speed up.

“At the moment, because of the technical issues I do think it needs the override. There are flaws.” - Drivers

Regardless of whether there is an override switch or not, the drivers have established ‘tricks’ that allow them to drive without the system. One way of doing this is to unplug the screen/HMI and since this must be done at the end of every day (to prevent theft) it is not uncommon for drivers to “forget” to plug it back in. A more creative way of overriding the system is turning the vehicle off and on at red lights; thereby giving the driver up to five minutes of non ISA controlled driving at start-up.

The challenge for making ISA effective is to give drivers a sense of control (i.e. feel like they can get out of dangerous or stressful) situations while making sure that turning off the system is not just an easy way out of using it all together. While the option of monitoring usage of ISA in vehicles does exist, it is a cumbersome responsibility for managers who have certain time constraints. Ideally, a system which allowed for push notifications to alert a Manager if a driver has turned off the system would be the best way of enforcing usage of ISA

“What’s the point of having a system if you are not going to monitor it? I know for a fact that if it isn’t monitored, some people would just abuse it and turn it off. I just get on with it.” - Driver

“sure, you *can* monitor it. But seriously, who’s going to have the time?” -Manager

Critical Mass

There is an overriding sense of ‘all or none’ when it comes to usage of ISA. Both drivers and managers found the technology intriguing and genuinely felt that the system is a good idea to prevent reckless driving and reduce traffic congestions, but this result would require that every vehicle in London be equipped with ISA as well, not only the council drivers.

This is complicated by the fact that other drivers are completely unaware that ISA vehicles are regulated to the speed limit. Many drivers complained that this is due to both the lack of speeding enforcement and more importantly, the lack of visible signage for other drivers who may not be aware of the speed limit of the street.

It is generally agreed that if everybody was required to use the system, there would be a decrease in congestion inside of London. After all, if everybody is going the same speed, there are likely to be less bottle necks or traffic jams.

Possible Expansion for ISA

Similar to the opinions of drivers from the first leg of ISA research, most individuals do not think that ISA is specifically for them, but can be a valuable resource to help others learn about being safe or to control those who have previously broken the law.

The most common suggestion for rolling out ISA to a larger audience is as a requirement for new drivers to learn more about driving and to control young people (especially males) who may be tempted to drive recklessly.

Conclusions and recommendations

Overall, the trial was well accepted and ultimately successful in that it works the way drivers expect it to albeit the few technical issues that came up in the interviews. Below are some suggestions to consider for next steps in developing ISA:

Add a voice function that tells the drivers the speed limit so that they are expecting it.

Signage on roads to make other drivers aware of the speed limits (if they are not aware they will be more aggressive towards the ISA driver)

Signage for the back of the van to clearly communicate that ISA is installed in the vehicle. (e.g. "This vehicle is electronically governed to the speed limit")

ISA system has technical short falls: no reading

Placing the receiver in a high area (ex. On the roof, behind the rear-view mirror)

Provide enough literature for drivers and managers to understand why the system is being fitted and how it will be specifically beneficial to their roles

Reassure councils on ability to deliver units and likely cost

As long as the technical problems exist, the override function would have to stay as an emergency backup for drivers. Managers should also be able to easily track excessive overriding or non-use of the system.

Appendix: Executive summary from previously conducted research

This report outlines results from a project commissioned by TfL to further explore drivers' attitudes towards Intelligent Speed Adaptation (ISA) and specially to understand drivers' response to the design of the user interface.

This research clearly demonstrates the difficult context into which ISA is being launched. Drivers have close psychological relationships with their cars and with driving. In addition, many feel currently that drivers are being discriminated against, particularly in terms of "anti driver" legislation passed by the government. TfL need to take this into account when thinking about the functionality and design of ISA.

Speed limits are currently seen as more to do with penalisation than with safety by most. The general consensus is that speed limits do not in the main lead to safer roads. Certainly most feel that they are something which should be obeyed in order to avoid penalisation, rather than an especially useful safety measure. Drivers have confidence in their own ability and don't feel they need to be told what speed to travel at.

As stimulus in this research users were presented with a video outlining use of ISA with two possible modes:

- **Advisory** in which the device tells the driver what the speed limit is and whether or not they are exceeding the limit
- **Voluntary** in which the device limits acceleration if the speed limit is exceeded (but can be overridden)

2CV were also briefed on a third mode which was not specifically introduced in the stimulus of this research, but which respondents talked about spontaneously:

- **Mandatory** in which the device limits acceleration if the speed limit is exceeded and which cannot be overridden

The ISA system is received quite negatively by drivers. Most do not see a need for it and immediately find fault. However, this negative response is primarily driven by a negative response to the Voluntary Mode of ISA (in which ISA limits acceleration but can be overridden if this is deemed necessary). When the ISA proposition is unpicked, it seems that there is a role for an Advisory only ISA system, where the device simply alerts the driver to the speed limit and whether they are exceeding the limit, to be offered at a reduced cost either as a standalone device or piggy backing another device (i.e. included in Sat Nav or produced as a Smart Phone app). There is limited appeal for a Voluntary mode of ISA amongst a minority of respondents, especially when the likely price of the device is taken into account.

On launch, to maximise take up of ISA the system needs to be positioned as something which will help drivers, rather than another incursion into driving liberties. The name and interface should support this.

In terms of the design of ISA, the hardware needs to be as unobtrusive as possible. Of the three User Interfaces (UIs) explored in the research, Smiles is the most well liked and is seen as clear and simple. However, Smiles could stand to be improved by including an indicator of current speed.

Conclusions and recommendations (in summary)

Overall, ISA faces a number of significant barriers: drivers worry about its usefulness, its safety and what it represents emotionally

An Advisory only system would appear to have the broadest appeal amongst London drivers
Whilst a full ISA system including the Advisory and Voluntary modes is interesting to a minority, price is a major barrier; this would indicate that that perhaps piggy backing current technology might be a better option
Of the UIs tested, Smiles works best