Bird & Bird & Big Data & the UK Automotive Sector

Overview

New *Big Data* research technologies and data analytic tools introduce a revolution in the way people do business and provide management with objective information available in real time, drawn from the huge quantity of digital data produced on a daily basis by organisations and individuals.

Market statistics and analysis are fast becoming obsolete tools and will be replaced by software delivering graphically enhanced and easily readable information, derived from data originating from IT systems, social networks, user generated content, blogs and online magazines, market operators as well as, in the context of the automotive sector, from the countless onboard sensors incorporated in vehicles.

Using these new software tools, within Cloud infrastructures that can lower operative costs, it is now possible to access and organise this mass of information with the purpose of obtaining useful data in real time.

Given the complexity of the legal implications of these new technologies, we find ourselves in the rare circumstance where the legal function can provoke managerial innovation by taking a leading role in proposing solutions for adding value and creating real operational advantages for companies.

The meaning of Big Data

New technologies for data analysis are revolutionising the way in which companies can access and analyse information. For the first time, it is possible to access and meaningfully use the incredible amount of digital data generated on a daily basis. The term *Big Data* refers to the accessing of the vast deposits of digital data, often terabytes or even more, and the analysis of the same through these new technologies.

Sophisticated driving systems, infotainment and connection systems together with a myriad of sensors are now commonplace in the vehicles manufactured and sold today. Each of these systems and sensors when combined with information generated from and through the internet, corporate computer systems and individual communication devices lead to the compilation of an incredible quantity of digital data. By organising and analysing this data, it is now possible to understand, in real time, how vehicles are functioning or being operated and how such vehicles are perceived or judged on the market.

Until recently, digital data was generated in such huge quantities and often remained unstructured which largely precluded its effective analysis. This lead to the great majority of information being lost or stored in an indigestible heap without even being analysed.

The key to the present revolution is the Hadoop IT architecture (open source), which allows enormous quantities of data to be managed through placing it in an organised manner into distributed hardware systems. This has led to the creation of software and filtration systems for data search queries which enable the data analytic revolution. Vast quantities of data can now be automatically reorganised and classified, regardless of its origin, to permit its analysis and the extraction of useful information, for business management and other commercially focused purposes.

The value of this access to and interpretation of data is that it can inform automotive companies as to how to accelerate or change the development of their products, improve their performance and safety as well as their functionality and user experience, introduce new services and monitor the operation and effectiveness of the same.

Data available to companies can be both structured and unstructured. It can be generated within the relevant organisation by suppliers, partners and the distribution network, and it can comprise e-mails, consumer's comments, products reports and maintenance and repair information and the like. It can also be drawn from accessible external data, such as that found on social media, blogs, online product reviews and magazines. In the automotive industry the data is also generated by onboard sensors installed on vehicles, from operational sensors to communication, GPS, telemetric tools, and by sensors located in the environment with which vehicles interface.
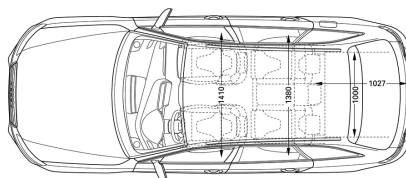
Some practical Automotive uses

There are some practical examples of how information obtained from analysing *Big Data* can be used in an effective way by automotive companies:

Analysis of guarantees

The correct interpretation of *Big Data* will improve the ability to estimate costs associated with contractual guarantees. It will also permit better assessment of the relative responsibilities by integrating comments from consumers (both those received internally and those on social media, blogs and product review sites) with dealer's service notes, repair workshops records and data related to requests for interventions under guarantee.

By correctly setting up the collection and automatic analysis of this information, without having to dedicate costly human resources, it is possible to obtain data in real time, graphically organised (by means of dashboards with immediately readable display settings) and to "see" how and where the most important problems, or cases of recurring intervention are arising. This then allows management to intervene in a timely, purposeful and precise manner.

Predictive maintenance

By analysing the data flow originating from on board sensors, it is possible to identify anomalies faster and act to prevent them by planning interventions or anticipating product recalls or controls.

Where appropriate this information can be used to inform and engage vehicle owners with a view to avoiding predictable problems and product inefficiency and can be shared with components suppliers and insurance companies.

Product performance

The analysis of vehicle and component performance during actual use can inform and facilitate changes or improvements in the design or concept of such components. In this way, the study and monitoring of automotive products can be extended to take place throughout the product's lifecyle taking the analysis beyond the pre-production test phase and the time and cost of future designs can be significantly reduced.

Forecasting of parts production and logistics

The study of information related to guarantees, the use of the products, complaints and repairs carried out, also allows the study of trends concerning guarantees to be conducted from a viewpoint of each car component; from a viewpoint of the location of vehicles in specific geographical areas; and from a viewpoint of the operational environment of vehicles and components. Access to such information allows spare parts inventories to be optimised. It can also improve spares distribution so that it can better match real market needs and improve operations in the supply chain and logistics, eliminating unnecessary costs and inefficiencies. The benefit is evident and could have positive effects both for the manufacturer and the consumer.

Dealer satisfaction

The ability to monitor user trends by means of social media and the blogosphere can permit the assessment of the user satisfaction of products, as well as that of dealers, resellers and workshops. It can also allow the assessment of specific advertising campaigns or sales strategies. Once again, timely access to this information will provide car manufacturers with the opportunity to intervene in real time to correct perceived errors or, if relevant, repeat successful initiatives.

The optimisation of logistics for distributing spare parts and for interventions under guarantee, for the supply of accessories and vehicles, can also be expected to promote raised levels of trust, satisfaction and loyalty in sales networks and, ultimately, customers.

User satisfaction

The same methods can be applied for studying driving behaviours and to see how users actually use their vehicles, for the purposes of recommending maintenance and insurance cover.

Real time data analysis could be carried out on atmospheric data and vehicle functions (load, wear and tear, driving conditions, traffic and road conditions) in order to provide information on averages and consumption and travelling times which would be much more accurate and pertinent than those currently given by simple onboard computers. It could also allow analysis of the vehicle's state of efficiency and safety.

Real time analysis of unusual driving behaviour could be used to identify vehicle theft or for assessing drivers' adverse psychophysical conditions, identifying situations of danger or temporary impossibility to drive, in order to warn the user of possible risks.

New interface functions with smartphones and other mobile devices (already widely in use) can transform car manufacturers into channels for distributing new functions and new Apps dedicated to the automotive world. This could provide a platform to car manufacturers for the supply of multimedia products and services to their own dedicated captive audience.

Accordingly, a possible new market is opening up to car manufacturers allowing them to enhance user loyalty and, at the same time, create a new source of income. Above all, through this channel of communication it is possible to establish direct and continuous relations with users and become aware of any problems, requests for assistance or clarification and preferences, thereby building a more direct and profitable relationship for both sides.

Using Big Data in cases of product liability

Data originating from vehicle sensors and driving assistance systems or from monitoring the use of the vehicle can obviously be very useful in case of accidents or claims against car manufacturers.

All services of a predictive nature both concerning wear and tear and the functioning of vehicle's parts, together with driving assistance services can clearly be used for their main scope, which is to prevent accidents or damages, but also as evidence during the relevant judicial proceedings. It is, therefore, important to set up all these services and the collection of data bearing this important aspect in mind and to design the set up of services and data collection so that it can support such purposes.

Data collected can stand as evidence to the damage claimed to be the responsibility of car manufacturers. It is likely that laws and regulations will be introduced to direct the collection and use of this type of data. However, in the meantime, manufacturers should focus their attention on these aspects and perhaps try to establish a common best practice to be applied in the present absence of specific legal principles.

It is important to set storage procedures and date retentions policies for such data, bearing in mind its potential role in litigation.

If it is not already possible to do so it is entirely conceivable that in the immediate future a vehicular "black box" will be installed on board or maintained remotely and kept as future evidence in case of accident.

Relevant data could also be transmitted to dedicated monitoring or emergency facilities, private or public, to permit the automatic monitoring of the status of vehicles on the road and allow accidents or risk situations to be immediately identified and addressed.

This is clearly a strategic area to be taken into consideration, in light of future legislation and rules, in a world where vehicle automation is becoming the norm and we are possibly going in the direction of driverless cars.

What the legal function should know

The legal function of a car manufacturer must be equipped to face the new legal challenges connected to *Big Data* analytical technologies, in order to permit the exploitation of the opportunities whilst at the same time planning to avoid the connected legal risks.

The great advantages given by these new analytical opportunities make them particularly interesting at all levels and for all corporate functions, adding value to the organisation and providing strategic tools and information which will soon be indispensable in order to compete effectively on the market.

This is a structural change, which will modify the way in which all businesses work, opening the doors to the analytical and statistical dimension to all industries and commercial activities.

For this reason the legal function must lead this revolution. It should try to identify the potential risks and correct legal principles to be applied and then guide the *Big Data* revolution, working together with future new analytic and data expert professionals who will inevitably soon be joining the ranks of automotive companies.

Legal aspects of Big Data

The study, collection and use of *Big Data* gives rise to a wide range of legal issues that remain mostly unexplored.

- Problems related to privacy are evident and obviously highly important, given that current data collection methods and policies do not appear to be sufficient to address all the specific data processing deriving from *Big Data* technologies. The same cross-referencing and superimposition of data which, in all likelihood, has been collected for other purposes, raise complex questions from the viewpoint of the completeness and correctness of data protection policies. Each *Big Data* project will inevitably be different from any other and customised dedicated solutions should be considered for each case.

- It is also necessary to carry out a detailed analysis of the legal nature of each piece of data examined. It is important to understand, primarily, who is the owner and if there are any copyright or intellectual property right aspects to be considered. It must be established whether such data can be analysed in the first place and consider if they can be protected (perhaps as new databases). It is also worth considering if they can be valued and considered for accounting purposes, as a new corporate asset.

- Particular attention must be given to contracts with suppliers of these technologies. In addition to the usual software licensing aspects, it is necessary to study and regulate how to set up complex data analytic projects, as they must be coordinated and addressed within the requesting entity organisational structures and strategic development plans. Complex contracts and integrated projects must be carefully planned from the outset. Planning may well involve various corporate functions, including managerial and administrative, marketing, product development, research, maintenance, legal and privacy compliance and human resources.

- The confidentiality of the information which is accessed and the existence itself of these analytic projects is highly important given the strategic nature and highly sensitive information which can originate from them. It must be noted that all organisations will become much more transparent than before, as a result of their actions becoming available to be seen and analysed using *Big Data* systems. New operational methods should be considered in light of this new "transparent" environment in which we will all operate.

- Competition law aspects must also be taken into account. The nature of these systems could lead to the abuse of information which can be easily obtained in relation to competitors.

- Of no lesser importance are the problems concerning the responsibility of the automotive companies in their capacity as manufacturers of the vehicles and of their components, given the increased complexity thereof and considering the fact that these new Big Data analytical technologies are capable of allowing manufacturers to become aware of the wear and tear of vehicles and components, of their driving conditions. This allows car manufacturers in principle to be able to issue warnings and alarms concerning the "driving" of the vehicle in order to avoid accidents and breakdowns. It may also lead to claims that a failure to do so gives rise to potential liability.

- Data collected and analysed using these innovative methods has inevitable implications in product liability proceedings. Obviously this sector has not yet been regulated but it must be taken into consideration as part of any *Big Data* project involving products. It would not be unrealistic to think that, in certain situations, manufacturer liability could be extended to predictive maintenance services; driving assistance tools which have malfunctioned and have consequently not been able to foresee or avoid an accident; and cases in which data available to the manufacturer that could have prevented an accident was not notified to the user. In any case such data will almost inevitably be accessible by prosecutors and courts and possibly become evidence in products liability procedures.

- Also to be considered are the issues turned up by *Big Data* technologies and the insurance sector. These issues concern both the specific users of vehicles and their insurance coverage and manufacturers and their insurance coverage. Greater knowledge of problems and real time monitoring of data will inevitably affect the assessment of insurance risks, the calculation of premiums and the type of cover itself. Moreover, insurance companies themselves will be involved in the *Big Data* revolution and this may bring the offer of new and innovative insurance solutions.

- Significant contractual evolutions can be expected in the relationship between manufacturers, their distribution networks and with suppliers of goods and services. The greater access to data on wear and tear and guarantees, may give rise to the restructuring of contracts and relations with suppliers of logistics services, linking and regulating them in direct connection with data on the effective vehicle management. In turn, the best suppliers and distribution channels may also equip themselves with technologies and analytical abilities of this kind, making it necessary to review contractual relations and recalibrate them according to new criteria for the assessment or service performance.

- The financial services and fleet management sectors will not avoid the impact of *Big Data*. Contracts in these sectors will have to be reconsidered, starting from a consideration of the data on the reliability of the products and then moving on to a consideration of the new tools for analysing the creditworthiness of financial services customers and the evaluating of the client's reliability risks over time. The advantages related to monitoring vehicles and their operation, driving habits, insurance related aspects and the best organisation of logistics all have positive effects with regard to corporate fleet management. New services and offers can be conceived and proposed in this sector by car manufacturers.

There will be many other applications of the *Big Data* revolution and new legal consequences and issues will be identified. However, it is essential that business starts to familiarise itself now with these new opportunities and begins organising *Big Data* pilot projects.

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