White space ideas for Automobile or Mobility in India Telematics Innovation in automobile bringing life change

Sathya Narayanan PSV

General Manager

FORD India.

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ABSTRACT

Innovation is continually developing and enhancing giving our advanced life more plan's to extend creations and improve the old developments and more valuable for their group and the world. It has touched each side of our life – our working style, associating with companions, purchasing house stuff.

Technology has made our life much more contented that it was ever before. Today, technology has provided ways to follow our routine, monitor the calories intake or burning, comparing the performance etc. Now, we can evaluate the driving abilities of a person scientifically, automation system can control a car through computer up to such an extent that we never thought of before No surprise that today technology can determine our ability of driving and can compare between two friends and identify the better driver between the two. GPS system in cars is very usual thing today. Embedded software that are used in cars to track every relevant event are already in use. In the face of such drastic changes, motor insurance company also needs to adapt themselves with the changing world. They have to realize that with the change in technology, the needs and perception of people also changes.

So, this change asking them to come up with new solution which is more relevant and fulfilling the user needs. And the solution is to hold hands of telematics and predictive analysis from big data to secure their position while competing with vehicle manufacturers, telecom players and other sectors. These smarter solution that caters their personal need always fascinate customers towards them.

Key words: Big Data and Analytics, Global Positioning System (GPS), Telematics, New Acquisitions.

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1 INTRODUCTION

Basically Telematics is composed of two words: Telecommunication+ Informatics In broad sense, its combined use of telecommunications and communication technology for sending, receiving and storing information via telecommunication devices in conjunction with affecting control on remote objects.

Under the common umbrella of "telematics" we can assume integration of Global Positioning System (GPS) technology and computers and mobile devices and many other technologies.

2. IS TELEMATICS REALLY THAT STRONG

Automotive designers have an endless appetite for innovation. Every day we can see huge changes in technology. From integrating the latest technologies to developing entirely new ones altogether, Telematics can actually act as catalyst for technical innovation. It can entirely give a new spectrum to the existing era of technology.

This change can not only benefit automobile Industry but also can help other domains depending and related to it for e.g Motor Insurance.
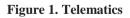
We have witnessed the change in techniques of Motor Insurance from Classic Method to Automated. The approach to install a Hard-wired devices called Black box in vehicles by professional installers that transmits data in real time is something that we already aware of.

If there should arise an occurrence of a mischance, this gadget can actuate cautions and can start correspondence to required spots like home, Insurance Company, Hospital and so forth Apart from going about as guardian angel in emergency, the gadget can likewise enable clients to screen the Day to day information created by our vehicles like support Schedules, benefit necessities, evaluate your driving capacities and can quantify execution in the driver's seat by transmitting data back to your safety net provider.

The black box is as of now being gotten by implanted telematics in vehicles. Observing framework disappointments and vehicle execution will wind up noticeably programmed and unpreventable enabling the driver and vehicle to interface remotely to a large group of relatedservices. Obviously, telematics has colossal potential for development in different areas . The session of protection can be by and large changed.

The transition from Classical to Automatic Insurance has given domain a capability where they can assess the driving skills of a persons. So, the Policyholders in future will not all be painted with the same brush. .Driving skills will decide how much one has to pay for Insurance. The collection of data will change from age, zip code, address, Vehicle make etc. to a brave new world where risk is understood through a mass of detailed driving behavioral data

Figure 1. Telematics

3. DRILLING THE TECHNIQUES FOR ASSESSING DRIVER'S CAPABILITIES:

Insurance providers can assess your driving ability by tracking vehicle's movements through GPS systems, Few common rating factors generated by Telematics:

- ➢ Speed – Speed at which vehicle is driven compared to road speed
- ➢ -Mileage – Actual miles driven (useful for PAYD)
- ➢ Garaging – Location of usual parking of vehicle
- ➢ Lane Driving – How much lane changing is observed

➢ Road Usage – Distribution of road types for vehicle driving (city, highway, rural etc.)

➢ Cornering - Lateral (i.e. parallel to the road surface) force produced by a vehicle tire during turning

➢ Time of Driving – Distribution for time of driving

➢ Day of Week – Distribution for day of week driving

➢ Hard Braking – G-Force applied at time of braking

Basis above parameters, a driver's driving score is created (for e.g. 0 to 100, category A - E etc.) which Measures quality of driving and is used for pricing

Table 1. Sample data Analysis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Obs.	Date	UTC	Degrees Latitude	Degrees Longitude	Minutes	Miles	Fuel Consumption	Miles per hour	g-force
1	04/08/12	14:45:30	-27.117	-109.364	0:00:00	0	0	0	0
2	04/08/12	14:46:30	-27.118	-109.364	0:01:00	0	0.05	0	0
3	04/08/12	14:47:00	-27.118	-109.364	0:01:30	0	0.053	0	0
4	04/08/12	14:47:00	-27.118	-109.364	0:01:30	0	0.053	0	0
5	04/08/12	14:47:30	-27.117	-109.371	0:02:00	0.08	0.055	20	0.03
6	04/08/12	14:48:30	-27.15	-109.379	0:03:00	0.552	0.06	50	0.06
7	04/08/12	14:49:30	-27.109	-109.388	0:04:00	1.499	0.078	65	-0.1
8	04/08/12	14:50:30	-27.098	-109.398	0:05:00	2.538	0.091	59	0.01
9	04/08/12	14:51:30	-27.093	-109.41	0:06:00	3.234	0.105	40	-0.07

Remarks:

1. Data elements are recorded at sixty-second intervals beginning and ending when the ignition is switched on and off, respectively.

2. GPS coordinates in the third and fourth columns indicate location

3. Columns five, six, and seven show that the driver's cumulative time, mileage, and fuel consumption, respectively, increase with each observation.

4. The speeds and accelerations in columns eight

Now, this is obvious that Insurance providers will favor safe drivers with more appealing terms and lower premiums while poor drivers with higher risk profiles will find themselves part of a feedback loop that will encourage them to adapt their driving style. Those that reject this approach will accept reduced cover and higher premiums or will find themselves shopping for cover elsewhere.

Social media in combination with data science will allow insurers to share knowledge of accident black spots, educate customers about safer route selection and collision avoidance. Insurers may even assist customers with future vehicle choice, extending their role as guides.

Despite all the advances in technology, accidents will continue to happen. Having the right information on hand and organizing data in the right ways will help insurance companies arrive at useful insights. The data will allow insurers to look for patterns to detect vehicle defects, make associations between certain types of locations, incidents, and types of vehicle, while helping them combat fraud.

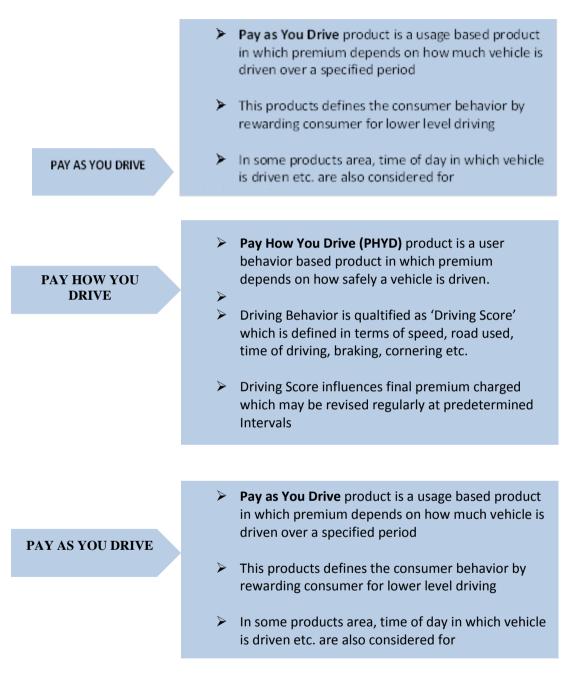## 4 DRILLING MORE INFO, RESTRICT CON

Insurance suppliers that need to remain in front of the race will go significantly further.

They will assemble more data about the security of our streets than at any other time, drastically enhancing their capacity to manage the result of mishaps as well as to really enhance street wellbeing and add to impact evasion. Information conviction gives safety net providers and their clients with an enormous stage for counter extortion.

For example, take the instance of a policyholder who ascribes a mishap to mechanical disappointment. Telematics information gives safety net providers unparalleled capacity to help the conflict, to help the client and to forensically break down the causes. In the meantime the information significantly increases current standards and goes about as an immense impediment to those clients who may some way or another distort the facts.Insurers manage a steady stream of cases like this on an everyday premise – occurrences that seem basic at first glance however under nearer examination turn out to be much more intricate. Strong information enables safety net providers to make quick and exact appraisals and to recognize veracity and realness. Quicker and more precise basic leadership lies at the very heart of good claims administration and is basic to make a positive client encounter.

5 FOCUSING ON TELEMATICS YIELDS

PAY AS YOU DRIVE

➢ **Pay as You Drive** product is a usage based product in which premium depends on how much vehicle is driven over a specified period

➢ This products defines the consumer behavior by rewarding consumer for lower level driving

➢ In some products area, time of day in which vehicle is driven etc. are also considered for

PAY HOW YOU DRIVE

➢ **Pay How You Drive (PHYD)** product is a user behavior based product in which premium depends on how safely a vehicle is driven.
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➢ Driving Behavior is qualtified as 'Driving Score' which is defined in terms of speed, road used, time of driving, braking, cornering etc.

➢ Driving Score influences final premium charged which may be revised regularly at predetermined Intervals

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5.1 LIFE CHANGING SERVICES OF TELEMATICS:

5.1.1 Stolen Vehicle Recovery

Telematics framework tracks the vehicle ceaselessly which helps in recuperation of the stolen vehicle; This additionally helps in diminishing the claim cost for insurance agency

5.1.2 Fleet Management

Fleet administration incorporates the administration of engine vehicles, for example, autos, vans and trucks of an organization.

It can incorporate a range, for example, vehicle upkeep, vehicle following and diagnostics, driver administration, fuel administration, wellbeing and security administration and so on.

5.1.3 Crash related

Crash related if there should be an occurrence of crash or mishap, telematics empowers back up plans and auto producers to help guaranteed with noteworthy efficient via robotized calls and informing to crisis bolster and later, enhancement of cases forms.

5.1.4 Teen Driver Monitoring

Parents may introduce telematics gadgets in vehicle of their kids, which can enable them to track the area and driving conduct of the youngsters.

6. TELEMATICS SWOT ANALYSIS

Telematics has a wide spectrum to explore. The more deeper you go, the more visibility you will get.

Here we will perform an analysis of Telematics in order to understand the Strengths and Weaknesses, and for identifying both the Opportunities open to the telematics and the Threats to it.

6.1 CHARACTERIZING STRENGTHS:

6.1.1 Increased customer retention:
Higher levels of interaction with customers
Net promoter scores in insurance are highly correlated with touch points with customers

6.1.2 Improved product pricing:
Better pricing algorithm using additional data generated byTelematics

6.1.3 More Pro-Active Customer Support
Information received from telematics device if assessed as it is collected, can be used to more effectively identify any immediate required actions

6.1.4 Reduction in claim settlements
Data collected from telematics devices could assist insurers (and other interested parties) in assessing whether claims are valid or if the extent of damages should be challenged

6.1.5 Cross – Sell and Up - Sell
Immediate access to telematics data could allow insurers to create more opportunities for targeting customers with tailored propositions

6.1.6 Event Support
By analyzing data, an event can be reconstructed, and services like emergency contact, possible claim
notification etc. can be triggered

6.2 ANALYZING WEAKNESS:

6.21 Privacy Issues
Customers may have privacy issues and feel threatened by an external company collecting their personal data; however, over last few years with advent of networking sites like Facebook, customers are more open to share their driving information

6.2.2 Resistance to Change
Agents, Brokers may have some resistance to change for Telematics products as these are hard to explain to customers and may need higher commissions to push these sales

6.2.3 Business Case
The added cost of the technology, combined with lower penetration of Telematics is making insurers wary of adopting telematics and not supporting a clear cut business case

6.2.4 Small Company

Small companies may have difficulties in building partnerships and may loose to big players in the market as Telematics may gain popularity.

6.3 EXPLORING OPPORTUNITIES:

New Acquisitions

New Product and services.

6.4 RISING THREATS:

6.4.1 Government Regulations

Lack of clarity over regulations specifically applicable to PAYD./ PHYD has often been seen as an obstacle to the launch of mass telematics-enabled insurance offerings

6.4.2 Customer acceptance

Customers may be more habitual of buying traditional product which they understand and may not be open for Telematics products (which are new and complex in nature)

Increasing Costs

6.2 RISING COST OF RAW MATERIALS

More Precise Info prompting more advantages As more information is produced about the auto client, information science will enable safety net providers to figure hazard all the more unequivocally.

Investigation will empower insurance agencies to streamline and robotize Claims forms with constant cautions, along these lines chopping down costs. Purchasers will profit as well, as the information will empower organizations to value their premiums all the more precisely, with Positive conduct remunerated by prizes, motivating forces and rebates.

Cooperating, telematics and investigation will permit insurance agencies to convey a speedier and more precise administration to buyers While telematics might be the most energizing advancement in protection, the most problematic Trend in claims is the part of examination. Associations are robotizing the cerebral, scholarly procedures, applying huge information and examination to settle on continuous choices better, more reliable and more natural.

Furthermore, it is this capacity that will profoundly affect how we change the engine claims travel and convey the capability of telematics.

6.3 . HOLDING HANDS OF BIG DATA AND ANALYTICS

Clasping hands of Big Data and Analytics will enable the engine protection industry to comprehend the cost and valuing suggestions and to secure the shoppers' association not just in the way their claim is overseen yet in seeing how it has been overseen.

The engine protection industry needs to grasp telematics and huge information bigly. Associations considering telematics important today will appreciate leeway over those that don't. They won't just pull in more clients however will be better arranged for the expanding complexity and scaling down of gadgets that will come within the near future.

As associated autos turn into a consistent piece of our associated lives, automakers, engine and life back up plans, specialist co-ops, server farms ,advanced mobile phone organizations are framing another and extending eco-framework. They have to cooperate to mine client information and conduct as well as to utilize that information to offer more exact valuing and redid administration to purchasers.

By clasping hands of telematics, by using the power and knowledge that enormous information offers, the engine protection industry can react to client request and establish the framework expected to grasp the web of-things. Telematics will enable the business to venture up to the following level – to make incorporated, synergistic, application driven

7. CONCLUSION

In the capricious and consistently changing monetary condition, insurance agencies need to outfit with new items, maybe even change their plans of action, and the path in which they win and hold clients. Vehicle protection as an industry will change always in a universe of driverless autos.

That this day will come isn't in question, the main way that associations can make sure that they will have the capacity to address this difficulty is to be a piece of rolling out this improvement happen. Right now is an ideal opportunity to begin getting ready for that day.

REFERENCES

1. Alvarez, M., Raposo.Raposo, J., Pan, A., Cacheda, F., Bellas, O., Carneiro, V.: Crawling the Content Hidden behind Web Forms. In: ICCSA, pp. 322–333 (2007)

2. Barbosa, L., Freire, J.: An Adaptive Crawler for Locating Hidden-Web Entry Points. In: Proceedings of WWW, pp. 441–450 (2007)

3. Barbosa, M.L., Freire, J.: Siphoning Hidden-Web Data through Keyword-Based Interfaces. In: Proceedings of SBBD (2004)

4. Bar-Yossef, Z., Gurevich, M.: Random Sampling from a Search Engine's Index. In: WWW, pp. 367–376 (2006)

5. Bergman, M.K.: The deepWeb: Surfacing hidden value. J. Electron. Publ. 7(1) (2001)

6. Dong, X.L., Srivastava, D.: Big Data Integration. In: ICDE, pp. 1245–1248 (2013)

7. Dong, Y., Li, Q.: A deep Web crawling approach based on query harvest model. J. Comput. Inf. Syst. 8(3), 973–981 (2012)

8. Furche, T., Gottlob, G., Grasso, G., Guo, X., Orsi, G., Schallhart, C.: The ontological key: automatically understanding and integrating forms to access the deep Web. VLDB J. 22(5), 615–640 (2013)

9. Gale, W.A., Sampson, G.: Good-turing frequency estimation without tears*. Journal of Quantitative Linguistics (1995)

10. Hatcher, E., Gospodnetic, O.: Lucene in action manning publications (2004)

11. He, B., Patel, M., Zhang, Z., Chang, K.C.C.: Accessing the deep Web: a survey. Commun. ACM 50(5), 94–101 (2007)

12. He, Y., Xin, D., Ganti, V., Rajaraman, S., Shah, N.: Crawling Deep Web Entity Pages. In: Proceedings of WSDM'13, pp. 355–364 (2013)

13. Ipeirotis, P.G., Gravano, L.: Distributed Search over the Hidden Web: Hierarchical Database Sampling and Selection. In: VLDB (2002)

14. Jiang, L., Wu, Z., Feng, Q., Liu, J., Zheng, Q.: Efficient Deep Web Crawling Using Reinforcement Learning. In: Proceedings of PAKDD, pp. 428–439 (2010)

15. Jiang, L., Wu, Z., Zheng, Q., Liu, J.: Learning Deep Web Crawling with Diverse Featueres. In: WI-IAT,pp. 72–575 (2009)

16. Khare, R., An, Y., Song, I.: Understanding deep Web search interfaces: a survey. ACM SIGMOD Rec.39(1), 33–40 (2010)

17. Kushmerick, N., Weld, D.S., Doorenbos, R.: Wrapper induction for information extraction. In: Proceedingsof IJCAI (97)

18. Liakos, P., Ntoulas, A., A, L., Delis, A.: Focused crawling for the hidden Web. World Wide Web 2015,1–27 (2015)

19. Liddle, S.W., Embley, D.W., Scott, D.T., Yau, S.H.: Extracting Data behindWeb Forms. In: Proceedingsof Advanced Conceptual Modeling Techniques (2002)

20. Liu, J., Wu, Z.H., Jiang, L., Zheng, Q.H., Liu, X.: Crawling Deep Web Content through Query Forms.In: Proceedings of WebIST, 634–642. Lisbon Portugal (2009)

21. Liu,W., Meng, X., Meng,W.: Vide: A vision-based approach for deepWeb data extraction. IEEE Trans.Knowl. Data Eng. 22(3), 447–460 (2010)

22. Lu, J.: Ranking bias in deep Web size estimation using capture recapture method. J. Data Knowl. Eng.69(8), 866–879 (2010)

23. Lu, J., Li, D.: Estimating deep Web data source size by capture-recapture method. Inf. Retr. 13(1), 70–95 (2010)

24. Lu, J., Wang, Y., liang, J., Chen, J., Liu, J.: An Approach to Deep Web Crawling by Sampling. In:Proceedings of Web Intelligence, pp. 718–724 (2008)

25. Madhavan, J., Afanasiev, L., Antova, L., Halevy, A.: Harnessing the Deep Web: Present and Future. In:Proceedings of CIDR (2009)

26. Madhavan, J., Ko, D., Kot, Ł., Ganapathy, V., Rasmussen, A., Halevy, A.: Google'S Deep-Web Crawl.In: Proceedings of VLDB, pp. 1241–1252 (2008)

27. Mandelbrot, B.B.: Fractal Geometry of Nature. W.H. Freeman Press (1988)