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Digital Transformation of Insurance Industry through Telematics & Artificial Intelligence

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ABSTRACT: The current vehicle insurance premium process is very static, it has a fixed premium based on the age of the vehicle, it does have a factor called “no accident bonus”, but that is also a fixed amount, this process must change and become more data driven. Couple of important factors are completing missing while calculating he premium which can completely change the way it is done today. While calculating the car insurance premium - The current motor insurance products do not consider the driving behaviour and the distance travelled – the two most important factors determining the risk of accident, while calculation of the car insurance, The future of insurance will have products that provides more weightage to the driving score while calculating. This is possible through the Digital Transformation of insurance industry through Telematics and Artificial intelligence.

Not only the insurance premium calculation but the overall insurance industry can be transformed into a data driven organization, like the insurance claim system can be optimized and made data driven.

KEYWORDS: Digital transformation, Insurance, telematics, artificial intelligence

I. INTRODUCTION

Good Drives would no longer be subsidizing bad drivers – in future the good drivers would pay much lower premium and bad drivers would be required to pay a higher premium – this will eventually create a pool of low-risk drivers making the roads much safe than before.

We don't drive cars anymore. We drive computers on wheels. Depending on the model, cars these days sport somewhere between 50 and well over 100 embedded microprocessors. They also generate a huge amount of data. Experts predict that by 2020, connected cars will collect more than 11 petabytes of data a year, including from embedded telematics devices., about four minutes. The change in the auto industry comes from making sense of this data. Important points in digital transformation in insurance industry using Artificial Intelligence are as follows:

- Connected Vehicles & Telematics in Insurance industry.
- Tracking Driver behavior through big data analytics.
- Predictive Analytics in insurance premium.
- Big data Analysis

MOTIVATION

- Create safe roads by promoting good driving behavior
- Good drives are identified and recognized through reward system to pay much less premium
- Bad driving patterns are identified and trained to safe roads
- Reduce the number of accidents by identifying bad driving patterns and training such drivers

II. REVIEW OF LITERATURE

Author proposes [1] a new approach to claim insurance for company using telematics & AI.

Author Proposed [2] auto insurance claiming for digital transformation on azure cloud. How to handle big data generated by vehicles using machine learning & AI

Author [3] proposed to build a precise model to predict car insurance claims through machine learning techniques. with a focus on advanced statistical methods and machine learning algorithms that are the most suitable method for handling missing values.

III. PROPOSED METHODOLOGY

- Vehicle data form OBD (CAN) is read and published through telematics
- Data is available in streaming format in open-source system like KAFKA
- Realtime data is read from KAFKA Topics
- Data is ingested into data lake and machine learning algorithms like random forest and others are used for detecting driving pattern
- Alerts can also be generated on the driving patterns

A. Architecture in detail

- We have used a good mix of opensource and cloud native resources
- EMQX / RabbitMQ for connecting the devices (open-source version)
- EMQX will be publishing the data on KAFKA Cluster (open-source EMQX version does not have data retention)
- KAFKA Cluster can save the data with a retention period of almost 1 year till the data is consumed by the subscriber
- KAFKA has publisher and consumer model in this case the devices will be publishers through EMQX
- Event Hub is a good cloud native option for KAFKA Cluster to avoid the maintenance and manual scaling activities
- Stream Analytics: Realtime low cost and low bandwidth cloud native resource for querying the incoming data
- Azure Data Explorer is a good option for near real-time data analytics and data storage in time series, it is a big data processing/ cluster computing time series database
- The Live Streamed data from Stream Analytics / Azure Data Explorer is exported to the data lake / blob storage for machine learning and AI work by the data scientist
- The data is also make available in dataware house after initial data modelling and cleansing
- Power BI is the reporting tool used for dashboarding and reporting
- Azure Data Factory is used for data orchestration

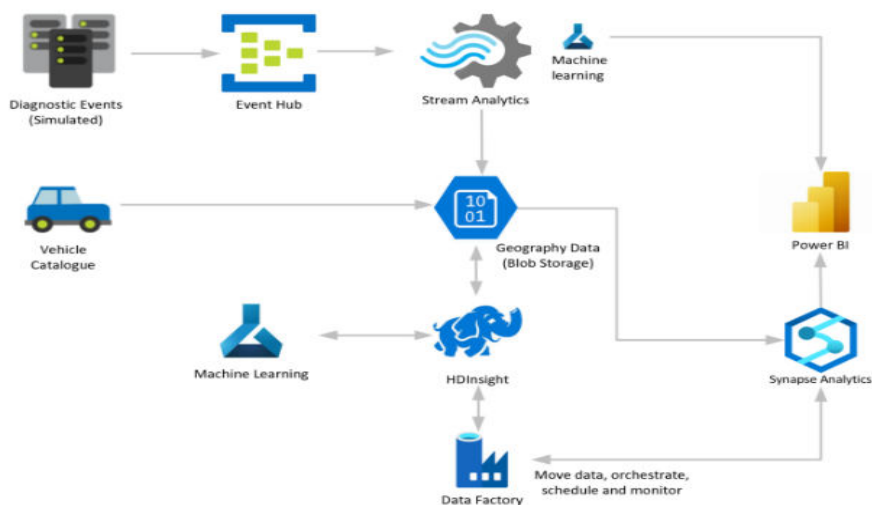


Fig 1. Telematics Architecture

IV. CONCLUSION

- Digital transformation through telematics and AI can significantly improve the insurance industry
- The cloud makes it easy to have scalable solution, increase the number of connected vehicles

V. FUTURE WORK

- Link Vehicle Health to the Insurance premium
- Link the accidents and other incidents to insurance premium
- Link with the Reward Systems
- Move few features on the edge computing

REFERENCES

1. X. Zhang, X. Chen, Y. Chen, S. Wang, Z. Li, and J. Xia, "Event detection and popularity prediction in microblogging," in Elsevier Neurocomputing, vol. 149, pp. 1469–1480, 2015..
2. Hanafizadeh, P., & Paydar, N. R. (2013). A data mining model for risk assessment and customer segmentation in the insurance industry. International Journal of Strategic Decision Sciences (IJSDS), 4(1), 52-78.
3. Kreidler, M. (2008). Guide to auto insurance. Washington State Office of the Insurance Commissioner. Retrieved from www.insurance.wa.gov [4] Huangfu, D. (2015). Data Mining for Car Insurance Claims Prediction.
4. Heo, W. & Grable, J. E., 2017. Demand for Life Insurance: A Consumer Perspective. Journal of Financial Service Professionals, p. 71(3)
5. McFarlane, C., 2019. 3 Phases to Digital Transformation. [Online] Available at: <https://www.insurancethoughtleadership.com/three-phases-to-digital-transformation/> [Accessed 21 May 2021].
6. Swiss Re, 2020. Data-driven insurance: ready for the next frontier?. Sigma, 29 January, Issue 1, p. 20.
7. Capgemini, 2011. Digital Transformation: A Road-Map for Billion-Dollar Organizations. [Online] Available at: <https://www.capgemini.com/resources/digital-transformation-a-roadmap-for-billion-dollar-organizations/> [Accessed 21 May 2021]
8. Catlin, t. & Lorenz, J.-T., 2017. Digital disruption in insurance: Cutting through the noise. [Online]
9. Eckert, C. & Osterrieder, K., 2021. How digitalization affects insurance companies: overview and use cases of digital technologies. [Online]

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