University of Zurich[UZH]

# The Impact of Artificial Intelligence on Insurance Industry and Real - Time Dynamic Analysis

## Master Thesis


Author

Alessandra Falkowski

Via Carà 23

CH-6593 Cadenazzo

12-980-314

alessandra.falkowski@uzh.ch


May 2019

# Executive Summary

Artificial intelligence is a tool that is becoming so useful and ubiquitous that it has been described as a kind of sixth sense. It is present in our everyday lives in ways that we do not always realize, making us not perceive the speed with which it affects us. Technological instruments, able to handle huge amounts of data and to simulate human behaviours, are expected to be diffused in the near future affecting all industries' business models significantly; this is what gives companies a clear advantage in amplifying its products and services.

For many years we have been hearing about technologies that have entered the banking sector by making us familiar with the term fintech; a similar pattern is also being seen in the insurance industry. As new technologies are introduced into the insurance industry, people will have to reimagine it and the way in which the insurance system will work in the future, but the speed with which the market is developing and the complexity of changes that artificial intelligence will bring is not completely understood.

This Thesis provides a better comprehension of what currently exists and is thought to get an insight into how the insurance market is being affected by AI giving a deeper insight on real-time analysis and how the system we are used to will be transformed.

The key findings presented in this Thesis are that the insurance sector is being affected by technology since it is a data-based sector and vulnerable to changes. Insurance companies have to digitizing existing business models through real-time processes to maintain a competitive edge. The revolution in business activities could be beneficial to the market development; new innovations allow for an increased individualized risk pricing that will make fairer premiums and more reflective of that risk, leading to an improvement of customer experience. Although customers will be charged with their actual risk level, avoiding assessments based on group characteristics, risk pooling will still be relevant in the insurance sector: if the risk is too high, an insured would not be able to afford the insurance if it were not for risk pooling, he would be fully responsible for any loss, so the principle of paying claims with the premiums of the

entire pool will not change.

Insurance technologies has not to be seen as a problem but as an opportunity as it allows to keep up with constant changes, reduces information asymmetries and enable insurers to take a proactive role in reducing risks rather than compensating costs after the occurrence of a loss event. This proactive approach increases the social capital of the insurance providers, mitigates preventable claims and customers' frauds and allows for cross-selling of multiple services building an insurance ecosystem of different companies.

However, it should be noted that AI not only brings benefits but also raises some concerns. The impact of artificial intelligence is twofold: on one hand, it impacts the employment levels and introduces new risks into the market, on the other hand, it helps the insurance processes and offers the possibility to develop potential new insurance products.

This study is presented in six chapters. The first chapter is an introductory part that contains an overview of the disruptions the insurance industry is facing. The second chapter provides a background on the insurance system and the principles on which it has been based so far. The third chapter explains how artificial intelligence will influence the insurance industry and how it should respond to changes. The fourth chapter is devoted to dynamic insurance based on real-time analysis, with a focus on risk assessment and underwriting and claim management processes. The fifth chapter deals with two important limitations that AI brings and the related opportunities. The last and sixth chapter includes the conclusion of the study. This Thesis is supported by figures, tables and examples whenever necessary to assist the reader in developing a clear understanding of the topic.