Enhancing Marketing Intelligence in the Insurance Sector: A Study in the Belgrade Region

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Abstract: In the rapidly evolving landscape of data-driven business, marketing intelligence has become a cornerstone for organizational success. This entails the systematic collection, analysis, and interpretation of vast data sets, empowering businesses to make strategic marketing decisions. Employing techniques like data mining, machine learning, and sentiment analysis, marketing intelligence uncovers hidden patterns, identifies opportunities, and predicts challenges. A pivotal outcome is enhanced customer understanding through detailed profiles derived from sources like social media, website interactions, and purchase history. This depth of insight allows for the creation of personalized, precisely targeted campaigns, fostering stronger customer relationships and loyalty. Moreover, marketing intelligence facilitates data-driven decisions aligned with overarching business goals, optimizing resource allocation, budgeting, and strategic planning. Utilizing software solutions such as RapidMiner, organizations gain efficiency in data analysis, machine learning, and predictive analytics. Net Promoter Score (NPS) acts as a key metric, gauging customer sentiment and likelihood to recommend products or services. This paper focuses on evaluating customer satisfaction in the insurance sector, aiming to propose enhancements for service quality based on existing research results. Through a comprehensive examination of customer satisfaction levels, the study seeks to provide actionable insights for continual improvement.

Keywords: Marketing intelligence, Customer satisfaction, Data-driven decision making, RapidMiner

Introduction

Today, information undoubtedly represents one of the key elements that provides a competitive advantage, given that having timely, accurate, reliable and objective information enables effective decision-making, which will, in turn, enable the use of the strengths a company has at its disposal to achieve the desired goals. In today's dynamic landscape, it is imperative for all organizations to effectively harness and navigate information in order to stay abreast of the latest advancements in knowledge sciences and technological innovations. This becomes particularly crucial in the face of the challenges posed by the 21st-century realities, such as the expansion of markets, increasing product diversity, the rapid evolution of information technology, and the intense competition within the realm of university education (Hussein, 2020). However, the problem of the modern era is that information is everywhere around us, so a problem for the management is how to single out the "best" information, that is, the information that has the previously mentioned characteristics (Azeez, 2020). More than ever before, information is found in the environment of the organizations, and it is a product of technological progress, primarily the Internet, which has enabled the development and distribution of a large volume of structured and unstructured information. However, despite such a large volume of information, companies are often forced to conduct empirical research themselves and to obtain primary data. Nevertheless, this is not only applied to quantitative values, but to a combination of text messages, numbers and multimedia content. Such nature of information requires the use of specific software tools, which will identify trends based on analytical processes and ensure the prediction of certain actions and their outcomes (Harrison & Cupman, 2013).

Marketing intelligence is relevant in the aforementioned domain. It refers to the application of specific software solutions for the needs of strategic and tacti-

cal planning of organizations, and which can be more precisely defined as "the gathering of marketing information from all available sources, i.e. as marketing research, market development, internal and external environment, verification and validation of reliability and consistency of information sources and their use for decision-making" (Vishnoi & Bagga, 2020; Lies, 2022; Aripin et al, 2022). In simpler terms, it is a special approach in the identification, collection and the analysis of information from the internal and external environment that can be used in the decision-making process, and which provides a competitive advantage. In that process, three categories of information are analysed separately in order to identify opportunities and threats (Azeez, 2020): information about customers, information about competitors and information about the marketing environment.

With regard to the previously mentioned attitudes, three relevant groups of marketing intelligence activities can be identified (Vishnoi & Bagga, 2020): acquisition, i.e. gathering information from various sources, information analysis and activation, i.e. the use of information for decision-making purposes.

Marketing intelligence fulfils numerous roles within organizations, especially highlighting its roles in supporting decision-making when entering a new market, minimizing business risk, gaining a competitive advantage, meeting customer needs, and developing a corporate identity (Harrison & Cupman, 2013).

This paper is divided into four sections. The first section will discuss the concepts related to marketing intelligence, while the second section will focus on marketing intelligence in the insurance sector. The third section presents the relevant aspects of Net Promoter Score. The final section presents the findings of the empirical research.

The Basics of Marketing Intelligence

Business and marketing intelligence systems combine data collection, data storage and knowledge management with analytical tools to present complex internal and competitive information to managers and decision makers. In this respect, we should highlight some of the relevant components of marketing intelligence, which include the integration of decision-making tools and processes, with the aim of improving the quality of information that will be used in business decision-making. In particular, the following components should be highlighted (Negash, 2004): real-time data storage, data mining, automated detection of anomalies and exceptions, proactive warning, automated learning, geographic information systems and data visualization.

When conducting marketing analysis and marketing intelligence related activities, various methods and techniques are used, usually supported by software solutions. More precisely, they are tools that help in the application of said processes and the automation of information processing analysis (Hedin et al, 2014). They refer to a broad category of applications and technologies for collecting, storing, analysing and providing access to data to help users make better business decisions (Kolhe et al, 2011). Considering the abovementioned, marketing intelligence techniques and tools include (Olszak & Zurada, 2015): tools, technologies and software products; knowledge management; decision support systems; control panels; new ways of handling information or a specific philosophy and methodology of working with information and knowledge; analytical processes; competitive intelligence and big data analytics.

Marketing intelligence is not a new activity and has actually existed since marketing information has been actively used and analysed for decision-making purposes. However, today various information systems and software solutions are actively used in this process. Not only do they facilitate the analysis process, but they also shorten the analysis time and improve the quality of the obtained results. Considering the subject and aim of this paper, the prospects of applying the RapidMiner software solution will be presented in particular.

Marketing Intelligence in the Insurance Sector

Today, the insurance sector is met with a very large volume of data that can be used for the process of making business decisions. Insurance companies typically use customer relationship management systems and enterprise resource planning technologies to collect and analyse this data. However, the lack of use of specific software solutions and technologies creates problems with the conversion of information into knowledge used to improve competitiveness. To resolve this issue, insurance companies need to centralize their data by keeping it at a single location. This ensures that authorized personnel, including actuaries, financial

analysts and managers, can access the data. After that, the data must be submitted for appropriate analysis in order to draw accurate conclusions. Marketing intelligence enables insurance companies to streamline their operations, leading to cost reductions and more competitive pricing for their products and services (Renuka & Shankar, 2020).

The insurance industry is entirely dependent on the ability to translate data into information about customers, competitors, markets and the business environment. The implementation of marketing analytics in the insurance industry involves the following processes (Rostek, 2009):

- Justification analysis of its implementation viewed from the aspect of cost-effectiveness and potential effectiveness of goal attainment.
- Infrastructure and marketing intelligence systems planning.
- Business analysis, which includes requirement assessment, data availability assessment and the assessment of software to be applied.
- System and data storage design.
- Implementation of a marketing analytics system through the application of specific analytical approaches, methods and techniques.

Some aspects of the application of marketing intelligence in the insurance sector provide the following (Renuka & Shankar, 2020):

- the ability to detect inconsistencies and fraud, i.e., the identification of suspicious cases, on the basis of which companies can avoid paying premiums for false claims;
- storage for a large volume of different types of data, including unstructured data;
- the identification and classification of profitable and valuable clients;
- improvement to the sales process and the volume of sales of insurance policies;
- predictive modelling;
- customer relationship management.

Customer relationship analysis helps in developing new products and adapting products to current customer needs and to appropriate customer segments. Data collection tools are used particularly for customer satisfaction analysis. Understanding customer needs in order to identify satisfaction is based on a multidimensional analysis that includes segmentation and segment analysis. Segmentation is used to identify segments of customers with common characteristics. The segments thus identified can be treated as distinct entities and future cooperation can be directly adapted to their needs. Client segmentation enables the creation of offers aimed at specific groups of customers, which lowers marketing costs and significantly increases efficiency (Rostek, 2009).

Sentiment analysis is a natural language processing technique (NLP), which includes the assessment of the sentiment or an emotional aspect expressed by customers (i.e. insurance customers) in a segment of text. The goal of sentiment analysis is to automatically identify whether a text expresses positive, negative, or neutral emotion and, in some cases, to quantify its strength (Struhl, 2015).

Net promoter score

Net Promoter Score is one of the metrics for identifying and measuring the degree of customer satisfaction. In its most basic form, Net Promoter Score involves asking customers a single question: "How likely are you to recommend our company to a friend or colleague?" - on a scale from 0 to 10. Customers with a score of 0 to 6 are categorized as detractors, those with 7 and 8 as passives, and those with 9 and 10 as promoters. Net Promoter Score is calculated as a percentage by subtracting the detractor score from the promoter score and dividing by the total number of responses, excluding passive buyers, i.e. (Baquero, 2022):

$$\text{NPS} = \frac{\textit{Promoters-detractors}}{\textit{total responses}} \text{x}100$$

Results ranging from 100 to 0 are considered unsatisfactory, while those falling within the range of 100 to 50 are categorized as deficient, and those from 49 to 0 are considered insufficient. In case the result is insufficient, it implies that the service quality is very negatively perceived by the customer.

Empirical Research

Subject, Aim and Research Questions

Marketing intelligence, in the context of insurance customer satisfaction, involves systematic collection, analysis and interpretation of data, in order to obtain information that can be used to make marketing decisions. This process allows insurance companies to

understand the importance of customers' feelings, attitudes and behaviours, which in turn leads to more effective decision making. Using this information, insurance companies can discover patterns and trends in customer satisfaction data. Through rigorous data analysis techniques, such as sentiment analysis, clustering and trend identification, companies can gain a comprehensive understanding of their customers' perceptions and opinions.

Considering the existing results of research on customer satisfaction in insurance, the *subject* of this paper is the level of customer satisfaction in insurance. The *aim* is to examine the level of customer satisfaction, in order to formulate proposals for further improvement of service quality. In order to examine the goal, the research was conducted in 2022 among respondents coming from the Belgrade region. In the research process, a sample of 449 respondents was formed.

Starting with the subject and the aim, the following research question was posed: *Which key recommendations can be identified based on the analysis of consumer attitudes in the process of marketing intelligence?*

Rapid Miner was used in this paper in order to process the opinions of the respondents. Descriptive statistical analysis was used as a statistical technique.

Analysis of the Results

Firstly, the results of the descriptive analysis regarding the age of the respondents and their average NPS score can be identified. According to the results, it is first noted that the average age of the respondents is 48.26, with an average deviation of 13.13 years. The average NPS score is 8.88 with standard deviation of 2.658.

After analysing certain invalid answers (for example, some respondents did not provide an answer or indicated that they were very old - in most cases 124), a total of 449 attributes were identified. When it comes to the answers, Table 2 shows the answers that have a frequency greater than 1, that is, the ones written by more than one respondent.

If we analyse the responses with a frequency greater than 1, it can primarily be noted that 40 of them do not provide any suggestions regarding changes in the service structure, which indicates a certain degree of satisfaction with the offer. The results of the frequency analysis are presented in Table 1.

However, looking at the remaining responses (Table 2), the following suggestions for improvements to

Table 1. *The most frequent responses*

Responses	Frequency
The main thing is that I work for Triglav, so I recommend it to friends.	3
Simply, the best conditions.	3
Online shopping	3
I do not know what you are like in case I had the need to activate it, that is why I gave this response.	3
Because it is the most affordable insurance, the possibility to conclude insurance online, which is very simple	3
Fast, efficient	2
Fast, safe and efficient	2
Good quality of insurance and an affordable price.	2
Efficient, fast and simple to get travel insurance online	2
Buying a policy online in 2 minutes. For several years now, for every trip, I have been buying policies in the same insurance company	2
A simple and quick way to get insurance online.	2
I also like the way and speed of concluding insurance contracts in these fast-paced times.	2
It is online and there is a discount	2
The staff is very pleasant and I am very satisfied with the services and offers	2
Reliance	2
The advantage of online contract conclusion and competitive pricing compared to other insurance companies	2
I would recommend it because I work in the company.	2
I would recommend it to everyone, as my wife and I have been using it (exclusively) for the last 10 years or so.	2
Professionalism	2
Luckily I didn't have to activate it, I hope I never have to.	2
Everything is great	2
Because it is possible to buy the insurance online.	2
Because of your promptness, efficiency and trust shown.	2

the service in the future can be identified: introduction of group insurance, introduction an optional user account, recognition of those customers who have used the service on the Internet previously, improvement in the simplicity of the user message regarding covid-19, and reduction of bureaucracy.

In the continuation of the analysis, cluster analysis (k means method) was applied. As noted below, a total of five clusters (0-4) and 449 attributes were created: Cluster 0: 118 items; Cluster 1: 92 itens; Cluster 2: 67 items; Cluster 3: 167 items; Cluster 4: 36 items.

Cluster 0, which is the second largest, includes clients with an average age of 33.7, whose NPS is 9.576. Cluster 1 has fewer respondents, their average age is slightly higher (49,435), but that is why these respondents (insurance customers) achieve the highest NPS score, which is 9,674. Cluster 2 is smaller compared to the previous 2 clusters and includes the eldest insurance customers, with an average age of 67,985, and whose NPS score is the second highest (9,582). Cluster 3 is the largest with 136 respondents, the average age is 51,213, and their NPS score is 9,522. Cluster 4 has the fewest respondents, their average age is 45.167, but this is also the group of respondents with the lowest NPS score (0,8333).

Based on the results of the cluster analysis, it can be observed that the highest NPS score is actually achieved by older groups of respondents (over 49 years of age). Despite featuring different types of insurance, these insurance customers show the highest satisfaction and loyalty. These results can also be presented graphically, as shown in Figure 1.

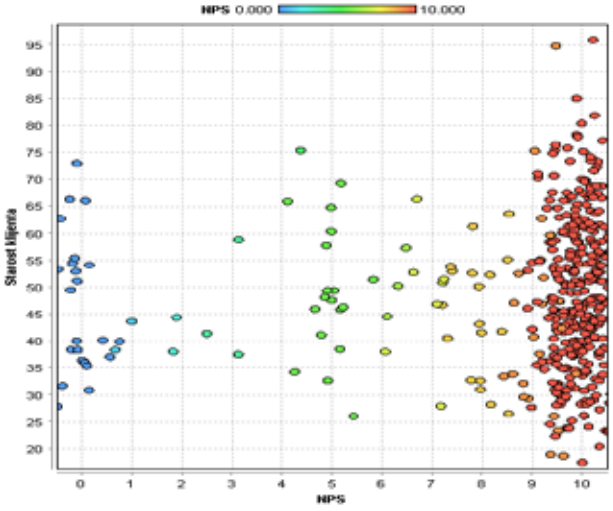

Figure 1. *As can be seen from Figure 1, the clustering around the highest value of the NPS score occurs in respondents around the age of 49 (red dots).*

Table 2. *Other most frequent responses*

Responses	Frequency
Nothing	40
There is no group insurance for fewer than 6 people, i.e. 4 or more	8
The same as last time. The introduction of a user account where all personal data will be stored and doesn't have to be input every time	3
I have no suggestions.	3
Nothing in particular.	3
For you to recognise your customers, who have used your internet services previously.	2
Shorter messages which would be clear and transparent to the users when it comes to covid-19 risk coverage.	2
Less paperwork.	2
I have no particular suggestions as I have always been more than satisfied with the service and the speed of the conclusion of the contract.	6
No complaints	4

Table 3. *Cluster analysis results*

Atribute	Cluster 0	Cluster 1	Cluster 2	Cluster 3	4Cluster 7
Customer age	33.712	49.435	67.985	51.213	45.167
NPS	9.576	9.674	9.582	9.522	0.833
Response	16	16	325	16	0
Additional comments	6	6	6	6	6
Respone no.	1	1	1	1	1
Type of insurance	17.915	4.326	16.940	17.779	11.500

CONCLUSION

This research highlights the critical role of marketing intelligence in enhancing insurance client satisfaction through systematic data collection, analysis, and interpretation. By understanding customer attitudes and behaviors, insurance companies can make better decisions, identify patterns, and predict future trends. Customer segmentation emerges as a potent strategy, allowing companies to tailor communication and business decisions to different customer segments effectively. Leveraging predictive modeling, insurance firms can anticipate changes in satisfaction and adjust their offerings accordingly, fostering innovation and personalized services. Specialized software tools facilitate the management and analysis of vast customer data, leading to actionable insights. The research emphasizes key areas for improving insurance services, including introducing group insurance, optional user accounts, simplifying communication regarding COVID-19, and reducing bureaucracy. These initiatives aim to enhance the overall customer experience, requiring continuous feedback collection and refinement. However, the research acknowledges limitations in sample size and methodology, suggesting the need for broader representation and additional statistical analysis to ensure comprehensive insights.

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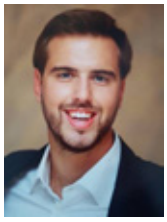

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