Integrating artificial intelligence into the insurance claims management process.

ادماج الذّكاء الاصطناعي في عملية معالجة شكاوى العملاء في مجال التأمينات

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A B S T R A C T

The aim of this paper is to highlight the advantages of using artificial intelligence in claims management, focusing on the case of the auto insurance sector in Algeria, which has seen the introduction of a national platform for claims management e-Recours. To this end, the first part of our work is devoted to present the various aspects of AI application in the insurance sector, the second part is allocated to dedicated to underscoring the importance of claims management using AI, and the final part is reserved for exposing the e-Recours application.

The results of our study show that e-Recours has delivered satisfactory results to date, automating the claims management process, speeding up file processing and expedited claim settlements. It also helps to detect fraud and ensure that insurance companies comply with current claims management regulations.

Key words: Insurance, Artificial intelligence, Claims management.
JEL Classification: G22, O39.

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الملخص

تهدف هذه الورقة إلى تسليط الضوء على مزايا استخدام الذكاء الاصطناعي في معالجة شكاوى العملاء، مع التركيز على حالة قطاع التأمين على السيارات في الجزائر، والذي شهد إطلاق منصة وطنية لمعالجة الشكاوى والطعون e–Recours.   وتحقيقا لهذه الغاية، خصصنا الجزء الأول من عملنا لعرض مختلف جوانب تطبيق الذكاء الاصطناعي في قطاع التأمين، أما الجزء الثاني فقد عرضنا من خلاله أهمية ادماج أدوات الذكاء الاصطناعي في عملية معالجة شكاوى العملاء، وتطرقنا في الجزء الأخير لعرض تطبيق e–Recours والنتائج التي حققها منذ اطلاقه.

وتظهر نتائج دراستنا أن تطبيق e–Recours قد حقق نتائج مرضية حتى الآن، بأتمتة عملية معالجة الشكاوى والطعون، وتسريع عملية معالجة الملفات واختصار آجال التحصيل. كما أنه يساهم في الكشف عن الاحتيال وضمان امتثال شركات التأمين للتنظيمات المعمول بها حاليا في معالجة الشكاوى والطعون المقدمة من العملاء وشركات التأمين.

الكلمات المفتاحية: التأمينات، الذكاء الاصطناعي، معالجة الشكاوى.

تصنيفات JEL: G22, O39 .

1. Introduction

The competitiveness of insurance companies depends on their ability to keep pace with the changing needs and expectations of the various players operating in the market. Insurers are always looking for ways to maximize their profits and optimize their processes. It is to meet these needs and achieve this objective that insurance companies have begun to turn to artificial intelligence, a source of competitive advantage they can draw on to compete and win new market share.

Artificial intelligence (AI) is revolutionizing many sectors, and the insurance industry is no exception. Indeed, AI is opening up new perspectives and offering the potential to improve various aspects of insurance, including risk management, underwriting, fraud detection and customer interaction.

A new development in the insurance industry is the use of AI to automate claims processing. AI-powered claims management solutions have the potential to streamline processes, improve customer experience and boost overall company performance. They represent an essential means of saving time, minimizing errors and combating fraud.

In this paper, we are interested in AI applications in the insurance sector, particularly claims management, and to this end we seek to answer the following problem: **How can artificial intelligence revolutionize claims management in the insurance sector?** It's important to note that scientific literature specifically addressing this topic is still scarce.

In the remainder of this paper, we will attempt to answer this question, first presenting AI applications in the insurance sector, and then discussing claims management using AI. We will then present the digital application of the "IRSAM" inter-company agreement for the settlement of automobile claims, E-Recours, and we will also discuss the results obtained to date and their impact on the Algerian insurance sector, automobile branch.

2. AI in the insurance sector: literature review

AI refers to anything that autonomously imitates or emulates human behavior. In the insurance field, it refers to the intelligent processing and classification of data, and is based on several types of technology, such as natural language processing, machine learning and image analysis (P.Arnal, 2019).

Artificial intelligence (AI) is increasingly being used in the insurance industry for risk prediction, pricing accuracy, fighting fraud and optimizing the customer experience.

2.1. Predicting and controlling risks

Risk assessment is an essential process in the insurance industry. It involves assessing the probability of occurrence of an undesirable event, and determining the financial consequences associated with that event. The purpose of this operation is to enable insurance companies to make informed decisions regarding the classification of insureds and the pricing of policies. AI technologies are widely used in the insurance industry to perform analyses aimed at refining risk knowledge and improving model predictability (Dubois, 2020). Indeed, AI enables insurance companies to improve their ability to predict risk by estimating loss probabilities.

As is well known, insurance is built on the analysis of a large amount of data in order to derive a trend and design appropriate risk management. Nevertheless, AI technologies enable more refined control of risks whose history is very limited (Nadia El HOUARI,2020).

2.2. Pricing and individualizing offers

In the insurance industry, it's essential to price a product before knowing its cost. This reality makes the underwriting process more critical and important. Insurance companies need to predict how many claims will occur and the severity of those claims to enable insurers to price their insurance products fairly accordingly. (M.Hanafy & R. Ming, 2021).

Currently, many insurance companies are using AI methods and techniques rather than a conventional approach, offering a more comprehensive way of producing more reliable and representative results (L.Columbus ,2017). A new study on artificial intelligence and corporate profit margins was conducted by McKinsey & Company. Through which they showed that companies that fully embraced artificial intelligence projects generated higher profit margins, ranging from 3% to 15%. (L.Columbus, 2018).

In short, the use of AI in insurance underwriting makes it possible, on the one hand, to adjust premiums and offer fairer, more accurate rates to policyholders. And on the other, to benefit insurers by enabling them to manage risks more accurately, make profits and remain competitive.

2.3. Fighting fraud

Fraud is when a person or entity deceives insurance companies to obtain compensation or benefits to which they are not entitled (R. Roy & Kt. George, 2017).

AI is being used to provide useful solutions to reduce the risk and cost of insurance fraud and restore the relationship of trust with policyholders. Relying on advanced data analysis techniques, AI enables insurers to detect fraudulent behavior even before the fraud attempt occurs (D.Rocha Festa,2022). These tools offer accurate results in a much shorter timeframe.

AI uses sophisticated algorithms and machine learning to analyze data patterns and identify anomalies that could indicate fraudulent behavior. This technology can be used to identify suspicious activity that could be indicative of fraud. It can also be used to detect fraudulent activity aimed at generating false or exaggerated claims (M. Frąckiewicz, 2023).

2.4. Improve customer interaction

The use of AI in the insurance sector enables insurance companies to offer a more responsive, personalized and efficient service through chabots and virtual agents, providing 24 /7 service and quick answers to common

questions, automation of administrative tasks, claims management,....etc. This can boost customer satisfaction, encourage loyalty, offer better quality of service and thus contribute to a better overall experience for policyholders.

AI technologies also enhance the productivity of insurance professionals by reducing administrative costs and improving profitability (N. El HOUARI,2020). This enables them to focus on higher value-added tasks and offer better customer service.

From the above, artificial intelligence (AI) is increasingly being used in the insurance industry to improve risk assessment, underwriting, fraud detection and customer interaction. Through the utilization of technologies such as natural language processing and machine learning, AI enables insurance companies to analyze data more accurately, reduce fraud, offer improved customer service through chatbots and virtual agents, while increasing operational efficiency and profitability.

3. Claims management with AI

The traditional claims handling process is notoriously slow. Several steps must be taken between the time a claim is reported and the time it is settled by the insurer. When a claim is filed, claims agents must verify the information provided by the claimant, collect evidence and assess the damage before following up with the claimant. Agents determine the amount of compensation on the basis of their analysis, their interpretation of the loss and the concordance with contractual clauses. (S.Jacob & al, 2023).

The introduction of AI is revolutionizing the way claims are handled. These technologies are generally mobilized to assist insurance company agents at various stages of the claim's settlement process. In some cases, they provide full automation of this process, encompassing evidence gathering and claims resolution decision-making (A. Navarrina, 2022).

A ton of paperwork, document verification, data analysis and fact-checking is required before the claim can be settled. And this process is riddled with manual errors during verification and review, paving the way for complex claims fraud. That's why companies are leveraging the benefits of AI. Machine learning algorithms are being used to automate claims processing and provide more accurate and faster decisions to policyholders in order to streamline the claims process, reduce the need for manual intervention and cut the time taken to process claims (M. Frąckiewicz, 2023)

In addition to reducing manual input, machine learning also helps reduce errors and fraud in the claims process, identifying irregularities in claims data to detect fraud and errors. This helps make the claims process more efficient, resulting in a better experience for policyholders (M. Frąckiewicz , 2023).

Summing up from the above, the introduction of AI is revolutionizing claims processing by automating steps in the process, from evidence gathering to decision-making. This reduces the slowness of traditional processing, eliminates manual errors and enhances fraud detection. As a result, insurance companies benefit from greater efficiency by offering an enhanced experience to policyholders.

4. The digital application of the "IRSAM" Inter-Enterprise Auto Claims Settlement Agreement E-Recours :

In Algeria, the integration of artificial intelligence in the insurance sector remains largely non-existent, and the introduction of digital applications is still at a preliminary stage.

Nevertheless, and within the framework of appeals between auto insurance companies, a national appeals management platform was launched on October 22, 2022, under the aegis of the Ministry of Finance, supervised by the insurance supervision commission and managed by the Unified Automobile Insurance Office (BUAA).

E-Recours is a digital application of the digital application of the "IRSAM" Inter-Enterprise Auto Claims Settlement Agreement, the purpose of which

is to determine the mechanisms for settling material claims within the framework of recourse between insurance companies in the auto insurance sector. It should be noted that the e-recours platform is the only means of auto insurance security in Algeria. It ensures the traceability of claims, thus facilitating the monitoring of files within the framework of the aforementioned agreement.

4.1. Purpose of the e-Recours platform

E-Recours offers digital processing of inter-company auto claims, claims within the same company and claims made by policyholders to the Ministry of Finance. The purposes of the e-Recours platform are as follows:

- **Digitization of processes:** the application aims to improve the paperless management of claims and recourses involving car liability cover, enabling insurance companies to process claims more quickly and efficiently. This reduces operating costs and processing times;
- **Improved management:** by optimizing and simplifying the process for handling claims made by member companies and/or sent to the Ministry of Finance by policyholders, making it easier to analyze them for continuous process improvement and decision-making.
- **Interconnected structure:** the application ensures an optimized process for internal claims handling by interconnecting and linking all company structures (agencies, regions, head offices).
- **Transparency:** e-Recours aims to make the claims handling process more transparent and visible, it does this by providing clear and accessible information on the status of the claim, the decisions taken, the associated documents and the reasons behind these decisions, in other words, e-Recours offers a complete view of the steps involved in handling claims by all stakeholders;
- **Reduced delays:** this application is designed to speed up claims processing and significantly reduce policyholder response and compensation times, improving the customer experience by reducing waiting times and providing faster responses to policyholders;

- **Benefits for insurance companies:** the digital application of the "IRSAM" agreement brings a number of advantages to insurance companies, including improved operational efficiency (improving the performance of teams responsible for monitoring claims), a reduction in fraud and an increase in the number of claims collected in a shorter timeframe. These benefits help to make them more competitive in the marketplace.

4.2. Companies participating in the e-Recours project

The e-Recours project includes both public and private insurance company members. They are distributed as follows:

- **Four (04) public companies:**

- Société Nationale d'Assurance (SAA);

- Compagnie Algérienne d'Assurance et de Réassurance (CAAR) ;

- Compagnie Algérienne des Assurances (CAAT) ;

- Compagnie d'Assurance des Hydrocarbures (CASH).

- **Six (06) private companies:**

- L'Algérienne des Assurances (GIG) ;

- Alliance Assurance ;

- Compagnie Internationale d'Assurance et de Réassurance (CIAR) ;

- Société Générale Assurance Méditerranéenne (GAM) ;

- SALAMA Assurances Algérie;

- TRUST Algeria insurance and reinsurance.

- **One (01) Mutual Societie**

- Caisse Nationale de Mutualité Agricole ;

• **One (01) Mixed Company**

- AXA Assurance Algérie Dommage -SPA.

This platform brings together more than 3,800 branches and over 10,000 employees.

4.3- e-Recours in numbers:

The number of inter-company files claimed on the platform is 637,254, including 74,351 files for 2022 and 562,903 files for 2023 (up to September 27, 2023).

The number of cases settled since the launch of e-Recours is 583,201 as at September 27, 2023 (34,916 cases settled in 2022 and 127,104 cases settled in 2023).

The following figure shows the settlement rate in terms of number of files, which is equal to: number of files settled CR/ number of files received CR:
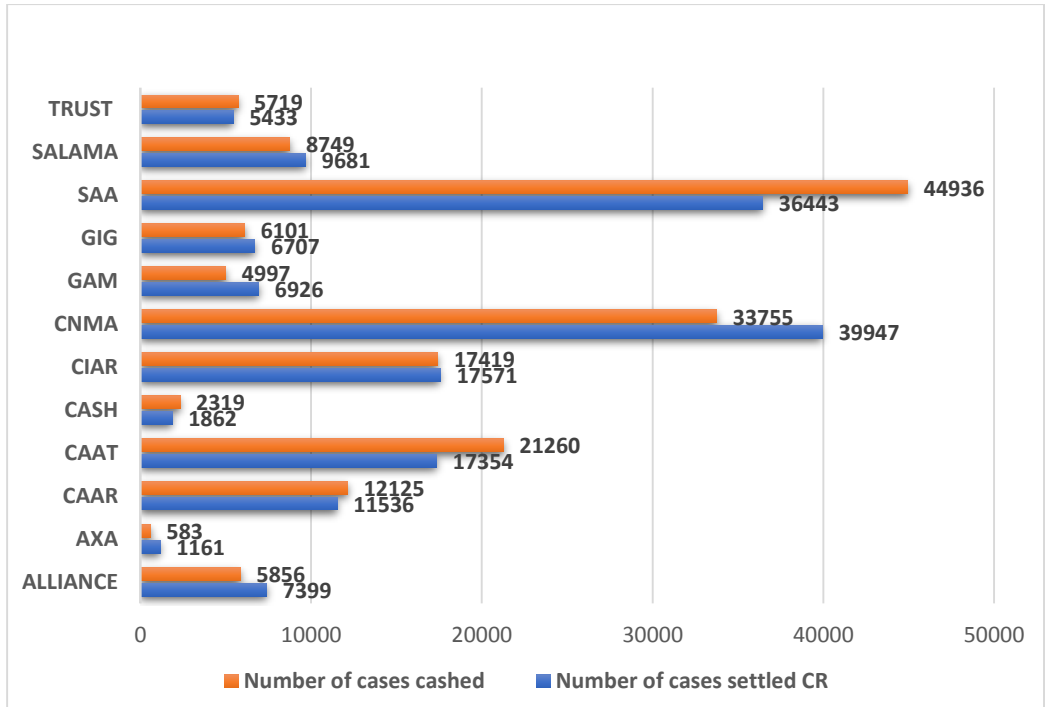
Figure 01: Settlement rate in number of cases
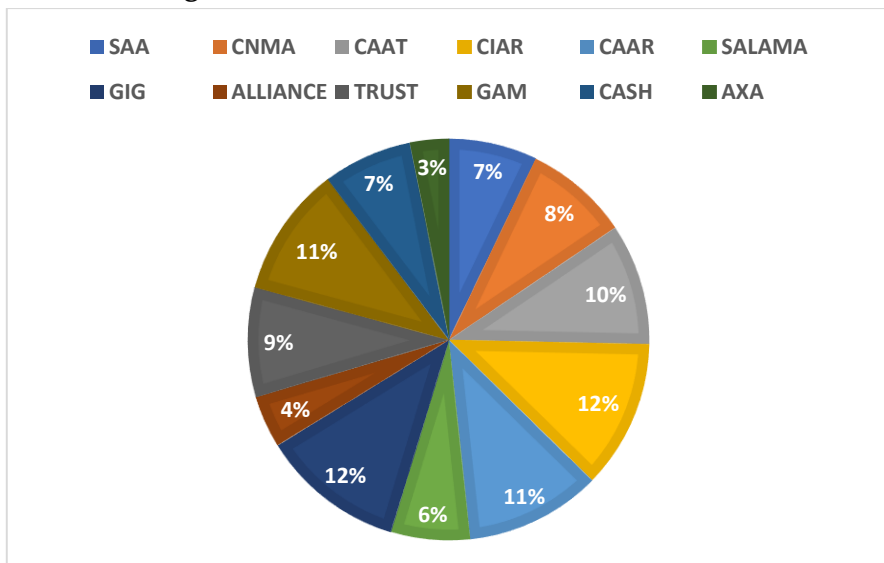
Source: Insurance Department- Ministry of Finance

The rate of settlement in terms of the number of cases varies between 3% and 12%. CAAT has the highest rate, followed by CASH and SAA. However, TRUST has the lowest rate

Figure 02: Number of cases settled and cashed by company

In terms of the total number of files cashed in 2022 and 2023 (as of September 27, 2023), SAA maintains its dominant position in 2022 and 2023 with a considerable total number of 44,936 files, followed by CNMA with a total of 33,755 files and CAAT with a total of 21,260 files.

In terms of value, the total amount of files claimed is 35,892 million DA, and the total amount of files settled is 5,041 million DA (these figures are updated on 18/09/2023).

So far, e-Recours has produced satisfactory results, automating many stages in the auto insurance claims management process, speeding up processing and reducing collection times.

This platform also offers complete traceability of claims, enabling the tracking of every step in the process and the status of each file. It also helps to detect fraud and ensure that insurance companies comply with current regulations on claims management and redress.

5. Conclusion

The aim of this article was to highlight the benefits of using artificial intelligence in claims management, focusing on the case of the Algerian auto insurance sector, which has seen the introduction of a digital application of the digital application of the "IRSAM" Inter-Enterprise Auto Claims Settlement Agreement e-Recours.

This platform also offers complete traceability of claims, enabling the tracking of every step in the process and the status of each file. It also helps to detect fraud and ensure that insurance companies comply with current regulations on claims and recourse management.

AI provides the insurance industry with the tools they need to improve service, increase profitability and reduce risk. As these technologies become more advanced, they will continue to revolutionize the industry and shape the future of insurance. As a result, insurance companies need to invest more in research and development to fully exploit the capabilities of AI.

The automation of the claims handling process through the use of AI has found numerous benefits, including a significant acceleration of claims processing, a reduction in human errors, improved file traceability, more effective fraud detection and increased customer satisfaction thanks to faster responses and better claims management.

It's important to note that the road to more widespread use of AI in Algeria's insurance sector is still a long one, as the adoption of artificial intelligence in this sector remains largely limited, and the introduction of digital applications is still in its infancy.

And to this end, it is recommended that insurance companies and the relevant authorities work closely together to develop policies and regulations that encourage investment in AI technologies. In addition, training and awareness programs should be set up to strengthen AI-related understanding and skills within the insurance industry.

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