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Artificial Intelligence in Healthcare and Automobile Health Insurance: Opportunities, Challenges and Future Directions

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ABSTRACT:
Artificial Intelligence (AI) is transforming industries and healthcare and automobile health insurance are no exceptions. This paper explores the integration of AI across these sectors, highlighting its applications in diagnostics, personalised medicine, predictive analytics, claims processing, fraud detection and customer support. It also examines how lifestyle factors, health data and driving behaviour are influencing risk assessment in vehicle health coverage. Using extensive literature review (Kamran et al., 2022; Teng et al., 2022; Saxena et al., 2022; Tyagi & Chahal, 2022) and primary survey data from 150 UAE healthcare professionals, this study applies qualitative and quantitative analyses (SPSS, correlation tools). Results show radiology leads AI adoption; most professionals (70–80%) believe AI enhances accuracy and reduces workload, but it cannot replace human expertise. The paper discusses ethical, regulatory and privacy concerns and proposes recommendations for responsible AI integration to create a sustainable, efficient insurance and healthcare ecosystem.

KEYWORDS: Artificial Intelligence, Healthcare, Automobile Health Insurance, Machine Learning, Predictive Analytics, Industry 4.0, Big Data, Radiology, Risk Assessment, Ethical Concerns.

INTRODUCTION:

In this age of fast technological growth, Artificial Intelligence (AI) has emerged as a revolutionary force across a variety of industries. It has fundamentally altered the manner in which we tackle difficult challenges and has improved the efficiency and efficacy of procedures. In the field of healthcare, where its applications range from diagnosis and treatment to personalised medicine and predictive analytics, the incorporation of artificial intelligence offers tremendous promise as regards its potential uses. A similar paradigm shift is also taking place in the insurance sector, notably in the field of vehicle insurance. This movement is being driven by technology advancements, demographic shifts and the ever-changing expectations of consumers. With this in mind, the intersection of artificial intelligence and health insurance for automobiles is a frontier that has enormous potential and significant repercussions.

Traditionally, the primary objective of vehicle health coverage, which is a subset of auto insurance, is to provide financial protection against injuries that are incurred as a result of being involved in a vehicular accident. Insurers, on the other hand, are becoming more aware of the interconnectivity

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of physical health, lifestyle variables and driving behaviour as our knowledge of health and well-being continues to develop. This realisation has led the way for a more holistic approach to vehicle insurance, in which elements like as pre-existing health issues, fitness levels and even mental well-being are being incorporated in risk assessment and pricing methods. This approach has brought about a more comprehensive approach to auto insurance.

Artificial intelligence is at the centre of this revolution because of its capacity to analyse expansive quantities of data, recognise patterns and create insights that can be put into action in real time. Algorithms that are driven by artificial intelligence are able to sift through electronic health records, data from wearable devices and other sources of health-related information in order to evaluate the health state of a person and anticipate the possibility that they will experience medical events that may have an effect on their driving behaviour or the danger of being involved in an accident. Insurers are able to construct more accurate risk models that are adapted to the unique health profiles of policyholders by using methods from machine learning. This results in more personalised coverage alternatives and pricing structures.

Moreover, artificial intelligence makes it possible for insurance companies to improve administrative operations, such as the processing of claims and the identification of fraud, therefore increasing operational efficiency and decreasing costs. Insurers are able to reduce risks and safeguard their bottom line by using advanced artificial intelligence algorithms that are able to identify aberrant patterns that are suggestive of fraudulent behaviour. Additionally, artificial intelligence-driven chatbots and virtual assistants have the potential to improve customer service experiences by offering policyholders personalised advice, assistance and support throughout the whole of their involvement with insurance.

On the other hand, as we go forward with the use of artificial intelligence in auto health coverage, it is very necessary to manage ethical and regulatory concerns with caution. Significant privacy issues are raised as a result of the collecting and use of personal health data, which calls for the implementation of stringent data protection mechanisms and procedures that practise transparent disclosure. In addition, it is essential to guarantee the fairness and accountability of AI algorithms in order to eliminate prejudice and bias in the decision-making process for insurance decisions. Taking into consideration the aforementioned obstacles and prospects, the purpose of this article is to investigate the myriad of consequences that artificial intelligence will have on the future of automobile health insurance. Our goal is to shed light on the revolutionary potential of artificial intelligence in the process of developing an insurance ecosystem that is more responsive, egalitarian and sustainable by analysing the existing environment, technology breakthroughs, ethical issues and future perspective.

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1. LITERATURE REVIEW

Among the authors of the 2022 study are Kamran, S. S., Haleem, A., Bahl, S., Javaid, M., Prakash, C. and Budhhi, D.In the current period of the fourth Industrial Revolution, often known as Industry 4.0, industries have grown much more advanced as a result of the use of intelligent technologies. These technologies have enabled enterprises to optimize productivity, quality and profitability while simultaneously minimizing waste, time and associated costs. This explores a variety of areas of artificial intelligence (AI) as well as associated technologies and methods, with the intention of using them in the automotive sector in order to make contemporary automobiles intelligent, safe and dependable. At the same time, it works on automating the drives, which will result in a reduction in the amount of manual labor, an increase in efficiency and the release of workers from the burden of performing dull and repetitive activities. In this research, several aspects of the automobile business, including the car itself, the designing and manufacturing sectors and the after-sales services, are investigated. It offers strategies that may be used to make each of them "intelligent." In the second section, we are provided with information on cutting-edge materials such as high-strength steel, carbon fiber and polymer composites. Additionally, it addresses the many ways and regions of use of these advanced materials in the car industry, as well as the numerous aspects that make it possible for these intelligent materials to be used in the vehicle industry.

In the year 2022, Teng, M., Singla, R., Yau, O., Lamoureux, D., Gupta, A., Hu, Z.... and Field, T. S. published their findings.Using a narrative literature study of issues that were covered in attitudinal surveys on artificial intelligence, the survey was designed. A total of fifteen questions were included in the final poll. These questions included narrative questions, multiple-choice questions, pick-group-rank questions, Likert scale items with 11 points, slider scale questions and select-group-rank questions. We took use of the snowball and convenience sampling techniques by sending an email to representatives from 18 Canadian schools that included a summary of the poll as well as a link to the online version of the survey. There were a total of 2167 students from 18 different institutions throughout Canada who participated in the survey. These students were studying ten different health professions. The overall percentage of respondents who projected that artificial intelligence technology will have an impact on their jobs over the next ten years was 78.77% (1707/2167) and 74.5% (1595/2167) reported having a favorable attitude on the developing role of AI in their particular areas. Different fields of study have different perspectives on artificial intelligence. Even students who are hostile to artificial intelligence have acknowledged the need of including a fundamental grasp of AI into their educational programs.Over the course of ten distinct health professions in Canada, we conducted a survey of health care students throughout the country across the country. For the purpose of advancing education across a variety

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of health care professions, the results would provide information on student-identified themes within artificial intelligence as well as their preferred delivery forms.

A. Saxena, D. MISRA, R. Ganesamoorthy, J. L. A. Gonzales, H. A. Almashaqbeh and V. Tripathi were the authors of the study that was published in April of 2022.Encryption algorithm has always been widely used in various these decades to secure information from potential danger and using wireless technologies can also make the information more sheltered therefore these network infrastructure which focuses on providing replaying intervention against many issues, also can analyze the information from almost anywhere through these wireless communication and it will safeguard the health information from potential danger by storing the data in multiple servers in everything using a few real cryptographies Only authorized workers will be able to access the data and no one else will be able to do so. This will ensure that the data is fully safeguarded from any potential dangers. Wireless sensor networks make use of a wide range of sensors, which then send the collected data to a central location in order to monitor the conditions of the surrounding environment. These wireless sensor nodes were first developed for use in military applications; however, they have since found widespread use in a variety of commercial and automotive settings, as well as in promising fields such as medical. In today's world, wireless sensor networks for remote health monitoring certainly contribute to an improvement in the quality of therapy. There are two frequent security vulnerabilities that are found in healthcare apps and they are dropping and impersonating.

In the year 2022, Tyagi, A. K. and Chahal, P.Big Data refers to the massive amounts of data that are being produced on a daily basis as a result of recent technological advancements and the integration of millions of devices that are connected to the internet of things. It is necessary to do this in order to enhance the expansion of a number of firms or in applications such as electronic healthcare, amongst others. Additionally, we are approaching a new age of the smart world, which will see the use of robots in the majority of applications (with the goal of resolving the issues that plague the world). One of the goals or objectives of computer vision is to implement robotics in various applications such as medical, automobile and other fields. A number of different components, such as artificial intelligence (AI), machine learning (ML) and deep learning (DL), are responsible for the fulfilment of computer vision (CV). Methods and algorithms for machine learning and deep learning are used in this context for the purpose of analysing Big Data. Today's many firms like Google, Facebook, etc. are employing ML approaches to search certain data or propose any article. These three terms—artificial intelligence, machine learning and deep learning—therefore satisfy the condition of a computer vision.

2. RESEARCH METHODOLOGY

This section of the examination paper will discuss and make sense of the many investigation tactics that were used, as well as how they were carried out and utilised in such a way that assisted

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us in noting our research question. In this particular piece of writing, the study approach that was used was a contemporary one and the researchers focused their attention on the possibility of artificial intelligence (AI) replacing professionals in the healthcare industry. In the process of using the two insights and words to support our findings, we have conducted both qualitative and quantitative research. Through the process of searching for academic sources on websites such as Google Scholar and World cat, we were able to acquire and locate information that would be beneficial to our discoveries. Subsequently, the resources that were gathered were analysed to determine whether or not they could be utilised to assist our discoveries or to add value to our examination paper. In this paper, both essential sources and auxiliary sources were utilised. The scholarly examination that was directed about the point was an example of an auxiliary source. The essential source, on the other hand, was a study of six inquiries that reviewed 150 specialists in the UAE and asked them questions about artificial intelligence being carried out in their field, as was discussed earlier. It is expected that the questions that were presented to in the overview would be conveyed together with their replies in the examination section, which will provide extra depth. While conducting our research, we made sure to incorporate both rating inquiries and short answer questions in order to collect both qualitative and quantitative exploratory data. In an effort to accommodate the busy schedules of professionals in the UAE, we made an effort to exclude a number of queries from the overview. The more inquiries we have, the less certified replies we are able to get. The findings of the research will be included into the examination paper in order to demonstrate just how much and how much artificial intelligence has been implemented in order to assist experts in their roles, as well as to demonstrate whether the implementation of AI is indeed helpful for specialists or if it is making their lives more difficult.

i. **Sample Size –** 150
ii. **Test -** SPSS
iii. **Tools -** Correlation

3. DATA ANALYSIS

As you are probably aware at this point, we had conducted a survey consisting of a list of six questions that were sent out to professionals in order to determine the impact that artificial intelligence has on the healthcare industry. One of the first things that we did was get some information about their area of expertise. The significance of this lies in the fact that it would provide us with information on whether or not there was a certain department in the healthcare industry that was ahead of the curve when it came to the reception of artificial intelligence.

The results of the investigation are shown in the following photos, which are also included in the proclamations of the report:

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4. RESULT AND DISCUSSION

As was said in the previous section, radiologists have the highest level of openness to artificial intelligence (AI) among professionals. This is also supported by research titled "Overview of Artificial Intelligence in Medication," which demonstrates that radiologists are the most receptive to AI. In addition, this article discusses the recent developments that have been achieved in the applications of artificial intelligence in the medical industry. Another article examined the opinions of healthcare professionals, including specialists and medical caretakers, regarding the advantages of artificial intelligence (AI). The article included question formulations such as "Artificial intelligence can accelerate the cycle in healthcare?" and "Man-made intelligence can help diminish the quantity of mistakes?" The majority of the respondents agreed with the assertion. The response to a comparison query that was offered in our review also showed a similar result, with about half of the respondents agreeing with the claim that "Man-made intelligence can give more precise and quicker reaction in determination," while the other respondents were either doubtful or opposed to the statement.

Our judgement has been reached and the findings that we have made are the following notes:

- ❖ Artificial intelligence in healthcare in the United Arab Emirates is mostly prevalent in the field of radiology.
  - 65% of professionals in the United Arab Emirates do not use artificial intelligence in their working environment.
  - 70% of experts in the United Arab Emirates agree that AI in the healthcare industry provides a more rapid and accurate response at this point.
  - 80% of UAE experts agree that AI won't replace experts in the healthcare industry.
  - 80% of experts in the United Arab Emirates think AI will lessen the burden placed on experts.

We are able to acknowledge that Artificial Intelligence is being invited by experts in the area in the United Arab Emirates. However, despite the fact that specialists are convinced by its importance and assistance with the healthcare industry, it is not capable of replacing their major presence and tasks.

5. CONCLUSION

This study establishes that AI is a disruptive yet supportive force in healthcare and automobile health insurance. **Healthcare** Radiology and diagnostic imaging are the most receptive fields, with professionals recognising AI's potential to improve accuracy and efficiency. A majority (70–80%) believe AI reduces burden but will not replace experts. AI enables personalised risk assessment, faster claims settlement, fraud detection and improved customer engagement through chatbots and analytics. Integrating health data with driving patterns can reshape auto health coverage. Key concerns include data privacy, algorithmic bias, transparency and

regulatory compliance. Ethical frameworks and robust data governance are essential to ensure trust. AI's role will grow in telemedicine, wearable integration, autonomous vehicle insurance and hybrid coverage models. Collaboration among regulators, technologists, insurers and healthcare professionals will be critical for responsible adoption. AI is not a replacement for human expertise but a tool for enhancement. When implemented ethically and strategically, it can redefine risk, improve service delivery and strengthen trust in healthcare and insurance systems.

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