

Artificial Intelligence as A Game Changer Tool to Reshape the Insurance Services in Digital Transformation

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Abstract

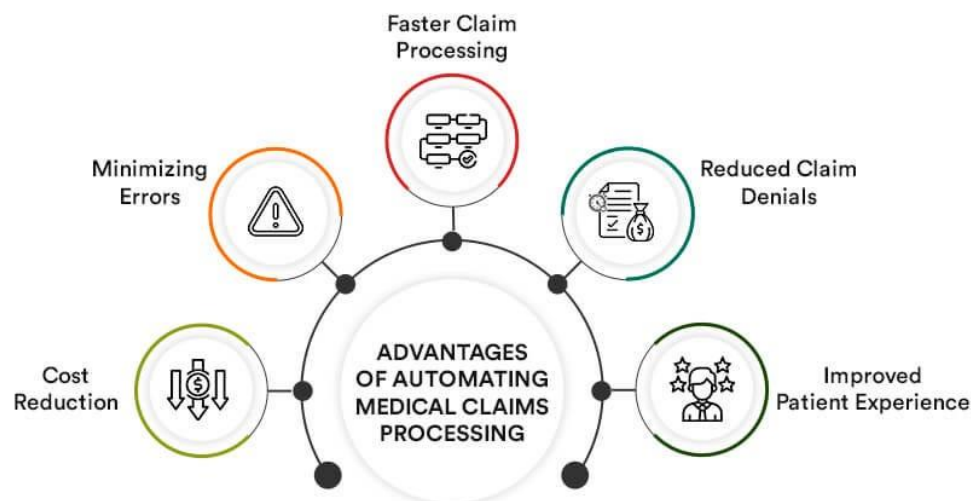
Artificial intelligence (AI) applications are seamlessly integrated into the customer lifecycle in the insurance industry, enhancing the entire experience. At the beginning, AI assists in personalized product recommendations and streamlined onboarding through chatbots and virtual assistants. During the policyholder relationship, it continually monitors risk factors, providing real-time risk management and personalized premium adjustments. When claims arise, AI expedites claims processing, quickly assessing damages and detecting fraud. Throughout the customer journey, AI-driven customer engagement ensures responsive support and targeted communication, making interactions more convenient and efficient. As a result, AI transforms the customer lifecycle by offering tailored solutions, improving service, and increasing overall satisfaction.

Keywords: Insurance, Distribution, and Outsourcing, Digital Transformation, Personalization and Operational Efficiency

Introduction

The phenomena often referred to as "digital transformation" is influenced by several elements, including the integration of emerging digital technologies, the reconfiguration of business processes, the adoption of innovative business models, and the deployment of creative methods to value chain management and organization [7]. This phenomenon has aroused the interest of those involved in business, scientific research, and finance. General-Purpose Technology (GPT) artificial intelligence (AI) offers great promise in many corporate applications, especially in the field of digital marketing. It now ushers in a new age of digital technology and advances a unique set of digital capabilities for enterprises. The reason for this is that AI can give human-like skills across a broad range of business functions, transforming the whole value chain [5]. Due in large part to the existence of well-established market giants and regulatory hurdles, the insurance business has struggled to embrace innovation and disruption. Many factors have contributed to the industry's dramatic evolution in recent years, including the growth of the international insurance market, the openness of consumers and regulators to new forms of media, and the foresight of long-standing businesses in taking advantage of advances in artificial intelligence and digital technology [11]. This article presents a comprehensive analysis and evaluation of BGL's artificial intelligence (AI) approach. The BGL group is an intriguing case study due to its comprehensive involvement in all facets of the insurance sector, including product development, pricing strategies, distribution channels, outsourcing practices, and the operation of price comparison websites. The company has shown its early adoption of digital technology by being in the forefront of utilizing price comparison website technology in the insurance distribution industry. Additionally, it has ownership of the 'compare the market' brand in the United Kingdom as well as its worldwide equivalents. This case study examines the transformation of electronic marketing in the insurance industry via the evolution of business process and customer lifecycle models [1].

Figure: 01



Source: <https://www.google.com/url>

Background for the study

The company's first use of artificial intelligence (AI) exemplifies the organizational ethos that garnered it recognition as a catalyst for change in the business landscape, as it employed technology in nontraditional manners to establish novel business frameworks [7]. Through a combination of internal growth and strategic acquisitions, the company has since divided into two separate but interconnected divisions. Vehicle and house insurance, along with travel, energy, pet insurance, utility, and financial services, are just some of the many options presented to customers by the Price Comparison Department. Insurance sales via the internet and toll-free customer care lines are coordinated by the (IDO) division. Affinity marketing agreements, sometimes referred to as "white-label marketing agreements," include the delegation of product design and underwriting responsibilities to BGL Group and its consortium of insurers [2]. This arrangement enables BGL Group to concentrate on sales and expansion efforts, while the partner brand has the responsibility of delivering customer support. The partnership between brands and insurance providers offers advantages to the former as it enables them to enhance their brand value within the insurance sector, while avoiding the expenses and dangers involved with developing their own insurance products and entering the market [6]. The extent of engagement between the two entities might exhibit significant variation, ranging from a fundamental affiliate marketing arrangement whereby the partner brand gets a fixed payment per sale, to a more complex framework with shared risks and rewards [3]. Collaborative promotional campaigns aimed at the established customer bases of partner companies have the potential to enhance the marketability of insurance offerings.

Artificial intelligence (AI) technology customer lifecycle

The document provides an overview of essential insurance processes, along by concise explanations for each. The creation of insurance products specifically designed to cater to certain demographic segments may be categorized as product-market development. The allocation of money in the event of a claim is known as underwriting of risk, while the determination of insurance product price is achieved via the use of risk-modeling techniques. The determination of the risk premium is carried out by the insurance firms in collaboration with BGL [2]. The phrase "policy administration" pertains to the comprehensive management of an insurance plan, including all stages from the first enrollment of a new customer to the eventual termination of the policy, while also encompassing all intermediate steps involved in the process. The importance of efficient policy administration lies in its ability to reduce customer care expenses and function as a significant service [5]. The risk and compliance team bears the duty of ensuring the insurance company's adherence to relevant rules and regulations, encompassing the timely disbursement of claims, adherence to insurance policy terms. Customer relationship management (CRM) refers to the marketing strategy that involves maintaining continuous communication with customers during the whole lifespan of a product. The renewal rate of client policies and the upselling of additional policies to current customers are considered to be two crucial key performance indicators (KPIs) within the realm of customer relationship management (CRM) [2]. The task of claims processing poses a significant administrative challenge due to the need for insurance companies to navigate a delicate equilibrium between meeting their customers' expectations for a streamlined and efficient claims procedure that culminates in a prompt and accurate payment, while simultaneously ensuring the validity of the claim and managing expenses. The present discourse pertains to the analytical description of these processes, whereby they are seen as distinct and separate occurrences [6]. The collection of independent sub-models is capable of predicting several parameters, including the customer's price sensitivity, the lifetime of the model, the quantity and frequency of mid-term policy modifications, the total estimated cost to service the client, and other relevant considerations. The estimation of individual values is conducted at the sub-model level via the use of AI technologies, including machine learning, alongside traditional approaches such as large-scale generalized linear regression models.

The insurance value chain; an overview

Each unique product is accompanied by a well-defined customer experience that guides new customers from their first inquiry to the acquisition of customer information and identification, culminating the establishment of e-service. After the consumer has successfully obtained a policy, a set of regulations and corresponding online procedures are implemented to effectively administer the policy via e-service. A website refers to a collection of predetermined hyperlinks that effectively cater to a particular consumer journey, including the process from initial search to final purchase, or facilitating the management of an e-service transaction. However, it is worth considering the scenario when clients express a desire to accomplish their work using an alternative approach. The fundamental flexibility of a chatbot lies in its ability to enable clients to interact with an online system by posing inquiries and engaging in a dialogue via a sequence of questions. The customer experience across various digital channels is thoroughly analyzed and the design is optimized using a user-centric approach by a committed team. This aims to increase the likelihood of customers making purchases and renewing their policies. An essential component of this strategic approach is using a blend of quantitative analysis and user assessment, complemented by qualitative research derived from focus group sessions and direct dialogues with clients. The integration of artificial intelligence (AI) into several facets of insurance operations, ranging from product creation and pricing to claims processing, has led to enhanced efficiency, reduced costs, and better client experiences.

Product Development and Pricing: AI plays a crucial role in product development and pricing. Insurers can leverage AI to analyze vast amounts of data, such as historical claims data, customer profiles, and market trends. Machine learning models can assess risk factors and predict potential claims, enabling insurers to develop and price insurance products more accurately. By better understanding and quantifying risks, insurers can set premiums that are fair and competitive.

Underwriting: AI-driven underwriting systems are becoming increasingly common. These systems use predictive analytics and data analysis to evaluate risk factors for potential policyholders. By processing large datasets and utilizing advanced algorithms, underwriters can make more informed decisions quickly. This not only improves the accuracy of risk assessment but also expedites the underwriting process, reducing the time it takes to issue policies.

Distribution and Customer Engagement: AI is enhancing customer engagement and distribution channels in the insurance industry. Chatbots and virtual assistants, which use natural language processing (NLP), have the capability to provide immediate customer service.

Claims Processing: Claims processing is a critical aspect of the insurance value chain, and AI is making it more efficient. AI systems can automate claims intake, fraud detection, and claims assessment. Computer vision technology can quickly analyze images and videos, helping assess damages and loss, while natural language understanding aids in the interpretation of textual information related to claims. This not only accelerates the claims settlement process but also reduces the likelihood of fraud.

Risk Management: AI is pivotal in risk management within the insurance industry. Insurers can use AI to monitor and assess emerging risks in real-time by analyzing various data sources, including social media, news articles, and sensor data. By identifying potential risks early, insurers can take proactive measures to mitigate losses and adapt their underwriting and pricing strategies. Risk management in the field of artificial intelligence (AI) is of paramount importance as AI technologies continue to advance and become integrated into various aspects of our daily lives. AI poses both potential benefits and risks, and effective risk management strategies are crucial to harness its potential while minimizing negative consequences. One significant risk in AI is bias and fairness. AI systems are trained on large datasets, and if these datasets contain biases, the AI can perpetuate

and amplify these biases, leading to discriminatory outcomes. To mitigate this risk, organizations must implement rigorous data collection and duration processes, as well as develop algorithms that promote fairness and transparency. Another risk is privacy and data security. AI systems often require access to vast amounts of data, which can be personal and sensitive. Protecting this data from unauthorized access and misuse is a priority. Robust data encryption, access control, and compliance with data protection regulations are essential for managing this risk.

Fraud Detection: AI-driven fraud detection systems help insurers identify and prevent fraudulent claims. These systems use advanced algorithms to analyze historical claim data and identify patterns indicative of fraud. This proactive approach not only saves insurers money but also helps maintain the integrity of the insurance industry.

Research problem

In the context of digital transformation within the insurance services sector, the incorporation of artificial intelligence presents both opportunities and challenges. One of the key research problems in this domain is the optimization of AI technologies to enhance the customer experience while maintaining data privacy and security. As insurance firms increasingly integrate artificial intelligence (AI) into their operations, including customer service, underwriting, claims processing, and risk assessment, it becomes imperative to establish a harmonious equilibrium between automation and preserving the human element in client interactions. This research problem revolves around finding the most effective ways to leverage AI for improved customer engagement and satisfaction, while also addressing concerns related to data protection and the ethical use of customer data. Moreover, understanding the economic implications of AI adoption in insurance, including cost-efficiency and the impact on employment, is a critical aspect of research in this field. It is essential to explore how AI can bring about operational efficiencies, reduce fraud, and enhance risk assessment in insurance while simultaneously ensuring that the technology aligns with regulatory requirements and meets the evolving needs and expectations of both customers and insurance professionals. Research in this area can contribute significantly to the successful integration of AI into insurance services during the ongoing digital transformation of the industry.

Research objectives and methodology

The primary objective of this research is to ascertain if artificial intelligence (AI) is the driving force behind change, as well as to discover the factors that motivate the applications of AI [2]. The insurance market leader's significant magnitude and market standing provide it with the ability to augment its value offer, proficiently focus on clients, and proficiently cooperate with partners. Consequently, this phenomenon gives rise to an increased volume of data that may be used to enhance and advance its artificial intelligence computations, systems, and decision-making mechanisms [11]. The data were obtained from a sample of 200 insurance policyholders using random sampling methods. AI system robustness is also a concern. Ensuring that AI systems are resilient to adversarial attacks and unexpected input is vital. Organizations need to employ testing and validation procedures to identify vulnerabilities and strengthen the system's defenses against potential threats [8].

Analysis, results and discussion.

Artificial intelligence (AI) is indeed a game-changing tool in the digital transformation of the insurance industry, reshaping the way insurance services are provided and enhancing various aspects of the business.

Table 1: Descriptive statistics of Respondents' Awareness about Insurance

Factors	Mean	Std. Deviation	Mean Rank
Data Analysis and Risk Assessment	3.14	1.099	4.22
Claims Processing	2.75	1.442	3.64
Customer Engagement	3.95	1.325	5.89
Predictive Analytics	3.01	1.068	3.94
Personalization	3.09	1.223	4.20
Operational Efficiency	3.01	1.087	4.15
Fraud Detection	3.60	0.867	5.31
Regulatory Compliance	3.33	.855	4.58

Data Analysis and Risk Assessment: AI can process vast amounts of data from diverse sources, enabling insurers to better understand and assess risks. This leads to more accurate underwriting and pricing, reducing the likelihood of underpricing or overpricing policies. It also allows insurers to tailor policies to individual needs. **Claims Processing:** AI expedites claims processing by automating tasks such as damage assessment, fraud detection, and claims validation. This not only accelerates the claims settlement process but also reduces the chances of fraudulent claims, ultimately saving insurers time and money. **Customer Engagement:** Artificial intelligence (AI)-powered chatbots and virtual assistants provide immediate assistance to consumers, facilitating their questions, policy acquisition, and claims filing. These systems use natural language processing techniques to provide customized and prompt assistance round the clock, hence enhancing the entire client experience. **Predictive Analytics:** AI can predict customer behavior and trends, allowing insurers to proactively adapt their strategies. This includes identifying potential emerging risks and adjusting underwriting and pricing accordingly. **Personalization:** AI enables insurers to offer highly personalized insurance solutions. Policies can be tailored to an individual's specific needs and risk profile, leading to higher customer satisfaction and loyalty. **Operational Efficiency:** AI automates routine administrative tasks, reducing operational costs. This includes document processing, data entry, and customer communications. This increased efficiency allows insurers to redirect resources towards more strategic and customer-centric tasks. **Fraud Detection:** AI can quickly identify patterns indicative of fraudulent claims, helping insurers prevent financial losses due to fraudulent activities. This is especially important in the digital era where fraudsters continually adapt their tactics. **Regulatory Compliance:** Artificial intelligence (AI) has the potential to assist insurance companies in maintaining compliance with complex and constantly evolving regulatory frameworks. Insurers may effectively limit legal risks and fines by using automated compliance checks and verifying the accuracy of documents. **Data Security:** With the increasing amount of customer data being handled digitally, AI plays a crucial role in enhancing data security. It can monitor and detect unusual activities or potential security breaches, ensuring that sensitive information is protected.

Table 2: Kendall's Coefficient of Concordance

N	200
Kendall's W ^a	.017
Chi-Square	21.203

df	7
Asy. Sig.	.031

The Chi-Square test resulted in a calculated value of 21.203 with 7 degrees of freedom, indicating statistical significance at the 5% level ($p=0.031 < 0.050$). Hence, it may be deduced that a significant connection exists between consumer preferences for various features. The variables included in this study are pricing, risk, price sensitivity, cost of service, propensity to acquire more things, and other pertinent factors.

Factors prompting AI applications

Artificial Intelligence (AI) applications have seen rapid growth and adoption in recent years, driven by several key factors. First and foremost, the availability of vast amounts of data has played a crucial role in enabling AI applications. The digital era has generated massive datasets that AI algorithms can leverage to learn and make predictions, thereby enhancing decision-making processes.

Table 3: Factors prompting AI applications.

Variables		Very low	Low	Moderate	High	Very high
Product development	N	41	17	33	43	66
	%	20.5	8.5	16.5	21.5	33
Pricing and underwriting	N	28	16	32	77	47
	%	14	8	16	38.5	23.5
Policy management	N	29	37	67	39	28
	%	14.5	18.5	33.5	19.5	14
Market research	N	45	37	59	37	22
	%	22.5	18.5	29.5	18.5	11
Sales and marketing	N	38	28	34	40	60
	%	19	14	17	20	30
Cross-sell financial product	N	36	30	42	45	47
	%	18	15	21	22.5	23.5

Advances in computing Product development (33%) and Pricing and underwriting (38.5%) has Sales and marketing (30%) and Cross-sell financial product (23.5%) have high prompting of AI applications , Policy management and Market research have significantly accelerated with AI capabilities. Moreover, the open-source community and the widespread availability of AI frameworks and tools have lowered the barriers to entry for developers and organizations, making it easier to create and deploy AI solutions. Furthermore, the increasing need for automation, efficiency, and personalization across various industries, including healthcare, finance, and e-commerce, has prompted the integration of AI to address complex tasks and improve customer experiences. As AI technologies continue to evolve, these factors will likely continue to drive the proliferation of AI applications across diverse sectors of the economy.

Discussion

The price-sensitivity curve illustrates how changes in the offer price affect the likelihood of acceptance [7]. Nevertheless, it is important to acknowledge that the form of this curve may display notable fluctuations across various market sectors and for distinct companies. The valuation of a client may be ascertained by multiplying the offer price with the projected margin, which is derived from the disparity between the offer price and the break-even point [3]. The accuracy of determining the break-even point may be improved by using more constituent factors. The optimization of this objective may be attained by the use of machine learning algorithms, which undergo constant refinement as new data becomes available. Moreover, there are ethical considerations, such as the potential for AI to be used in ways that could harm individuals or society [2]. Responsible AI development includes ethical guidelines and principles to ensure AI technologies are developed and used for the greater good and do not infringe on human rights [9]. In conclusion, risk management in AI involves addressing issues of bias, privacy, security, robustness, and ethics. Organizations and regulatory bodies must collaborate to establish best practices and standards that promote responsible AI development and usage while minimizing the potential negative impacts and risks associated with these powerful technologies.

Conclusion

In conclusion, AI is a game changer in the digital transformation of insurance services. It empowers insurers to offer more personalized, efficient, and cost-effective solutions to their customers while also improving risk assessment and fraud detection. As technology continues to evolve, AI will remain a driving force in reshaping the insurance industry and adapting to the ever-changing needs and expectations of customers in the digital age. In summary, AI is significantly impacting the insurance value chain by optimizing various business processes. It is streamlining product development, improving underwriting accuracy, enhancing customer engagement, expediting claims processing, bolstering risk management, and strengthening fraud detection. Insurers that embrace AI technologies are better positioned to remain competitive, offer improved customer experiences, and manage risks effectively in an ever-changing landscape.

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