

EXPLORING THE IMPACT OF GENERATIVE AI ON INSURANCE DEVELOPMENT

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The insurance industry is currently navigating a pivotal moment, where the emergence of generative artificial intelligence (AI) presents both significant opportunities and complex challenges. As this transformative technology gains momentum, it holds the potential to reshape key aspects of the insurance landscape, including operations, customer interactions, and risk management. However, the path to implementing generative AI is not straightforward, as it introduces a range of interconnected issues that the industry must address [1].

This paper examines the crucial role that generative AI can play in the insurance sector by exploring several critical problems the industry is facing. One of the key challenges is the mismatch between insurers' efforts to enhance customer service experiences and the growing demand from customers for more personalized products that truly align with their unique needs and risk profiles. Additionally, many insurance companies are grappling with legacy technology, as outdated IT systems and infrastructure complicate the integration of new AI capabilities, impeding both innovation and operational efficiency. Data silos further exacerbate the issue, limiting the ability to fully leverage the vast amounts of data within the industry. Insurers also face mounting competitive pressure to quickly adopt generative AI in order to stay ahead of rivals, which contrasts with the traditionally cautious approach the industry has taken toward new technology. Furthermore, concerns around trust and ethics, particularly regarding privacy, data security, and the reliability of AI-generated advice, pose significant barriers to widespread adoption. Finally, insurers must navigate the complexities of restructuring their operational models to best capitalize on generative AI, balancing centralized governance with the need for decentralized innovation.

Next, we will examine potential solutions that aim to address the identified challenges and support insurers in effectively implementing and leveraging generative AI within their operations.

Customer-Product Mismatch

The disconnect between customer needs and insurance products can be addressed through generative AI and machine learning models that align products with individual requirements. By applying Natural Language Processing (NLP) and sentiment analysis to customer feedback, such as reviews on platforms like Yelp, insurers can identify areas for improvement and better match products to customer expectations. Predictive models, like logistic regression, can forecast customer preferences and behavior, enhancing product relevance [2]. Recommender systems and customer segmentation techniques can further personalize product offerings, ensuring they align with customer needs and preferences. These AI methods enhance customer-product matching, improving satisfaction and operational efficiency.

Legacy Technology and Complexity

Generative AI can help modernize legacy code and automate IT and development tasks, reducing complexity. Adopting a hybrid approach across IT and

the enterprise can gradually address outdated IT systems. Additionally, open-source AI solutions can improve interoperability and support containerization, streamlining operations.

Data Silos and Underutilization

To overcome data silos, deploying federated data frameworks can ensure meaningful customer data is accessible across the insurance sector. Facilitating data access from both core and non-core systems enables local generative AI model development. Additionally, integrating AI models that connect marketing, agency, claims, and underwriting databases can enhance their effectiveness and relevance.

Competitive Pressure and Innovation Speed

Empowering business units to make AI-driven decisions allows for quicker responses to changing market conditions and customer needs. Supporting innovation at the point of AI usage, rather than imposing a single model across all needs, fosters greater agility and relevance. For example, claims departments can use AI for faster fraud detection, while underwriting teams can leverage AI to offer competitive pricing. Research shows that decentralized AI models lead to a 2% improvement in the run/build ratio, 14% faster time to market, 9% higher customer satisfaction, and 5% boost in customer retention. This suggests that empowering business units not only accelerates innovation but also improves business outcomes, allowing insurers to stay competitive and responsive to market demands [1].

Trust and Ethical Concerns:

Governance of model performance should prioritize fairness, transparency, and the mitigation of inaccuracies. Ensuring that all models provide explainable results and clear confidence levels in decisions is crucial. Additionally, heightened focus on security, AI data stewardship, and privacy at the framework level is essential to maintain trust.

Operational Model Challenges:

Developing AI governance frameworks that ensure model ethics, regulatory compliance, and performance is essential across all AI models. An AI deployment model that empowers business units, with support from IT and data science, can enable cross-functional precision. Additionally, investing in training programs will help employees effectively work with generative AI.

In conclusion, the insurance industry is at a crucial juncture where strategically deploying Generative AI can tackle current challenges and promote business expansion. By addressing these interconnected challenges, insurers can stimulate innovation, enhance customer experiences, and gain a competitive advantage. Nonetheless, successful integration of AI necessitates overcoming technological, organizational, and customer-related hurdles, coupled with meticulous planning and robust AI governance.

References: 1 *Generative AI in the insurance industry.* (n.d.). IBM. <https://www.ibm.com/thought-leadership/institute-business-value/en-us/report/insurance-generative-ai>. 2 Hossain, M. S., & Rahman, M. F. (2022). Customer Sentiment Analysis and Prediction of Insurance Products' Reviews Using Machine Learning Approaches. *FIIB Business Review*, 12(4), 386–402. <https://doi.org/10.1177/23197145221115793>