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Agentic AI как инструмент автоматизации продаж страховых продуктов: проектирование и реализация

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Аннотация. Введение. В статье, мы исследуем возможности Agentic AI как инструмента автоматизации продаж страховых продуктов, в работе также анализируется архитектура агентной системы включая модули обработки естественного языка (NLP), модуль взаимодействия с клиентом, принятия решений и интеграцию с CRM – системами. **Методы исследования:** в статье проведён анализ алгоритмов принятия решений, которые сочетают между собой методы машинного обучения и правила, позволяющие интеллектуальным агентам автономное инициирование взаимодействия с клиентами, предоставлять индивидуальные рекомендации клиентам и подстраиваться к поведению. **Результаты и обсуждения.** Автоматизация продаж страховых продуктов важна, в связи с ростом цифровизации, высокой конкурентностью и потребностью в персонализации. Научная новизна работы включает в себя комплексный подход, объединяющий в себе количественную оценку агентных систем в страховой сфере, а также внедрение и проектирование. В статье указывается способы влияния автономных интеллектуальных агентов на экономические показатели компании и улучшать клиентский опыт. В исследовании также учитывается влияние на долгосрочную точность прогнозирования, связанные с поведением клиентов, объёмом данных, срокам реализации пилотного проекта. **Заключение** Практическая значимость статьи основывается на разработке агентной системы и включает её внедрение в крупной страховой компании. Анализ показал эффективное ускорение обработки заявок, снижение затрат на привлечение и рост удержания клиентов, значительное повышение ROI и конверсии. Исследование рассматривает внедрение пилотного проекта только для одного вида страхового продукта, дальнейшие исследования по этой теме, можно расширить на другие продукты и сегменты рынка.

Ключевые слова: Agentic AI, автономность, цифровая трансформация, инновации, эффективность бизнеса.

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Agentic AI as a tool for automating insurance sales: design and implementation

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Abstract. Introduction. The article explores the potential of Agentic AI as a tool for automating the sales of insurance products. The study also analyzes the architecture of the agent system, including natural language processing (NLP) modules, client interaction modules, decision-making modules, and integration with CRM systems. **Materials and methods.** The article examines decision-making algorithms that combine machine learning methods with rule-based approaches, enabling intelligent agents to autonomously initiate client interactions, provide personalized recommendations, and adapt to client behavior. The automation of insurance product sales is particularly important due to the growing digitalization of the industry, high competition, and the increasing demand for personalization. The scientific novelty of the work lies in a comprehensive approach that combines quantitative evaluation of agent systems in the insurance sector with implementation and design. The article outlines how autonomous intelligent agents can influence a company's economic indicators and enhance the client experience. **Results and discussion.** The study also considers the impact on long-term forecasting accuracy, associated with client behavior, data volume, and the timelines of the pilot project implementation. The practical significance of the article is based on the development of an agent system and its implementation in a large insurance company. **Conclusion.** The analysis demonstrated effective acceleration of application processing, reduction of acquisition costs, increased client retention, and significant improvements in ROI and conversion rates. The study focuses on the implementation of a pilot project for a single type of insurance product; further research could extend this approach to other products and market segments.

Key words: vibration combustion, acoustic oscillations, wave modes, chemically reacting gas suspension

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Introduction. In recent years, given the widespread development of digital technologies, customer expectations in the insurance market have increased significantly. Insurance companies are now improving the speed and quality of service. To automate information processing and improve customer service, digital technologies are being integrated into workflows. This reduces costs and improves organizational quality, ultimately leading to increased efficiency and competitiveness.

In the insurance industry, the workload on employees is increasing, slowing down key operations. This is due to insufficient sales automation. Significant amounts of money and resources are spent on attracting new clients, putting pressure on the business and hindering growth opportunities.

Artificial intelligence is a technology for creating a system capable of learning and operating in changing conditions, in which decision making occurs similar to the human thought process [1].

Agentic AI is a type of artificial intelligence that does not require human control over it.

Agentic AI, an automated digital system, includes modules for natural language processing, targeted planning, and decision making, which facilitate customer interactions and automate sales processes.

According to research, artificial intelligence (AI) is transforming the insurance industry, including customer interaction methods [2]. Agentic AI has the ability to fully adapt to the client, provide recommendations, which increases efficiency and reduces operating costs.

Models for assessing customer risk have been actively used for several years, with considerable attention paid to preventing customer fraud [3].

The purpose of the study is to analyze effective models for using Agentic AI to increase sales and improve customer focus in the insurance industry.

Research objectives:

1. Explore and analyze methods for using Agentic AI to automate sales in the insurance industry;
2. Develop algorithms for an agent system for its implementation in corporate processes;
3. Develop recommendations for the use of agent systems in insurance companies.

With increasing digitalization, the core competencies in demand are changing as more functions require technological skills [4].

The fundamental principles of agent systems are their operational efficiency. Their ability lies in following key rules: autonomy, goal-setting, and adaptability.

Autonomy allows the system to make decisions and perform tasks independently, without human intervention.

Goal setting implies the system's ability to set goals and plan any actions.

Adaptability refers to the ability of a technology to analyze new data and learn.

These principles, when applied by insurance companies, optimize sales processes, speed up application processing, and improve the quality of customer interactions.

According to Bryzgalov D.V., Gryzenkova Yu.V., Tsyganov A.A., digitalization of communications with policyholders/insured persons is implemented through Internet systems technologies - the organization of personal accounts, chats on websites and in mobile applications (90%), as well as through electronic document management (57%) [5].

Innovations do not arise by themselves. They must be managed, both at the macro level and at the level of individual organizations [6].

What's the difference between classic AI systems and traditional chatbots from Agentic AI? The difference is that classic AI systems operate according to preset algorithms and require constant human intervention for adjustments and additions. Traditional chatbots are limited to pre-defined conversational scenarios.

Agentic AI, in turn, is capable of independently solving problems, optimizing operations, adapting to a specific environment, and interacting with clients.

The Agentic AI architecture consists of four key principles that enable the system's autonomous operation:

- *Natural Language Processing (NLP)* – enabling interaction with users through understanding text and generating specific responses;
- *Decision Engine* – analyzes data, makes decisions and selects the optimal strategy for further actions ;
- *Action planning (Planning)* – forms and organizes actions, taking into account priorities and constraints;
- *CRM integration* – ensures interaction and allows the use of information from corporate systems.

Research materials and methods. To assess the effectiveness of Agentic AI implementation in the insurance company's sales and customer interaction processes, we will use data on internal sales processes, employee workload, sales statistics, and application processing speed. Additionally, we will analyze data from the CRM system and customer interaction reports.

The methodological basis of the study is based on:

- principles of systems analysis - allows for the study of corporate processes, identifies the relationships between stages of work and provides an assessment of changes in overall efficiency;

- Comparative study of digital tools - to design a more effective agent system, one needs to understand the strengths and weaknesses.
- Agentic AI behavior modeling – analyze the performance of agent systems in a virtual environment and assess the impact on sales.

The methods specified were chosen to objectively evaluate the data, understand the effectiveness of new tools, and safely implement the prototype system.

The indicators before the implementation of Agentic AI reflect: low level of automation, high cost of customer acquisition, high workload for operators, low percentage of conversion to sales (Table 1).

Objective: To determine and analyze the level of efficiency of an insurance company before implementing Agentic AI.

Table 1 – Results of determining the level of work efficiency before the implementation of Agentic AI.

Indicator	Values before implementation
Average application processing time	40 minutes
Conversion to sales	8%
Cost of attracting one client	3000 rubles
Customer Retention Rate	55%
Load on operators	80

Source: compiled by the author based on an analysis of data collected prior to the implementation of Agentic AI.

To achieve these objectives, and given the insurance company's initial operational efficiency, it was decided to launch a pilot project using an autonomous agent system comprising four key modules.

To implement the Agentic AI pilot project and evaluate its effectiveness, a model of five sequential processes is used (Fig. 1).

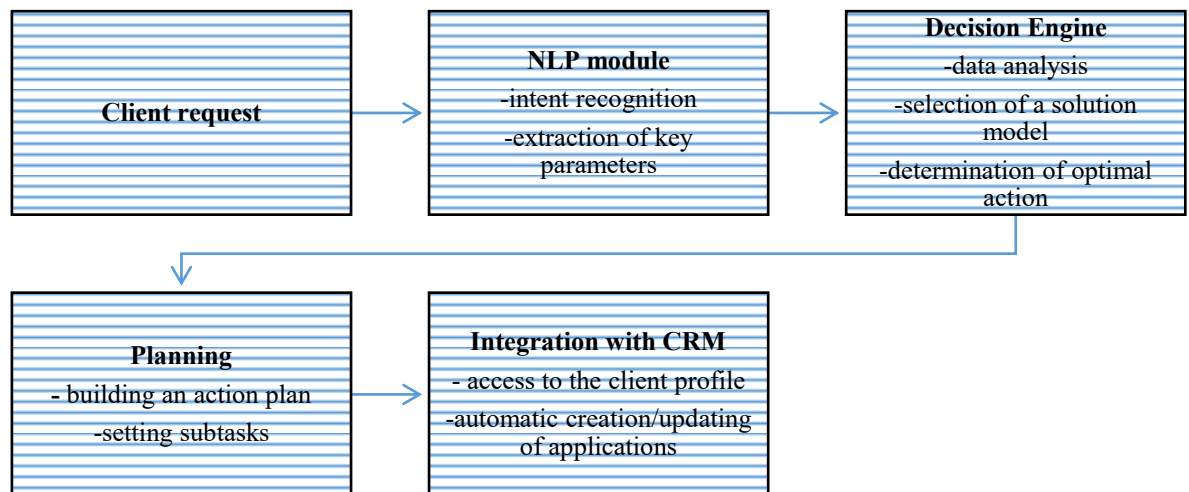


Figure 1 – Descriptive graphical model of the Agentic AI autonomous system.

Source: compiled by the author based on the implemented pilot project of Agentic AI.

The presented autonomous model is capable of analyzing client behavior, solving incoming problems, choosing a strategy, and conducting a full application processing cycle.

Research results and discussion. After the pilot system was launched, the results changed significantly. Due to automation, the workload on operators was reduced, customer retention increased, and the conversion rate to sales increased (Table 2).

Objective: To explore the capabilities of the presented autonomous model of the Agentic AI pilot project.

Table 2 - Results of determining the level of work efficiency after the implementation of Agentic AI.

Indicator	Values after implementation
Average application processing time	20 minutes
Conversion to sales	25%
Cost of attracting one client	1500 rubles
Customer Retention Rate	70
Load on operators	55

Source: compiled by the author based on an analysis of data collected after the implementation of Agentic AI.

Comparing the results of the first and second tables, we obtain the percentage of implementation effectiveness (Table 3).

Table 3 – Comparative analysis of the dynamics of key indicators (before/after implementation).

Indicator	Values before implementation	Values after implementation	Implementation efficiency (%)
Average application processing time	40 minutes	20 minutes	50% reduction
Conversion to sales	8%	25%	212.5% growth
Cost of attracting one client	3000 rubles	1500 rubles	50% reduction
Customer Retention Rate	55%	70	27.3% growth
Load on operators	80	55	31.25% decrease

Source: Compiled by the author based on the comparison before and after the implementation of the Agentic AI pilot project.

In this study, we found that the overall effectiveness of Agentic AI implementation increased the speed of claim processing in an insurance company by 74.2%.

Our data confirm the findings of Belova A.O. in the study “Economic efficiency of CRM system implementation: analysis of advantages and indicators” [8].

CRM strategy involves the use of specialized, advanced tools and technologies for interacting with customers, enabling companies to build mutually beneficial relationships by prioritizing their needs. This results in increased competitiveness and increased profits [7].

In her research, she examines the importance and economic benefits of customer relationship management systems. Belova A.O. notes that, with a competent approach, the implementation of CRM systems has a positive impact on business performance [8].

B. Ivens, K. Kasper-Brauer, A. Leischnig, and S.K. Thornton examine various methods of CRM system implementation in their study, but our data demonstrates one successful configuration. It leads to a significant increase in KPIs. These discrepancies in the studies are due to the different industries, business scales, and organizational levels [9].

The efficiency of the implemented agent-based AI's request processing is explained by its clear algorithm. This allows for automatic classification and prioritization of customer requests.

The obtained results can be used by the insurance company to optimize its processes.

This study is limited in that the analysis only demonstrates the use of agent-based AI in one insurance product category. Future studies could explore the use of agent-based AI across a broader range of services.

Conclusion. The key impact of agent-based artificial intelligence on company performance is: 1. improving customer experience; 2. increasing productivity; 3. increasing key performance indicators (retention, conversion, ROI).

The potential for comprehensive use of agent systems in the insurance industry and their value in business processes is confirmed by our research.

The use of agent system automation increases the level of interaction with clients, which can affect the company's reputation, and also has an impact on the company's financial performance, including cost reduction and increased ROI.

The study demonstrated that the implementation of Agentic AI in the insurance company's operations had a positive impact. Implementing an agent system helps strengthen the company's competitive position and supports digitalization. There is potential for expanding the research not only to other insurance industries but also to client segments and sales channels. Using an agent system in insurance companies' operations enables decision-making and improves the accuracy of client behavior.

Sales conversion rates and customer retention rates increased, while average application processing time, customer acquisition costs, and operator workload decreased. A limitation of the study is that Agentic AI is only applicable to one type of insurance product. Given technological advances, we anticipate further automation and digitalization. Further research in this area could include implementing new algorithms into the autonomous system and expanding its functionality. The agent system could also be integrated with other digital tools.

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Sukhachev Pavel Danilovich Conducting research – data collection, analysis and interpretation.

Approval of the final manuscript – acceptance of responsibility for all types of the work, integrity of all parts of the paper and its final version.