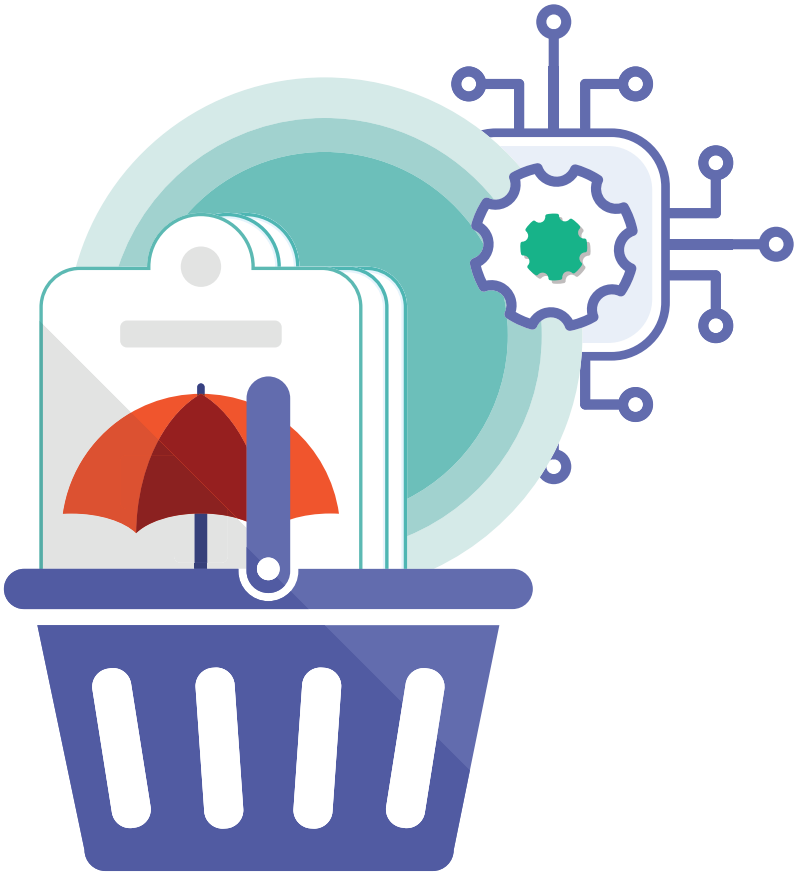
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The Ultimate Buyer's Guide:

Generative AI and LLMs in Insurance



Introduction

For organizations around the world, being AI powered has taken on a new significance in 2024. Since the introduction of ChatGPT more than one year ago, the capabilities of large language models and generative AI have created a level of excitement from organizations who are ready to capitalize on the opportunities that they have to offer.

The insurance industry is no stranger to AI, which has established itself as an essential technology for predictive analytics alongside other key technology enablers like process automation. Generative AI (GenAI) and large language model (LLM) capabilities offer a new level of productivity and creative potential that could transform those gains significantly, resulting in a tremendous interest by insurers looking to seize competitive advantage.

GenAI and LLMs are cutting-edge technologies that can have profound implications for how insurance companies operate. From streamlining claims processing to enhancing customer experiences, these tools offer a plethora of benefits that can significantly impact your bottom line.

However, their adoption is not without challenges. Insurance firms must carefully evaluate their infrastructure, data governance practices and the ethical implications of deploying AI solutions. Ensuring data privacy and securing sensitive customer information remain paramount. Furthermore, enterprises must invest in training their workforce to harness the full potential of these technologies, and most importantly, establish a culture where human expertise and artificial intelligence work in tandem to deliver unparalleled services.

This guide is designed to empower insurance executives, technology decision-makers and digital transformation teams with the knowledge they need to make informed decisions about incorporating GenAI and LLMs into their business processes, including:

- **Understand GenAI in Insurance:** Defining GenAI and how it can be utilized across various insurance processes, including claims processing, customer service and fraud detection.
- **Managing Implementation Challenges:** Identifying common hurdles in adopting GenAI technologies and strategies to overcome them.
- **Overviewing Insurance Use Cases:** Choosing the right use cases to be successful and provide business value is incredibly important in the early days of GenAI and LLMs.

- **Getting Build vs. Buy Right:** Businesses adopting Gen AI must choose wisely to develop internally, weighing pros and cons or opt for ready-made solutions from external providers.…getting it right the first time is a big deal.
- **Power of Hybrid AI:** How this flexible approach, combining Machine Learning, Symbolic AI and LLMs, improves accuracy, reduces costs and speeds up delivery timelines.
- **Choosing the Right Technology Partner:** Considerations for selecting an AI technology provider that aligns with your business objectives.

Preparing Your Culture for AI

Ensuring that your culture is AI ready is a critical step and must be managed in parallel with all the recommendations in this Buyers Guide.

Fostering an environment for innovation and upskilling your teams are just some of the ways that you can incorporate AI considerations into your company culture.

GenAI technologies should be used to enhance employee capabilities, promoting an assistive culture rather than one that might evoke fear of replacement by automation. Insurance companies can strategically choose AI approaches and ensure successful adoption of GenAI solutions by focusing on transparent communication through training programs and comprehensive support systems. It's crucial for leadership to clearly communicate the intended use and benefits of AI technologies initially, addressing any concerns about job displacement and emphasizing the technology's role as a supportive tool.

By adopting these strategies, insurance companies can foster a culture that views AI as an empowering tool, thereby securing its successful integration and utilization.

→ Explore more recommendations for creating a culture for AI here: The Roadmap to AI Success.

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Understanding GenAI in Insurance

Generative AI is a type of artificial intelligence that can generate new content, such as images, text, audio or video. Large Language Models are a specific type of generative AI that are trained on vast amounts of text data to understand and generate human-like text and support various natural language processing tasks, such as text completion, translation and question answering.

Applied for insurance processes, this technology can revolutionize how companies interact with customers, manage risks and streamline operations, and it has the potential to reshape the landscape of how insurance carriers operate. At the heart of its application is the ability to process vast amounts of data at an unprecedented speed, thereby enabling more accurate, consistent and efficient decision making.

For instance, **underwriters** can use GenAI to create personalized insurance policies by analyzing a customer's unique profile, including their risk factors, preferences and history. This approach not only improves customer satisfaction but also optimizes risk assessment for the insurer.

Applied for **customer service**, GenAI powered chatbots can be used to interact with customers in a natural way, increasing the volume of queries that can be managed and even providing personalized responses.

In **claims processing**, GenAI can automate the assessment of damage in auto or property insurance, expediting claim resolutions and improving customer satisfaction. This not only speeds up the process but also minimizes human error, leading to more accurate claims assessments.

In **fraud detection**, the capability of GenAI to analyze patterns and predict anomalies can be harnessed to identify fraudulent claims with a higher degree of accuracy than traditional methods. This not only protects the insurance company's bottom line but also ensures that genuine claims are not unduly delayed by fraud investigations.

Lastly, personalized **marketing campaigns** powered by GenAI can significantly increase engagement by delivering content that resonates with the individual preferences and needs of potential customers. By analyzing customer data, insurers can create targeted campaigns that speak directly to the customer's insurance needs, leading to higher conversion rates and enhanced customer loyalty.

These applications underscore just a *few* of the areas where GenAI offers transformational potential in the insurance industry, promising not only to improve operational efficiencies but also to deliver a more personalized and engaging customer experience.

> "GenAI applications will create a significant impact across the value chain, yielding substantial efficiency gains and cost savings. The biggest savings, ranging from 40% to 60%, are expected to come from productivity gains in customer service...the GenAI-powered knowledge assistant: We estimate that up to 35% of customer service agents' time is spent retrieving information in policies, terms and other documents."
>
> —Boston Consulting Group, "GenAI Will Write the Future of Insurance Claims," December 2023

Adoption Challenges of GenAI and LLMs in Insurance

While AI offers significant opportunities for innovating insurance processes, new capabilities like GenAI and LLMs present specific challenges for adoption. From the infrastructure requirements and expertise needed to deploy and integrate LLM models or third-party APIs, to the skills for governance and data security to manage the risks of GenAI, there are several considerations that companies need to consider prior to adoption.

Here are the most common adoption challenges that insurers will need to address:

Access to Skills and Expertise

Building and working with LLMs requires a diverse array of expertise, spanning from data science and machine learning to domain-specific knowledge in insurance processes and regulations. Data scientists and machine learning engineers play a critical role in developing the algorithms that underpin LLMs, requiring a deep understanding of natural language processing (NLP) techniques and the ability to manage and process large datasets.

Additionally, professionals with expertise in insurance industry practices are essential for tailoring LLM applications to address specific challenges within the sector, such as claims processing or fraud detection. Given the high demand for these skills, partnering with vendors or integrators can support you through the learning curve and provide the specialized skills and experience necessary to help you take advantage of these advanced capabilities.

Initial and Ongoing Costs

The initial investment in GenAI will require not only the acquisition of technology but also the expense associated with training staff to ensure data quality and security and those for integrating systems. Additionally, ongoing expenses, such as software updates, maintenance and potential scaling, need to be accounted for upfront. Despite these costs, the long-term benefits of enhanced operational efficiency, improved customer satisfaction, and more accurate risk assessments can outweigh the initial financial outlay if implementation is well planned.

Achieving Model Accuracy

A high level of model accuracy and quality is paramount for insurers to truly benefit from adding GenAI or LLM capabilities. This involves rigorous testing and validation processes to ensure that the language models perform up to, and beyond, human accuracy benchmarks and remain hallucination free. In most cases, it is not merely about adopting the most advanced AI technology; it's about choosing the best approach for a specific challenge and then fine-tuning these models to align with the specific needs and operational realities of the insurance industry.

Selecting the Right AI Approach

Selecting the most appropriate approach requires a nuanced understanding of the different AI technologies available and their potential applications within insurance operations. Companies must weigh factors, such as the complexity of tasks, the volume of data and the level of transparency and interpretability required. The key lies in identifying which AI capabilities align best with the company's objectives and customer needs, ensuring that the chosen approach delivers the desired outcomes in a practical, efficient cost-efficient and ethical manner. It is a challenge, not only insurers, but for most enterprises to acquire the depth and breadth of expertise in-house to successfully make these selections independent of vendor and consultative expertise.

Data Governance

Effective data governance is critical for navigating the complexities of using AI within insurance processes. The evolution of the technology, as well as emerging industry guidance in response to GenAI and LLM capabilities, requires policies and procedures that ensure the integrity, security and proper usage of data. This includes measures to protect customer privacy, secure data against breaches and ensure the accuracy of, and bias-free, AI-generated insights.

As AI models are trained on company data, insurers must ensure that their output does not inadvertently expose sensitive information or perpetuate biases, highlighting the importance of continual monitoring and review of AI systems.

Regulatory Compliance

Insurance companies must navigate a complex web of compliance regulations that govern data privacy, consumer protection and AI usage. The dynamic nature of these regulations, especially in different jurisdictions, requires companies to be agile and proactive in their compliance efforts. Furthermore, ethical use of AI demands transparency in how data is used, and decisions are made, especially in cases that involve sensitive personal information or those that have significant financial implications for customers.

While Generative AI and LLMs offer significant opportunities for innovation in the insurance sector, companies must carefully consider and address the challenges related to access, expertise, costs, and governance. By doing so, insurers can harness their full potential to revolutionize their operations and offer superior value to their customers.

Top 5 GenAI and LLM Adoption Concerns

Results from an informal expert.ai survey of 25 Insurance executives show that the Top 5 adoption concerns are:

1. **Data privacy, security and governance**
2. **Aligning with business stakeholders on which use cases to prioritize**
3. **Choosing which Generative AI/LLM approach to use to achieve the desired results**
4. **Building the business case/ROI for GenAI/LLM projects**
5. **Finding employees with GenAI/LLM skills and experience**

Choosing the Right Insurance Use Cases

To prioritize use cases effectively, consider the potential business impact, customer needs, competitive advantages offered, complexity of implementation and alignment with your company's strategic goals.

Solve a Business Problem First

Find a BIG Problem: Rather than employing technology for its own sake, start with a business problem that needs solving.

- Analyze existing processes to identify areas where AI can add the most value.
- Focus on use cases where you can improve efficiency and, directly or indirectly, impact customer satisfaction.
- Prioritize projects that have a clear ROI.

Establish a pilot project to test the waters and refine the approach based on real-world feedback and results.

Explore Highest Value Use Cases

Automate Repetitive Tasks: Using AI to automate lower-value, repetitive tasks allows you to streamline operations, freeing skilled workers to focus on higher-value, more impactful activities.

- Processing for routine claims
- Claims severity and urgency categorization
- Medical records processing and summarization

Enhance the Customer Experience: GenAI-based chatbots that understand customers and respond to complex queries can help build trust and reduce the workload on human agents who can focus on higher-value customer service issues.

- Chatbots for Q&A and virtual assistants
- CSR agent knowledge bases and semantic document search

Remember: Because GenAI can still behave in unpredictable ways, a human in the loop will always be necessary.

→ Explore use cases here: **10 Insurance Use Cases for GenAI and LLMs**.

Improve Risk Management: AI offers a comprehensive solution for ensuring that all of the information you manage is incorporated into risk analysis.

- Support for predictive analytics
- Identify patterns and anomalies that signal potential fraud or risk
- Drive data-driven decision making for commercial property analysis, medical underwriting and everything in between

Keep a Regulatory Perspective

Be Future Proof: Regulatory compliance must be a central consideration when selecting insurance use cases that utilize GenAI and LLMs.

- Balance areas where AI can provide significant value while also adhering to stringent legal and ethical standards.
- Ensure alignment with relevant data protection laws, such as GDPR in Europe, HIPPA in the US or CCPA in California.
- Stay ahead of evolving regulations and industry guidelines that prioritize transparency, fairness and explainability to prevent discriminatory practices.

Ultimately, the goal is to leverage the chosen technology and approach in ways that align with the company's strategic objectives, while also pushing the boundaries of innovation.

Top 3 Benefits of GenAI and LLM

Results from an informal expert.ai survey of 25 Insurance executives show that the anticipated benefits are:

1. **Increase operational efficiency**
2. **Increase straight through processing of claims and/ or underwriting**
3. **Support digital transformation**

Cost vs. Time to Value vs. Getting It Right the First Time

As businesses explore the potential of Generative AI, a critical decision arises: should insurers develop their own solutions in-house or buy them from external providers? This choice demands a careful evaluation of advantages and disadvantages.

A company must balance the costs, both financial and time-related, of building AI capabilities internally against the potential benefits of purchasing a tailored solution or platform. Buying from external vendors can offer ready-to-use, tested solutions, though these may not be as finely tuned to specific business needs.

In the decision-making process of whether to build or buy GenAI and LLM solutions, cost considerations play a pivotal role. For companies contemplating in-house development, initial investments include not only the technological infrastructure but also the recruitment of skilled personnel equipped to handle the complexities of GenAI and LLMs. This could involve significant upfront costs in training, development and deployment phases, alongside ongoing expenses for maintenance and updates.

Over the short term, purchasing solutions from external vendors might appear as a more cost-efficient option, offering predictable monthly or annual fees and reducing the need for extensive specialized staff. Typically, external vendors offer faster deployment times and initially lower costs. However, insurers must also weigh the potential long-term costs associated with dependencies on external providers, including subscription fees, customization charges and possible limitations in scalability or flexibility.

Given the propensity for AI project failure—estimated at 80% in some cases—it's even more important for companies to do everything they can to set the stage for successful digital transformation and AI project implementation. Therefore, it is necessary to ensure these initiatives are executed correctly from the outset, adhering to the principle "Get it Right the First Time." By doing so, insurers can concentrate on their central competencies, amplifying their success in a competitive market.

Ultimately, the choice between building in-house or buying should be a factor not only in the immediate financial investment, but also in terms of how each option aligns with the company's strategic goals and its ability to adapt to future technological advancements and market demands.

→ Explore **Why You Don't Need to Decide Between Build vs. Buy** for a detailed discussion on the topic.

Why the AI Approach Matters: The Power of Hybrid AI

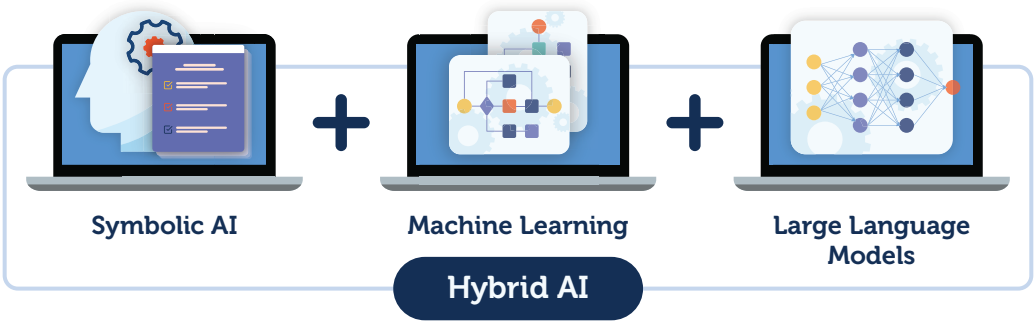
In the quest for digital transformation and improved combined operating ratios, the insurance industry requires not only accuracy and efficiency but also cost-effectiveness in its AI deployments. When it comes to selecting an AI solution, it's not just a choice of software vendor, but the choice of the AI approach that can impact each of these factors. In particular, it's about how an AI solution handles the information it has to process.

One of the main challenges that insurers are facing is how to deal with the massive amounts of data that underpin most insurance processes. Claims forms, medical records, accident descriptions, transcripts and other documentation are all forms of language data that power these critical processes and require different AI techniques to process it. And while GenAI and LLMs have become integral parts of the AI toolkit, they are components of a solution but not an entire solution.

Hybrid AI offers a flexible approach for companies to address their data challenges by using multiple techniques and a flexible approach that enables an LLM agnostic methodology. In Hybrid AI, the combination of Machine Learning, Rule-based AI, Knowledge Graphs and LLMs allows insurers to take a best-of approach that is fit for the data, the project, overall cost targets and your goals for responsible AI that holds up to the latest regulations.

By allowing for the development of enterprise-specific models, Hybrid AI offers targeted accuracy needed for significant ROI while keeping costs manageable. These custom models can be repurposed across various projects, providing economies of scale that drive down future project costs and accelerate delivery timelines.

Solving real-world language problems with success necessitates a blend of human intelligence, domain-specific knowledge, process understanding and broad general knowledge. Hybrid AI addresses this need by including a rich, domain-independent representation of knowledge that integrates the best attributes of natural language understanding.



Here are some of the advantages of a Hybrid AI approach:

- **More Intelligent Automation:** Hybrid AI facilitates the intelligent automation of business processes and enables organizations to mine text data for valuable knowledge and insights more effectively. The inclusion of a knowledge graph further enriches this process, offering a structured and interconnected framework to support complex decision making and insight generation. Through Hybrid AI, insurance companies can unlock the full potential of their data, driving innovation and delivering superior value to their customers.
- **Take Advantage of Smaller Data Sets:** A crucial advantage of the Hybrid AI approach is its ability to excel in scenarios where data is sparse, or the available documents are limited. Traditional AI and ML models often require vast datasets for training to achieve high accuracy and reliability. In contrast, Hybrid AI can leverage its combination of machine learning, symbolic AI and large language models to infer and generalize from smaller datasets. This capability makes it particularly valuable for niche or specialized insurance use cases, where extensive data may not exist or be accessible.

  By integrating domain expertise and rules-based logic, Hybrid AI models can perform effectively even when trained with a minimal number of documents, ensuring that organizations can still deploy powerful AI solutions in data-constrained environments. This has a significant impact on costs, both actual and environmental, because less data means lower compute costs.



"Bottom line: If you'd like to have the cake and eat it too—have a future fit, adaptable NLP solution, that is accurate out of the box, only requires moderate support, and can continuously learn and self-improve — look for an NLP solution based on hybrid AI.

—Boris Evelson, Forrester Research,
"Hybrid AI Delivers Best Results for NLP Applications"

- **Leverage Fit-for-Purpose LLMs:** In the rapidly evolving domain of genAI, leveraging the best, fit-for-purpose LLM for your domain is imperative. Expert.ai employs instruction-based fine-tuning to optimize open source LLMs. This approach not only shields your organization from the volatility of the tech landscape, but also ensures that your AI solutions remain at the cutting edge. This allows businesses to seamlessly integrate the best and most appropriate LLM for specific tasks without being tethered to a single provider or model. This flexibility aids in optimizing performance, enhancing data privacy and ensuring cost effectiveness.
- **Ensure Relevant Results:** Because hybrid AI combines knowledge models with language models, a range of advanced fine-tuning techniques can be applied to the models to make GenAI capabilities more effective and practical for insurance applications. Using semantic AI, knowledge graphs, knowledge models and taxonomies can be used to set parameters to protect and increase the accuracy of results. Techniques such as fast vocabulary transfer and multi-word tokenization can be used to optimize performance without sacrificing accuracy. Lastly, fast vocabulary transfer and multi-word tokenization techniques can be used to optimize performance without sacrificing accuracy.

Human-in-the-Loop: Ensuring Successful Knowledge Transfer in Insurance

In the rapidly evolving field of AI within the insurance sector, the concept of Human-in-the-Loop (HITL) plays a critical role in balancing technological advancements with human expertise and oversight. This approach integrates human judgement into AI systems, ensuring that decisions are not only based on data and algorithms but also on human expertise and process best practices. For insurance companies, HITL can significantly enhance the accuracy of claims processing, fraud detction, and customer service, while also improving the trust and transparency. By keeping humans in the loop, companies can leverage AI to handle routine tasks efficiently, allowing their employees to focus on complex cases and build stronger customer relationships. HITL thus serves as a bridge between the cutting-edge capabilities of AI and the nuanced, empathetic understanding and insight that only humans can provide.

Choose Generative AI and LLM Vendors Strategically

The growing interest in Generative AI, particularly in large language models, has led to a surge in vendor options, each promising unique capabilities and advantages. However, it's crucial to note that not all offerings are created equal, and a discerning selection process is essential.

At a time when "generative AI" feels like a tagline in every Insurtech's product portfolio, experience matters. Some vendors may simply have a user interface 'wrapped' around a popular LLM yet no ability to tune results or provide the transparency needed to satisfy regulatory inquiries. On the other end of the spectrum are companies with many years of experience delivering enterprise grade AI solutions to highly demanding companies and for similar use cases within your domain.

Here are detailed steps to ensure you choose the right vendor for your organization's needs:

1. **Look at the Big Picture:** When it comes to evaluating the product, make sure you're doing a comprehensive review. Begin with a broad review of the product capabilities against your specific use cases. It's not just about what the product can do in general but how well it can perform tasks critical to your business.

2. **Understand the AI Approach:** In addition to understanding the technology behind a vendor's AI platform, look for flexibility in their application of AI methodologies and LLMs. Technologies change quickly and simply put: a single AI methodology approach is not effective and does not fit all needs.

3. **Get Clear on the Security and Privacy Measures in Place:** Given the sensitive nature of data handled by insurance companies, assess the vendor's security infrastructure and policies. This evaluation should cover data encryption, access controls, compliance with relevant regulations (such as GDPR or CCPA), and how data is used to train the AI models. As wider AI regulation and industry-specific guidance for AI in insurance begins to take shape, it will be important to stay ahead of these requirements. Make sure that accreditations like SOC 2, Type 2 data protection standards and ISO 27001 Information Security Management System Standards are in place.

4. **Request In-Depth Product Demonstrations:** Instead of generic demos, ask for customized demonstrations that align closely with your operational scenarios. This will give you a clearer picture of how the AI solution would work in your environment and whether it can handle the complexity of your tasks.

5. **Investigate Vendor Claims:** Approach vendors with a healthy skepticism, especially those who have only been in business for a short time and are making ambitious claims about their products' capabilities. Prepare a set of use case specific questions that allow them to substantiate their claims. Checking industry analyst reports covering specific types of software is a good starting point for third-party validation of vendor capabilities and real-world use cases.

6. **Establish an Evaluation Period or Pilot Project:** If possible, agree on a trial period or a pilot project with the vendor. This hands-on experience can be invaluable in assessing whether the product meets your expectations and integrates well with your existing systems.

By thoroughly vetting potential vendors, you can significantly reduce the risk of adopting a solution that fails to meet your needs or, worse, introduces new problems. This careful selection process ensures that the chosen solution not only aligns with your operational requirements but also adheres to standards and upholds the security and privacy governance approaches you have worked hard to put in place.

Conclusion

The growing interest in Generative AI, particularly in large language models, has led to a surge in vendor options, each promising unique capabilities and advantages. However, it's crucial to note that not all offerings are created equal, and a discerning selection process is essential.

Appendix: 10 Insurance Use Cases for GenAI and LLMs

Generative AI holds the key to transforming the insurance industry. It promises to not only revolutionize processes and decrease risks, but to enhance customer experiences. Moreover, this technology aims to improve results and reduce expenses, all while bolstering scalability.

Here are a few insurance use cases to consider:

Submission Intake Automation
Drive efficiency and precision in insurance quotes and claims by leveraging automated submission intake processes.

Email Management and Triage
Enhance operational effectivness by efficiently organizing and prioritizing incoming insurance requests through automated email management and triage systems.

Automate Medical Underwriting
Accelerate life insurance approvals with the implementation of automated medical underwriting tools.

Claims Processing Automation
Utilize claim data extraction technologies to enhance accuracy and expedite the claims settlement process.

Claim Severity and Urgency Scoring
Optimize claims management by effectively prioritizing high-risk claims using automated claim severity and urgency scoring algorithms.

Risk Engineering Report Analysis & Scoring
Facilitate risk assessment and mitigation strategies through automated analysis and scoring of commercial property reports.

Add Unstructured Text to Predictive Models
Enhance predictive modeling capabilities by integrating unstructured text data into predictive models.

Medical Treatment Compliance
Detect potential non-compliance and fraud incidents through automated checks for medical treatment adherence.

Medical Record Summaries
Simplify complex medical information by generating concise summaries through advanced medical record summarizatio techniques to facilitate informed decision making.

Policy Wording Analytics
Ensure policy consistency and comprehensive coverage analysis by leveraging policy wording analytics to identify potential coverage gaps and ensure policy alignment across different insurance products.

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Expert.ai (EXAI:IM) is a leading company in AI-based natural language software. Organizations in insurance, banking and finance, publishing, media and defense all rely on expert.ai to turn language into data, analyze and understand complex documents, accelerate intelligent process automation and improve decision making. Expert.ai's purpose-built natural language platform pairs simple and powerful tools with a proven hybrid AI approach that combines symbolic and machine learning to solve real-world problems and enhance business operations at speed and scale. With offices in Europe and North America, expert.ai serves global businesses such as AXA XL, Zurich Insurance Group, Generali, The Associated Press, Bloomberg INDG, BNP Paribas, Rabobank, Gannett and EBSCO.

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