Anna Michelitch Oct 29, 2023 5 min read

AI in the Palmetto State: Columbia's Path to a Digital Future

Exploring AI's potential in Columbia's major industries with the expertise of Deloitte's AI Institute.

Columbia, South Carolina, is a city steeped in history and tradition. A city that was once a historical epicenter of agriculture and textile manufacturing has witnessed a remarkable transformation into today's dynamic urban hub known for its diverse culture, higher education, healthcare, and government services in the modern era. Today, Columbia stands at another turning point in its history, embracing a new technological revolution powered by generative artificial intelligence (AI). As the city continues to grow, it stands at an intersection of innovation, tradition, and progress that can be catalyzed with the help of artificial intelligence. In this article, which is adopted from a report by Deloitte’s AI Institute, we will explore several use cases of Generative AI that can reshape the way Columbia’s major industries operate through enhancing productivity, revolutionizing strategies, and delivering advantages.

Manufacturing & Industrials

Keeping Equipment Healthy – Asset Management Planning

Issue: Effective maintenance planning is essential for minimizing costly repairs and extending equipment lifespan. However, adapting these plans can be resource-intensive.

AI Opportunities:

- **Optimal Maintenance Scheduling:** AI recommends efficient and cost-effective schedules by analyzing equipment usage, production needs, and maintenance costs.
- **Simulation & Optimization:** AI simulates maintenance scenarios to enhance equipment performance, productivity, and operational efficiency.
- **Continuous Improvement:** AI learns from past challenges to develop strategies for minimizing system-wide impacts.

Enhancing Employee Safety – Personalized OHS Training

Issue: Traditional OHS training, due to its outdated and limited nature, provides insufficient practical opportunities and involves significant costs.

AI Opportunities:

- **Virtual Reality (VR) Training:** AI creates a safe virtual training environment for trainees to navigate hazardous situations, improving OHS awareness and response capabilities.
- **Customized Training Content:** AI leverages vast data sources to generate personalized training content based on job roles, site conditions, and regulations.

Resilient Logistics & Planning - Supply Chain Optimization

Issue: Today's global supply chains involve intricate dependencies and multiple stakeholders, presenting challenges in efficiency, resilience, and cost avoidance.

AI Opportunities:

- **Supply Chain Intelligence:** AI empowers supply chain managers to proactively mitigate risk, develop contingency plans, and make intelligent predictions.
- **Scenario Analysis and Optimization:** AI simulates real-world supply chain changes, including demand patterns, production capacity, inventory strategies, and supplier reliability, to enhance risk assessments and decision-making.
- **Supply Chain Planning:** AI supports natural language interaction for advanced planning, inventory management, order management, and global logistics.
- **Supplier Assessment:** AI helps in supplier management by identifying risk factors and opportunities through analysis of financial reports, performance metrics, and customer feedback.

Healthcare

Accelerated Prior Authorization Processing

Issue: The Prior Authorization process for healthcare payers and providers requires extensive time and labor to manually input codes, integrate policies, and make determinations that can lead to decreased patient satisfaction and a negative customer experience.

AI Opportunities:

- **Supporting the Provider:** AI streamlines submission by cross-referencing patient records, improving compliance with policies, and learning from best practices to enhance approval rates.
- **Supporting the Payer:** AI reduces decision-making time, detects anomalies in coding practices, and ensures policy compliance, thus improving the overall patient experience.
- **Efficient Operations:** AI enhances Prior Authorization efficiency, reducing costs, and creating a more streamlined experience for patients.

Simplifying Claims Submission - Medical Coding

Issue: Claims departments are tasked with organizing incoming claims and overseeing billing for medical services, which can be laborious and error-prone when manually dealing with a huge volume of incoming claims.

AI Opportunities:

- **Transformed Claims Processing** – AI can create a streamlined experience for both the claims department and patients through categorizing incoming claims and assigning accurate codes to improve the overall accuracy, efficiency, and speed of processing
- **Reduced Labor Burden** – Automating tasks in the claims submissions process creates room for human workers to focus on higher value-added tasks that could ultimately result in administrative cost savings

Serving as a Physician's Message Manager - Provider In-Basket Management

Issue: Primary care physicians are facing significant burdens when trying to balance administrative responsibilities with impactful patient care, sometimes spending up to two-thirds of their time on the former.

AI Opportunities

- **Triaging the In-Basket** – AI can automate routine tasks such as prescription refills and scheduling
- **Message Assistant** – AI can learn from previous in-basket replies and HER data to summarize complex clinical messages for review and draft replies for provider input and response
- **Insights at Scale** – AI can mitigate potential complaints, dissatisfaction, or concerns through identifying potential issues in patient messages, enabling interventions that can improve the overall experience

Government & Public Services

Simulating Urban Planning Scenarios – Urban Planning/Future of Cities

Issue: With over 56% of the world's population living in cities that is expected to grow to 70% in the next few decades comes a host of challenges in urbanization, such as a lack of affordable housing, overburdened transportation systems, traffic congestion, sanitization issues, and more.

AI Opportunities:

- **Generating City Models** – AI can rapidly speed up the generation of 3D images that can help guide and refine a city's design
- **Simulate Natural Disasters** – Through simulations, AI can help architects plan for more resilient infrastructure and evaluate potential vulnerabilities
- **Planning for the Future** – Scenario-generation allows officials to adequately plan for the future of infrastructure, housing, transportation, and public services that accommodate urban growth through simulating population growth and demographic trends

Education 2.0 – Hyper-Personalized Education

Issue: The one-to-many model of traditional schools, where schoolteachers often take charge of large class sizes while trying to accommodate students with different learning styles and educational needs, presents a barrier to personalized learning that students need to succeed.

AI Opportunities:

- **Digital Adaptive Teacher** – Generative AI can create a comprehensive, hyper-personalized learning experience for individual students by observing a student's work and comprehension and adapting lessons and learning strategies according to the student's individual weaknesses, strengths, and preferences
- **A Force Multiplier for Teachers** – Personalized, AI-driven teaching assistants can free up time for the human instructor to focus on higher-value activities with the students that cannot be digitally replicated, such as social interactions, evaluation, and higher-level planning

Multilingual Citizen Services - Service Delivery

Issue: Governments are working towards providing equitable services to diverse populations of citizens, despite language proficiencies and linguistic backgrounds. This has increased the importance of accessibility of multilingual websites, official document translation, and support for frontline workers in the name of better communication and inclusion.

AI Opportunities:

- **Aiding Frontline Workers** – Generative AI can be used to create real-time audio and text messages in different languages as frontline workers interact with residents around a variety of services, such as social care, health care, and emergency response
- **Translating Official Documents** – When dealing with publication of official documents, laws, regulations, and policies, AI can help government agencies streamline the translation process and produce accurate translations
- **Announcement and Website Translation** – Government websites and public information (e.g. health and travel advisories) can be translated quickly to make essential information more accessible to a diverse population

Special thanks to Deloitte for providing the insights and use cases featured in this article. For more in-depth information, you can explore the original report by Deloitte's AI Institute.