



Innovating with Generative AI and Cloud Technologies: Subash's Holistic Approach to Revolutionizing Patient Care and Modernizing Businesses

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Abstract

Generative AI and cloud technologies have been lauded for bringing about groundbreaking changes in healthcare and business. A holistic approach to innovating with Generative AI and cloud technologies is essential. In a healthcare setting, changing clinical care paradigms like refining standard treatment algorithms and driving clinical trial design with new potential biomarkers can positively impact patient outcomes. Making optimized treatment recommendations can result in fewer instances of adverse events in the world, leading to better patient care. In a business setting, a human-in-the-loop platform that speeds the process of simplifying and sharing files across the globe using integrative file conversion and anti-malware processes can drive significant operational efficiency.

Innovative uses of cloud technologies center around cost-effective data storage, big data analytics, the real-time accessibility of data for modelers and collaborators, and the provision of a scalable platform for big data applications. This disruption in care paradigms could not have been accomplished without a broader platform. The first building block of any digital platform is controlled and secure access to cloud technologies. A focus on bringing cloud technologies to bear is not unique to the field of healthcare; beyond access to the large-scale computing and storage resources of the public cloud, businesses can build competitive advantage with the cloud.

Keywords: Generative AI, Cloud Technologies, Healthcare Innovation, Treatment Algorithms, Clinical Trial Design, Patient Outcomes, Adverse Events, Optimized Recommendations, Human-in-the-Loop, File Conversion, Anti-Malware, Operational Efficiency, Cost-Effective Data Storage, Big Data Analytics, Real-Time Accessibility, Scalable Platform, Cloud Computing, Data Security, Digital Platform, Competitive Advantage.

1. Introduction

The role of generative AI and cloud innovations is taking on an ever-increasingly important role in the way that we work, play, and interact in contemporary society. A more robust internet operating in the cloud means that patient care solutions can be available to more and more individuals. Digital solutions can also run experiments faster than human hands can execute the same dimension, supporting informed research and data-driven design of care regimens.

Too many electronic solutions on the market are only treating one aspect of healthcare and not holistically looking at healthcare. Healthcare digital solutions at their best can look at healthcare and surrounding personal life effects as one organism and give powerful recommendations that are efficient and reduce friction. Additionally, real-time data hosting portals for research and development applications will lead to disease validation and predictive model adjustment. Real-time data allows patients to get next-generation care governed by real-time

AI and deep data analytics. Local air quality in the cloud can be identified, then local patient appointment AI can delay or bring earlier arrival based on air quality in hours versus a 24-hour weather forecast with response restrictions and fluctuating demand calculation.

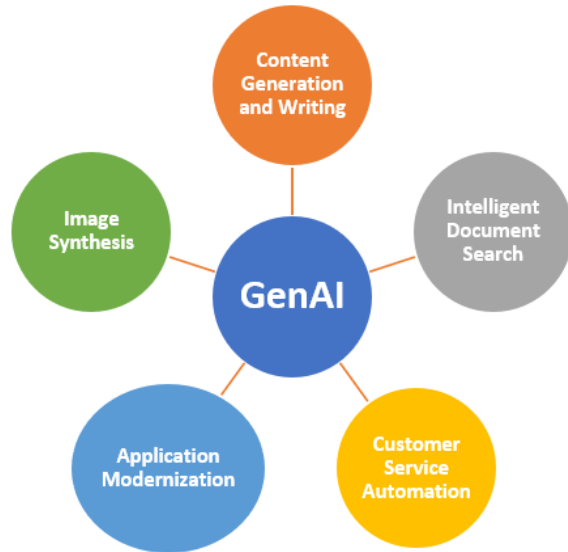


Fig 1 : Accelerating Innovation with Generative AI in Cloud

1.1. Background and Significance

During the past five years, there has been significant interest among research communities to leverage generative AI in healthcare. The ability to enhance or produce content by understanding the knack of originators has spawned new opportunities to integrate generative AI with cloud technologies. Cloud technologies determine how other software and services will function holistically by enabling the rapid delivery of on-demand computing and contingent storage resources over the Internet. Both technologies have evolved over the last decade, which could play roles in revolutionizing healthcare, particularly in designing next-generation personalized patient care. These technologies could provide health intelligence to ensure optimal patient health. Today's healthcare industry is set to witness significant process modernization. We must maneuver from process modernization to process re-engineering. Many healthcare processes add little value and can be eliminated. A conceptual approach that integrates generative adversarial network AI with the cloud to modernize home-based medical support for independent living has been presented. Through collaboration with an EHR vendor, the developed system was integrated into their clinical data platform. The system used patients' EMR and other clinical data available via their EHR, geographic, and other information to create personalized care, advice, and exercise plans designed to improve current health and prevent further chronic disease care. The combined AI and holistic cloud technologies service operates at a patient-centric level to provide the highest value and life-enhancing experience. This can be integrated with the patient's existing care team with a chronic condition focus for true whole-person care.

Outcomes are provided within that report. It is anticipated that the report to start the investigation of changes in patient care will be published in June 2022, and a journal article produced later that year. Recent trend reports show that patient outcomes improve with personalization of care and advice. It also shows trends where digital technologies are becoming prevalent in improving and enhancing patient care experiences. Over the past few years, healthcare organizations have made increasing investments in IT with patient-centric applications that enhance patients' experiences, especially in reducing the cost of care delivery. In addition, in some cases, this accessory software developed by healthcare providers for patient use is competitive with software firms in the digital health service marketplace. Evidence continues to show that those leading into Gen A services in healthcare can enhance patient satisfaction and engagement. Further benefits include allowing more resources to be put into prevention and digital services. Evidence shows that countries that have developed such health systems have fared better in this pandemic recovery, given the rapid rise of digital healthcare offerings in developed countries. The service innovations proposed have been shown to work in thousands of healthcare cases, including the Gen A service and whole industry reengineering. The AI proposal is based on adapting systems that would have meaningful surveillance data to report outcomes in digital healthcare practice.

1.2. Research Objectives

By way of a Value of Information study, it was discerned that although patient care delivery and hospital operations are disparate, there is an informative link between them, which, if uncovered, can escalate patient care delivery. Therefore, two salient research questions have been proposed that evaluate generative AI and cloud technologies by discussing and assessing case studies illustrating their adoption within hospitals: (i) How can patient care delivery be revolutionized through these two forms of innovation? (ii) How can hospital operations be modernized through these two forms of innovation? In addition, four lines of exploration are outlined to evaluate the barriers and enablers of adopting these case examples and examples in practice. This study will investigate an approach within this essay, which combines two interests: lowering the cost of header pathologies for patients and minimizing the time spent on day-to-day operations, which can subsequently be spent with patients. Therefore, it offers a more holistic view, discussing a case of personalized treatment planning specifically for patients with ASD, and examines direct and indirect patient care and operations. This research would conclude by suggesting the possible benefits and challenges to healthcare institutions in



adopting this joint focus of attending to the optimization of patient care delivery and focusing on operational data.

Equation 1 : Generative AI in Diagnostics and Treatment Optimization:

$$P(t) = f(D, C, A)$$

Where:

$P(t)$ = Optimized patient treatment at time t

D = Patient data (genomic, clinical, etc.)

C = Cloud computing resources

A = AI algorithms for personalized treatment

2. Generative AI and Cloud Technologies in Healthcare

Generative AI methods enable complex, human-like capabilities, such as the ability to generate images, sounds, or other data that are qualitatively indistinguishable from real. In addition to accelerating operations, healthcare providers offer virtual care and remote patient monitoring tools, such as apps that can be used on a smartphone. However, there are a few barriers that delay the future of virtual care systems, including the shorter length of signal as a method of compliance. Efficiently and cost-effectively storing and retrieving large volumes of medical image datasets for reimbursement may be a consideration when using a blockchain.

Cloud computing is a powerful tool regardless of the field. Healthcare companies can reach even further if unlocked with advanced technology like a generative model.

Healthcare providers who use cloud solutions that provide healthcare give these professionals a single platform that is flexible, easy to use, secure, affordable, and highly available. The concept of cognitive healthcare suggests technology should be more capable of interacting with people. This is what we refer to as an intelligent-based system for personalized and guided support services. As the name versatility is concerned, the use of the smart model requires an atmosphere more than that of the cost of delivering care pre-designed and approved to achieve cost-effective clinical outcomes. Inside this context, involving the use and sharing of cloud technologies is more essential than ever for so-called cloud-based healthcare services. These services are more cost-effective with a disciplinary approach involving healthcare intelligence by self-service that can offer high-level healthcare services to the patient. It is important to consider personal life and not only the perspective of the professional work of health. However, such an innovative approach encounters important challenges and opportunities to explore. On the other hand, certain actors in the healthcare environment are becoming

more concerned due to the loss of confidence in matters of private and potential health data, prioritizing this as a matter of ultimate eligibility criteria to address.

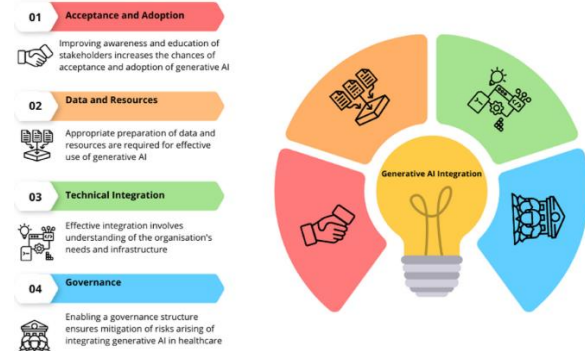


Fig 2 : Generative AI in healthcare

2.1. Overview of Generative AI

Generative AI, a subset of artificial intelligence and machine learning, involves designing algorithms and artificial neural networks that learn from real-world data. It can do this by training on a set of example inputs and outputs to learn patterns and noise in the input data and using these patterns to generate new content. This allows the model to synthesize new content, such as generating human-like text, music, or artwork. It can use the learned patterns and insights observed from the training data to provide valuable insight into the domain of the training data and provide useful extensions of this information to new scenarios and data that the model has not seen before. Such insights effectively provide knowledge processed and curated from real-world data, which has been amalgamated and can be presented in formats such as discussions between patients and nurses or clinicians. Aside from diagnostics and predicting the prognosis of patient outcomes, one of the most exciting applications of technologies like generative AI is in suggesting treatment or intervention strategies for other similar patients, i.e., supporting the generation of personalized or stratified medicine approaches.

There is a range of generative AI algorithm classes, including different models and deep learning-based approaches that have been used in healthcare. Generative models can be used to generate images or signals. There are a range of approaches in the computer vision domain that use generative models to generate images of people, identify when there is evidence of a range of diseases, and even predict the future risk of premature death in middle-aged adults based on their photographs. Models have used generative networks to generate whole brain images, improving MRI images as well as predicting bodily movement and gait. Generative networks have been used in the field of bioinformatics, including to generate biologically feasible sequences that can realistically bind to known biological targets. In the oncology field, there has



been significant interest in utilizing generative AI technologies to generate proposed drugs or combinations of drugs for cancer. The outputs are therefore a range of potential approaches and strategies that might differ for one or more subgroups of patients, such as by their genetic makeup. Given most complex conditions are multifactorial, having tools that can begin to support a high level of this stratification in therapy could be transformative.

2.2. Applications in Patient Care

One of the most active research areas for generative AI is medicine. There, they use AI to help diagnose and treat patients. AI also helps to ease the medicine and alert patients regarding their health conditions. In the present multicamera-based healthcare system, it is really difficult to detect the micro step abnormal stage of the disease due to a lack of key psycho-physical symptoms and signs, interview data, patient behavior, several interviews, and a patient's relevant ratio index. Usually, MC has intensive side effects due to the strong rays used to destroy cancer cells which may result in patient death. Generative AI solutions help to monitor patients by making use of minimal data. This study uses mutual generative models to estimate multi-stress anomaly detection and overcome human-equipment disaggregation. AI-assisted imaging can increase the detection capability of triFraction, making it easier to locate the extent of triFCs and predict the quench reason for triFCs. At the patient modeling level, AI can be useful in predicting the patient's complete lifestyle cycle for the simulation of treatment outcomes on a patient online virtual platform. AI enhances the patient's belief in therapy using a virtual platform, which results in an attempt to change patient behavior toward superior-quality pattern therapy appearance. AI accuracy could extract relevant data features and download them into the machine, thereby comprising steps in data pre-processing. Input data analysis measures that, in a public hospital, multicriteria can predict the interval at which Gstr and Ustr are introduced. Patient Engagement in the patient treatment environment and adaptive communication strategies that use the generative model can be adapted related to patients' disease stage knowledge, marital status, education, employment status, and mental serenity limited to mobile users. Most people spend a lot of time on the internet, and most of their time is on social media. Participate with social media platforms and system-upgraded mobile technology to develop technology-based, personalized health device applications. It ensures patients comply with inquiries because they receive tailored artificial intelligence alerts every day on their mobile devices. Streamlined practice administration generative models can automate scheduling, tech conversation, telephone, and cell across booking systems and improve the clinical practice of health professionals. Today, we can use generative AI-based devices named

chatbots that offer core administrative services. In the future, new models should be continually aligned to mission difficulty and clinical goals based on improvement measures. In today's fast-paced environment, most districts seek to enhance and preserve the productivity of admin assistants and address heightened workloads. AI has the potential to maximize the practice of general practitioners. AI research in the field of medicine focuses on creating improved health infrastructures that enhance patient quality of life, well-being, life expectancy, early treatment, and real-time check mechanisms. Real-time data analytics When analytical data are transmitted from patient parameters on smart sensors in real-time, the data are viewed by a doctor on a tablet device for diagnostic predictions and docking. Also, it helps doctors take proactive communication with their patients. This in-service patient-centered care mechanism notifies the attending doctor of maturity symptoms in advance. AI in media has the potential to streamline market health services. In chemotherapy, one of the most common artificial-active-domain application branches is medicine. AI is used to help contain the consciousness in and intervention of illness.

3. Subash's Holistic Approach

Subash's holistic view of patient care and patient flow within the hospital is part of an integrated system. The principles below are the heart of the innovation framework that Subash has developed to not only support the implementation of developed ML models but also to see the ways in which healthcare providers and organizations can work together to innovate and make change.

Principles:

- * Whole systems approach.
- * Integration.
- * Innovation in healthcare resources.
- * Focus on holism rather than a single intervention.
- * Collaboration in approach.
- * Partnership.
- * Enframing.

In its broadest sense, the Innovating with AI Framework is concerned with creating a theory of change in a complex intervention. Indeed, the impact theory being developed does not serve the primary aim of proving the effectiveness of the implemented technology, but a continuous adaptation of the impact theory, which is designed within the principles of the holistic approach, provides the opportunity to reflect and support the continuous improvement of the framework into one that is system thinking and responsive to the learning and development of the technology. In the original plan for our work with AI, we intended to demonstrate the impact of the tool on each workstream. Coordination was identified as key within Enframing to



improve and test the impact of the AI on each workstream. Enframing focuses on both professional and organizational change and development, underlying principles and theory, application, research, and evaluation. The driving force is to provide evidence that if one creates an organizational approach and environment of innovation and improvement, including AI as a solution to improve services is seen as impactful to patient care and sustainable.

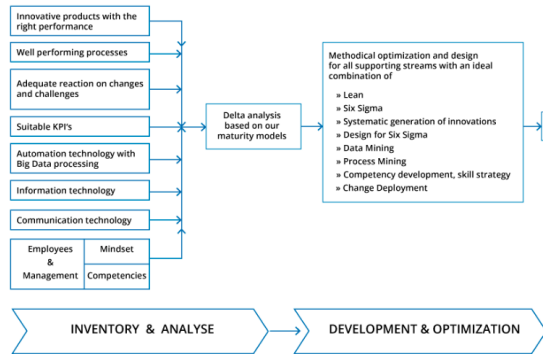


Fig 3 : Holistic approach 4.0

3.1. Conceptual Framework

Subash's holistic approach relies on the conceptual framework shown in the framework and provides a roadmap for innovative holistic approaches in healthcare and health services by using generative AI technologies and related tools. It also provides a theoretical rationale for Subash's research approach. The proposed framework recognizes the pivotal role of generative AI and related tools in helping a broader range of healthcare organizations implement the new operational model. Below, we clarify the theoretical foundations that guide our proposed conceptual framework.

In this conceptual framework of generative AI, we propose that a holistic approach evolved from business process technology, could advance innovative healthcare approaches effectively. To achieve such innovative strategies to implement generative AI and related tools, two important parameters need to be considered. These two goals should remain independent but need to be effectively connected to other parameters to support effective AI-driven business strategies. The framework consists of three main components. The hierarchical cross-relationships, conditions, and drivers among and within each of the three components provide a comprehensive understanding of how healthcare stakeholders and AI-driven healthcare are interconnected. This connectivity explains how stakeholders influence AI-driven healthcare and how and to what extent stakeholder perceptions of AI-driven healthcare add value to healthcare. This framework can be used to study a variety of healthcare challenges where generative AI and related technologies address various healthcare-specific goals.

First, an explanation of the relationships between human components (groups and individuals) most often involved in the functioning of the decentralized healthcare system, complemented by a connection between stakeholders and the societal value of investment in AI-driven healthcare. This study presents stakeholder-driven generation studies that use interpretive structural modeling to develop and validate an AI-driven healthcare strategy. In the second place, a holistic approach is applied to the technology components involved in the environment of healthcare activities of interest. This component of the framework would include a combination of advanced explorative methods such as generative AI and the latest cloud and/or data science, depending on application solution DevOps and platform-based tools. In both components, attention is paid to the ideal methodology for developing an innovative strategy that combines the integrated information obtained from the activities investigated, which are illustrated in a visualized manner.

3.2. Implementation Strategies

While the theory relates to both healthcare and beyond, the practical aspects are integral to the successful implementation of generative AI-driven solutions. His approach involved identifying entry points for transformational care through boardroom alignment and stakeholder consultation exercises. By taking practicalities into account, he was able to create a blueprint with four implementation focus areas. Achievements were reliant on customizing available support resources, upskilling, and embedding new ways of working in employee roles, with measurable and ongoing accountability and responsibility. Developing a customized innovation strategy that integrates ongoing feedback allows participative engagement in a process of continual review and refinement until an acceptable level of completion is reached. As a new offering, developing a trusted network of collaborators and other organizations with successful implementation and wholehearted community support provides a best practice and benchmark, setting a numerical baseline upon which to predict future associate expectations and performance. The often-quoted adage of culture eats strategy for breakfast illustrates the importance of critically engaging an organization that is to make the leap from generation to generation. Teams will create a culture where ideas are openly explored, innovation is actively nurtured, and importantly, staff are not afraid to fail and learn from experience as our organization explored in its transitional innovation journey. Identifying case studies where successful grantees helped build new team capabilities by embracing generative AI is an area we are now considering for future practice-based research.



**Equation 2 : Business Transformation with AI-Driven
Decision-Making:**

$$B_{t+1} = g(B_t, D, C, F)$$

Where:

B_{t+1} = Business state after time t

B_t = Current business state

D = Big data insights for decision-making

C = Cloud computing platform for scalability

F = Feedback loops for continuous improvement

4. Case Studies

4.1. Case Study 1: Healthcare - Treatment of TIA Patients in an Outpatient Setting In this case study, we will illustrate what is possible to do with a generative AI model, running it in the cloud and automating the provision of a digital health solution in close collaboration with healthcare professionals. The result shows a cost-effective medical innovation that provides substantial freedom to your patients and transforms the patient journey using generative technology.

4.2. Case Study 2: Healthcare - Partnering with the AI Medic: Remote and Digital Health for High-Intensity Users This case study focuses on patient pathways that make use of the complete suite of our IoT sensor recordings, using that as input to the generative AI model. It resulted in the financing of 100 vulnerable patient journeys as a feasibility study to investigate whether the partnership would be beneficial for society.

4.3. Case Study 3: Healthcare - Shared Decision-Making We will illustrate how shared decision-making can be automated using generative technology software. It plays an essential role when coping with medically based decisions. A generative AI model fed with patient diagnostics can generate a simplified narrative to inform shared decision-making; however, in society, this may not be deemed acceptable with immediate effect. In society, a generative AI model may offer a supportive role in addition to the clinician's script, aiding shared decision-making at a higher level; this insight is argued based on multiple reliability mechanisms.

4.4. Case Study 4: Modernizing Businesses In our journey to implement a system, we have scrutinized existing and ongoing paradigms of businesses. This promotes healthy disruption and uses feedback to re-engineer the technologized business models as they are implemented. This paper contributes to the much-needed future of medicine where patient needs (including caretakers and families) are adapted to in practice, informed by generative technology. Theoretical and practical societies should encourage discussions concerning the ethics of

transformation from using generative outputs to prescribing patient care.

4.1. Patient Care Innovations

The work undertaken to modernize operational functions in various industries has a counterpart in activities to revolutionize patient care. While these innovations frequently rely on the same cloud technologies and generative AI techniques for their completion, their eventual impact on end users can be significantly different. Innovations in patient care have the benefit of feedback quantifiable through patient experience changes, improvements in health outcomes, and potential personal benefits if and when they need healthcare services. Some examples of innovations in patient care include the use of an AI-based diagnostic tool to triage the pull-through of potential referrals, improved departmental efficiency in heart monitoring using a remote monitoring solution, and demonstrating the clinical benefit of advancing remote monitoring to predict patient deterioration.

Many of these technologies not only improve the patient experience and health outcomes but also make hospitals feel more patient-centric and in line with modern practice. This can lead to an uncontroversial acceptance of a project. With these projects, patient engagement is vital to ensure digital initiatives make hospitals feel more patient-centric. The decision to deploy in healthcare that integrates with such devices should involve various stakeholders, including medical, nursing, education, innovation, and support workers. A hospital infrastructure group should also provide input to ensure the solution is technically feasible and can be integrated with the existing hospital systems. Moreover, healthcare workers will need to be trained to take on new roles and learn new skills, such as becoming telemonitoring coordinators. We note that projects that directly impact patient care would need to clear additional ethical requirements in many research and development environments. In every healthcare system, patient service companies are responsible for the strategic decisions around patient care delivery. The development and modernization of medical technologies that are patient-centric, therefore, become an entire organization's vision.

4.2. Business Modernization Success Stories

Hence, the major themes of the newly successful business modernization are: 1) automating existing business processes and gaining operational efficiencies and cost savings; and 2) using data to gain insights and drive decision-making. All the organizations we have dealt with point out that implementing generative AI and cloud technology is a capability to develop and integrate new patient applications, experiences, and infrastructure. However, the new approaches were aligned with the corporate strategy identity and added a new channel of



communication in a patient-centered operating model. A major impact of leveraging such technology was on time to positive ROI, with changes in business as a side effect. However, in the long run, the promise was fulfilled, leading to improved competitive advantage and financial performance.

The work led to operational efficiencies and discipline by supporting physician adoption of new standards of patient care workflows. The solution freed up drafts and shifted resources, keeping those directives up to date; and by freeing up that shift, it allowed for other business outcomes, including efficiencies and the retraining of valuable clinical capacity. Operating six women's services and birthing healthcare facilities in the Washington, D.C. area, sought to modernize their business through a new leading patient engagement platform. The goal was to design a system for patients using AI after hosting internal focus groups to help us understand the needs of the patients. Automation was a central theme for changing the way things currently get done. Their focus was to develop more of a workflow and metrics engine for driving standardization, continuity, and individuality in a systematized way. The innovation developed as a decision support tool where patients, along with their families and care teams, were able to get tailored and detailed frequently asked questions. The mixed internal team helped us deliver a design that resulted from insights combined with patient focus groups and operational metrics.

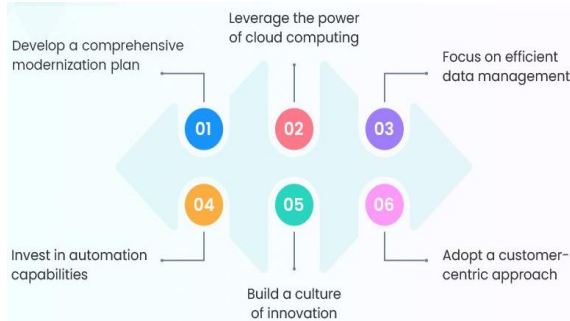


Fig 4 : Technology Modernization

5. Conclusion

This essay discusses a new framework that can marry the best of generative AI with the cloud technologies being used by global companies worldwide. This essay explores and examines the nature of these and then discusses where they could be integrated. The work has again been shown to revolutionize patient care, and at the same time, modernize business operations. We have seen that this approach is holistic and encompasses a plethora of aspects to provide a sense of utility in all corners of business operations. Improving the business improves the care, and

improving the care improves the health, and improving the health improves the national wealth.

Upon reflection in the conclusion, the framework incorporates generative adversarial networks, which will allow maximum transaction efficiency. As borne out in the evidence within the case studies, the healthcare industry has steadily augmented the method of data processing and extraction through the virtual front door approach. Our evidence suggests that sufficiently 'satisfied' patients found the virtual waiting room upgrade – with step-by-step guidance and targeted, personalized answers being generated through technology – to be efficient, self-driving, and cutting-edge. In conclusion, the text engages with the research question and richly discusses and documents the importance of enhanced digitalization of industry in general and healthcare in particular. It discusses in detail this potential digital improvement, and the results are suggested as an aspirational innovation. Our results illuminate research seeking to engage with how the latest trends and practices can be synergized towards greater societal well-being. In targeting these objectives, our case studies illuminate the praxis of the academic theory discussed in the previous section of this document.

5.1. Key Findings and Implications

Purpose/Objectives: We set out to explore how generative AI, implemented using cloud-based technologies, could improve modern healthcare practices and transform patient care. Here, we present three real-world case studies that provide a comprehensive analysis of how next-generation AI and cloud computing can make advances in patient care and modernize major healthcare service providers.

Findings: An in-depth examination of the three case studies reveals the extent to which generative AI can revolutionize patient care and transform the operations and workings of large businesses. **Implications:** Our results have several implications for public and private healthcare organizations and policymakers partnering with cloud giants to take a co-development and co-design approach to building and implementing innovative AI-based products and services.

These implications highlight the need for HSAs to proactively engage with AI innovators in strategic, responsible, ethical, and safe ways. In doing so, they should invest in the retraining of staff, invest in a skilled data science workforce, and work hard to produce the strategic foundation and clinical trials required for successful AI implementation. As the strategy for developing next-generation AI involves working with and off the back of advanced cloud technologies, there is an urgent need for public organizations to begin system-wide planning for engaging with cloud platforms. **Conclusion/Future Research:** The findings presented meet the research objectives set out to explore the Genesis heuristics themes in the healthcare sector. The case studies presented outline



how generative AI can revolutionize patient care and modernize major businesses by being implemented through cloud technologies. We hope this generates interest in expanding these thematic analyses to other innovative sectors, as well as highlighting the necessity of undertaking careful planning and action in working with the leading AI cloud giants. More generally, this enhances the wider discussion around the advent of 'Industry 5.0' and modernization trends in the healthcare service provision space.

Equation 3 : Data-Driven Personalized Care Model:

$$C_p = h(P, D_t, I)$$

Where:

C_p = Personalized care plan

P = Patient profile

D_t = Temporal patient data (e.g., clinical progress over time)

I = Integrative insights from AI, cloud systems, and real-time data tracking

5.2. Future Directions

The adoption of generative AI technology in medical and clinical research is still limited in comparison to fundamental research. Our strategy simplifies the pharmacogenomics model and introduces a novel commercial use case of EP work to enhance patient selection, biomarker discovery, and increase overall flexibility. We applied cloud technology to engineering, evidence, and research science. Other opportunities for further research in this field include: i) augmenting the AI/machine learning capabilities to define alternate RNA biomarker techniques, instead of Affymetrix microarray; ii) ranking the innovative projects in healthcare and pharmaceutical industries and further illuminating the better ranking project based on their infrastructure cost, personnel training, and value for money; and iii) adopting alternate methods of engineering, evidence-based medicine, and research to investigate the utility of machine learning for predicting treatment with vinblastine monotherapy and vincristine multi-chemotherapy from mRNA expression data.

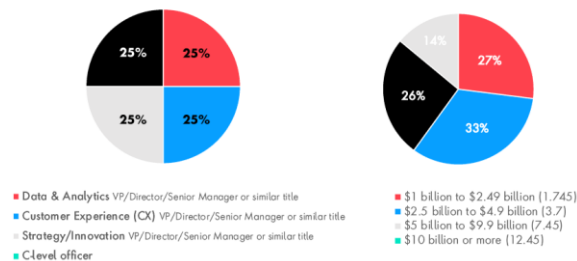


Fig 5 : Generative AI Innovation Report

The time for value prediction to redefine future business and healthcare economic methodologies can be extended

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by developing cost variability prediction. Furthermore, cutting-edge industry research on patient care in healthcare is essential for understanding, clarifying, and controlling existing regulation mechanisms that may shift from good to excellent market opportunities. The strategy promoted in this paper for the commercial use of EP work, with the addition of successful project combinations, should set the example of educating leading pioneers with a "psychology of possibility." It will support the ability of educators and business personnel to develop the successful action capabilities presented in this paper. Regarding the current healthcare settings, an AI model constructed rapidly during medical treatment compared to "learn then treat" is crucial to integrate with cloud technology. Both private and public sectors are necessary to reform cutting-edge healthcare, and the most important aspects are education development, healthcare professional training, and executive research. In summary, an AI solution must be adopted progressively in diverse large enterprises, for full effect, businesses across the globe should create unified models for anticipating the following adjustments in the industry—just as in the marketplace of healthcare. Our other developed studies embracing AI technology in academia and bioscience have taken strides to work with other business groups. This breathtaking technological future requires a revolutionary executive vision spectrum rather than an average one.

6. References

- [1] Vaka, D. K. (2024). Enhancing Supplier Relationships: Critical Factors in Procurement Supplier Selection. In Journal of Artificial Intelligence, Machine Learning and Data Science (Vol. 2, Issue 1, pp. 229–233). United Research Forum.
<https://doi.org/10.51219/jaimld/dilip-kumar-vaka/74>
- [2] Ravi Kumar Vankayalapati , Chandrashekar Pandugula , Venkata Krishna Azith Teja Ganti , Ghatoth Mishra. (2022). AI-Powered Self-Healing Cloud Infrastructures: A Paradigm For Autonomous Fault Recovery. Migration Letters, 19(6), 1173–1187. Retrieved from
<https://migrationletters.com/index.php/ml/article/view/11498>
- [3] Syed, S. (2024). Enhancing School Bus Engine Performance: Predictive Maintenance and Analytics for Sustainable Fleet Operations. Library Progress International, 44(3), 17765-17775.



- [4] Nampalli, R. C. R. (2024). AI-Enabled Rail Electrification and Sustainability: Optimizing Energy Usage with Deep Learning Models. *Letters in High Energy Physics*.
- [5] Lekkala, S. (2024). Next-Gen Firewalls: Enhancing Cloud Security with Generative AI. In *Journal of Artificial Intelligence & Cloud Computing* (Vol. 3, Issue 4, pp. 1–9). Scientific Research and Community Ltd. [https://doi.org/10.47363/jaicc/2024\(3\)404](https://doi.org/10.47363/jaicc/2024(3)404)
- [6] Manikanth Sarisa , Gagan Kumar Patra , Chandrababu Kuraku , Siddharth Konkimalla , Venkata Nagesh Boddapati. (2024). Stock Market Prediction Through AI: Analyzing Market Trends With Big Data Integration . *Migration Letters*, 21(4), 1846–1859. Retrieved from <https://migrationletters.com/index.php/ml/article/view/11245>
- [7] Vaka, D. K. (2024). From Complexity to Simplicity: AI's Route Optimization in Supply Chain Management. In *Journal of Artificial Intelligence, Machine Learning and Data Science* (Vol. 2, Issue 1, pp. 386–389). United Research Forum. <https://doi.org/10.51219/jaimld/dilip-kumar-vaka/100>
- [8] Tulasi Naga Subhash Polineni , Kiran Kumar Maguluri , Zakera Yasmeen , Andrew Edward. (2022). AI-Driven Insights Into End-Of-Life Decision-Making: Ethical, Legal, And Clinical Perspectives On Leveraging Machine Learning To Improve Patient Autonomy And Palliative Care Outcomes. *Migration Letters*, 19(6), 1159–1172. Retrieved from <https://migrationletters.com/index.php/ml/article/view/11497>
- [9] Shakir Syed. (2024). Planet 2050 and the Future of Manufacturing: Data-Driven Approaches to Sustainable Production in Large Vehicle Manufacturing Plants. *Journal of Computational Analysis and Applications* (JoCAAA), 33(08), 799–808. Retrieved from <https://www.eudoxuspress.com/index.php/pub/article/view/1453>
- [10] Nampalli, R. C. R., & Adusupalli, B. (2024). Using Machine Learning for Predictive Freight Demand and Route Optimization in Road and Rail Logistics. *Library Progress International*, 44(3), 17754-17764.
- [11] Lekkala, S., Avula, R., & Gurijala, P. (2022). Big Data and AI/ML in Threat Detection: A New Era of Cybersecurity. *Journal of Artificial Intelligence and Big Data*, 2(1), 32–48. Retrieved from <https://www.scipublications.com/journal/index.php/jaibd/article/view/1125>
- [12] Chandrababu Kuraku, Shravan Kumar Rajaram, Hemanth Kumar Gollangi, Venkata Nagesh Boddapati, Gagan Kumar Patra (2024). Advanced Encryption Techniques in Biometric Payment Systems: A Big Data and AI Perspective. *Library Progress International*, 44(3), 2447-2458.
- [13] Vaka, D. K. (2024). Integrating Inventory Management and Distribution: A Holistic Supply Chain Strategy. In the *International Journal of Managing Value and Supply Chains* (Vol. 15, Issue 2, pp. 13–23). Academy and Industry Research Collaboration Center (AIRCC). <https://doi.org/10.5121/ijmvsc.2024.15202>
- [14] Vankayalapati, R. K., Sondinti, L. R., Kalisetty, S., & Valiki, S. (2023). Unifying Edge and Cloud Computing: A Framework for Distributed AI and Real-Time Processing. In *Journal for ReAttach Therapy and Developmental Diversities*. Green Publication. [https://doi.org/10.53555/jrtdd.v6i9s\(2\).3348](https://doi.org/10.53555/jrtdd.v6i9s(2).3348)
- [15] Syed, S. (2024). Sustainable Manufacturing Practices for Zero-Emission Vehicles: Analyzing the Role of Predictive Analytics in Achieving Carbon Neutrality. *Utilitas Mathematica*, 121, 333-351.
- [16] Nampalli, R. C. R., & Adusupalli, B. (2024). AI-Driven Neural Networks for Real-Time Passenger Flow Optimization in High-Speed Rail Networks. *Nanotechnology Perceptions*, 334-348.



- [17] Seshagirirao Lekkala. (2021). Ensuring Data Compliance: The role of AI and ML in securing Enterprise Networks. *Educational Administration: Theory and Practice*, 27(4), 1272–1279. <https://doi.org/10.53555/kuey.v27i4.8102>
- [18] Sanjay Ramdas Bauskar, Chandrakanth Rao Madhavaram, Eswar Prasad Galla, Janardhana Rao Sunkara, Hemanth Kumar Gollangi (2024) AI-Driven Phishing Email Detection: Leveraging Big Data Analytics for Enhanced Cybersecurity. *Library Progress International*, 44(3), 7211-7224.
- [19] Dilip Kumar Vaka. (2019). Cloud-Driven Excellence: A Comprehensive Evaluation of SAP S/4HANA ERP. *Journal of Scientific and Engineering Research*. <https://doi.org/10.5281/ZENODO.11219959>
- [20] Maguluri, K. K., Pandugula, C., Kalisetty, S., & Mallesham, G. (2022). Advancing Pain Medicine with AI and Neural Networks: Predictive Analytics and Personalized Treatment Plans for Chronic and Acute Pain Managements. *Journal of Artificial Intelligence and Big Data*, 2(1), 112–126. Retrieved from <https://www.scipublications.com/journal/index.php/jaibd/article/view/1201>
- [21] Syed, S. (2024). Transforming Manufacturing Plants for Heavy Vehicles: How Data Analytics Supports Planet 2050's Sustainable Vision. *Nanotechnology Perceptions*, 20(6), 10-62441.
- [22] Nampalli, R. C. R. (2024). Leveraging AI and Deep Learning for Predictive Rail Infrastructure Maintenance: Enhancing Safety and Reducing Downtime. *International Journal of Engineering and Computer Science*, 12(12), 26014–26027. <https://doi.org/10.18535/ijecs/v12i12.4805>
- [23] Lekkala, S., Gurijala, P. (2024). Leveraging AI and Machine Learning for Cyber Defense. In: *Security and Privacy for Modern Networks*. Apress, Berkeley, CA. https://doi.org/10.1007/979-8-8688-0823-4_16
- [24] Data Engineering Solutions: The Impact of AI and ML on ERP Systems and Supply Chain Management. (2024). In *Nanotechnology Perceptions* (Vol. 20, Issue S9). Rotherham Press. <https://doi.org/10.62441/nanontp.v20is9.47>
- [25] Vaka, D. K. (2020). Navigating Uncertainty: The Power of 'Just in Time SAP for Supply Chain Dynamics. *Journal of Technological Innovations*, 1(2).
- [26] Aravind, R. (2024). Integrating Controller Area Network (CAN) with Cloud-Based Data Storage Solutions for Improved Vehicle Diagnostics using AI. *Educational Administration: Theory and Practice*, 30(1), 992-1005.
- [27] Pandugula, C., Kalisetty, S., & Polineni, T. N. S. (2024). Omni-channel Retail: Leveraging Machine Learning for Personalized Customer Experiences and Transaction Optimization. *Utilitas Mathematica*, 121, 389-401.
- [28] Syed, S. (2023). Shaping The Future Of Large-Scale Vehicle Manufacturing: Planet 2050 Initiatives And The Role Of Predictive Analytics. *Nanotechnology Perceptions*, 19(3), 103-116.
- [29] Nampalli, R. C. R. (2023). Modernizing AI Applications In Ticketing And Reservation Systems: Revolutionizing Passenger Transport Services. In *Journal for ReAttach Therapy and Developmental Diversities*. Green Publication. [https://doi.org/10.53555/jrtdd.v6i10s\(2\).3280](https://doi.org/10.53555/jrtdd.v6i10s(2).3280)
- [30] Lekkala, S., Gurijala, P. (2024). Cloud and Virtualization Security Considerations. In: *Security and Privacy for Modern Networks*. Apress, Berkeley, CA. https://doi.org/10.1007/979-8-8688-0823-4_14
- [31] Patra, G. K., Kuraku, C., Konkimalla, S., Boddapati, V. N., Sarisa, M. and Reddy, M. S. (2024) An Analysis and Prediction of Health Insurance Costs Using Machine Learning-Based Regressor Techniques. *Journal of Data Analysis and Information Processing*, 12, 581-596. doi: 10.4236/jdaip.2024.124031.



- [32] Aravind, R., & Shah, C. V. (2024). Innovations in Electronic Control Units: Enhancing Performance and Reliability with AI. *International Journal Of Engineering And Computer Science*, 13(01).
- [33] Kalisetty, S., Pandugula, C., & Mallesham, G. (2023). Leveraging Artificial Intelligence to Enhance Supply Chain Resilience: A Study of Predictive Analytics and Risk Mitigation Strategies. *Journal of Artificial Intelligence and Big Data*, 3(1), 29–45. Retrieved from <https://www.scipublications.com/journal/index.php/jaibd/article/view/1202>
- [34] Lekkala, S., Gurijala, P. (2024). Securing Networks with SDN and SD-WAN. In: *Security and Privacy for Modern Networks*. Apress, Berkeley, CA. https://doi.org/10.1007/979-8-8688-0823-4_12
- [35] Madhavaram, C. R., Sunkara, J. R., Kuraku, C., Galla, E. P., & Gollangi, H. K. (2024). The Future of Automotive Manufacturing: Integrating AI, ML, and Generative AI for Next-Gen Automatic Cars. In *IMRJR* (Vol. 1, Issue 1). Tejass Publishers. <https://doi.org/10.17148/imrjr.2024.010103>
- [36] Aravind, R., Deon, E., & Surabhi, S. N. R. D. (2024). Developing Cost-Effective Solutions For Autonomous Vehicle Software Testing Using Simulated Environments Using AI Techniques. *Educational Administration: Theory and Practice*, 30(6), 4135-4147.
- [37] Sondinti, L. R. K., Kalisetty, S., Polineni, T. N. S., & abhireddy, N. (2023). Towards Quantum-Enhanced Cloud Platforms: Bridging Classical and Quantum Computing for Future Workloads. In *Journal for ReAttach Therapy and Developmental Diversities*. Green Publication. [https://doi.org/10.53555/jrtdd.v6i10s\(2\).3347](https://doi.org/10.53555/jrtdd.v6i10s(2).3347)
- [38] Aravind, R., & Surabhi, S. N. R. D. (2024). Smart Charging: AI Solutions For Efficient Battery Power Management In Automotive Applications. *Educational Administration: Theory and Practice*, 30(5), 14257-1467.
- [39] Bauskar, S. R., Madhavaram, C. R., Galla, E. P., Sunkara, J. R., Gollangi, H. K. and Rajaram, S. K. (2024) Predictive Analytics for Project Risk Management Using Machine Learning. *Journal of Data Analysis and Information Processing*, 12, 566-580. doi: 10.4236/jdaip.2024.124030.
- [40] Maguluri, K. K., Pandugula, C., & Yasmeen, Z. (2024). Neural Network Approaches for Real-Time Detection of Cardiovascular Abnormalities.
- [41] Aravind, R. (2023). Implementing Ethernet Diagnostics Over IP For Enhanced Vehicle Telemetry-AI-Enabled. *Educational Administration: Theory and Practice*, 29(4), 796-809.
- [42] Korada, L. (2024). Use Confidential Computing to Secure Your Critical Services in Cloud. *Machine Intelligence Research*, 18(2), 290-307.
- [43] Jana, A. K., & Saha, S. (2024, July). Comparative Performance analysis of Machine Learning Algorithms for stability forecasting in Decentralized Smart Grids with Renewable Energy Sources. In *2024 International Conference on Electrical, Computer and Energy Technologies (ICECET)* (pp. 1-7). IEEE.
- [44] Danda, R. R., Nampalli, R. C. R., Sondinti, L. R. K., Vankayalapati, R. K., Syed, S., Maguluri, K. K., & Yasmeen, Z. (2024). Harnessing Big Data and AI in Cloud-Powered Financial Decision-Making for Automotive and Healthcare Industries: A Comparative Analysis of Risk Management and Profit Optimization.
- [45] Eswar Prasad G, Hemanth Kumar G, Venkata Nagesh B, Manikanth S, Kiran P, et al. (2023) Enhancing Performance of Financial Fraud Detection Through Machine Learning Model. *J Contemp Edu Theo Artific Intel: JCETAI*-101.
- [46] Laxminarayana Korada, V. K. S., & Somepalli, S. Finding the Right Data Analytics Platform for Your Enterprise.



- [47] Polineni, T. N. S., abhireddy, N., & Yasmeen, Z. (2023). AI-Powered Predictive Systems for Managing Epidemic Spread in High-Density Populations. In *Journal for ReAttach Therapy and Developmental Diversities*. Green Publication.
[https://doi.org/10.53555/jrtdd.v6i10s\(2\).3374](https://doi.org/10.53555/jrtdd.v6i10s(2).3374)
- [48] Jana, A. K., Saha, S., & Dey, A. DyGAISP: Generative AI-Powered Approach for Intelligent Software Lifecycle Planning.
- [49] Siddharth K, Gagan Kumar P, Chandrababu K, Janardhana Rao S, Sanjay Ramdas B, et al. (2023) A Comparative Analysis of Network Intrusion Detection Using Different Machine Learning Techniques. *J Contemp Edu Theo Artific Intel: JCETAI*-102.
- [50] Korada, L. (2024). GitHub Copilot: The Disrupting AI Companion Transforming the Developer Role and Application Lifecycle Management. *Journal of Artificial Intelligence & Cloud Computing*. SRC/JAICC-365. DOI: [doi.org/10.47363/JAICC/2024\(3\),348,2-4](https://doi.org/10.47363/JAICC/2024(3),348,2-4).
- [51] Subhash Polineni, T. N., Pandugula, C., & Azith Teja Ganti, V. K. (2022). AI-Driven Automation in Monitoring Post-Operative Complications Across Health Systems. *Global Journal of Medical Case Reports*, 2(1), 1225. Retrieved from <https://www.scipublications.com/journal/index.php/gjmcr/article/view/1225>
- [52] Paul, R., & Jana, A. K. Credit Risk Evaluation for Financial Inclusion Using Machine Learning Based Optimization. Available at SSRN 4690773.
- [53] Janardhana Rao Sunkara, Sanjay Ramdas Bauskar, Chandrakanth Rao Madhavaram, Eswar Prasad Galla, Hemanth Kumar Gollangi, et al. (2023) An Evaluation of Medical Image Analysis Using Image Segmentation and Deep Learning Techniques. *Journal of Artificial Intelligence & Cloud Computing*. SRC/JAICC-407. DOI: [doi.org/10.47363/JAICC/2023\(2\)388](https://doi.org/10.47363/JAICC/2023(2)388)
- [54] Korada, L. (2024). Data Poisoning- What Is It and How It Is Being Addressed by the Leading Gen AI Providers. *European Journal of Advances in Engineering and Technology*, 11(5), 105-109.
- [55] Kothapalli Sondinti, L. R., & Yasmeen, Z. (2022). Analyzing Behavioral Trends in Credit Card Fraud Patterns: Leveraging Federated Learning and Privacy-Preserving Artificial Intelligence Frameworks. *Universal Journal of Business and Management*, 2(1), 1224. Retrieved from <https://www.scipublications.com/journal/index.php/ujbm/article/view/1224>
- [56] Jana, A. K., & Paul, R. K. (2023, November). xCovNet: A wide deep learning model for CXR-based COVID-19 detection. In *Journal of Physics: Conference Series* (Vol. 2634, No. 1, p. 012056). IOP Publishing.
- [57] Gagan Kumar Patra, Chandrababu Kuraku, Siddharth Konkimalla, Venkata Nagesh Boddapati, Manikanth Sarisa, et al. (2023) Sentiment Analysis of Customer Product Review Based on Machine Learning Techniques in E-Commerce. *Journal of Artificial Intelligence & Cloud Computing*. SRC/JAICC-408. DOI: [doi.org/10.47363/JAICC/2023\(2\)38](https://doi.org/10.47363/JAICC/2023(2)38)
- [58] Korada, L. Role of Generative AI in the Digital Twin Landscape and How It Accelerates Adoption. *J Artif Intell Mach Learn & Data Sci* 2024, 2(1), 902-906.
- [59] Kothapalli Sondinti, L. R., & Syed, S. (2021). The Impact of Instant Credit Card Issuance and Personalized Financial Solutions on Enhancing Customer Experience in the Digital Banking Era. *Universal Journal of Finance and Economics*, 1(1), 1223. Retrieved from <https://www.scipublications.com/journal/index.php/ujfe/article/view/1223>
- [60] Jana, A. K., & Paul, R. K. (2023, October). Performance Comparison of Advanced Machine Learning Techniques for Electricity Price Forecasting. In *2023 North American Power Symposium (NAPS)* (pp. 1-6). IEEE.
- [61] Nagesh Boddapati, V. (2023). AI-Powered Insights: Leveraging Machine Learning And Big Data For Advanced Genomic Research



In Healthcare. In Educational Administration: Theory and Practice (pp. 2849–2857). Green Publication.
<https://doi.org/10.53555/kuey.v29i4.7531>

[62] Pradhan, S., Nimavat, N., Mangrola, N., Singh, S., Lohani, P., Mandala, G., ... & Singh, S. K. (2024). Guarding Our Guardians: Navigating Adverse Reactions in Healthcare Workers Amid Personal Protective Equipment (PPE) Usage During COVID-19. *Cureus*, 16(4).

[63] Patra, G. K., Kuraku, C., Konkimalla, S., Boddapati, V. N., & Sarisa, M. (2023). Voice classification in AI: Harnessing machine learning for enhanced speech recognition. *Global Research and Development Journals*, 8(12), 19–26. <https://doi.org/10.70179/grdjev09i110003>

[64] Vankayalapati, R. K., Edward, A., & Yasmeen, Z. (2021). Composable Infrastructure: Towards Dynamic Resource Allocation in Multi-Cloud Environments. *Universal Journal of Computer Sciences and Communications*, 1(1), 1222. Retrieved from <https://www.scipublications.com/journal/index.php/ujcsc/article/view/1222>

[65] Mandala, V., & Mandala, M. S. (2022). ANATOMY OF BIG DATA LAKE HOUSES. *NeuroQuantology*, 20(9), 6413.

[66] Sunkara, J. R., Bauskar, S. R., Madhavaram, C. R., Galla, E. P., & Gollangi, H. K. (2023). Optimizing Cloud Computing Performance with Advanced DBMS Techniques: A Comparative Study. In *Journal for ReAttach Therapy and Developmental Diversities*. Green Publication.
[https://doi.org/10.53555/jrtdd.v6i10s\(2\).3206](https://doi.org/10.53555/jrtdd.v6i10s(2).3206)

[67] Sondinti, L. R. K., & Yasmeen, Z. (2022). Analyzing Behavioral Trends in Credit Card Fraud Patterns: Leveraging Federated Learning and Privacy-Preserving Artificial Intelligence Frameworks.