Generative AI Business Case

Assessment 2

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Executive Summary

This report reflects how RetailTech Innovators, a Sydney-based retailer, can effectively implement Generative AI (GenAI) solutions to streamline operations and enhance customer experience. GenAI presents many opportunities to modernise customer service, automate product recommendations, and reduce operational inefficiencies. Our analysis includes a case study of RetailTech's current systems and challenges, along with our proposed AI-driven strategy models that are also being implemented in the real world, such as those used by Amazon and Sephora. The report also provides information on ethical considerations, alignment with the UN Sustainable Development Goals (SDGs), and the expected organisational impacts. We have provided strategic recommendations to guide RetailTech's AI adoption roadmap, while ensuring data privacy, compliance, and reskilling the workforce.

Introduction to Generative AI

Generative AI is defined as a category of artificial intelligence that has the ability to generate individual and unique content, ranging from text, images, video, audio, and code. These are typically produced as a result of both user prompts and user input. Various forms of AI, such as ChatGPT, Ada, DALL-E, and Llama, have become highly relevant and heavily depended on in recent times, used across a range of purposes. Generative AI has rapidly aided in revolutionising how businesses operate. This highly valuable resource has allowed companies and businesses to deliver personalised customer experiences, significantly reduce workloads, and enhance efficiency to complete routine tasks. Some ways that this AI has been implemented within the business and company sector involve the implementation of AI-powered chatbots that are capable of offering 24/7 customer service to those who need it. At the same time, more advanced forms of AI are capable of providing personalised recommendations, tailored to a customer's individual needs and preferences, to increase customer satisfaction and sales. It can also be used to enhance business marketing through media such as subscription-based emails and social media posts. Not only does this AI category highly aid and benefit customers and their queries, but it also supports ethical business practices that are known to leave a positive impact and a reputable name. Ethically, they can optimise supply chains, reduce waste, and track carbon footprints, allowing sustainability goals to be met, along with aligning with the UN Sustainable Development Goals. The implementation of Generative AI solutions within RetailTech Innovators will act as a

valuable and strategic asset that has the potential to be highly beneficial to customers, employees, and the overall company.

Current Industry Applications

Some Industries that are being transformed via Generative AI:

- **Retail:** Amazon uses GenAI for personalised product recommendations, increasing over 35% of its sales (McKinsey & Company, 2022).
- **Customer Service:** Sephora and H&M use chatbots to deliver 24/7 support and product guidance, which is improving user satisfaction (Capgemini, 2023).
- **Marketing:** Brands like Coca-Cola and eBay use GenAI to create promotional content, social media posts, and email subject lines, which increases campaign effectiveness (Salesforce, 2023).
- **Healthcare:** GenAI models like BioGPT are helping generate medical documentation, research summaries, and diagnostic insights.

These applications show GenAI's role in automating workflows by making it more personalised and scaling services with fewer human resources.

Case Study: RetailTech Innovators

RetailTech Innovators is a Sydney-based online retailer that aims to modernise its operations by integrating Generative AI (GenAI) into product recommendations and customer service. The company is currently using a machine learning system for product suggestions, which already has a specific team that handles customer service manually. This has led to inefficiencies, especially in data analytics and support resolution.

To improve, RetailTech can adopt a GenAI-powered product recommendation engine. Similar to Amazon, which attributes 35% of its sales to AI-driven recommendations (McKinsey & Company, 2022), RetailTech could benefit from using customer behaviour and demographic data to deliver personalised suggestions in real time. This would enhance customer experience and increase conversions.

Additionally, a GenAI chatbot can handle complaints and customer queries 24/7. Sephora's chatbot implementation has increased customer engagement by 11% (Capgemini, 2023). A similar solution could reduce response times and offload routine support tasks. The integration of GenAI will not lead to downsizing as the company plans to retrain and reassign staff to higher-value roles, such as privacy and local data compliance, which will be addressed. With better automation, the business can achieve operational efficiency while supporting employees' well-being and security protocols.

These improvements align with the key UN Sustainable Development Goals, including SDG 8 (Decent Work), SDG 9 (Innovation), and SDG 16 (Institutions). Overall, the adoption of GenAI positions RetailTech to improve customer satisfaction, boost sales, and streamline internal processes.

Case Study: Cross-Industry Adoption of GenAI

Amazon's recommendation engine integrates with GenAI to provide personalized product suggestions based on customer behavior and purchase history.

Retail brands like Sephora and H&M are using AI-powered chatbots to handle customer service inquiries 24/7. These bots will help them to resolve complaints, assist with purchases, and provide personalized advice, leading to improved user satisfaction and operational efficiency (Capgemini, 2023). By automating routine queries, companies can reduce support costs while offering always-on service.

Marketing teams are increasingly using GenAI tools such as Salesforce Einstein and Jasper AI to generate ad copy, social media content, and targeted email campaigns. For example, Coca-Cola utilizes AI to personalize digital content, increasing consumer engagement. eBay's use of AI-generated email subject lines has shown a 15% increase in open rates (Salesforce, 2023).

In the healthcare sector, Microsoft's BioGPT model helps generate clinical notes, summarize research, and also support diagnostics. This will reduce administrative workload and speed up information processing (Microsoft, 2023).

These examples illustrate how leading companies are integrating GenAI into their operations with measurable success.

Impact of Generative AI on Business Operations

Since its widespread adoption, generative AI has made a huge impact on businesses across the globe, especially within the software sector. This is shown in the 2% to 6% projected industry growth, which was a result of technology. All software categories are expected to have an impact to varying degrees, usually largely due to new interfaces and use cases that emerged from AI (Schneider & Shah, 2024).

On a broader scale, Generative AI is bringing changes in daily activities, such as writing emails, summaries and improving customer engagement. All of this frees up more time for employees to take part in creative work. AI implementation across an enterprise can deliver more than a 20% increase in productivity (Bellefonds et al., 2023). In turn, this has the potential to increase global GDP by as much as 10%. This is because businesses will spend less time and money to generate value (J.P. Morgan, 2024).

Generative AI has also made lasting implications on the job market. This is projected to reduce the number of entry-level hires within a business, while opening more jobs for higher-skilled individuals. This is expected to create problems due to fewer opportunities for newcomers to gain experience, leading to fewer experienced professionals in the future. Simultaneously, it allows for easier access to domain knowledge, which lowers the requirements for entry into fields like programming, writing, and data analytics. This causes businesses to rethink talent strategies and organisational structures. Among the changes likely needed are adopting new company training modules to accelerate learning within employees, including company-specific knowledge, deploying smaller and more highly skilled teams, and growing talent acquisition to develop new talent pipelines (Fuller et al., 2025).

Generative AI also brings some disadvantages to businesses, including a lack of accuracy as AI models are still unable to provide information with 100% accuracy and are at risk of many factors, including bias. Plagiarism and copyright infringement are also affecting companies, alongside security risks posed by the unrestricted usage of this technology (J.P. Morgan, 2024). This presents legal and ethical issues for companies to navigate.

In conclusion, companies such as RetailTech Innovators, which run a largely software-driven operation, could stand to benefit immensely from the incorporation of Generative AI, as long as it is responsibly and properly implemented.

Strategic Recommendations

The operation of Integrating Generative AI into RetailTech Innovation provides a great chance to enhance customer experience and strengthen data security and Privacy.

Enhancing Customer Experience:

Improving customer satisfaction is necessary for RetailTech Innovators. The usage of Generative AI could offer the opportunity to reach the goal by providing personalised and efficient services. The primary step is to deploy an AI-powered chatbot, which will provide 24/7 customer support, reduce wait times, and quickly respond to customer requests. The Chatbots utilise Natural Language Processing (NLP) to understand customer inquiries accurately, creating clear and human-like responses. Additionally, sentiment analysis can be applied to identify customer emotions, switch to a human agent automatically when necessary, and ensure that difficult tasks are resolved appropriately.

Personalisation content is another aspect that Generative AI is good at. Generative AI can analyse customer data, such as browsing a customer's purchase history and purchase patterns, to create personalised product recommendations. It could enhance the shopping experience and increase the likelihood of customers purchasing again. Moreover, Generative AI can work well in predictive analytics to forecast customers' behavioural patterns and recommend related products. This is so that the probability of a customer purchasing again is increased.

Strengthening Data Security and Privacy:

It is essential for RetailTech Innovators to strengthen data security and privacy, especially if a data breach case has occurred before. Enhancing data encryption protocols ensures that sensitive customer information is protected from unauthorised access. An AI-driven fraud detection system can monitor transactions in real-time, spotting suspicious activities.

Customer data needs to be protected with crucial access control. Establishing strict access policies ensures that only authorised personnel can access sensitive information, reducing the risk of data breaches. Also, regular auditing could help to identify potential vulnerabilities in the system.

Additionally, it is also important to make sure that the data used to train AI systems obey the privacy standards and laws. Organisation should aid to establish clear guidelines on data usage and retention, ensuring transparency and accountability in handling customer data.

Moreover, RetailTech Innovators could implement AI-driven data loss prevention(DLP) systems to strengthen data security and privacy for Staff. The DLP system could monitor , identify, detect and prevent unauthorized access by analysing patterns and spotting anomalies activity.The DLP system supports continuous real-time monitoring and adaptive learning, which could enhance the ability in detecting and responding to potential security threats.

UN SDG Alignment

The UN SDGs are a set of goals adopted by the United Nations to promote sustainable development and foster peace and prosperity for all its members (United Nations Department of Economic and Social Affairs, 2025). The proposed use of Generative AI, as previously mentioned, can help speed up the company's targeted UN SDGs.

The 4th, 8th, and 9th pillars relating to education, work and economic growth, as well as industry innovation and infrastructure, can be accomplished with the use of the chatbot as well as AI for security. The adoption of AI would propel change within the company to reskill its existing workers. Employees would have to be trained to handle AI applications and to hold related roles such as MLOps and Data Engineers. This integration would also improve the demand for AI in the business, which in turn promotes and drives AI research to improve the industry while also driving the creation of more AI-educated graduates via new skilled job opportunities.

The 12th and 13th pillars, which deal with sustainability and environmental impact, can be achieved through the adoption of Green AI. This can help reduce emissions due to AI usage as well as improve the performance of the implemented AI systems. This can be done by using more efficient processing algorithms and systems, as well as efficient architecture (Bolón-Canedo et al., 2024).

Finally, the 16th and 17th pillars regarding peace and justice, as well as global partnership, can also be achieved. The implementation of AI to improve data security and privacy can help bring security to the company, as its business is conducted online. This ensures a peaceful environment to conduct business as well as to ensure business is carried out fairly and accountability is preserved. The implementation of this AI functionality will also help elevate

the security of the company further to allow compliance with more stringent security standards, which in turn allow and encourage more partnerships with international companies.

Data Management, Ethics, and Privacy

As RetailTech Innovators embeds Generative AI into real-time monitoring, fraud-detection pipelines, and customer-facing chatbots, it must also reckon with the privacy and ethical risks these systems introduce. GenAI applications rely on vast volumes of sensitive data—transaction histories, anomaly logs, and conversation transcripts—and without a rigorous Data & AI governance framework, schema-validated pipelines, and strict lifecycle policies, that information is vulnerable to leaks, misuse, or biased outcomes. Customers expect their personal details to be handled securely, anonymized where possible, and used in a transparent, fair manner—requirements that call for end-to-end encryption, role-based access controls, and privacy-enhancing techniques such as pseudonymization and differential privacy. Moreover, RetailTech must comply with the Australian Privacy Act 1988 (Cth), GDPR for any cross-border data flows, and industry standards like PCI DSS, all while maintaining full data provenance and auditability. This section explores those core challenges—data governance, quality, lifecycle management, security, lineage, and regulatory compliance—and outlines practical measures to manage them responsibly.

Data Governance Framework

- Form a cross-functional Data & AI Council (IT Security, Fraud Ops, Customer Service, Legal) to define policies, approve AI uses, and oversee audit trails.
- Assign clear data owners and stewards for each domain (e.g. transaction logs, monitoring events, chat transcripts) to enforce data definitions and quality SLAs.

Data Quality and Integration

- Implement real-time, event-driven ETL pipelines for transactions, anomaly alerts, and chat data.

- Embed automated validations (schema conformity, duplicate filtering, format normalization) and standardize key fields (customer ID, timestamp, device ID) before data reaches models or dashboards.

Data Lifecycle Management

- Apply retention rules per data type to limit time where data is stored.
    - **Fraud & monitoring logs:** retain raw events for 12 months and provide aggregated summaries for 5 years.
    - **Chat transcripts:** retain anonymized text for 6 months, then purge originals.
- Automate secure disposal of expired PII and other sensitive data.

Data Security and Access Controls

- Comply with the Australian Privacy Act 1988 and GDPR: localize Australia-resident PII; pseudonymize or anonymize data before cross-border processing.
- Adhere to industry standards (e.g., PCI DSS for payment streams).
- Apply privacy-enhancing techniques—anonymization, pseudonymization, differential privacy—and embed explicit consent management in customer journeys.

Strategic Actions to Strengthen Data Privacy and Security

As part of RetailTech's future strategy, the company should also take steps to make customer data more secure. This includes using better data encryption to stop hackers from stealing sensitive information. RetailTech can also use AI tools to detect fraud by watching for strange activity in real-time. It's also important to have strong rules for who can access private customer data, so only trusted staff can see it. These actions help prevent data breaches and show that RetailTech takes privacy seriously as it brings in more AI systems.

Data Provenance and Lineage

- Capture immutable metadata—source system, ingestion timestamp, transformation steps—for every dataset version.
- Enable end-to-end traceability so any fraud alert or chatbot response can be traced back to the exact data snapshot, feature set, and model version used.

Regulatory Compliance

- Ensure all data handling practices adhere to the Privacy Act 1988 (Cth) for Australian customer data and, if applicable, the GDPR for cross-border transfers and EU citizens' data rights.
- Incorporate privacy-enhancing techniques, such as anonymisation, pseudonymisation, and differential privacy, to minimise the risk of re-identification in training datasets.

Data Privacy

Generative AI systems rely heavily on large amounts of data to perform tasks like making recommendations, responding to customers, or predicting trends. At RetailTech Innovators, this means using customer purchase history, preferences, and even conversations to train AI tools. While this can improve the customer experience, it also increases the risk of exposing sensitive personal information if not managed properly.

A strong example of what can go wrong is the Optus data breach in 2022, where millions of customer records were exposed due to a major cyberattack. According to the *Australian Financial Review*, the regulator is now suing Optus for failing to protect personal information, claiming the company breached national data privacy laws (Wiggins, 2024).

If Retail tech were to experience a similar incident, the damage to its brand could be just as serious, especially since it already had a past case where customer chat data was stored on a stolen laptop. To avoid future risks, the company must improve how customer data is collected, stored, and used.

This includes:

- Using anonymised or synthetic data when training AI tools
- Securing all customer data using encryption and cloud-based backups
- Giving staff access to data only when necessary
- Regularly reviewing compliance with the Australian Privacy Act (Weichert, 2015)

Data privacy is not just a technical requirement, it's a key part of building customer trust. As RetailTech expands its use of AI, protecting personal data should remain one of its top priorities.

Implementing Generative AI (GenAI) in Retail Tech's operations requires a careful and responsible approach to data management, privacy, and ethics. As GenAI systems rely heavily on large volumes of data to function effectively, maintaining data integrity and ensuring lawful use is paramount. Given Retail Tech's prior data breach, robust data governance frameworks must be enforced to prevent unauthorised access, particularly when training GenAI models using customer or employee data.

From a privacy perspective, Retail Tech must comply with regulations such as the Australian Privacy Act and GDPR, where applicable. Sensitive information, such as consumer demographics, transaction history, or customer service records, must be anonymised or pseudonymised before being input into GenAI systems. User consent mechanisms should also be transparent and robust, especially when leveraging personal data for personalised recommendations or chatbot interactions.

Ethically, the use of GenAI must align with principles of fairness, accountability, and transparency. Bias mitigation strategies should be embedded during model training to ensure outputs do not discriminate against individuals based on gender, ethnicity, or socio-economic status. Additionally, Retail Tech should clearly disclose when customers are interacting with AI systems (e.g., chatbots) and provide accessible options for human support.

In terms of data management, a lifecycle approach should be adopted, tracking data from collection and preprocessing to model training, output generation, and eventual data retirement. Regular audits, model explainability tools, and AI risk assessments will help ensure responsible use and maintain stakeholder trust. By proactively addressing these considerations, Retail Tech can unlock the full potential of GenAI while upholding its values and safeguarding stakeholder interests.

Ethical Considerations

When using Generative AI, it's important to think about more than just the technology itself. There are real risks that affect how people interact with the business and how fair AI-powered decisions are. For RetailTech Innovators, this means paying close attention to how AI tools like chatbots and recommendation engines work with customer data.

One major concern is bias. If AI is trained on data that doesn't represent everyone fairly, it might make suggestions that favour some customers over others. For example, product recommendations might ignore some groups of people. This can hurt trust and damage the company's image.

To reduce these risks, RetailTech should have an AI ethics policy that promotes fairness, transparency, and accountability. The company should check its AI tools often to make sure they aren't creating biased or harmful results. Staff should also learn how the AI systems work and know when to step in. By keeping people involved, RetailTech can make sure that AI improves customer experiences and supports good decision-making (Cebulla et al., 2023).

Conclusion

RetailTech Innovators are on the path to adopt the power of Generative AI to enhance customer experiences, guide operations, and support sustainable business growth. Through the inclusion of AI-powered tools, such as chatbots, recommendation and advertisement suggestions, RetailTech is expected to reduce workload inefficiencies and improve customer satisfaction. Generative AI is highly capable of benefiting RetailTech Innovators by making improvements to the company. In saying this, there are also potential risks and serious responsibilities that should be considered before introducing Generative AI. This integration should be done responsibly through emphasising ethical practices, data privacy, and workforce impact. Establishing a data governance framework and complying with privacy laws, such as the Australian Privacy Act and GDPR, are critical in order to prevent breaches and build customer trust. Overall, with a strategic, ethical, and inclusive approach, RetailTech Innovators have high potential to responsibly and effectively incorporate AI solutions, delivering long-term value to their stakeholders, employees, and customers.

References (APA 7)

Stryker, C., & Scapicchio, M. (2025, May 5). *What is Generative Ai?*. IBM. Retrieved May 30, 2025, from https://www.ibm.com/think/topics/generative-ai

McKinsey & Company. (2022). Personalizing the customer experience. Retrieved May 30, 2025, from https://www.mckinsey.com/

Microsoft. (2023). AI in healthcare. Retrieved May 30, 2025, from https://www.microsoft.com/

Capgemini. (2023). The AI-powered enterprise. Retrieved May 30, 2025, from https://www.capgemini.com/

Bolón-Canedo, V., Morán-Fernández, L., Cancela, B., & Alonso-Betanzos, A. (2024). A review of Green Artificial Intelligence: Towards a more sustainable future. *Neurocomputing*, *599*, 128096. https://doi.org/10.1016/j.neucom.2024.128096

Bellefonds, N. de, Duranton, S., Lukic, V., Apotheker, J., Lesser, R., & Breward, T. (2023, December 11). *Turning genai magic into business impact*. BCG Global. https://www.bcg.com/publications/2023/maximizing-the-potential-of-generative-ai

United Nations Department Of Economic And Social Affairs. (2025). *The 17 goals*. Sustainable Development. Retrieved May 24, 2025, from https://sdgs.un.org/goals Cebulla, A., Macdonald, F., Flore, J., & Jukic, N. (2023). Applying ethics to AI in the workplace: The WHS Scorecard. *AI & Society*. https://doi.org/10.1007/s00146-022-01460-9

Weichert, T. (2015). Medical big data and data protection. In P. Langkafel (Ed.), *Big data in medical science and healthcare management* (pp. 139–150). Walter de Gruyter GmbH.

Wiggins, J. (2024, May 23). Optus sued by regulator for breaches in 2022 cyberattack. *Australian Financial Review (Online)*. Retrieved from ProQuest.

Australian Government Office of the Australian Information Commissioner. (1988). *Privacy Act 1988* (Cth). https://www.legislation.gov.au/Details/C2021C00263

European Parliament and Council. (2016). *Regulation (EU) 2016/679 (General Data Protection Regulation)*. Official Journal of the European Union. https://eur-lex.europa.eu/eli/reg/2016/679/oj

Australian Government Office of the Australian Information Commissioner. (1988). *Privacy Act 1988* (Cth). Retrieved from https://www.legislation.gov.au/Details/C2021C00263

European Parliament and Council. (2016). *Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 (General Data Protection Regulation)*. Official Journal of the European Union. Retrieved from https://eur-lex.europa.eu/eli/reg/2016/679/oj

DAMA International. (2017). *DAMA-DMBOK: Data Management Body of Knowledge* (2nd ed.). Technics Publications.

Inmon, W. H. (2005). *Building the data warehouse* (4th ed.). John Wiley & Sons.

Redman, T. C. (2016). *Data driven: Creating a data culture*. Harvard Business Review Press.

International Organization for Standardization. (2013). *ISO/IEC 27001:2013 Information technology — Security techniques — Information security management systems — Requirements*. Retrieved May 30, 2025, from https://www.iso.org/standard/54534.html

Simmhan, Y. L., Plale, B., & Gannon, D. (2005). A survey of data provenance in e-science. *ACM SIGMOD Record, 34*(3), 31–36. https://doi.org/10.1145/1084805.1084812

Schneider, J., & Shah, T. (2024, June 5). *Navigating the generative AI disruption in software*. McKinsey & Company. Retrieved May 30, 2025, from https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/navigating-the-generative-ai-disruption-in-software

Fuller, J., Sigelman, M., & Fenlon, M. (2025, March 10). *How gen ai could change the value of expertise*. Harvard Business Review. Retrieved May 30, 2025, from https://hbr.org/2025/03/how-gen-ai-could-change-the-value-of-expertise

J.P. Morgan. (2024, February 14). *The rise of Generative AI: J.P. Morgan Research*. The Rise of Generative AI. Retrieved May 30, 2025, from https://www.jpmorgan.com/insights/global-research/artificial-intelligence/generative-ai

Minkie, K. (2025, February 21). How AI Content Personalization Boosts Engagement & Growth - Acrolinx. Acrolinx. Retrieved May 30, 2025, from https://www.acrolinx.com/blog/ai-content-personalization-in-the-enterprise/

Takyar, A. (2023, October 4). AI in fraud detection: Enhancing security across industries. LeewayHertz - AI Development Company. Retrieved May 30, 2025, from https://www.leewayhertz.com/ai-in-fraud-detection/

Mansi. (2025, May 26). *The role of NLP in enhancing customer support and chatbots*. Citrusbugtechnolabs. Retrieved May 30, 2025, from https://citrusbug.com/blog/nlp-for-chatbots/

Textifyai. (2025, February 12). *AI chatbots: the secret weapon for 24/7 customer support*. Textify Analytics. Retrieved May 30, 2025, from https://textify.ai/ai-chatbots-the-secret-weapon-for-24-7-customer-support/

myshyft.com. (2025, May 20). Protecting employee data in AI scheduling systems - Myshyft.com. *myshyft.com -.* Retrieved May 30, 2025, from https://www.myshyft.com/blog/employee-data-protection/