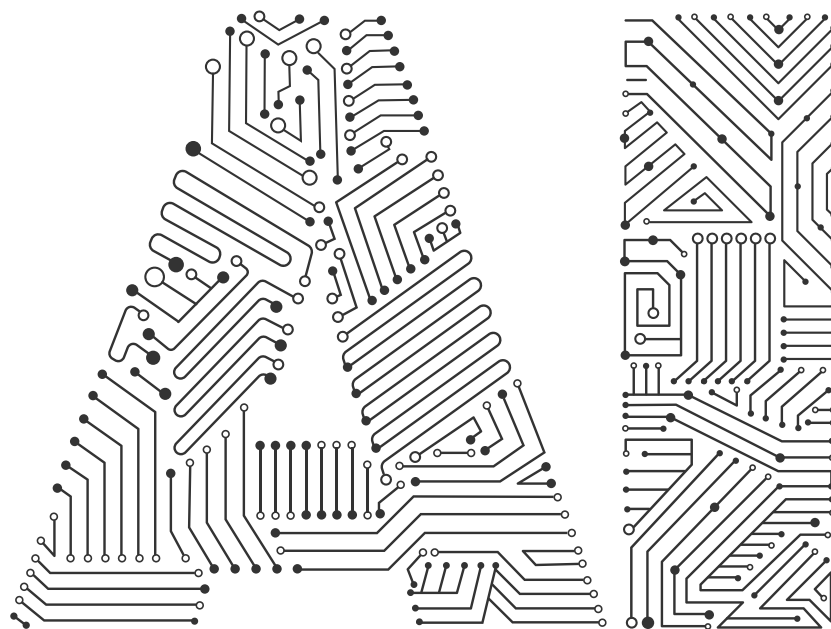




Artificial Intelligence in the South African Financial Sector

Survey Questions



SURVEY QUESTIONS

1. What do you expect the market investment on AI in South Africa to be in 2024?

- a. < R500 million
- b. R500 million - R600 million
- c. R601 million - R750 million
- d. R751 million - R850 million
- e. R851 million - R950 million
- f. R951 million - R1.5 billion
- g. R1.51 million - R2.5 trillion
- h. > R2.5 trillion

2. What is your intended investment in AI for 2024?

- a. < R1 million
- b. R1 million - R5 million
- c. R6 million - R10 million
- d. R11 million - R16 million
- e. R17 million - R20 million
- f. R21 million - R30 million
- g. >R 30 million



3. Which AI/Machine Learning (ML) applications overall do you have per business area? By application materiality. [If information is significant, it is material. If the information is insignificant or irrelevant, it is said to be immaterial]

	Low materiality	Medium materiality	High materiality
Asset management			
Commercial banking			
Corporate finance			
General insurance			
Human resources			
Investment banking			
Legal			
Life insurance			
Operations and IT			
Payments, clearing, custody and settlement			
Research			
Retail banking			
Risk and compliance			
Sales and marketing			
Trade and execution			
Treasury and cash management			
Wealth management			

4. To what extent are you using Generative AI applications overall do you have per business area? By application materiality. [If information is significant, it is material. If the information is insignificant or irrelevant, it is said to be immaterial]

	Low materiality	Medium materiality	High materiality
Asset management			
Commercial banking			
Corporate finance			
General insurance			
Human resources			
Investment banking			
Legal			
Life insurance			
Operations and IT			
Payments, clearing, custody and settlement			
Research			
Retail banking			
Risk and compliance			
Sales and marketing			
Trade and execution			
Treasury and cash management			
Wealth management			



5. To what extent are or could AI/ML be beneficial for your institution in the following areas? Please select an option for each of the following, with 5 being the greatest benefit and 1 being the lowest benefit.

	1	2	3	4	5
Business and/or economic modelling					
Combating fraud and anti-money laundering					
Compliance and controls					
Competitiveness					
Cost base					
Customer care					
Customer engagement and consumer services					
Cybersecurity					
Data and analytical insights					
Management of credit risk (including counterparty credit risk)					
Management of market risk					
Management of operational risk					
Management of traded risk					
Market risk calculations					
Marketing or better targeted external communications					
New product offerings					
Operational efficiency					
Operational risk calculations					
Personalisation					
Productivity					

6. To what extent are or could Generative AI be beneficial for your institution in the following areas? Please select an option for each of the following, with 5 being the greatest benefit and 1 being the lowest benefit.

	1	2	3	4	5
Business and/or economic modelling					
Combating fraud and anti-money laundering					
Compliance and controls					
Competitiveness					
Cost base					
Customer care					
Customer engagement and consumer services					
Cybersecurity					
Data and analytical insights					
Management of credit risk (including counterparty credit risk)					
Management of market risk					
Management of operational risk					
Management of traded risk					



Market risk calculations					
Marketing or better targeted external communications					
New product offerings					
Operational efficiency					
Operational risk calculations					
Personalisation					
Productivity					

**7. Are you currently using or planning to use ML applications for the following use cases?
Please indicate all that apply.**

- a. Algorithmic trading
- b. AML/CFT: behavioural or transaction monitoring
- c. AML/CFT: identification and verification (including remote onboarding)
- d. Capital management
- e. Carbon footprint estimation
- f. Claims management
- g. Credit pricing
- h. Credit underwriting
- i. Creditworthiness assessment/ credit scoring
- j. Customer support, including chatbots
- k. Cybersecurity
- l. Forecasting and business modelling
- m. Fraud detection
- n. Hedging
- o. Insurance pricing
- p. Insurance underwriting
- q. Liquidity management
- r. Market conduct risk
- s. Optimisation of internal processes
- t. Product or service promotion to customers
- u. Profiling/clustering of clients or transactions
- v. Real-time monitoring and verification of payments, payers and/or payees
- w. Regulatory compliance and reporting
- x. Regulatory credit risk modelling



8. Are you currently using or planning to use generative AI applications for the following use cases? Please indicate all that apply.

- a. Algorithmic trading
- b. AML/CFT: behavioural or transaction monitoring
- c. AML/CFT: identification and verification (including remote onboarding)
- d. Capital management
- e. Carbon footprint estimation
- f. Claims management
- g. Credit pricing
- h. Credit underwriting
- i. Creditworthiness assessment/ credit scoring
- j. Customer support, including chatbots
- k. Cybersecurity
- l. Forecasting and business modelling
- m. Fraud detection
- n. Hedging
- o. Insurance pricing
- p. Insurance underwriting
- q. Liquidity management
- r. Market conduct risk
- s. Optimisation of internal processes
- t. Product or service promotion to customers
- u. Profiling/clustering of clients or transactions
- v. Real-time monitoring and verification of payments, payers and/or payees
- w. Regulatory compliance and reporting
- x. Regulatory credit risk modelling



9. To what extent are or could AI/ML/Generative AI be beneficial for your institution in the following areas? Please select an option for each of the following, with 1 being the lowest benefit and 5 being the greatest benefit.

	1	2	3	4	5
Business and/or economic modelling					
Combating fraud and anti-money laundering					
Compliance and controls					
Competitiveness					
Cost base					
Customer care					
Customer engagement and consumer services					
Cybersecurity					
Data and analytical insights					
Management of credit risk (including counterparty credit risk)					
Management of market risk					
Management of operational risk					
Management of traded risk					
Market risk calculations					
Marketing or better targeted external communications					
New product offerings					
Operational efficiency					
Operational risk calculations					
Personalisation					
Productivity					

10. Please rate the following risks or drivers of risk in the context of AI/ML/Generative AI applications. Part 1. Please select an option for each from the left, with 1 being the lowest risk and 5 being the greatest risk.

	1	2	3	4	5
Data bias and representativeness					
Data drift					
Data privacy and protection					
Data quality					
Data security					
Use of third-party data					
Embedded or "hidden" models					
Explainability and interoperability					
Inappropriate use of models (or model is not fit for purpose)					
Misaligned objectives					
Model and concept drift					
Model complexity					
Poor model implementation					



Poor model specification					
Reducibility					
Robustness and stability					
Third-party dependencies					

11. Please rate the following risks or drivers of risk in the context of AI/ML/Generative AI applications. Part 2. Please select an option for each from the left, with 1 being the lowest risk and 5 being the greatest risk.

	1	2	3	4	5
Accountability and responsibility					
Change management					
Effective governance structure					
Effective risk management and controls					
Employment practices					
Skills base and culture					
Transparency and customer communication					
Bad consumer outcomes					
Identification of vulnerability					
ML ethics					
Business continuity, disruption, and systems failures					
Cybersecurity					
Execution, delivery, and process management					
Hardware access and management					
Internal fraud					
Outsourcing, third-party risk management including critical technology providers					
Reputational risk					
Hallucinations					

12. What are the regulatory constraints to deployment and use of AI/ML/Generative AI in your institution? Please indicate all that apply.

- Intellectual property rights laws
- Data protection and privacy laws
- The Consumer Protection Act
- Joint Standard - Cyber security and cyber resilience (FSCA and PA)
- Directive on cyber security and cyber resilience within the national payments system (SARB) Carbon footprint estimation
- Market conduct legislation (FSCA)
- Prudential legislation (PA)
- Other: _____



13. What other constraints are there to deployment and use of AI/ML/Generative AI in your institution? Please indicate all that apply..

- a. Accountability and governance
- b. Appropriate transparency and explainability
- c. Bias and fairness in decision making
- d. Contestability and recourse mechanism which include redress
- e. Insufficient talent/access to skills
- f. Lack of access to sufficient data
- g. Lack of access to sufficient hardware
- h. Lack of appropriate governance and monitoring arrangements
- i. Lack of standards
- j. Legacy systems/technological infrastructure not conducive
- k. ML is not top priority given organisational scale/ scope/ focus
- l. Poor data quality with the institution
- m. Potential harm to consumers
- n. Potential harm to institution's business
- o. Safety, security and robustness
- p. Shortcomings in internal data governance processes
- q. Uncertainty around intellectual property
- r. Other: _____

14. Which of the following governance frameworks, controls and/or processes specific to AI/ML/GenAI applications do you have? Please indicate all that apply.

- a. Accountable person or persons with responsibility for AI/ML framework
- b. AI/ML framework, principles, guidelines, or best practice
- c. Board oversight of AI/ML implementation
- d. Data governance
- e. Ethical guidelines and/or principles
- f. Explainability and/or interpretability (e.g. disclosures)
- g. Implementation of international guidance or requirements (e.g. EU AI Act)
- h. AI/ML auditing (including through third parties)



- i. Model development, validation and ongoing monitoring
- j. Model risk management (Inc. ML model identification and classification)
- k. Outsourcing and third-party risk management
- l. Risk management
- m. Other: _____

15. Which explainability methods do you use for ML applications? Please indicate all that apply

- a. Feature importance
- b. Counterfactual explanations
- c. Individual Conditional Expectation (ICE) Plots
- d. Integrated gradients
- e. Layer-wise Relevance Propagation (LRP)
- f. LIME (Local Interpretable Model-agnostic Explanations)
- g. Partial Dependence Plots (PDPs)
- h. Saliency maps
- i. SHAP (Shapley additive explanations)
- j. Surrogate models (local or global)

16. Which of the following have accountability for AI/ML/Generative AI applications and their outputs? Please indicate all that apply

- a. AI ethics officers
- b. Board or Relevant Governing Body
- c. Business area users
- d. Central AI committee or similar body
- e. Developers and data science teams
- f. Executive leadership (please specify where applicable: CEO, CDO, CRO, etc.)
- g. Product managers



17. What do you believe are the most important ethical considerations when implementing AI in the financial sector? Please select all that apply.

- a. Data Privacy: Ensuring customer data is protected and not misused
- b. Bias and Fairness: Preventing AI systems from making biased or unfair decisions
- c. Transparency: Making AI decision-making processes understandable and transparent to users
- d. Accountability: Establishing clear accountability for AI-driven decisions
- e. Security: Protecting AI systems from cyber threats and ensuring robust security measures
- f. Customer Consent: Obtaining explicit consent from customers before using their data
- g. Impact on Employment: Considering the effects of AI on job displacement and employment
- h. Ethical Use of AI: Ensuring AI is used for ethical purposes and not for harmful activities
- i. Accuracy and Reliability: Ensuring AI systems provide accurate and reliable outputs
- j. Other: _____

18. Which of the following do you have in place with respect to data management and governance in the context of ML models.

	ML Specific	Not ML Specific
Change management		
Data accessibility and integration		
Data architecture and infrastructure		
Data ethics, bias and fairness		
Data lifecycle management		
Data privacy and security		
Data quality, accuracy and representativeness		
Data stewardship, ownership and responsibility		
Metadata management		

19. What type of disclosures are there for customer-facing AI applications? For example, do you disclose that the application uses AI?

20. How does your organisation ensure that testing and validation of AI models is performed to guarantee the accuracy and reliability of their outputs?

21. Are there effective approaches/methods to support the safe, soundness and responsible adoption of AI? If so, what are they and which approaches are most suitable for the financial sector?

22. How could the regulation be simplified, strengthened and/or extended to better encompass AI and address potential risks and harms?



- 23. How are you using AI/ML across your value chain? Please give one example of your banking institution's application of AI across your institution's value chain and explain how AI and machine learning have been implemented in your example.**
- 24. How are you using generative AI across your value chain? Please give one example of your banking institution's application of generative AI across your institution's value chain and explain how generative AI has been implemented in your example.**

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