

AIRTEL MONEY QUALITY OF EXPERIENCE

- Lessons from Operating a Large-Scale Digital Financial Service on a Mobile Network
- Network Factors, Reliability Challenges, and the Operator's Perspective on QoE for DFS
- ITU Workshop on QoS, QoE and Future Networks
- Livingstone, 12–13 May 2026
- JOHN CHIBWE, Eng., Airtel Networks Zambia Plc

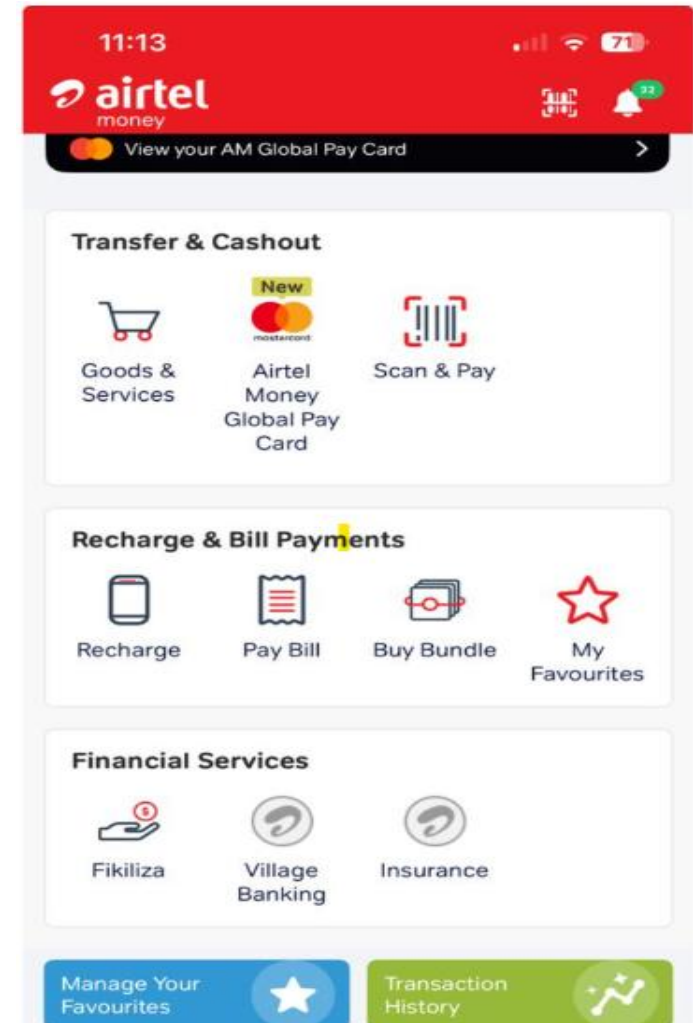


AGENDA

1. Airtel Money by the numbers
2. Why QoE matters more than QoS for DFS
3. Network factors affecting mobile money reliability
4. Our monitoring & improvement approach
5. Key challenges & solutions
6. Lessons for operators & regulators

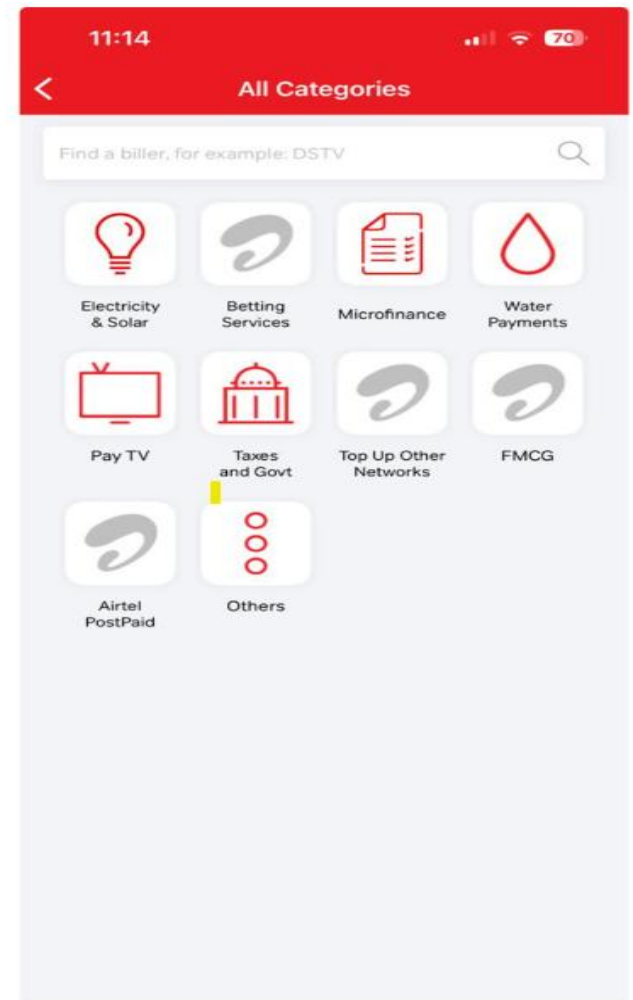
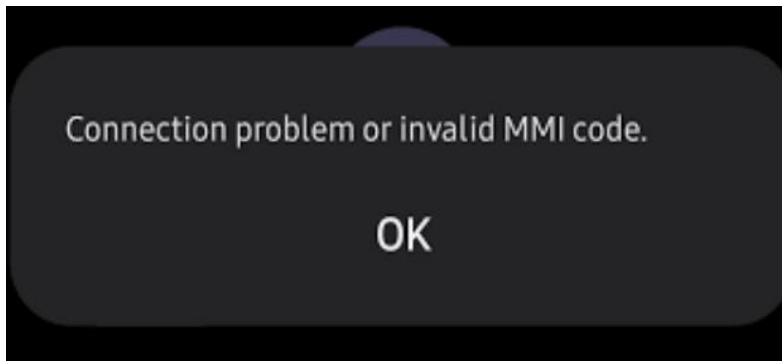
AIRTEL MONEY – OPERATIONAL SCALE & INDUSTRY CONTEXT

Category	Key Data
Airtel Zambia 2025 (audited)	12.45 million subscribers – #1 in market - Revenue: ZMW 8,954 million (+26% YoY) - Operating profit: ZMW 3,585 million (+36% YoY) - Market share by subs: 47.5%
ZICTA 2025 – Entire mobile sector	- Total mobile subscriptions: 26.2 million (+13.1%) - Mobile penetration: 127.4 per 100 inhabitants - Total sector revenue: ZMW 13.15 billion (+13.9%)
Airtel Money (Africa)	54.1 million customers across Africa YoY-(+21.3%) - FY Africa revenue: \$1.355 Billion (36%) - Transaction value across Africa: \$215 billion. - Mobile Money Revenue – \$1.3 billion(+36%) - Airtel Zambia over 8 Million active users, >\$350 txn/customer/month



QoS vs. QoE FOR DFS – WHY IT MATTERS NOW

QoS (Network-centric)	QoE (User-centric)
Latency, jitter, packet loss	Transaction success rate
Signal strength (RSRP)	Time to complete payment
Handover success	User frustration / retries



NETWORK FACTORS AFFECTING AIRTEL MONEY QoE

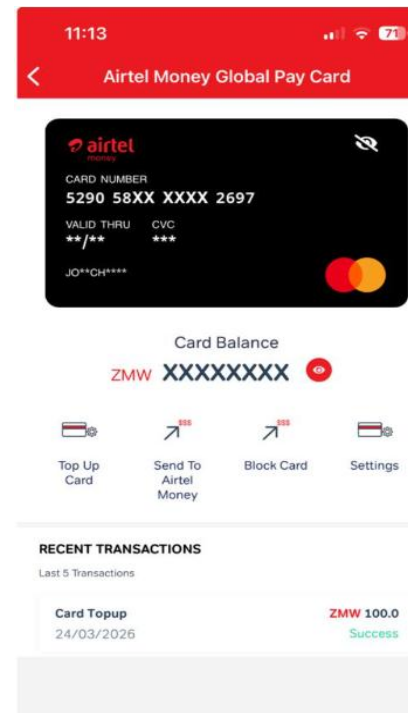
Factor	Impact on DFS
Packet loss > 1%	Transaction failure
RTT spikes > 500ms	Timeouts
Signal fluctuation	Mid-transaction drop
SMS delivery delay	OTP failures

ZICTA 2025 – Traffic trends:

- Domestic outgoing voice: 36.0 billion minutes (+3.6%)
- International outgoing voice: 10.7 million minutes (-3.3%)
- Decline due to OTT substitution (WhatsApp, Messenger)

Airtel's response:

- \$107 million network expansion plan
- 406 new sites planned (400 deployed by end of April)



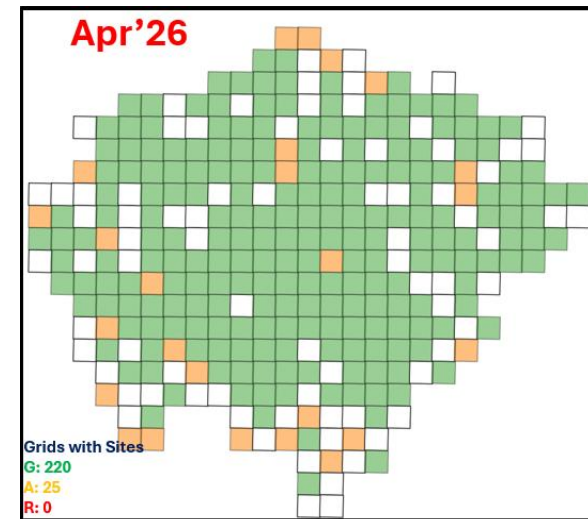
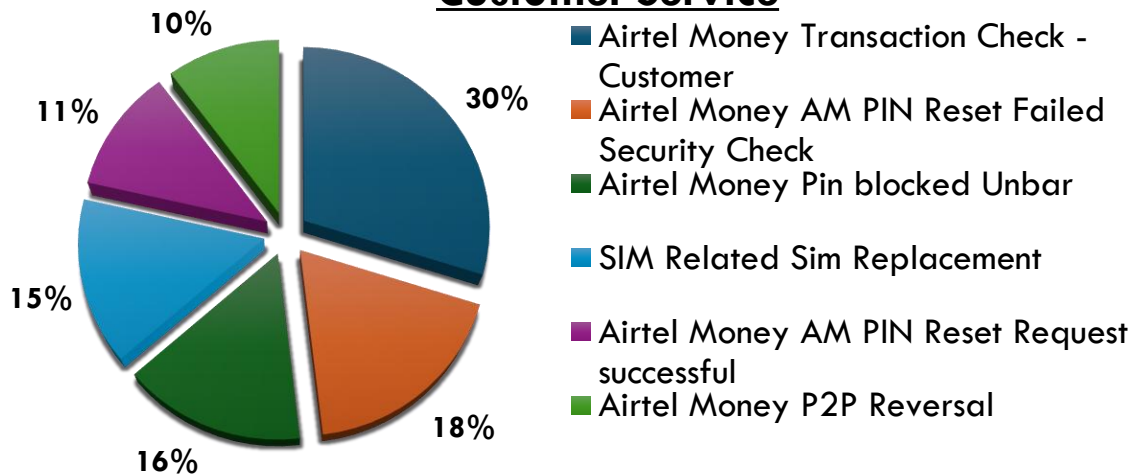
MONITORING & MEASUREMENT APPROACH

- Active probing – synthetic DFS transactions from agent handsets
- Passive monitoring – logs at GGSN/PGW and DFS application server
- Key metric: End-to-End Transaction Success Rate (TSR)

ZICTA 2025 – Infrastructure context:

- Total telecommunication sites: 15,802 (+8.8%)
- 5G sites grew by 86.4%
- 4G sites grew by 11.2%
- Network coverage: 91.6% of population (Airtel)
- Geo-mapping of poor QoE (ITU-T E.813 style)

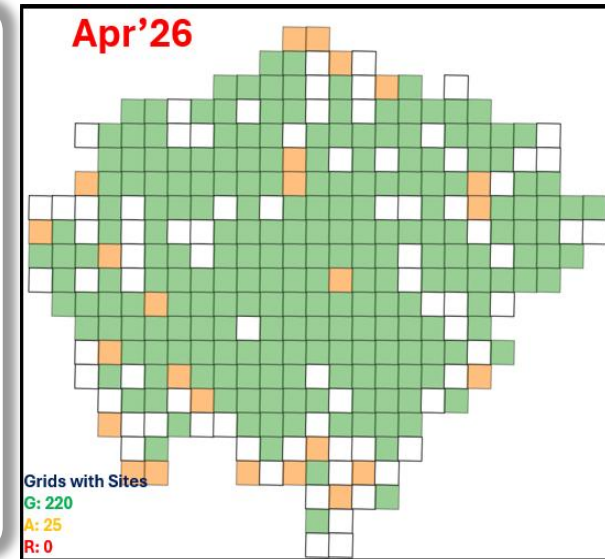
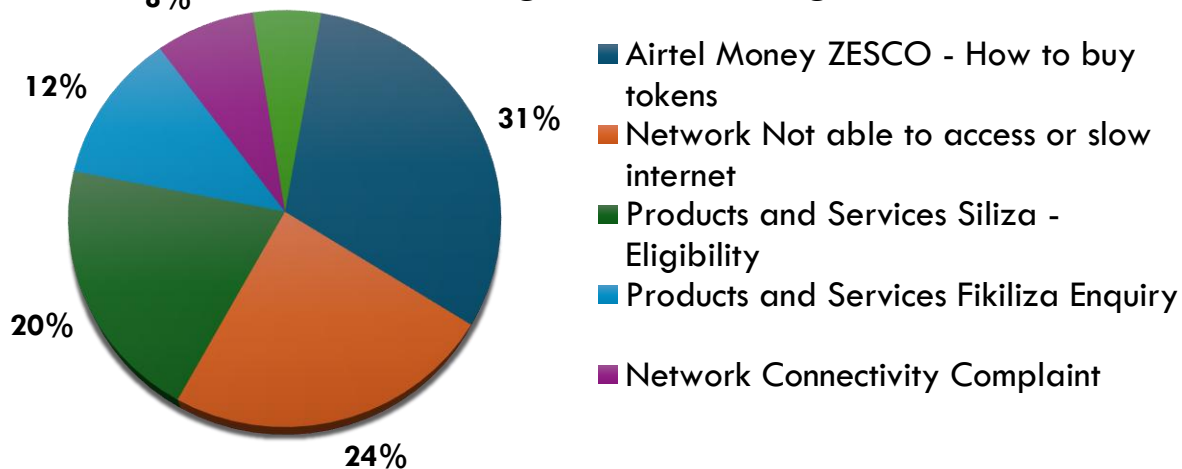
Customer Service



KEY CHALLENGES WE FACED

1. Rural coverage gaps – transaction failures in weak signal zones
2. SMS delivery delays – USSD session continuation & receipts fail
3. Backhaul instability – microwave links affecting remote agents
4. Peak hour scaling – transaction spikes during subsidy payouts
5. Device diversity – feature phones vs. smartphones (different failure modes)

Customer Challenges when using DFS



SOLUTIONS ADOPTED – WITH 2025 INVESTMENT DATA

Challenge	Solution
Rural weak signal	Lightweight protocols, ussd session timeouts, sms retry
SMS delays	Redundant SMS routes + in-app fallback, SMS delivery 2G, 3G, 4G
Backhaul instability	Hybrid 4G + satellite backup (WIP) + PAYX
Peak scaling	QCI differentiation for DFS traffic (high-priority)- signaling
Device fragmentation	Optimized USSD (Menu, timeouts) + lightweight Android app. Sms retry

ZICTA 2025 – Investment evidence:

- Airtel CAPEX (mobile money): \$32 million
- National tower count: 3,751 (+5.6%)
- Fibre backbone (Telesonic/Airtel): 6,221 km backbone + 1,455 km metro
- Average MNO equipped capacity: 1,865 Gbps (+39.8%)

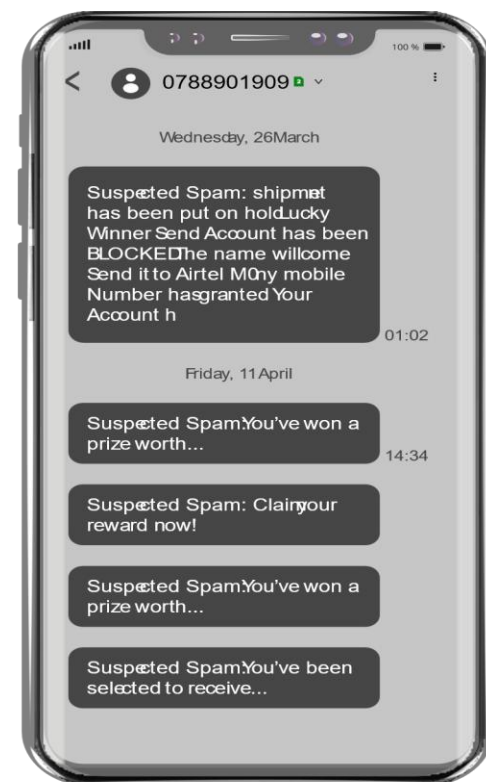
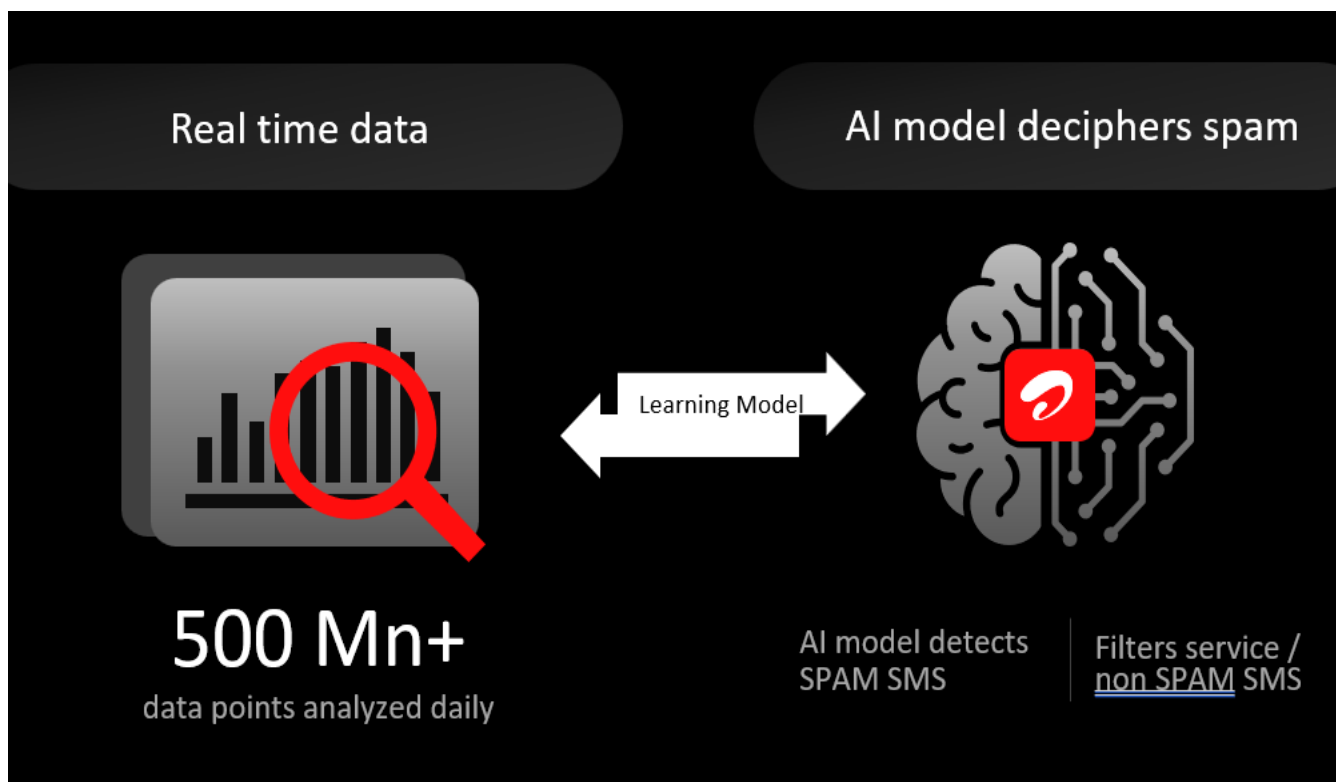
Airtel solutions adopted:

- Key decision: Treat Airtel Money traffic as high-priority signalling – not best-effort data.
- SMS retry policy rates optimization



LESSONS LEARNED – FOR OPERATORS

- Break silos – RAN, core, DFS teams share dashboards
- Plan capacity around financial calendars (paydays, subsidies)
- Train agents – many "network failures" are device settings
- AM Fraud- SPAM SMS solution



LESSONS LEARNED – FOR REGULATORS

Recommendation	Action
Add DFS transaction success as MNO quality indicator	Beyond voice drop call rate
Adopt ITU-T E.813 connectivity mapping for DFS	Identify dark zones
Require anonymised DFS QoE dashboards	Transparency for consumers
Create regulatory sandbox for alternative last-mile tech	TVWS, LEO satellite

CONCLUSION

- Airtel Money processes \$215 billion annually across Africa – critical infrastructure
- 0.5% transaction failure affects thousands daily
- Good network QoS is not sufficient – DFS needs application-aware QoE
- Zambia's mobile sector grew 13.9% to ZMW 13.15 billion – digital economy is accelerating
- Call to action:
- Standardise DFS QoE metrics.

THANK YOU & Q&A

Thank you

Questions?

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