AI Use Case: Nudging System

Innovation & Project Management Department
Zambia Revenue Authority

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ZAMBIA REVENUE AUTHORITY | My Tax Your Tax Our Destiny

My Tax, Your Tax, Our Destiny

Introduction

01



Objective

• Drives innovation by embedding intelligence into systems to boost efficiency, improve compliance, and optimize revenue collection.



Automate

• Reduce manual, repetitive processing tasks across tax and customs operations

• Free analyst time for high-value, complex cases requiring human judgment



Detect

• Identify non-compliance, fraud, and evasion at scale using machine learning

• Risk score every customs declaration and VAT return in real time

• Flag anomalies invisible to manual audit teams

Nudging System

Operational Challenges

1 Delayed & Non-Filing

Taxpayers do not readily comply with on-time filing of returns and payments.

Poor Tax Filing Compliance

~30% of tax filings happen late.

2 Manual Messaging

We relied on manual messaging. Taxpayer registers and uploading to bulk messaging/emailing platforms. Processing huge volumes of taxpayer records manually.

Laborious & Time Consuming Messaging Work

Poor utilization of limited resources.

3 Generic & Impersonal Reminders

Broad and impersonal reminders limit the effectiveness of compliance.

Guess Work

Ignored by tax payers.

Our Solution

03

An automated nudging-bot that analyses taxpayer data to determine who, when and how to nudge. A departure from guesswork.



Automate

- Works across seven tax types
- Analyses data to determine who to nudge



Classifies Taxpayers

- Non – filers
- Late filers
- On-time filers



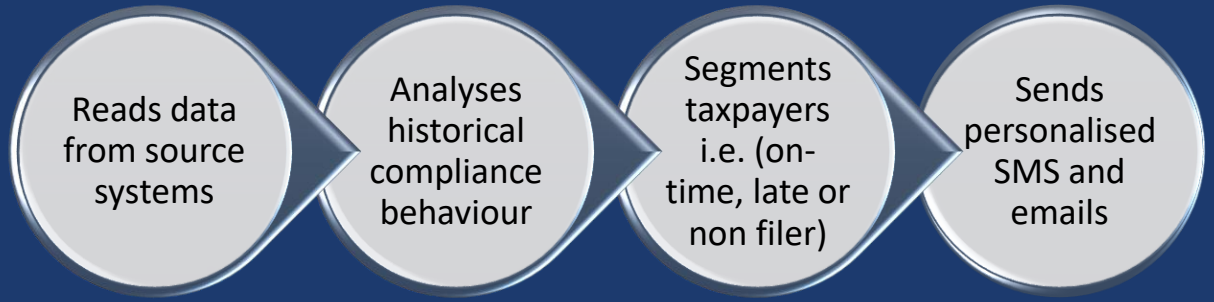
Innovation

Unlike generic reminders, the nudging solution analyses each taxpayer's compliance behaviour and automatically delivers personalised messages tailored to their specific circumstances.

Our Solution

04

An automated nudging-bot that analyses taxpayer data to determine who, when and how to nudge. A departure from guesswork.



On-Time Filers : Receive positive encouragement

Late Filers : Receive mild compliance reminders

Non Filers: Receive strong compliance reminders

Our Solution – *message templates*

05

On time filer

Dear **James,** you missed the deadline for your Value Added Tax return for March 2026. As you usually file your returns on time, please file promptly to maintain your good compliance record.

Late filer

Dear **Emma,** you missed the due date for the Value Added Tax return for March 2026. As over half of your past filings were late, please file promptly to maintain compliance and avoid further penalties.

Non-filer

Dear **Harry,** your Value Added Tax return for March 2026 is overdue, and previous returns for 262 Months remain outstanding. Penalties are accruing. Please submit all pending returns immediately to avoid further enforcement measures.

Our Current Data Landscape

01



TPIN

- Taxpayer Identification Number (TPIN) used to identify taxpayer records across multiple tables
- No external digital ID

02



Contact Details

- Taxpayer mobile number
- Taxpayer email address
- Two communication channels presently used

03



Tax Types

- Tax types registered for
- Deadlines for registered tax types

04



Compliance History

- Tax payer filing history to determine tax payer classification

05



Data Source

- Taxpayer core registration and filing system
- Smart Invoice
- ASYCUDA World
- At the moment no external data is used.

Future Nudging Solution

Compliance Pillars	On-time filing	On-time payment	Registration
Tax Types	Seven	All	
Nudging Drivers	Basic intelligence	Advanced ML & Risk Scoring	
Data Sources	Internal core taxpayer data	E-invoicing data	Other internal & external systems

Beyond a communication tool

Complex network of datapoints

Real intelligence opportunities

Early Lessons

01

Efficient & Effective

- Automated filing reminders reduce manual follow-ups

02

Compliance Management

- Early detection of non-compliance via real-time dashboard analytics

03

Increased Engagement

- Personalised taxpayer engagement increases relevance

04

Scalability

- Sound architectural design to allow scalability
- Adopting microservices

Risks & Gaps



Behavioral Impact

Still collecting data to ascertain effectiveness and impact of nudges. E.g. is compliance behavior shifting?



Contact Details

- Some taxpayers submit incorrect details to “taxman” to avoid being reachable
- Taxpayer agents register their contact details rather than actual taxpayer details
- Unclean taxpayer register



Technology Penetration

- Substantial minority not fully online
- Poor network in many rural areas

Conclusion



Future of Tax Reform is AI

- *Our goal is to cost-effectively drive voluntary compliance through targeted communication*
- *Automate communications (scalable &efficient)*
- *Also to offer distinguished customer service*

Thank You

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Questions & Discussion

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