Using Innovative Technology to Combat Non-Compliance

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Revenue authorities have complex mission, and are charged with addressing myriad forms of non-compliance:

- Tax non-compliance within the formal sector
- "Shadow" economy activity that goes untaxed
- Non-payment of assessed tax debt
- Customs duty evasion
- Improper use of tax / duty concessions
- Fraudulent refund claims
There are a number of exciting applications of technology and analytics that have shown real world results.

**Illustrative examples**

1. Use of government and private sector data to independently estimate how much income should be reported versus what is reported, or where a tax return should have been filed when it wasn’t.

2. Using analytics to identify likelihood of default / write-off to prioritise efforts to collect past due tax debts.

3. Conducting more sophisticated network analysis to reveal previously hidden networks, and patterns of business (re)creation.
Each revenue authority has its own unique starting point: effective use of data and analytics involves a journey

Revenue authorities with very limited data and IT infrastructure can launch high-impact revenue enhancement programmes grounded in data

Example:
Transforming performance of the workforce (e.g., by building integrated view of auditor/collector performance by office, improving segmentation of debt stock, improving allocation of audit cases to skill levels, calibrating time spent per case with revenue risk, etc.)

Those with foundational building blocks of IT infrastructure can pursue, in stages, more sophisticated data analysis capabilities

Example:
Connecting the dots across government data sources to identify undeclared business activities (e.g., using tax, customs, companies house data – as permitted)
These themes are evergreen – why now?

1. Costs of data storage have plummeted

2. Tools to cleanse and integrate data have matured enormously

3. Data quality challenges can increasingly be mitigated (though not eliminated)

4. Organisations have learned to pursue analytics impact in parallel with IT modernization

5. Lighthouse examples of success exist in several tax authorities

6. Where there have been false starts, valuable lessons have been learned
Some learnings are globally applicable, while others require highly context-specific judgment

We find some universally applicable themes…

Legacy IT systems and poor data integration are a challenge everywhere

Clear, understandable analysis is typically more successfully adopted than highly advanced techniques that are a “black box” to the people using them

There is significant value that can be captured just through better integration of data sources internal to government

There are colleagues within the revenue administration who are yearning to work differently – they just need an opportunity to raise their hands

Prudent investments in technology and data in revenue administration are high ROI (particularly if structured to be self-funding from early in the process)

And others that are highly situation-specific

Level of support of ministers for change programme with simultaneous commitment to allow revenue authority to act with independence

Level of cooperation and collaboration among tax and customs agencies

Extent to which first step is marshalling the data versus figuring out how to use it

Public expectations and acceptance of data usage to improve levels of tax compliance

Skills and capabilities of the workforce with willingness / excitement to learn and grow
Successful initiatives share a handful of common traits

Choose compliance interventions designed to quickly boost revenue and compliance
The organisation and stakeholders will be watching closely, quick wins will build excitement

Ensure committed senior-level sponsorship and commitment
Senior leaders alone can create an environment where change is possible in the face of long-standing practices

Keep disciplined link of analytics activities to sources of value
Avoid data and technology for its own sake, and ensure that analytics and operational changes are directly tied to high impact outcomes

Place a premium on accountability and speed
Create a culture of performance – with clear daily / weekly / monthly performance management cadence, and peers holding each other accountable for results
While advanced analytics bring deep new capabilities, there are risks that need to be managed

**Example:** AI can generate high impact, however increasingly complex models can lack explainability

There are *real world private sector examples* where use of AI outpaced ability to manage risk, such as:

- Algorithmically-generated offers that systematically favoured neighbourhoods of a particular racial composition
- Facial recognition technology that performed poorly on certain ethnicities
- Sentiment analysis algorithms ranking as “positive” comments that included deeply offensive language
- Speech-to-text algorithms whose performance varied widely by gender
- Chatbot that posted offensive and inflammatory tweets after mimicking posts from other users

These risks emerge from a handful of typical root causes…

1. Unintended biases
2. Overfitting models
3. Non-representative training data
4. Lack of testing in extreme situations
5. Learning systems that are vulnerable to manipulation
To the Panel for Discussion...

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