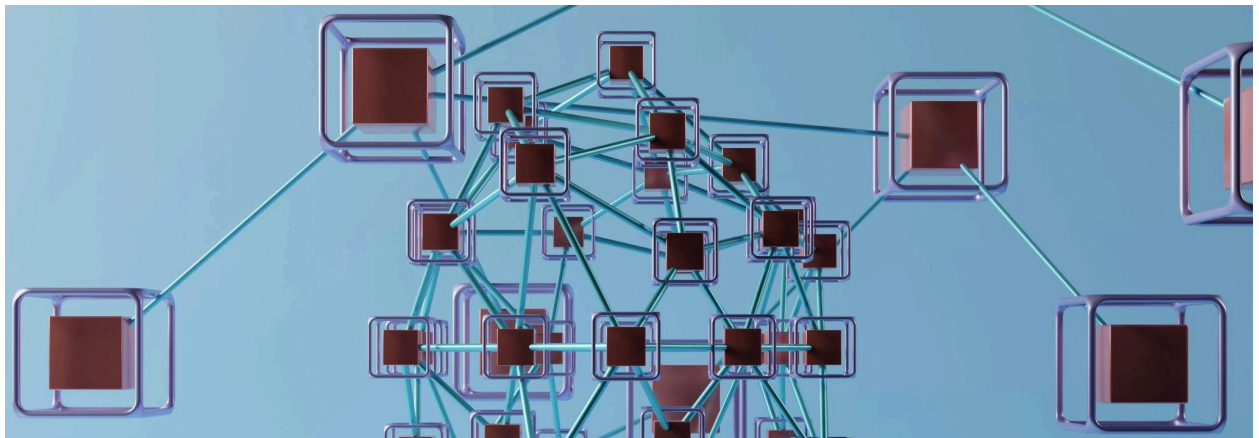


DATA ANALYSIS REPORT

Addressing Data Inconsistency: A Barrier to ICT
Advancement in Jamaican Government



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INTRODUCTION

Many Jamaican Ministries and Agencies operate in silos with limited data sharing, leading to duplicated efforts, inconsistent data, and customer or citizen service delays.

Key Example

Lack of data sharing across government agencies can be seen in the Tax Administration and the Ministry of Finance. These two government agencies handle common citizen information such as TRN, First Name, Last Name, Address, Gender and Phone Number.

This divide severely impedes the progression of ICT in Jamaica in many ways.

Impact

An Example of this would be advancing road security by installing cameras on stoplights. Both the Tax Administration and Ministry of Finance play a part in managing information for traffic systems. If someone is caught running a red light, both the Ministry of Finance and the Tax Administration handle traffic tickets and their collections.

If someone was to move addresses between filling out both applications, then their address would differ between the two systems, this could cause huge delays in administering tickets.

METHODOLOGY

How The Data Was Collected

The data utilized for this analysis, this includes records from the Tax Administration (TAJ) and the Ministry of Finance (MOF) for the years 2023 to 2025, was synthetically generated for illustrative purposes in order to simulate real-world scenarios for data duplication and inconsistency. The figures presented are not based on actual government records, however they are designed to reflect the types of challenges observed in the Jamaica Public sector regarding data sharing between government agencies and its consistency.

Data Preparation and Transformation

To identify data inconsistencies across government agencies a custom SQL query was developed. This query unifies entries from both agencies based on the matching TRN to show duplicates. These duplicates are then categorized by whether the application was submitted to the Tax Administration (TAJ), the Ministry of Finance (MOF) or both.

A calculated field was then created to show the percentage of citizen information changed amongst the duplicates.

Screenshots of Query and Calculated field

```
SELECT * FROM (
  WITH all_entries AS (
    SELECT
      trn,
      CONCAT(first_name, ' ', last_name) AS name,
      address,
      phone_number,
      year_of_submission,
      'finance' AS source
    FROM finance

    UNION ALL

    SELECT
      trn,
      CONCAT(first_name, ' ', last_name) AS name,
      address,
      phone_number,
      year_of_submission,
      'tax' AS source
    FROM tax
  ),
```

Fig 1: SQL Query for data union

```
source_counts AS (
  SELECT
    trn,
    COUNT(DISTINCT source) AS source_count
  FROM all_entries
  GROUP BY trn
)

SELECT
  a.*,
  CASE
    WHEN sc.source_count > 1 THEN 'In Both'
    ELSE a.source
  END AS source_flag
FROM all_entries a
LEFT JOIN source_counts sc ON a.trn = sc.trn
) AS final_result;
```

Fig 2: SQL Query for data union cont'

	trn	name	address	phone_number	year_of_submission	source	source_flag
▶	*****8741	Birdie Tithacott	1 Summer Ridge Avenue	876-515-4594	16/10/2024	finance	In Both
	*****1199	Traci Dennison	6 Schmedeman Park	876-470-8140	28/08/2024	finance	finance
	*****7192	Marrissa Rigge	7 Thackeray Street	876-606-1008	05/05/2025	finance	In Both
	*****6154	Imojean Josefer	48707 Warner Trail	876-763-9807	01/05/2025	finance	In Both
	*****9814	Harlene Olwen	2 Westerfield Place	876-678-4439	11/01/2025	finance	In Both
	*****4284	Devonne McComiskie	8 Kenwood Place	876-878-7533	16/07/2024	finance	In Both
	*****3996	Aili Traut	9 Dapin Alley	876-319-3351	23/02/2025	finance	In Both
	*****9264	Martica Draaisma	095 Marquette Park	876-985-4664	12/04/2025	finance	finance
	*****6448	Estella Hambrook	64415 Continental Road	876-558-4848	10/05/2025	finance	In Both
	*****3631	Allx Geeves	80 Lakewood Gardens Crossing	876-293-9614	11/08/2024	finance	In Both
	*****6143	Manya Keys	6 Caliangt Trail	876-823-6971	10/04/2025	finance	In Both
	*****5214	Fayina Skitteral	28687 Main Road	876-836-3785	11/01/2025	finance	In Both
	*****7403	Adina Brome	889 Warbler Trail	876-697-3821	09/01/2025	finance	finance
	*****7231	Ingamar Crofts	9 Farmco Way	876-965-9490	02/07/2024	finance	In Both
	*****1088	Lindy Wilacot	90624 Shelley Avenue	876-376-4465	14/10/2024	finance	In Both
	*****7001	Alameda Longo	6 Nelson Street	876-100-5864	14/05/2025	finance	In Both
	*****4809	Corrina Brunner	38627 Northwestern Place	876-609-2713	01/08/2024	finance	In Both
	*****9377	Kerby Huyhton	3469 Arizona Lane	876-446-9354	08/10/2024	finance	In Both

Fig 3: SQL Query for data union result

Mismatched Data

X

```

IF { FIXED [trn] : COUNTD([address]) } > 1
OR { FIXED [trn] : COUNTD([phone_number]) } > 1
THEN "Updated"
ELSE "No Changes"
END

```

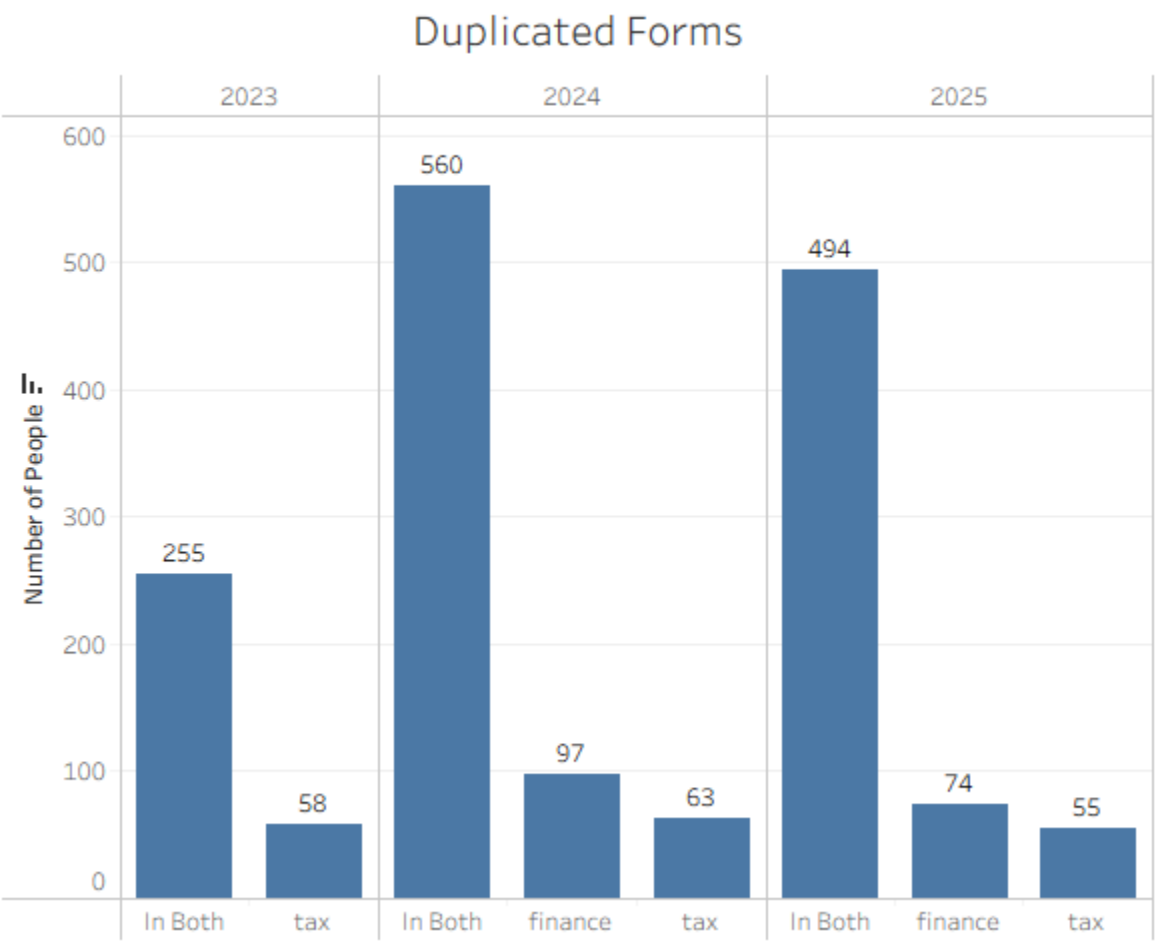
The calculation is valid.
3 Dependencies ▼
Apply
OK

Fig 4: Calculated field used to show if any information has been changed.

RESULTS

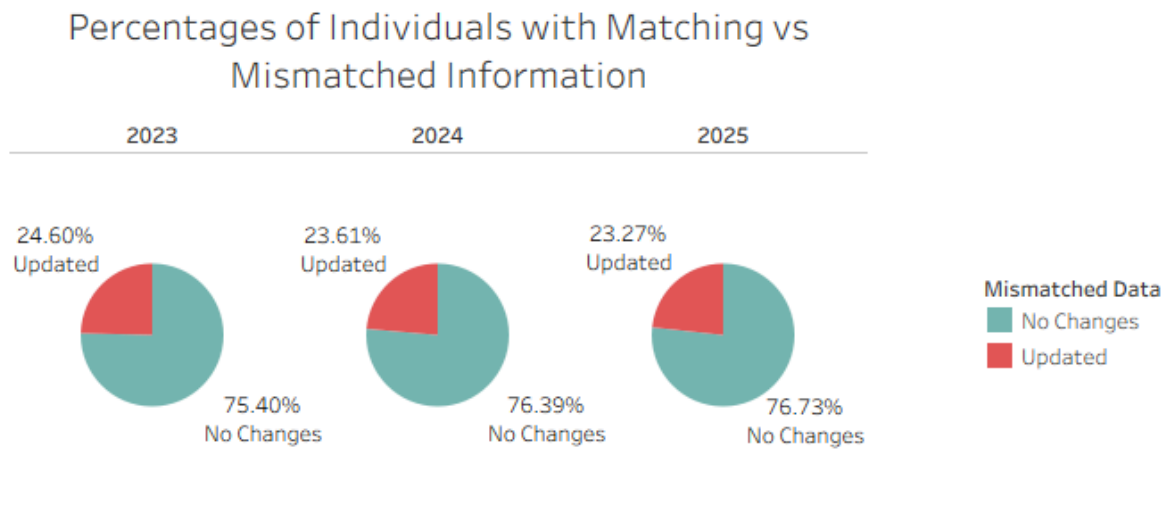
Data Visualizations Generated Using Tableau

Graph 1 Title: Comparison of Form Duplication of Citizens between the Tax Administration and Ministry of Finance



Insight: Duplicate submissions are rising yearly, with a majority submitted to both TAJ and MOF. This suggests lack of system integration and redundant processing.

Graph 2 Title: Mismatched Critical Information in Duplicate Records
(2023-2025)



Insight: Nearly 1 in 4 citizens who submitted duplicate forms had conflicting contact details (eg. address or phone number)

Conclusion

The inconsistent data and sharing between agencies are critical barriers to modernizing Jamaican Services and leveraging ICT.

To resolve this, we must prioritize implementing integrated data sharing systems across all relevant government agencies. This is essential for improving customer and citizen service delivery, enhancing security and driving Jamaica's digital transformation.