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Project: Risk Management
Fraud Detection and Analysis with Social Benefit Payments

1.0 Project Background

Governments have demonstrated interest in caring for children, youth and family in a more sustainable manner. With such high interest comes with high budget allocation creating interest and opportunities for deliberate errors, malicious interest or fraud. Officers and insiders, third-party providers, and clients my exploit weaknesses in the system.

Project Objective:

The objective of this project analyzes various risks capable of causing fraud associated with the on boarding and payments of social benefits to caregivers for children, youth ad families. The objective is broken into four (4) areas:

- Identify and analyze risk areas in relating to duplicate payments, over payments, payments made to inactive caregivers and unapproved payments
- The risk matrix applied to each risk area assessed to determine its likelihood and impact to inform priority and resource allocation
- Recommend risk prevention, detection, and correction techniques guided by COSO Internal Control - Integrated Framework

Methodology:

The following methods were deployed in

- Acquired sample datasets relating to fraud transactions in the use of electronics banking services. 158 transactions were generated which includes information relating to: ***Transaction ID, Transaction date, Funding type, Amount, Caregiver ID, Caregiver name, Caregiver address, Date first registered, Caregiver active status, Transaction approved status***

- The datasets was sorted and other outcomes were ascertained using pivot tables

2.0 Project Outcomes

After analyzing the generated datasets, seven (7) risk areas of focus were identified:

- Funding Type Proportions
- Caregiver With More Than Two Funding Types
- Single Payment of $3000 Or More
- Total Payment To Each Caregiver Higher Than $10,000
- Duplicated Payments
- Inactive Status With Payment
- Unapproved Payments

2.1 Funding Type Proportions

During the year under review, 43% of the total expenditure relates with Special Needs, 26% for Adoption Subsidy, 24% Foster Care and 7% Emergency. There should be the need to ascertain if the spending patterns falls within the approved budget for each funding type.

FundingType	Sum of Amount	Sum of Amount
Adoption Subsidy	59705	26%
Emergency Child Support	15235	7%
Foster Care Allowance	55875	24%
Special Needs Funding	99734	43%
Grand Total	230549	100%

2.2 Caregiver With More Than Two Funding Type

The expected number of funding type for each caregiver is expected to be 2 or less. Out of the 49 caregivers, 33 had unusual funding types with more than 2. Total value exposure to this risk type is $201,996.

Irregular Funding Type

Row Labels	Count of Funding Type
All Caregivers	49
Unusual Funding Numbers	33
Usual Funding Numbers	16
Grand Total	49

2.3 Single Payment of $3000 or More

It is expected that any single payment above $3000 needs to go through additional review and a higher approval matrix. Out of the 158 transactions, 10 transactions were identified to fall above $3000. The exposed amount to this risk is $62,496. There is a need to check if the additional review and the right approval matrix has been followed.

Highly Exposed Single Amount Paid

Row Labels	Count of Single Amount
All Caregivers	158
Highly Exposed Amount	10
Lowly Exposed Amount	148
Grand Total	158

2.4 Total Payment To Each Caregiver Higher Than $10,000

It is expected that any total of all payments above $10,000 to one caregiver within any year under review needs to go through additional review for appropriateness. Out of the 49 caregivers, 4 total payments to each caregiver was identified to fall above $10000. The total exposed amount to this risk type is $58,351. There is a need to check if the additional review has been followed.

Highly Exposed Total Amount Paid

Row Labels	Count of Total Amount
All Caregivers	49
Highly Exposed Amount	4
Lowly Exposed Amount	45
Grand Total	49

2.5 Duplicated Payments

Duplicated payments are two or more transactions with the same details paid to the same caregiver at the same amount. 8 transactions out of the 158 were identified to be duplicated at a total exposed amount of $30,462.

Duplicated Payments

Row Labels	Count of Single Amount
All Caregivers	158
Duplicated transactions	8
Non-duplicated transactions	150
Grand Total	158

2.6 Inactive Account With Payment Activity

Caregiver accounts needs to be active to receive payments as required. Payments received for an inactive account is a red flag that needs to be further investigated. 12 transactions were identified as 2 separate caregivers received multiple payments on their inactive accounts. The total exposed amount to this risk is $11,654.

Inactive Account with Transactions

Row Labels	Count of Single Amount
All Caregivers	158
Inactive Accounts with transactions	12
Active Accounts with transactions	146
Grand Total	158

2.7 Unapproved Payments

Payment made without adequate approval required heavy investigation. 17 transactions spread across 17 caregivers was identified. A total exposed mount to this unapproved payment risk is $34,457.

Unapproved Payments

Row Labels	Count of Transaction_ID
All Customers	158
Unapprove payments	17
Approved payments	141
Grand Total	158

3.0 Risk Metrics

The risk metrics is defined by the risk level rating, likelihood rating and impact rating.

3.1 Risk Level

Risk level rating is defined by the *likelihood* rating and *impact* rating of each risk category.

Risk Level	Rating
Low Risk	2 and below
Medium Risk	3 - 4
High Risk	5 and above

3.2 Likelihood

Defined as the number of the affected transaction expressed as a percentage to the total number of transactions observed.

Likelihood	Percentage Referred	Rating
Unlikely	Less than 10%	1
Likely	Between 10% and 40%	2
Very Likely	Higher than 40%	3

3.3 Impact

Defined as the total amount value of the affected transactions.

Impact Severity	Percentage Referred	Rating	Investigation and Resolution Timeline
Minor	Less than $10,000	1	Up to 2 months
Serious	Between $10,001 and $50,000	2	Up to 1 month
Major	Higher than $50,000	3	Up to 1 week

3.4 Fraud Risk Area Risk Assessment

Risk Category	Likelihood		Impact Severity		Risk Rating	Risk Level
	Percentage	Rating	Amount	Rating		
Caregiver With More Than Two Funding Type	67%	3	$201,996	3	6	High
Single Payment of $3000 or More	6.3%	1	$62,496	3	4	Medium
Total Payment To Each Caregiver Higher Than $10,000	8.2%	1	$58,351	3	4	Medium

Duplicated Payments	5.1%	1	$30,462	2	3	Medium
Inactive Account With Payment Activity	7.6%	1	$11,654	2	3	Medium
Unapproved Payments	10.8%	2	$34,457	2	4	Medium

3.5 Risk Areas Priority and Required Controls

Due to scarce resource and budget constraints, the assessed risk areas must be prioritized as follows considering the overall risk rating and the impact severity amounts. Controls to assist prevent, detect and correct the identified risk areas guided by COSO Internal Control - Integrated Framework

Risk Priority	Risk Category	Recommended Controls based on COSO Internal Control - Integrated Framework
1	Caregiver With More Than Two Funding Type	• Segregation of duties for case entry, review and approvals • Mandatory dual-approval for high-value payments, special needs funding • Automated workflow that prevents a person from both creating and approving payments • System enforced payment calculation rules • Automated caps on maximum allowable benefits • System block to payments on inactive, suspended, or closed cases • Identity verification procedures for new beneficiaries • Unique transaction idenfiiers and duplicate detection automation • Regular reconciliation and mandatory investigation • Risk-based monitoring • Regular training and competency reviews
2	Single Payment of $3000 or More	
3	Total Payment To Each Caregiver Higher Than $10,000	
4	Duplicated Payments	
5	Inactive Account With Payment Activity	
6	Unapproved Payments	