CASE STUDY 04

Improving Animal Management Incident Data Quality and Reporting

Excel data validation | Controlled data entry | Power BI reporting | Hotspot analysis

Context

A dog-attack incident register kept in Excel and used for management reporting.

My role

Redesigned data entry with controlled lists, then built Power BI reporting on the cleaner data.

Result

A controlled capture process and an interactive report for patrol and hotspot decisions.

Phil Black | Business Analyst • Process Improvement • AI Workflow Automation

Fix the data at entry, not at reporting time

Key message

The improvement moved the process from manual clean-up after entry to preventing incorrect data from being entered at all.

Business problem

Incidents were typed into free-text Excel fields. Misspellings and inconsistent entries made hotspot analysis and reporting unreliable.

Solution

Controlled suburb and breed lists, suburb-specific street and park dropdowns, required officer details and structured location categories.

Outcome

Cleaner incident data and a Power BI report that helps management interrogate trends, locations and hotspots consistently.

Current state: free text feeds unreliable reports

1. OFFICER
Records the incident

→

2. EXCEL REGISTER
Suburb, street and breed typed manually

→

3. DATA QUALITY
Spelling variations and duplicate categories

→

4. REPORTING
Manual filtering and correction

→

5. MANAGEMENT
Hotspots unclear, patrols lack location insight

Illustrative: one suburb, four entries, four rows in a report

Springfield	Sprinfield	Springfeild	Springfield (trailing space)

Poor data examples

- Suburb misspellings
- Street-name variations
- Streets linked to wrong suburbs
- Inconsistent breed names

Reporting impact

- Same place split across categories
- Hotspots not visible
- Trends unreliable
- Manual interpretation needed

Operational impact

- Hard to target patrols
- Slower monthly reporting
- Weaker evidence for decisions
- More follow-up and cleaning

Key observation: the spreadsheet acted as a database but allowed uncontrolled entry, so this was a data-capture problem.

Root causes: uncontrolled entry

Issue	Root cause	Operational effect	Business impact	Priority
Inconsistent suburbs	Free-text entry	Duplicate suburb values	Unreliable geographic reporting	**High**
Incorrect streets	No suburb-to-street validation	Wrong or misspelt addresses	Incorrect hotspot mapping	**High**
Inconsistent breeds	Free-text breed field	Duplicate breed categories	Inaccurate breed analysis	**High**
Unclear attack location	No standard location classification	Descriptions cannot be grouped	Cannot compare location types	**High**
Limited accountability	Officer details not consistently captured	Difficult follow-up	Weak audit trail and record ownership	**Medium**
Manual reporting	Repeated spreadsheet manipulation	Reporting delays	Reduced management visibility	**High**

Root-cause statement: the issue was not the reporting tool. The source data was inconsistent, so quality had to be controlled at the point of entry.

Improved data entry: controlled inputs

1. Create incident record
2. Select suburb from approved list
3. Select street, filtered to suburb
4. Select breed from standard list
5. Select location type
6. Enter officer name and number

Illustration: register entry form

Suburb	Select from approved list ▼
Street or park	Filtered to the chosen suburb ▼
Dog breed	Select from standard list ▼
Location type	Private property / outside property / park ▼
Officer name	Required
Employee number	Required

Dependent dropdowns

The suburb choice controls which streets and parks appear.

Controlled vocabularies

Breed and location fields accept standard values only.

Mandatory accountability

Officer name and number support audit and follow-up.

Clean source data

Power BI receives consistent fields it can group reliably.

Data-control model

Reference tables

- Approved suburbs
- Streets and parks mapped to suburb
- Standard dog breeds
- Location categories
- Officer register

Validated Excel register

- Dropdown-only fields
- Suburb-to-street dependency
- Required officer details
- Consistent categories
- Fewer manual corrections

Power BI dataset

- Clean categories
- Reliable filters
- Drill-down reporting
- Hotspot analysis
- Management dashboards

Data quality rule

Users choose approved values instead of typing free text.

Validation rule

The street and park list changes with the selected suburb.

Reporting rule

Power BI uses standard categories and cleaner relationships.

Insight: a simple master-data model inside Excel made reporting reliable without replacing the whole system.

Power BI reporting

Geographic analysis

- Incidents by suburb and street
- Hotspot map
- Drill-down to location

Incident analysis

- Trends over time
- Breed and location type
- Filters and slicers

Management reporting

- Monthly reporting
- Patrol targeting
- Data completeness and officer follow-up

Power BI management view

Consistent categories enable filtering, drill-down and evidence-based hotspot analysis

Decision support

Target patrols using reliable incident clusters.

Reporting efficiency

Less manual manipulation before monthly reports.

Governance

Track data completeness and officer responsibility.

Benefits and how to measure them

Business benefits

- Data quality: fewer spelling errors and duplicate categories
- Efficiency: less time cleaning and correcting data
- Insight: more reliable hotspots by suburb, street and location type
- Accountability: officer name and number improve the audit trail
- Targeted patrols: evidence-based decisions on where patrols are needed
- Scalable reporting: the Power BI report can be refreshed and reused

Proposed success measures (to baseline)

Measure	What it shows
Records with a valid suburb and street pair	Whether dependent dropdowns are used
Records with officer name and number	Accountability and audit trail
Duplicate suburb or breed values	Whether free-text variants are gone
Hours spent cleaning data per month	Efficiency gain
Time to produce the monthly report	Reporting speed

Note: these measures are proposed. Baselines were not recorded in the original project.

Possible next steps (not yet delivered)

Keep the lists current

- Name an owner for the reference tables
- Agree how new streets, parks and breeds are added
- Review lists on a set schedule

Tighten validation

- Validate dates and required fields
- Protect reference sheets from edits
- Schedule the Power BI refresh

Review the platform

- Consider a form or database if volumes grow
- Capture location by map or GPS
- Confirm privacy and retention rules

Why list these: a good solution has an owner and a path to improve. These are suggestions for discussion, not part of what was delivered.

What this case study demonstrates

Business analysis

- Identified root causes
- Turned management needs into data requirements
- Redesigned the capture process

Excel solution design

- Data validation
- Dependent dropdown lists
- Reference tables
- Controlled vocabularies

Power BI reporting

- Dashboard design
- Filters and drill-down
- Hotspot analysis
- Management reporting

Data governance

- Standardised categories
- Required officer details
- Improved audit trail
- Reusable reference data

I improve business outcomes by controlling data quality before it reaches reporting and management decision-making.

Success measures in this deck are proposed. Original baselines were not captured.