

Dog Control Notice Proof of Concept Final Report August 2021





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1.0 Introduction

- 1.1 The Scottish Government has <u>consulted</u> on and continues to explore ways to improve the operational effectiveness of the Control of Dogs (Scotland) Act 2010. This has been prompted, in part, by the number of dog attacks on people continuing to rise and from the variable number of dog control notices served by local authorities across Scotland. A consultation ran from September 2019 to January 2020 with the results published in June 2020. These revealed strong support from local authorities, police and other stakeholders for a national Dog Control Notice database being established. It is Scottish Government's intention, working with other stakeholders, to work towards establishing a national database by the end of 2021.
- 1.2 In November 2020, Scottish Government's Justice Division commissioned the Improvement Service to undertake a scoping study to:
 - Develop a better understanding of the current approach towards Dog Control Notice management, and involving engagement with Scotland's Local Authorities and other stakeholders
 - Analyse and assess how the existing approach might be transformed and improved
 - Assess technology options available to establish and maintain a national dog control notice database, and of the likely costs it might involve.
- 1.3 The scoping study ran from November 2020 to February 2021 with the study's final report published in March 2021. The study identified a number of improvements and priorities by stakeholders to help improve the operational effectiveness of the legislation. It also revealed universal support for the establishment of a national database, most viewing it as a means of obtaining consistency of approach across Scotland. In February 2021, Scotland's Minister for Community Safety, Ash Denham MSP, gave a commitment to the Scottish Parliament's Public Audit and Post-legislative Scrutiny Committee to develop a national database by the end of 2021.
- 1.4 In March 2021, with the scoping study concluded, Scottish Government's Justice Division commissioned the Improvement Service to undertake a Proof of Concept. Six Scottish local authorities and Police Scotland helpfully committed to participate in the Proof of Concept following engagement by Scottish Government and the Improvement Service with the Scottish Government led Dog Control and Dangerous Dogs Working Group.



2.0 Proof of Concept Objectives

- 2.1 The Proof of Concept had a number of core objectives in mind, including to:
 - Consolidate Dog Control Notice data at a central level by aggregating, curating, provisioning and reporting dog control notice data based on common standards
 - Ingest anonymised Dog Control Notice data and data structures used within the participating Local Authorities
 - Consume the data outputs, develop workflows and iterate a prototype development to visualise the data on a dashboard, enabling it to be demonstrated to other stakeholders
 - Identify reusable workflows and processes as well as inform the specification of a more permanent solution, including the development of a national Dog Control Notice database
- 2.2 In addition, the Improvement Service was utilising the Proof of Concept for some of its own objectives, including to:
 - support thinking and plans for how a Local Government Data Ecosystem might be created
 - explore how a pipeline or multiple pipelines of data can be built from pulling data from different data sources, enabling it to be automated, searchable and accessible, and to help better interpret data and make sense of it
 - derive useful learning for the Improvement Service and for the participating local authorities



3.0 Proof of Concept Approach, Methodology and Participants

3.1 The Improvement Service worked in partnership with its technology partner, Tata Consultancy Services, on taking the proof of concept forward across an eight-week period between 23 April and 30 May 2021. The period was divided into four Sprints, each lasting one or two weeks. The proof of concept adopted a service design and agile methodology, the <u>Double Diamond methodology</u> and illustrated in **Figure 1: Service Design Approach**.

Double Diamond A Service Design Methodology Key Stakehold Interactive Prototype V1 map Interactive Prototype User Key problems identification V2 Interview Discover Define Develop Deliver Opportunity + Vision Solve + Realise Synthesise + Frame Observe + Learn Use ALPHA Journey Key Testing opportunitie DeXA Entity Relationship Ideation map Session

Figure 1: Service Design Approach

- 3.2 The first three weeks were spent on a Discovery Phase, using assumptions, and comprised ten interviews and three workshops with the six local authorities participating in the proof of concept, Police Scotland and Scottish Government. The six local authorities were Aberdeenshire, East Lothian, Fife, Glasgow, Renfrewshire and Scottish Borders. During the proof of concept several Agile project management techniques were used including, Retrospective and Sprint planning sessions held at the beginning of each sprint; a Daily stand up; a Show and Tell at the end of each sprint; and a Kanban Board. A diverse team of individuals was involved throughout including experts in the subject matter and in related policy, engineers, designers and project managers.
- 3.3 During the proof of concept, user journeys in the creation of a Dog Control Notice were captured; a number of user personas were identified, for example, a dog warden, a police officer, a victim and a dog owner; and key insights and problems identified using user experience tools. These are illustrated separately in Appendices 1 4.
- 3.4 The proof of concept managed to understand users' needs and pain points as well as the technical landscape in detail. It then allowed participants to ideate on a solution and ideas

were tested through user testing sessions. Finally, a customised TCS data marketplace platform, DeXAM, was used during the proof of concept, serving as a data and information exchange, analysis and visualisation solution, and offering several benefits.



4.0 Proof of Concept Results

4.1 Objective # 1 - Consolidate Dog Control Notice data at a central level

- 4.2 All the metadata that is needed to be present in the database, according to the legislation, was identified and consolidated at a central level.
- 4.3 Objective # 2 Ingest anonymised Dog Control Notice data and data structures used within the participating Local Authorities
- 4.4 Data input was either inconsistent or missing from the existing technology platforms (Uniform and Civica) used by the six Proof of Concept Local Authorities. The most important Dog Control Notice information is recorded in a Dog Control Notice Word document which is then printed, signed and scanned. Hence, a data export from Uniform or Civica, even if possible, is not itself enough. <u>The Control of Dogs (Scotland) Act 2010 (Prescribed Form of Notice) Order 2011</u> means that a Dog Control Notice shall be in the form prescribed. The information to be entered onto the Dog Control Notice Form is in line with the Order.
- 4.5 Users were able to use an Excel template (Figure 2: Excel Template for Users) to record all their Dog Control Notice data and upload it onto the platform used in the proof of concept together with the signed and scanned PDF version.

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Figure 2: Excel Template for Users

This is the metadata used for data ingestion

4.6 The target metadata¹ for the data ingestion pipelines is shown in Figure 3: Dog Control Notice Metadata. The processes by which the data was ingested into the database are shown in Figure 4: Dog Control Notice Data Ingestion into the Database.





Figure 3: Dog Control Notice Metadata



Figure 4: Dog Control Notice Data Ingestion into the Database



4.7 Objective # 3 - Consume discovery phase outputs, develop workflows and iterate a prototype development to visualise data on a dashboard

- 4.8 A prototype was designed, developed and validated by the users through several user-testing sessions.
- 4.9 Users had access to a database where they could search for a Dog Control Notice by keyword, address, breed, dog guardian's or dog name and all the metadata contained in Dog Control Notices.



- 4.10 Users could export the data into Excel.
- 4.11 Users were able to visualise some data from a dashboard. For example, Dog Control Not hotspots across a Local Authority area or Scotland and make comparisons between offending dog genders or breeds. Figures 5, 6 and 7: Interactive Prototype Tested by Users provide an illustration of what was developed through the proof of concept.



Figure 5: Interactive Prototype Tested by Users

Figure 6: Interactive Prototype Tested by Users



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Figure 7: Interactive Prototype Tested by Users



4.12Objective # 4 - Identify reusable workflows and processes, and inform the specification of a more permanent solution, including a national database

S S S

- 4.13 Analysis and real-time search should be available for Police Scotland.
- 4.14 Workflows should be initiated through the system together with appropriate notification for interventions by dog trainers.
- 4.15 The platform should be used to manage the transfer of Dog Control Notices from one Local Authority to another when a dog owner moves address.
- 4.16 A suggested plan for a National Dog Control database from BETA to Live is included in Section 5, Suggestions for Possible Future Developments.

4.17 Objective # 5 - Support thinking and plans to create a Local Government Data Ecosystem

- 4.18 Data-based collaboration across departments within one Local Authority can also help in tracing out-of-control dogs e.g., if a Dog Control Notice owner moves from one Local Authority to the other, a member of staff working within a Local Authority data team will be aware.
- 4.19 Identify multiple use cases where Local Authorities can share or exchange data with each other or with the related-Government organisations within Scotland.
- 4.20 Show how such data sharing can be accomplished by connecting to the relevant systems from each Local Authority and participating organisations.
- 4.21 Surface data products from each participating organisation for the data they may share. Data consumers can create "Wants" for their requirements, search

and discover data products. Users can perform quick analysis on datasets as well as run advanced analytics to interpret and evaluate the data's impact.

4.22 Objective # 6 - Derive useful learning for Improvement Service and participating Local Authorities

- 4.23 A data sharing agreement between local authorities can be facilitated by IS for sharing relevant data across different local authorities.
- 4.24 As part of the above responsibility, the Improvement Service could define data structures for different types of data that the local authorities comply with, which would ease the exchange of data.
- 4.25 Other relevant observations are included in Section 5, Analysis and Observations.
- 4.26 Improvement opportunities unearthed during the Proof of Concept are included in Section 6, Suggestions for Future Developments.



5.0 Analysis & Observations

5.1 Legislation

- 5.2 The <u>Control of Dogs (Scotland) Act 2010</u> only allows for a database on Dog Control Notices data i.e. data related to a Dog Control Notice only, and no incidents or previous warning letters are allowed to be held. <u>The Control of Dogs (Scotland) Act 2010</u> (<u>Prescribed Form of Notice) Order 2011</u> means that a Dog Control Notice shall be in the form prescribed. The Order prescribed the form for a dog control notice which can be served under section 1(1) of the Control of Dogs (Scotland) Act 2010. A notice in the prescribed form may be served by an authorised officer appointed by a local authority where a dog has been out of control. The notice sets out the reasons why an authorised officer considers the dog was out of control and specifies what steps the recipient of the notice must take to bring and keep the dog under control.
- 5.3 Anything related to the Dangerous Dogs Act 1991 is not included within the scope. However, Police Scotland will be given access to the Dog Control Notice Database once established with Dog Control Notice information potentially relevant to support investigations of matters being investigated under the 1991 Act.
- 5.4 Legislation leaves it to Local Authorities to enter into a data sharing agreement for sharing information between one another or with Police Scotland.
- 5.5 A data privacy agreement will have to be agreed by the database users.
- 5.6 The current legislation on dog-related incidents is complex and requires careful consideration by enforcement agencies, aided by the recently developed Joint Protocol between Police Scotland and Local Authorities, to determine which organisation is best placed to investigate any dog control incidents.

5.7 Key Conclusions - Legislation

- 5.8 A data sharing agreement will have to be created and any user accessing the database should be able to read and accept the terms them from the sign-up page.
- 5.9 The Proof of Concept has shown that dog control legislation is confusing and limiting. A key finding was that a national Dog Control Notice database requires legislation however more than that is required to achieve more efficiency on the ground. Local authorities and police both need access to the whole history of incidents as well as some photographs or video recordings. It means that catering to users' needs will require a legislative change.



6.0 Quality and Accuracy of Dog Control Notice Data

- 6.1 The only way for Local Authorities to track if a dog owner changes address, whether within a Local Authority or to another Local Authority area, is to rely on the dog owner to inform them; sometimes, this does not happen.
- 6.2 When it is known that a dog owner has moved address, a new Dog Control Notice needs to be issued and marked as a 'Variation', and the original one needs marking as 'Discharged'.
- 6.3 There are a lot more cases where a Dog Control Notice could be changed, amended or discharged e.g. dog death, dog guardian's death, change in the restrictions further to a negotiation between a dog control officer and the dog guardian, or a change of address or a change of owner.
- 6.4 The data associated with a Dog Control Notice and input into the software systems varies a lot from one Local Authority to another.
- 6.5 During the Proof of Concept, some users reported that, for cost factors, some Local Authorities opt not to use the dog control module in their existing software platform, preferring to use the generic module to enter a Dog Control Notice. As the generic module does not cater for all the information fields associated with a Dog Control Notice, additional information is captured using MS-Word and SharePoint as well using paper-based forms.
- 6.6 APIs are only available in Uniform software and the CIVICA platform does not provide APIs.
- 6.7 None of the participating Local Authorities using Uniform or CIVICA were able to share an export of the data structure from the system in an Excel or CSV format.



7.0 How the 6 Local Authorities record and manage their Dog Control Notice data now

7.1 Figures 8 – 10: Dog Control Notice Data Management show how each participating Local Authority manages their dog control notice data.

Figure 8: How dog control notice data is managed in East Lothian and Aberdeenshire Councils



DCNs are stored in their local drive They save each Word document with

the reference number They do not keep a scanned copy of the

DCN, they only keep it as a paper



They are keeping an Excel record of all DCNs served

Figure 9: How dog control notice data is managed in Glasgow City and Scottish **Borders Councils**



They input DCN information in Uniform using the Public Health module

They can't export any excel from Uniform as they need to have a specific access called "Access Report" which they don't

Uniform has an API available

Figure 10: How dog control notice data is managed in Fife and Renfrewshire Councils



7.2 Key Conclusions - Data

- 7.3 Dog Control Notice data was not as easily accessible as was thought at the beginning of the proof of concept, meaning a specific separate piece of work will have to be done to migrate data of all active Dog Control Notices. This could be done by:
 - Gathering all Dog Control Notice documents and automatically extract the data from
 them
 - Requesting all 32 Local Authorities to add all their Dog Control Notices data into a spreadsheet template
 - A consistent data capture mechanism will be necessary for all Local Authorities



8.0 User Experience

- 8.1 Users identified during the Proof of Concept are Local Authority Officers and Police Scotland officers.
- 8.2 Their technology proficiency is variable.
- 8.3 The user groups comprise mobile workers.
- 8.4 Among the six Local Authorities, almost all of the dog control officers do have a mobile device (phone or tablet, or both).
- 8.5 Key Conclusions User Experience
- 8.6 A database should be accessible from mobile devices to speed up the search process, and accessibility should be a priority.



9.0 Risks

- 9.1 As there is no consistent data collection across the Local Authorities (e.g. paper, MS-Word, scanned PDFs, Civica, Uniform etc.), the challenge in migrating to a possible BETA phase beyond the Proof of Concept phase will be in obtaining the data.
- 9.2 To mitigate against this, different technologies and techniques will need to be adopted to migrate data for each of the different ways that data is stored today.
- 9.3 For each of these, a playbook² or recipe can be developed in the early part of the BETA phase and applied based on the specific scenario encountered with each Local Authority.

² Playbook definition, it is a document that contains all of the workflows, standard operating procedures and corporate cultural values necessary to approach and complete business tasks in an acceptable and consistent manner



10.0 Suggestions for Possible Future Developments

10.1 Figure 11: Possible Future Development sets out a means to move from beyond the Proof of Concept phase and into BETA and LIVE phases.

Figure 11: Possible Future Development



10.2 Beta and Live

10.3 Data Migration for active Dog Control Notices

10.4 A number of solutions are possible to migrate existing data including:

- Each Local Authority input all their existing Dog Control Notice records into a spreadsheet template.
- Each local Authority provide a scanned copy of Dog Control Notices as a PDF and a specific data ingestion pipeline runs to parse the images and extract the data.
- Legacy data is then uploaded.

10.5New way of inputting data for the Live version

10.6 A number of solutions are possible to input data to the live version, including:

• Each Local Authority having the ability to create a Dog Control Notice by inputting all Dog Control Notice data into a form, exporting a PDF document out of it to print and

sign. This data would be added directly to the Dog Control Notice Database and the signed PDF is attached with the stored form data.

- Each Local Authority continues to use their existing systems and uploads a spreadsheet and the scanned Dog Control Notice PDF or the Dog Control Notice document prior to printing.
- In both of the above solutions, a data ingestion pipeline would run in DeXAM.

Note: Updating Dog Control Notices would be available as a feature in both solution options

10.7 Additional users' requirements for a Scottish Dog Control Notice Database

10.8 Users have identified other requirements of a Dog Control Notice Database, including:

- Incidents and Warnings data are a clear need for all users.
- Adding actual dog pictures and video would dramatically help all users.
- Capture Dog Control Notice breach information and tag it with the Dog Control Notice.
- Linking Dog Control Notice to microchip data.

10.9 A database will bring multiple benefits for different users and stakeholders, as follows:

Local Authorities

Police Scotland

Dog control officers will be able to check if a dog owner has had a Dog Control Notice in another Local Authority area.

Dog Control Notice information is now easily shared, and any Local Authority can search and find any existing Dog Control Notice. Field police officers will save precious time when searching for a dog or dog guardian's background when they are called to a dog incident, avoiding the need to contact a Local Authority.

Scottish Government

Statistics and reports can be generated faster by local authorities with data provided swiftly upon request to help address and answer any Parliamentary (for example, Parliamentary Questions) and policy interest on dog control data.

10.10 The Proof of Concept has again revealed a clear demand for a National Dog Control Notice Database and identified distinct users' requirements. This report has identified a possible future development and approach for moving beyond the Proof of Concept phase into BETA and LIVE phases.



11.0 Exchanging Data and Information, Analysis and Visualisation

- 11.1 During the Proof of Concept, a data and information exchange, analysis and visualisation solution provided by TCS - DeXAM - was used. It has the capability to analyse real-time data by enabling Application Programme Interface (API)-based connection to data sources from various Local Authorities. DeXAM can work with persisted data (through data exchange mechanisms) or it can work with data residing in Local Authority databases to create data pipelines, if Local Authorities expose the data APIs.
- 11.2 DeXAM can enhance data security and privacy through not storing data centrally. It can also eliminate archiving and versioning efforts. By defining standardised metadata for data sources, DeXAM can reduce the work involved in curating and cleaning data, helping to improve data quality.
- 11.3 DeXAM can mash data³ from different sources, a feature demonstrated in the Proof of Concept, and it can generate value, and other benefits, in the following ways:
 - Enabling exchange of other datasets that Local Authorities work with and of relevance when sharing with other Local Authorities.
 - Identifying key parameters that influence a specific socio-economic metric, and able to be derived by analysing the different datasets that the Local Authorities capture.
 - Identifying correlations across different datasets and factors impacting them, requiring data collation from different Local Authorities.



12.0 Acknowledgements

12.1 Although it took place across a relatively short period of time, the Improvement Service is grateful for the contribution and support of a number of organisations, groups and individuals to this Proof of Concept. These includes participants from six local authorities, Aberdeenshire, East Lothian, Fife, Glasgow, Renfrewshire and Scottish Borders, Police Scotland, Scottish Government and the Dog Control and Dangerous Dogs Working Group. The Improvement Service also acknowledges specific technical and non-technical expertise and assets deployed in support of the Proof of Concept by its technology partner, TCS, including in areas such as user experience, service redesign, software design, data and information exchange, analysis and visualisation tools.



Appendix 1

Local Authority User Journey -Dog Control Notice Creation



Appendix 2 User Personas

Annex 4 – Dog warden

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Annex 5 - Police Scotland Officer

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Annex 6 – Victim



Annex 7 – Dog guardian



Appendix 3 Landscape Mapping



Annex 9 – Stakeholder map

Appendix 4

Key Problems and Opportunity Boards

INSIGHT STATEMENTS GROUPED BY THEME



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