Kennels in Portugal - KPI's and digital service

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Abstract

After study and research it was found that there is currently no national database of kennels/official collection centers (CRO) in Portugal mainland and islands with public availability.

Thus, we proceeded to develop a database on kennels/CRO of animals in mainland Portugal and Islands, by collecting data from kennels/CRO contacts with the development of an online form in digital cloud to facilitate access and sharing.

It was then performed the programming so that the received forms were subject to automatic placement in digital cloud, as well as programming so that all data received were automatically converted into pdf, with access through the digital cloud.

In this way, data is shared through a mobile application synchronized with the spreadsheets in the digital cloud, and through an analytical tool in which the respective data processing, extraction and visualization is carried out, corresponding to a relevant contribution to the promotion of visualization and monitoring of indicators in kennels/CROs.

Keywords: pets, companion animals, adopted pets, CRO, digital cloud, KPI, Tableau.

I. Introduction

The kennels in Portugal, being under the competence of Local Authorities, in fact, many of them do not have a Kennel/Official Collection Center - CRO, nor an information system to manage a database.

On the other hand, and given the existence of the SIAC - Pet Information System (SIAC) it allows the viewing of the pet's data, but only by entering a 15 digit code for the DIAC - Pet Identification Document. That is, the database is not publicly visible and accessible, only with the insertion of the respective code.

Given these facts and even because it is natural that the existing kennels in mainland Portugal and the islands are full of pets to adopt, nothing like exposing the alternatives from north to south of mainland Portugal and the islands, considering relevant indicators for the adoption.

Adopting a pet will not only allow for a reduction in the number of unadopted animals, but also a rescue practice for those who can and decide to adopt a pet.

Law No. 8/2017, of March 3 (DRE, estabelece um estatuto jurídico dos animais, reconhecendo a sua natureza de seres vivos dotados de sensibilidade, 2017) establishes a legal status for animals, recognizing their nature as living beings endowed with sensitivity.

The legislation also requires their registration and a vaccination plan (DGAV, Portaria n.º 264/2013 de 16 de agos)which makes a pet safe in terms of health and possible escape.

Thus, it will be necessary and relevant to determine the existing kennels, the pets to be adopted and already adopted, their gender, age and breed.

And on this need lies the choice of the type of Key Performance Indicator (KPI), one of the most important steps in performance-based management according to the author Peter Drucker (Vieira).

Thus, it is extremely important to define key performance indicators (KPI) in order to provide value creation and the consequent monitoring of the evolution of key metrics (S Rocha).

As such, this case study is based on the existing kennels and the subsequent adoption of companion animals, where we will consider everything from the number of adoptions achieved to the time of adoption, with a focus on the last 4 years.

The rest of this article is structured as follows: section II a short literature review, section III describes the choice of KPIs. Section IV presents the number of results obtained, per district,

from the form sent through the JotForm (JotForm) to the respective municipalities, as well as its possible visualization, via digital cloud, through the Glide (GLIDE) tool, and also the respective workflow of the process. Section V presents the use of a data processing, extraction and visualization tool, Tableau, for the presentation of indicators. Finally, section VI presents the conclusions.

II. Literature Review

There are two ways in which companion animals gain greater legal status. First, when animals generally receive greater legal status than property through legislation. Second, when companion animals receive protection through laws created primarily for their protection. Germany leads the way with an express duty to protect animals based on its animal legislation. Norway and Switzerland imply this duty when they make animal welfare the guiding reason for their animal legislation. The EU is the only body that has an actual selection of laws on companion animals, namely the passing of the European Convention for the Protection of Companion Animals, which was opened for signature by member states of the Council of Europe on November 13, 1987, (Liga Portuguesa dos Direitos do Animal, 1993).

The U.S. only covers the treatment of companion animals through state anti-human cruelty statutes and possible civil actions. Furthermore, except for a few states, anti-cruelty laws exist primarily for the benefit of the owner, not the animal itself. Civil actions are entirely for the benefit of the owner of an animal. This changes when laws are based on clauses that confer a desire to protect an animal's life for the sake of the animal. Animals are no longer viewed only as property; the harm is no longer only to the owner of the animal. The most significant difference between the laws of Europe and the laws of the US is the desire to protect an animal for the sake of the animal. (Michigan, Faculdade de Direito da Universidade Estadual de)

Legal Protection and Sanctions - Comparative Analysis of Some of Europe's Countries, in alphabetical order:

• England - Anyone who fails to meet the welfare needs of an animal can: Be banned from owning animals; Face an unlimited fine; Be sent to prison for up to 6 months (Service, 2018).

• France - The fact, without necessity, publicly or otherwise, of seriously abusing or committing an act of cruelty to a domestic or domesticated animal, or one kept in captivity, is

punishable by six months imprisonment and 50,000 F. fine   (Recognition of animal sentience and prohibition of animal suffering).

• Germany - It is punishable by a prison sentence of up to three years or a fine for anyone who kills, unjustifiably inflicts pain or suffering on an animal (Jorge, 2018).

• Portugal - In case of injury to an animal, the person responsible is obligated to compensate its owner or the individuals or entities that rescued it for the expenses they incurred for its treatment, without prejudice to compensation due under the general terms (DRE, Lei n.º 8/2017, de 03 de Março, 2017).

Dog kennel laws in some of the countries

• France - The design and installation of a kennel must take into account the welfare of the animals, the hygiene, the maintenance and supervision of the animals, the limitation of nuisances, without forgetting, of course, respecting the regulations and prescriptions of the prefectural decree. There is no ideal place to set up a kennel, but thought should be given to the layout of the dog accommodation, which should be pleasant, easy to live in and easy to clean. Functional and adapted with relaxation areas, maternity ward according to its importance, infirmary, quarantine room, mating room, grooming room, technical rooms, grooming rooms, technical rooms, customer reception office, efficient fencing, etc... (chiens-online)

• Germany - A dog may only be kept in a kennel that meets the requirements. For each additional dog kept in the same kennel, half the floor space prescribed for a dog in accordance with subsection. For each dog with puppies, twice the floor space. The height of the enclosure must be such that the raised dog does not reach the upper limit with its front paws. The kennel enclosure should be at least six square meters for a dog that regularly spends most of the day outside the kennel on at least five days a week. The kennel enclosure should be made of material that is not harmful to health and should be constructed in such a way that the dog cannot walk over it and injure himself on it. The floor should be non-slip, constructed in a way that will not cause injury or pain, and be easy to keep clean and dry. Separation devices should be designed so that dogs cannot bite each other. At least one side of the kennel should allow the dog a clear view of the outside. If the kennel is in a building, the dog must have a clear view out of the building. Within a kennel, to a height that the upright dog can reach with its front paws, there shall be no energized devices with which the dog may come into contact or devices which emit electrical impulses. If multiple dogs are kept individually in kennels on

a property, kennels should be arranged so that dogs have visual contact with other dogs. (Justiz)

- Portugal - According to article 11 of (DRE, DL n.º 314/2003, of 17th December)

1 - Municipalities, alone or in association with other municipalities, are obliged to own and maintain kennels and catteries, according to the needs of the area, and adequate and equipped facilities for the execution of prophylaxis campaigns, both medical and sanitary, that the DGAV may determine.

2 - All municipal kennels and catteries must have at least two semi-circular cells for isolation and quarantine of animals suspected of rabies.

3 - Municipalities that already have a kennel or cattery may establish collaboration and use protocols with neighboring municipalities.

4 - The management of the municipal kennel and cattery is the responsibility of the municipal veterinarian.

III. Choice of KPIs

A.   KPI Selection

The KPIs chosen are those related to the pet adoption processes, more specifically those related to existing and adopted animals, whose processes reflect special relevance. Thus, the following facts were taken into consideration (Caldeira, 100 indicadores de desempenho, 2012 ; Caldeira, Dashboards - Comunicar Eficazmente a Informação de Gestão, 2010):

- *Achievable*: The targets for each indicator must be achievable and not unrealistic.

- *Relevant*: the indicators and targets set should not only be relevant to the associated objective, but also to all others in the organization.

B.   Chosen KPIs

The KPIs chosen are justified by the need to measure and analyze the adoption of pets against the existing animals in kennels, the animals adopted, the most adopted gender, age, and the least and most common breed across municipalities and kennels/CRO in mainland Portugal and islands, which will serve for a performance analysis.

Therefore, and in order to extract the desired information, in a simple and fast way, the

Tableau tool was used with the following indicators:

- Quantity of verified adoptions versus municipality/district;

- Quantity of verified adoptions versus gender by county/district;

- Number of animals adopted versus most common breed;

- Number of existing animals, versus animals adopted between 2018-2020 and the year 2021 by county/district;

C.   Example of an Indicator Tab

According to Caldeia   (Caldeira, 100 indicadores de desempenho, 2012 ; Caldeira, Dashboards - Comunicar Eficazmente a Informação de Gestão, 2010) the definition of an indicator requires reflection on other aspects, namely, the attribution of a designation that describes the indicator's content, description, measurement frequency and polarity.

Table 1 presents the indicator "No. of kennel adoptions", representing the number of adoptions per district and year. It describes how the indicator will be calculated and evaluated, taking into account the baseline and target to be achieved, in order to determine the number of adoptions per district and year, after collecting data from the Kennels/CRO and DGAV.

Since this is considered work in progress, by choice, the remaining indicators mentioned in paragraph B are not presented, exhaustively.

Table 1: Example of an Indicator Sheet

INDICATOR DEFINITION					
INDICATOR NAME					
NO. OF DOG ADOPTIONS					
INDICATOR OBJECTIVE	INDICATOR TYPE	BASELINE	GOAL OBJECTIVE		
			GOAL	COMPLIANCE DEADLINE	TERM OF COMPLIANCE
CALCULATION OF THE NUMBER OF ADOPTIONS PER DISTRICT AND YEAR	QUANTITATIVE	50%	80%	ANNUAL	ANNUAL
INFORMATION TO MEASURE THE INDICATOR					
UNIT OF MEASUREMEN	FREQUENCY	GOAL VALIDITY	RESPONSIBLE FOR THE	RESPONSIBLE FOR THE	PARTIES INTERESTED IN THE RESULT
Unit	ANNUAL	80%	PAULA PIRES	PAULA PIRES	KENNELS/CRO AND GENERAL POPULATION
SOURCE OF INFORMATION			CALCULATION FORMULA		
DATA COLLECTION BY FORMS SUBMITTED TO KENNELS/CRO AND THROUGH DGAV			CALCULATE(COUNT(Total no. of kennels adopted [Districts] Total no. of kennels adopted [Year])		

In addition to the indicators, it is extremely important to choose ways to visualize the data (in

this case, a *dashboard* was chosen) that allow a better perception of the process and enable informed decisions to be made.

IV. Results obtained - using the JotFom tool and visualizing them through the Glide tool - in a digital cloud

A.   For the elaboration of the form, several factors were taken into consideration, given their relevance for the ascertainment of the existing dogs to be adopted, from their gender and age, the most and least common breeds, to the adoptions already carried out, among which:

•   Municipality/ kennel /CRO - mandatory fields;

•   Total no. of existing canids - mandatory fields;

•   No. of males / No. of females - mandatory field;

•   Gender (in larger number) - existing in the kennel/CRO;

•   Ages (in larger number) - < and > than 5 years - required;

•   Most common breeds;

•   Less common breeds;

•   Predominant race;

•   Gender (most adopted) - Female/Male - required;

•   Total no. of canids adopted in the past 2018 - 2020;

•   Total no. of canids adopted in 2021 - mandatory fields;

•   Observation.

For a quick visualization of the answers obtained, a spreadsheet was created, which can be accessed through a digital cloud, via cell phone, using the Glide application.
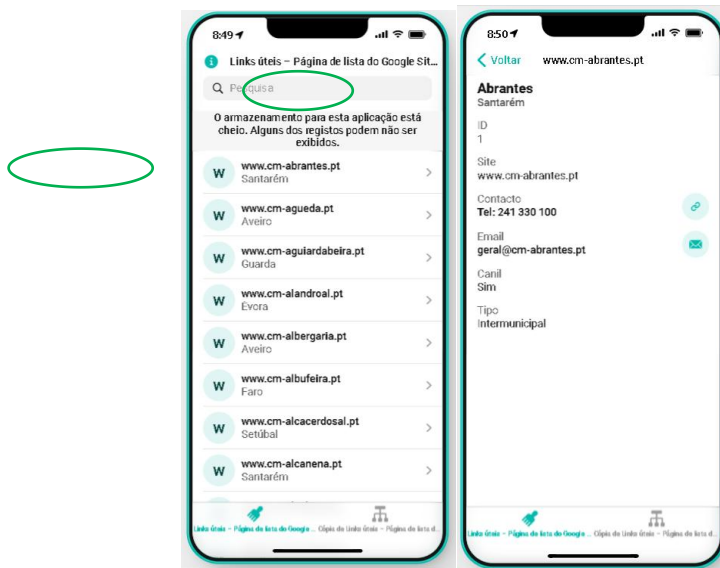
Figure 1 - Glide presentation of database data on the cell phone
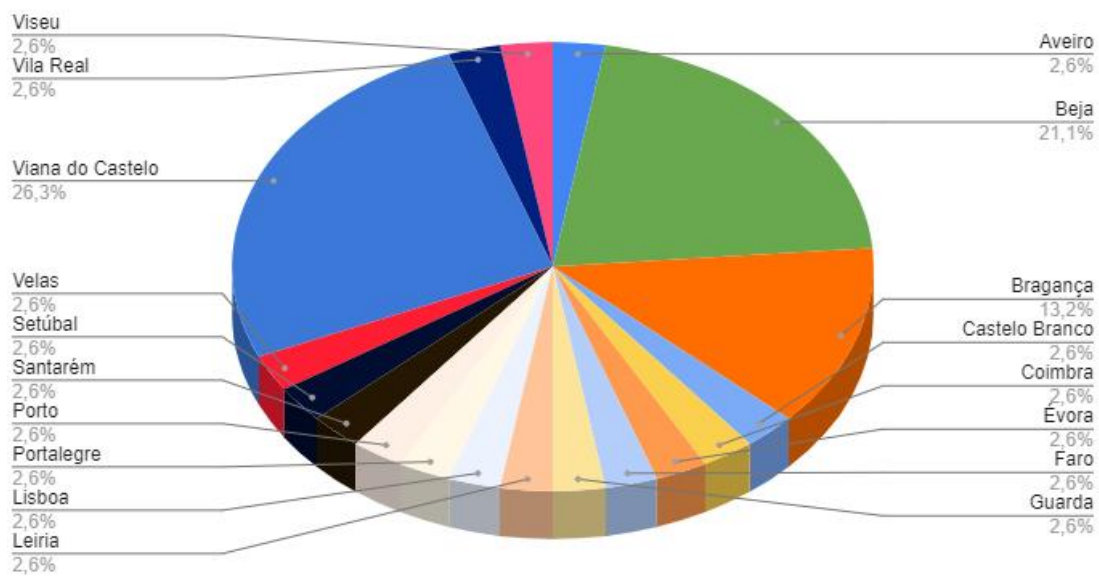
B. Results obtained by district

Figure 2 - Results obtained per district

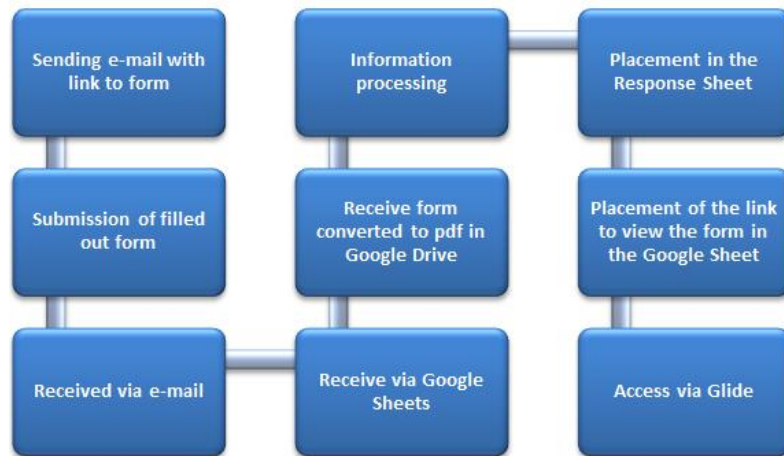C. *Workflow* Summary and Response Clearance
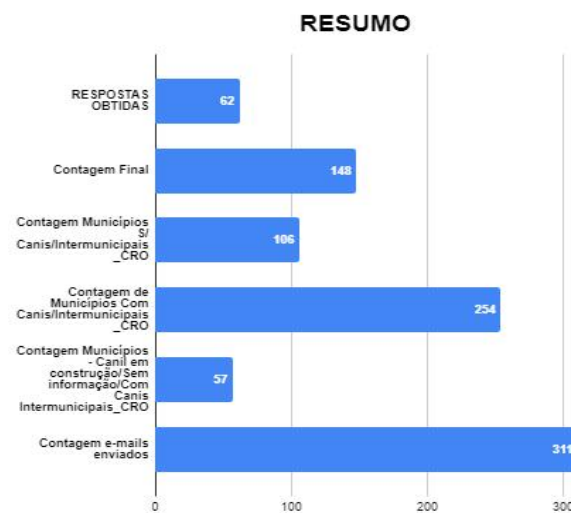
Figure 3 - Workflow summary

Figure 4   - Summary - tabulation of responses obtained

V. Data exposure of the municipalities with kennels/CRO with the Tableau Analytical tool

A.   The Tableau tool

The Tableau tool describes the trends and density of data in the form of tables and graphs. By default it connects to any third-party tool to extract the data and visualize it.

User access is very user friendly and has "drag and drop" capabilities, which allows the display of viable data.

Tableau has several desktop, server and also Cloud-based versions, and security is also considered.

Thus, Tableau is used specifically to visualize data extracted from external sources or data that is being used elsewhere, requiring no complex scripting.

Tableau (Tableau) represents data differently in the display, depending on whether the field is discrete (blue) or continuous (green).

Meaning:

- Continuous - "to form a complete whole, without interruptions."

- Discrete - "individually separated and distinct."

Green measurements and dimensions are continuous. Continuous field values are treated as an infinite range. Generally, continuous fields add axes to the display.

The blue measurements and dimensions are discrete. Discrete values are treated as finite.

Thus, for this study, we used the Tableau tool to extract the data contained in the various Excel files, in order to make the data visualization simpler and more perceptible through a *dashboard.*

A *dashboard* is a performance management system that conveys strategic objectives by linking business intelligence with an integrated data infrastructure (N Leite, 2018), so that an organization's business/process activities can be analyzed, measured and controlled.

B. *The Practical Application of the obtained forms*

Excel Tables

- Kennels_Portugal_KPIs_servico_digital.xlsx

- FORM_RESPONSES.xlsx

Fields subject to analysis:

o Municipality;

o Total no. of existing canids;

o No. of males;

o No. of females;

o Gender (in greater number);

o Ages (in greatest number);

o Most common breeds;

o Less common breeds;

o Predominant race;

o Gender (most adopted);

o Total no. of canids adopted in the past 2018 - 2020;

o Total no. of canids adopted in 2021;

o Districts.

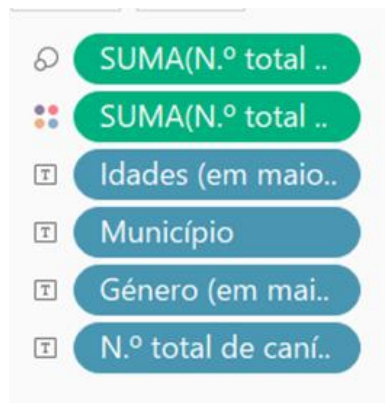Tableau, Selected Measures and Dimensions

Figure 5 - Chosen Measures and Dimensions
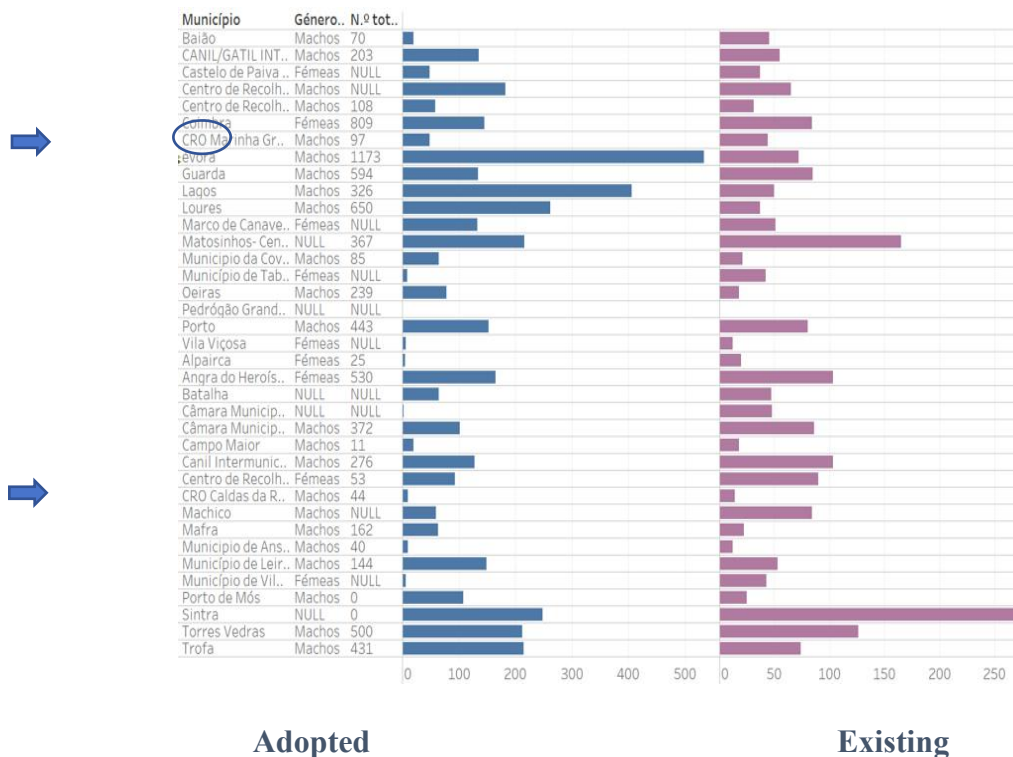

Adopted   **Existing**

Figure 6 - Bar Graph extracted from Tableau taking into account the total number of adopted and existing

dogs per municipality

According to the above chart and taking into consideration the adopted canids, it can be observed that Évora stands out by:

-Total no. of canids adopted between 2018 - 2020 - 1173.

-Total number of canids adopted in 2021 - 534.

-Total number of existing canids - 72.

On the other hand, the kennel with the largest number of existing canids is Sintra with 274, followed by Matosinhos - CRO de Animais de Matosinhos with 165.
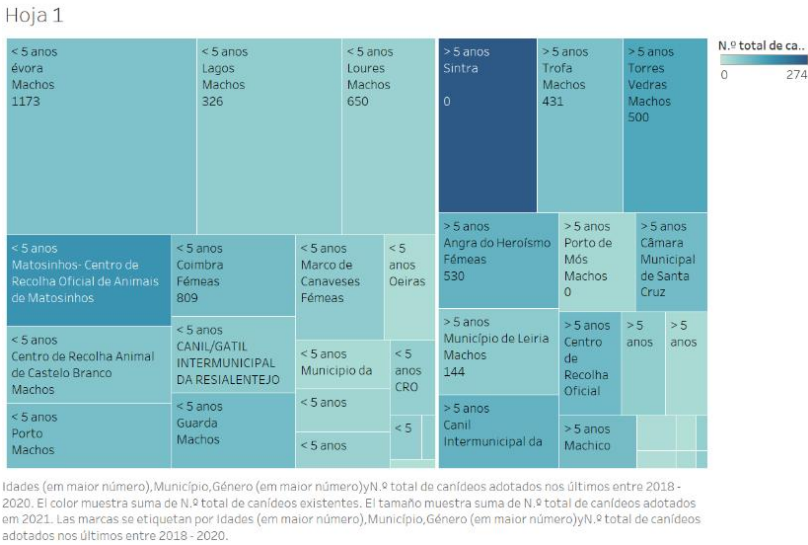

Figure 7 - Tree map - the most gender and age

It can be seen from the figure above that the gender in the largest number - "male" is the most dominant, with the age of < 5 years being the most prevalent.

However, and taking into consideration the least common and most common breeds and the most adopted gender,
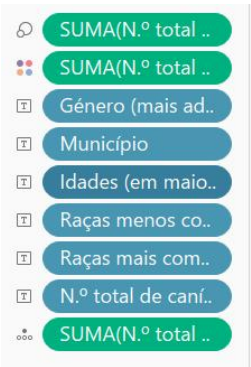

Figure 8 -Tableau, Measures and Dimensions chosen with addition of variables and permutation by the most adopted gender

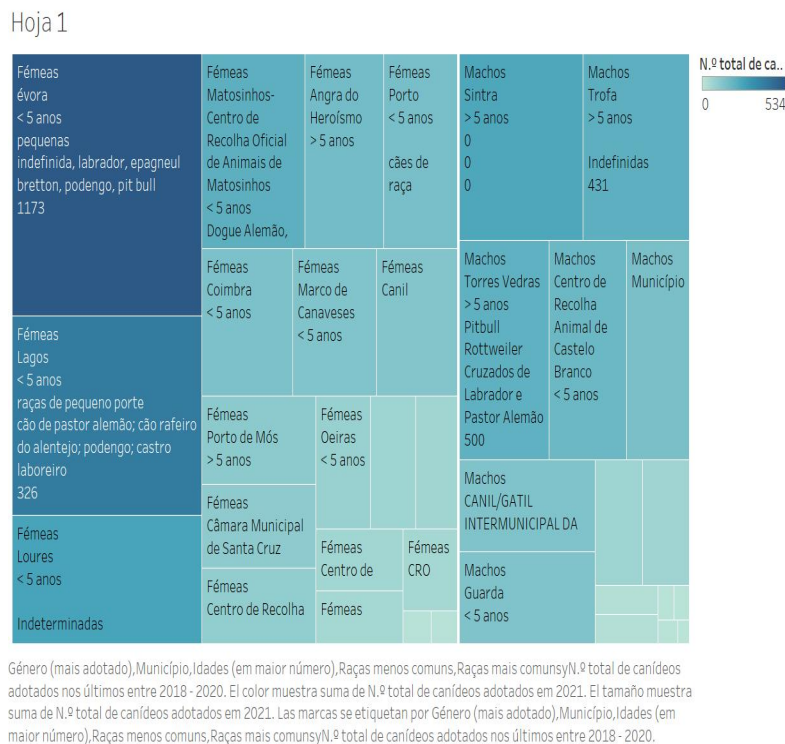the results, as well as the tree map, change as follows:

Figure 9 -Tableau, Tree Map - Total no. of canids adopted in the last between 2018 - 2020, the most adopted gender, age and breeds

In addition to the "female" gender, which becomes evident when it comes to the most adopted gender, it can also be observed that:

• The "less common race" appears with several alternatives, and although it is not visible, it also appears with NULL, that is, when the field is not filled in;

• The "most common race" turns out to be the undefined or undetermined race.

C. *The Practical Application with the Excel files relating to the forms obtained and the DGAV file*

Since the sample collected is 29.5% and since we do not have information on the animals collected and euthanized, we decided to explore the public annual report on animals in the CRO extracted from the Mafra City Hall, where you can find the data on Municipalities in 17fev2020 - total data of 2019 in the continent - DGAV (DGAV, DGAV, Ofício Circular n.º5, 13 de fevereiro)in pdf format

Thus, an Excel sheet was prepared with the values for:

• City data as of 17feb2020

- Collected Animals

- Adopted Animals

- Euthanized animals

Using the Tableau tool and after opening the Excel file - CANIS_CROs_PT, the following filters were selected (Dimension) with the variables "Animals adopted" - SUM measure, "Animals euthanized" and "Animals collected".
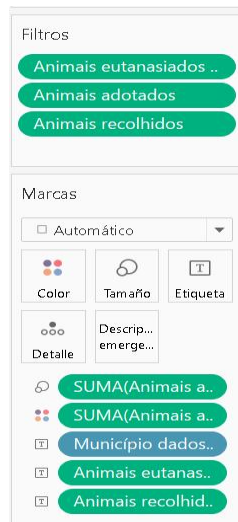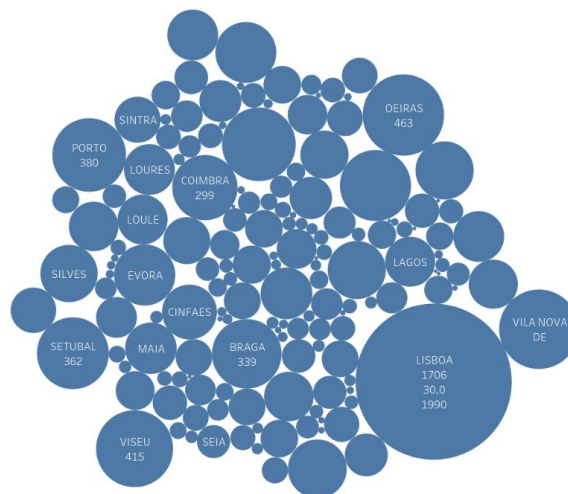

Figure 10 - Tableau, Dimensions and Measures chosen - "Animals adopted", "Animals euthanized" and "Animals collected

Figure 11 -Tableau, bubble chart - sum of "Animals adopted", "Animals euthanized" and "Animals collected".

From the above graph, one can observe that Lisbon has the highest number of animals adopted (1706), as well as the highest number of animals euthanized (30.0), and the highest number of animals collected (1990), followed by Oeiras and Viseu, with 463 and 415 animals adopted, respectively, and Porto with 380.

A comparison was also made in order to check the evolution over the years, regarding the animals adopted (data until 2019) of the file CANIS_CROs_PT with the file Copy of Useful Links (No. of animals adopted 2018-2020), having merged the columns "Municipality data" - "City councils", respectively.

Figure 12 -Tableau, Tableau Union - CANIS_CROs_PT and Copy Useful Links

Filters (Dimension) with the variables "Animals adopted" (2019) and "No. of canids adopted 2018-2020" were selected as a result of the responses obtained, providing for the "SUM" measure.

Figure 13 - Tableau, "Animals adopted" (2019) and No. of canids adopted 2018-2020"

From the above figure it can be seen that:

- The first number concerns adopted animals - data until 2019, DGAV;

- The second number concerns the no. of animals adopted - 2018-2020, data now collected.

Thus, a favorable evolution is denoted with regard to the number of adoptions, with considerable growth.

By way of example:

- Torres Vedras - 145 (data referring to 2019); 500 (data referring to 2018/2020)

- Trofa - 0 (data for 2019); 431 (data for 2018/2020).

II. CONCLUSIONS

From the data extraction and graphical representations performed with the Tableau tool the following situations can easily be seen:

- The kennels/CRO that hold the largest number of existing, or unadopted, canids are of the "male" gender;

- The determination of the most common breed (undefined), gender (female) and age (< 5 years) when it comes to pet adoption;

- The no. of canids adopted between 2018 - 2020, as well as in the year 2021;

- The no. of animals adopted, as well as the no. of animals euthanized and the no. of animals collected express a large difference between districts;

- The favorable evolution regarding the number of adoptions, with a considerable growth from year to year.

The present study, regardless of the business area, aims to collaborate from the perspective that defining key performance indicators is fundamental,

With the Tableau tool, it was possible to use data from different sources as input, allowing an effective and perceptible visualization of data by simply defining what you wanted to extract.

Additionally, it has been shown that it is possible to make decisions based on the observations made, such as the adoption of existing pets at the kennels/CRO, compliance with legislation regarding the care of pets and/or the improvement of processes at the kennels/CRO, namely through more intense and effective publicity regarding "our 4-legged friends".

As future work, it is understood that the proposed indicators and the developed charts should be validated by various experts to gather feedback to improve the study presented here.

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