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The 80/20 rule and animal management

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A commonly held idea within urban animal management is that 20% of the population is responsible for 80% of the animal management issues. Indeed discussions with Animal Management Officers and Animal Shelter Personnel confirm that they often interact with the same individuals over the same issues. This paper will explore the 80/20 idea in detail by answering the following questions: What empirical evidence do we have to support this idea? What are we doing about it? and Can we do it better?

What is the 80/20 rule?

According to the 80/20 rule, or the Pareto principle, many events (approximately 80%) are derived from just a few (approximately 20%) of the causes.

The 80/20 rule was first formulated by an Italian economist Vilfredo Pareto in 1906 when he observed the unequal distribution of wealth in Italy at the time.

He found that 80% of the property in Italy was owned by 20% of the population (Pareto, 1971). Actually we still see this distribution of wealth even today where the richest 20% of the world's population, people like Bill Gates and Georgina Rinehart, control 80% of the world's wealth. Pretty scary huh!

Later the rule was applied to areas other than economics when, in the 1940's, Joseph Juran applied the principle to quality management. Juran found that quality could be dramatically improved by focusing on just the vital few and ignoring the rest. For example, 20% of product defects in a factory cause 80% of the product problems thus by concentrating on solving the 20% of product defects product issues would theoretically improve by 80% (Pinnacle Management, n.d).

Not only does this rule apply to economics but the Pareto principle can be observed in a range of areas. **Table 1** presents just a few examples.

TABLE 1 Examples of the 80/20 Rule

Business	<p>80% of the profits come from 20% of the customers</p> <p>80% of complaints come from 20% of customers</p> <p>80% of profits come from 20% of your time</p> <p>80% of sales are made by 20% of the sales staff</p> <p>80% of sales come from 20% of the products (Koch, 2008)</p>
Occupational Health and Safety	<p>20% of the hazards within a workplace cause 80% of the injuries (Woodcock, 2010)</p>
IT	<p>80% of system crashes are caused by 20% of the faults</p>
Criminology	<p>80% of the crimes committed by 20% of the criminals</p> <p>80% of crimes affect 20% of the population</p> <p>80% of the crimes committed in single location occur in 20% of that area (Boba, 2005)</p>

As can be seen in **Table 1**, the 80/20 rule applies to many diverse areas. Quite often though, it's not always a strict 80/20 split, sometimes the ratio can be 90/10 or 95/5 etc. For example, in the field of Criminology, depending on the area, about 4% of all victims experience 40% of the crimes. In another example, 6% of homes in a suburb location in the United States were responsible 60% of the calls for police service (Boba, 2005).

Despite the departures from a strict 80/20 split in these observations, the 80/20 rule has some very real and practical implications. The 80/20 rule has been used for the following applications:

- Improve service delivery
- Increase productivity
- Increase profitability
- Increase efficiency
- Identify target areas or individuals
- Quality control

To illustrate, using the examples presented in **Table 1**, from a business perspective one may wish to enhance profits by providing special privileges to the 20% of customers that contribute to 80% of the profits. Some companies also use the 80/20 rule as a means of identifying top and low selling products and then either expand on their top 20% of products or discontinue their bottom selling products. Further to this, in the field of criminology, due to the observation that a large proportion of crimes committed are by repeat offenders, intervention programs have been developed to prevent repeat offending,

Does the 80/20 rule apply to animal management?

Given the applicability of the 80/20 rule to areas as diverse as the ones listed in **Table 1** it is perhaps not surprising that examples of the principle can be observed in the area of animal management.

Compliance/non-compliance: Notwithstanding variations within state and local municipality areas, the majority of people are compliant with animal management regulations while the minority are not. Based on the research in this area it appears that it is the minority who are responsible for many animal management compliance issues. To illustrate, Rohlf et al. (2010) found that 98% of dog owners report that their dog is confined to their property when required, 90.4% of dog owners report that their dog is registered with their local council and 86% report that their dog is implanted with a microchip. Additional evidence of this uneven distribution can be found in Headey's report (2006) on socially

responsible pet ownership. Headey (2006) found that only 15% of the cat owners surveyed reported that their cat was rarely or never contained at night while 91% of dog owners reported that they have their dog on leash when required to do so.

Repeat offenders: Anecdotal evidence also suggests the existence of repeat offenders suggesting that a large proportion on the animal management issues are committed by repeat offender. Animal shelter and pounds often see dogs that have been impounded more than once and many animal management officers recount numerous situations where they are left to deal with an irresponsible dog or cat owners for failure to abide by a whole host of animal management regulations.

Hot spots: Similar to observations by those in the field of criminology anecdotal evidence suggests the presence of small areas that are the source of numerous animal management issues. The City of Port Phillip's Domestic Animal Plan 2008-11 for instance observed that a high rise community housing facility was resident to an estimated 250 animals however only 20 of these were registered with the council.

Currently however, with the exception of a couple of research papers, much of the evidence supporting the Pareto principle is anecdotal. Clearly then it is important that research be conducted in this area so that the 'vital few' that make the biggest impact to animal management are empirically identified. By identifying these areas efforts and resources can be appropriately directed to the most vital areas. In the meantime, 80/20 analyses can be easily and readily conducted on a local basis.

How to conduct your own 80/20 analysis

This kind of analysis can be an easy tool for the purpose of project management. Theoretically it allows you to tackle 80% of the problem by simply addressing 20% of the key causes.

1. Determine the animal management problem(s) you wish to investigate and why

For example, the problem may be the number of customer requests for animal management services. Investigating customer requests can be a time consuming and costly exercise. It might be worthwhile designing an intervention to reduce the number of these customer requests. However, if you're like most councils it can be a daunting if not impossible task to investigate every issue especially if you want to see results within a year. The aim of this analysis will be to determine the vital few – the few critical issues that cause the majority of requests.

2. Determine how

Do you have the data in order to carry out your analyses or do you need to first go out and collect it?

In this example we are going to assume you already have the data. We are going to analyse all customer requests received by council in the last year

3. List and rank order the events according to the number of events associated with each – most to least

In this example, you can see that all types of customer requests are listed in Column A. In Column B they are ranked from most (Dog collections) to least (Dog rush).

4. Calculate the percentages of the events each person, place or product contributes or in this example, the customer request

Column C in the table below presents the percentages.

5. Cumulate the percentage of incidents starting with the most involved person, place, or product

In this example, Column D presents the cumulative percentages.

6. Cumulate the percentages of the people, places or products

In this example, the cumulative percentage of requests is presented in column E.

7. Compare the cumulative percentage of people, places or products (column E) to the cumulative percentage of outcomes (column D)

This shows how much the most involved people or places contribute to the problem.

These kinds of calculations can be very helpful at showing where you should direct your animal management resources and efforts.

In this example you can see that over 70% of the customer requests are caused by only 25% of the possible animal management issues. In other words dog collections and barking dog requests contribute to more than 70% of the customer requests. In theory focussing your efforts on these two issues rather than all of the animal management issues could be a very efficient strategy for reducing the number of customer requests.

TABLE 2 Example 80/20 table

A	B	C	D	E
Customer requests	Frequency	Percent of total	Cumulative percent of total	Cumulative percent of requests
Dog collections	430	40.53	40.53	12.50
Barking dogs	350	32.99	73.52	25.00
Dog off-leash/ not under effective control	71	6.69	80.21	37.50
Cat collections	70	6.60	86.81	50.00
Trespassing cats	64	6.03	92.84	62.50
Dogs wandering at large	50	4.71	97.55	75.00
Dog attack	24	2.26	99.81	87.50
Dog rush	2	0.19	100.00	100.00
Totals	1061	100.00	100.00	100.00

Conclusion

The 80/20 rule or the Pareto principle states that 20% of the causes are the source of 80% of the effect. Since its inception in 1906, the rule has been applied to a diverse range of areas including criminology, business, and occupational health and safety. Applying the rule to project management has the benefit of improving both effectiveness and efficiency by identifying the vital 20% for the most benefit. While scholarly research applying the 80/20 rule to animal management is lacking, animal management officers can apply this tool to their own data so that they can not only determine the extent to which the 80/20 rule applies but most importantly can use it to identify where they need to direct their animal management resources and efforts.

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