Institute of Health Informatics

UCL

Data Storytelling with R and ggplot

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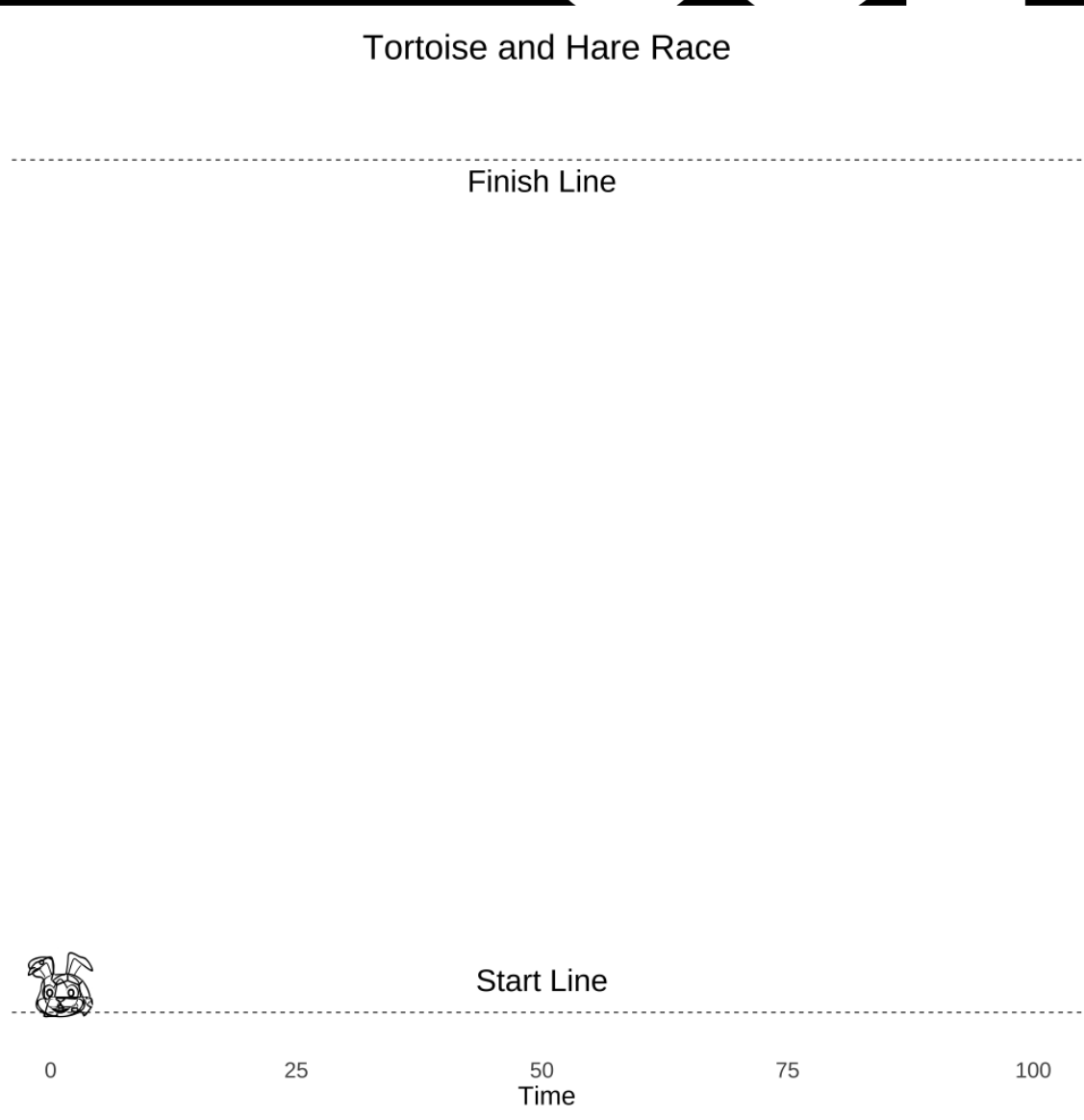
ResBaz

2 July 2025



Storytelling element 1:

Audience

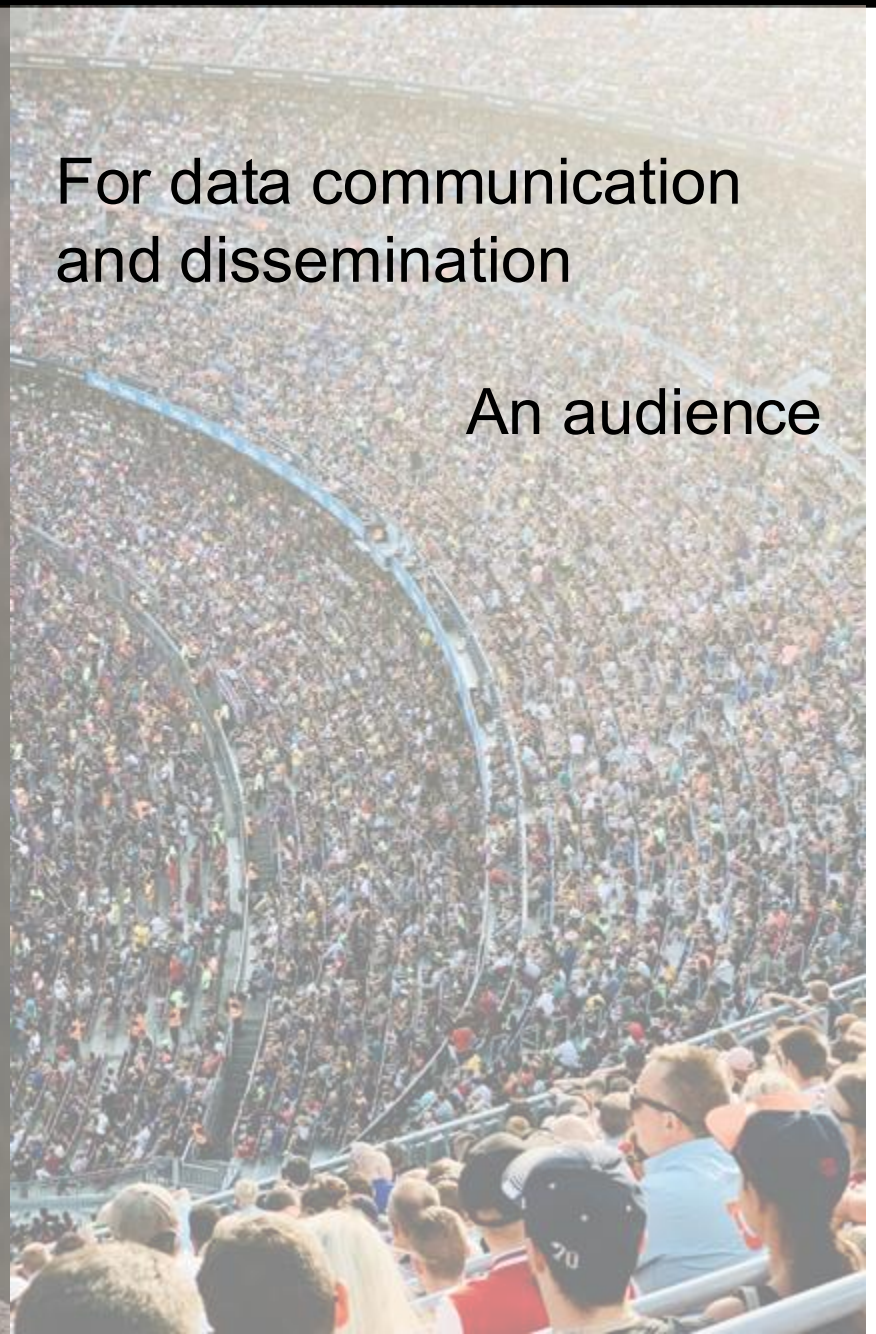
For data analysis
and exploration

Yourself
Your team

Adapted from: Julian Hoffmann

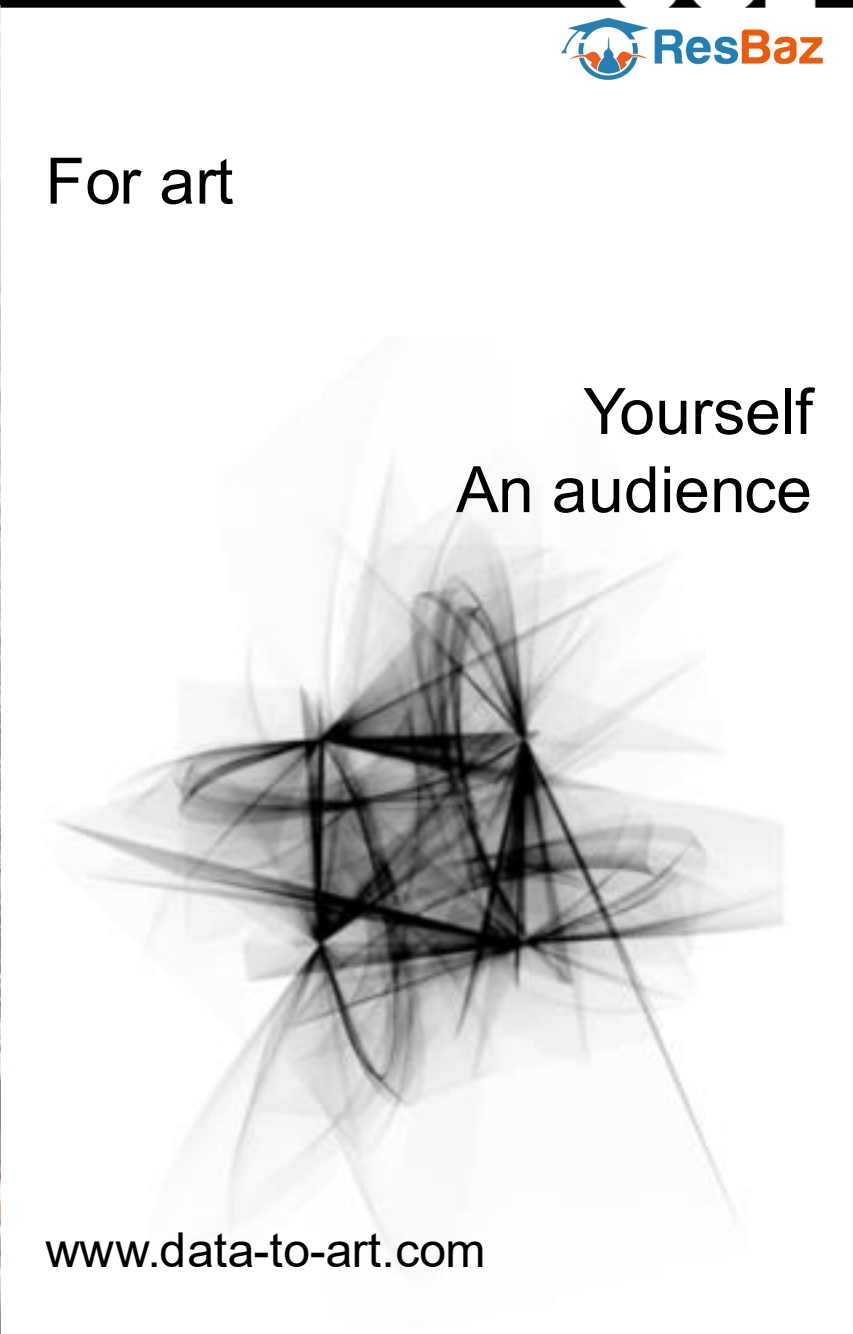
For data communication
and dissemination

An audience



For art

Yourself
An audience



www.data-to-art.com

5 ways to capture an audience

5

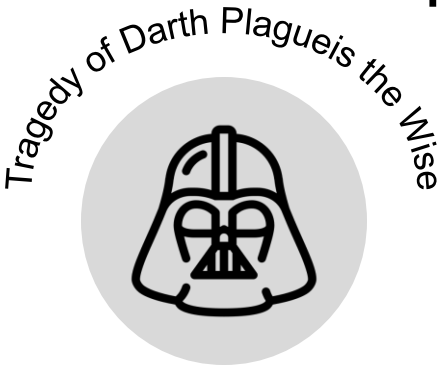
Number

Picture

Movement

"Any intelligent fool can make things bigger and more complex. It takes a touch of genius - and a lot of courage - to move in the opposite direction"

Quote



Story

Storytelling element 2:

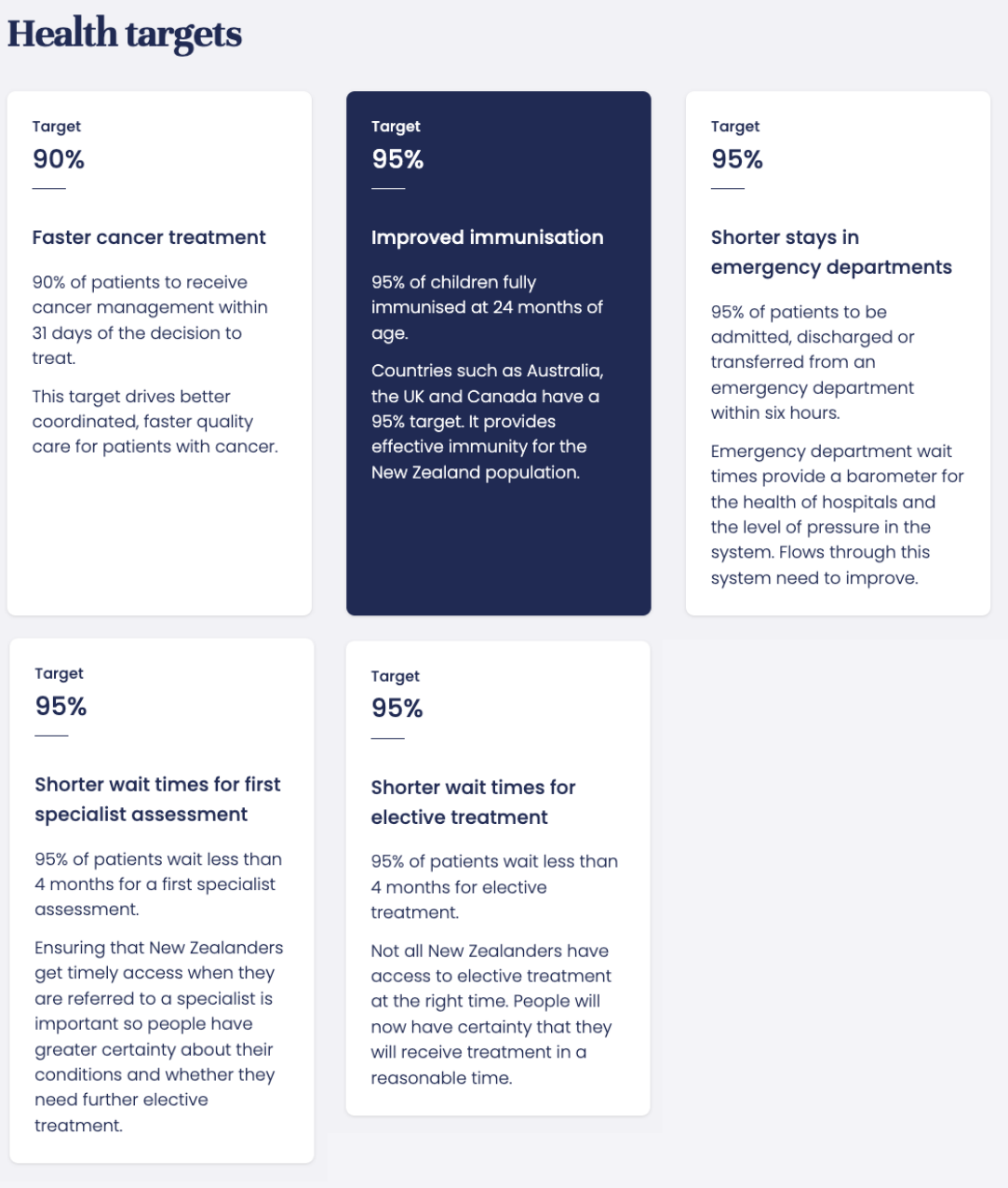
Setting

Data description

Immunisation coverage of children at 24 months old in New Zealand

1 January 2014 – 31 December 2024

https://www.tewhatuora.govt.nz/health-services-and-programmes/vaccine-information/immunisation-coverage

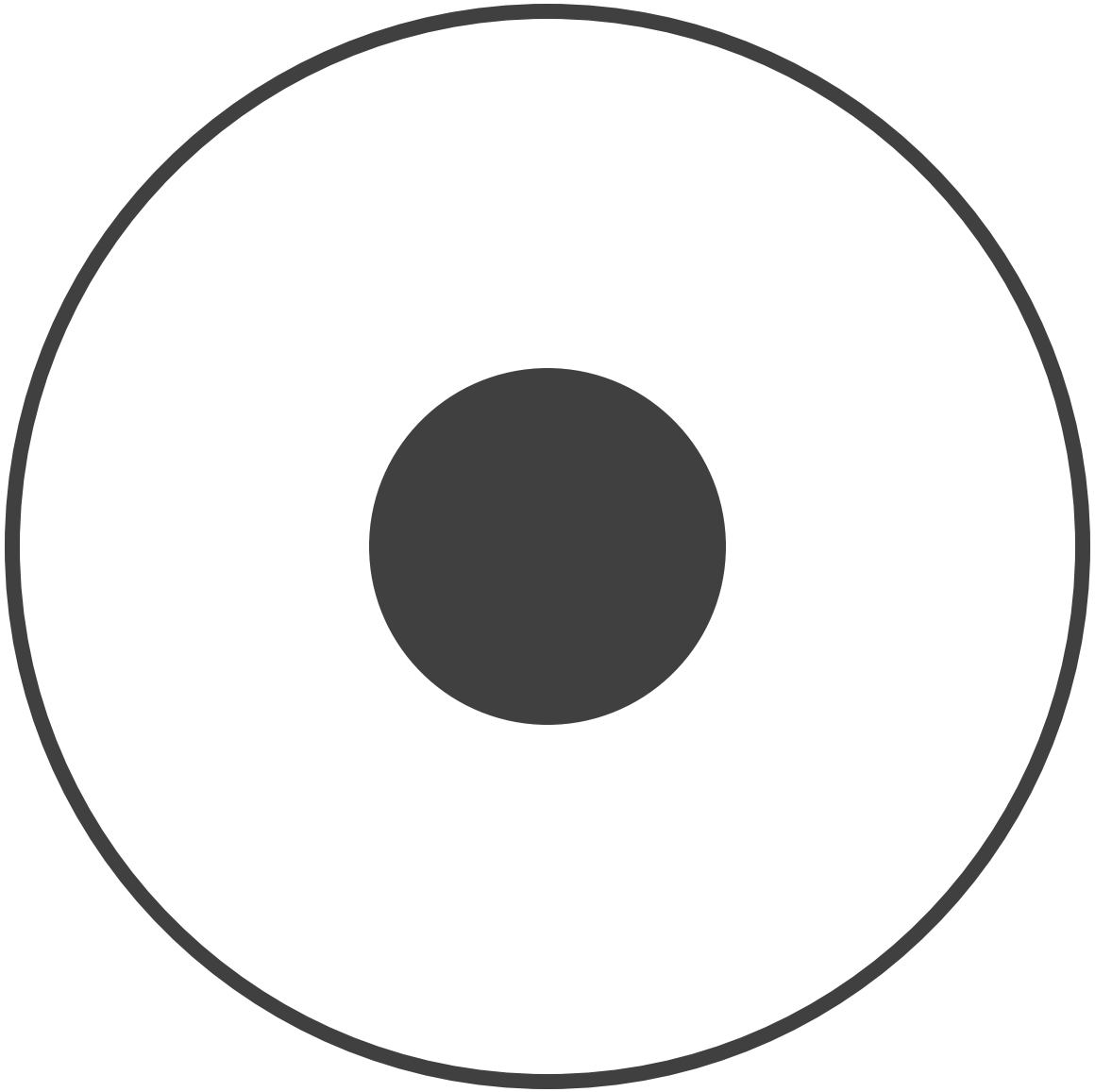


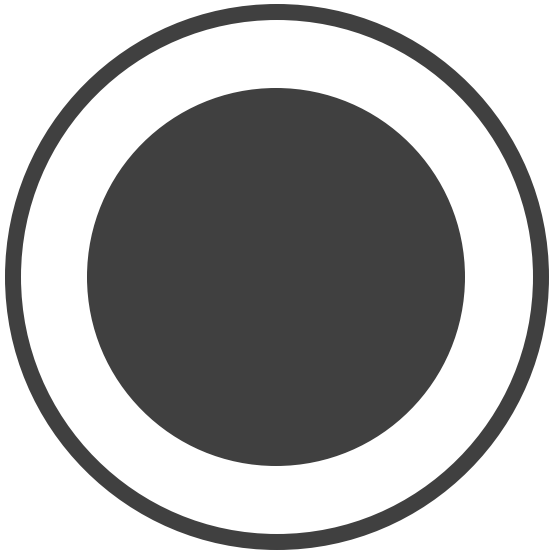
Data exploration (for you)

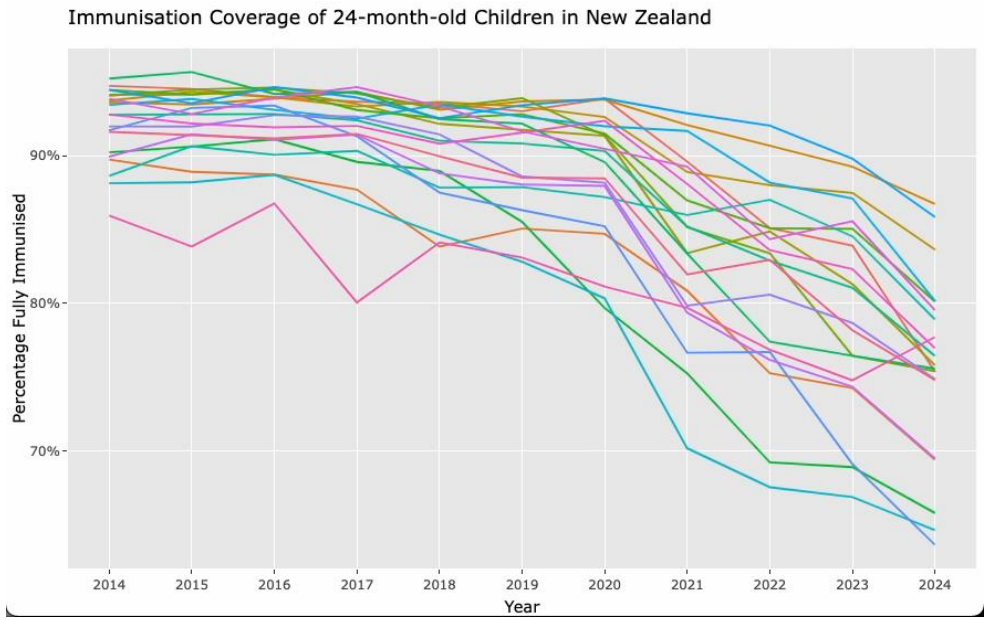
Formulate questions

Identify patterns

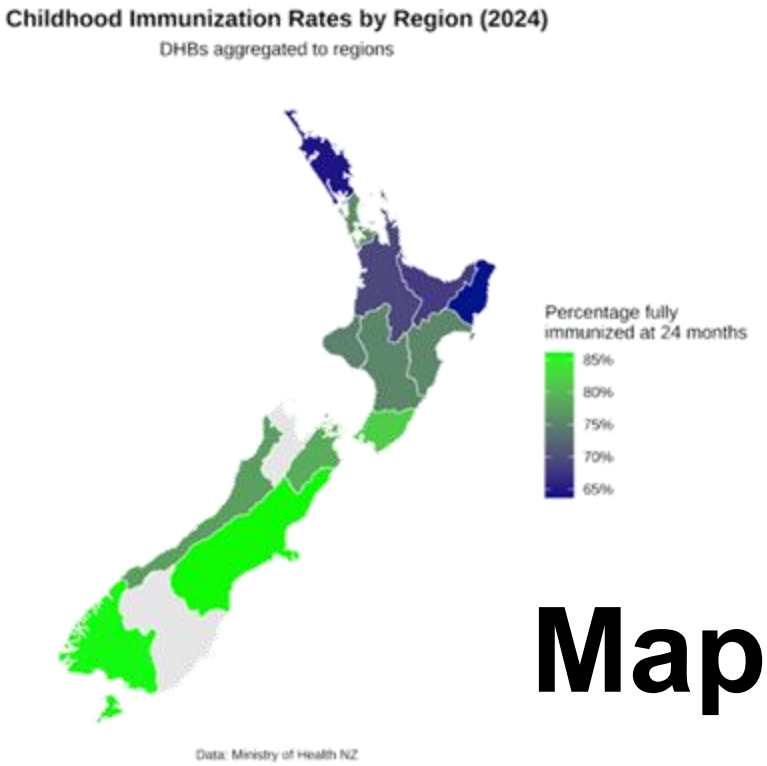
Understand the landscape



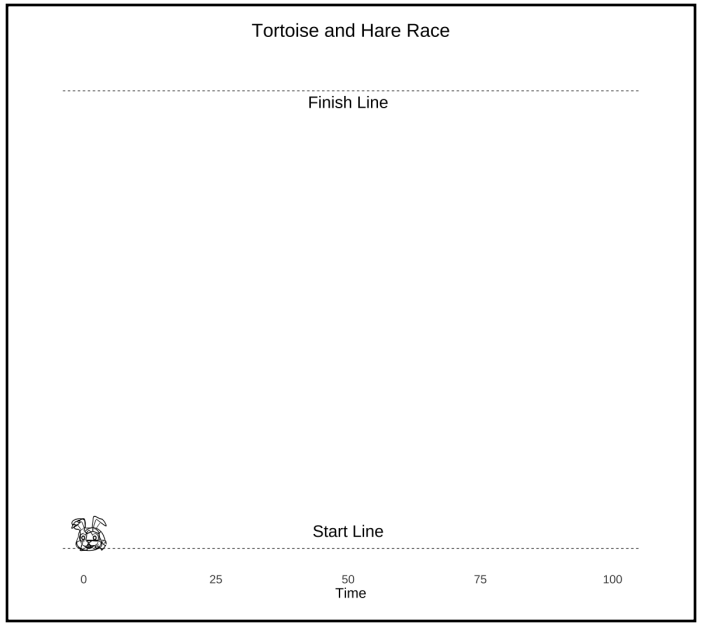




Interactive



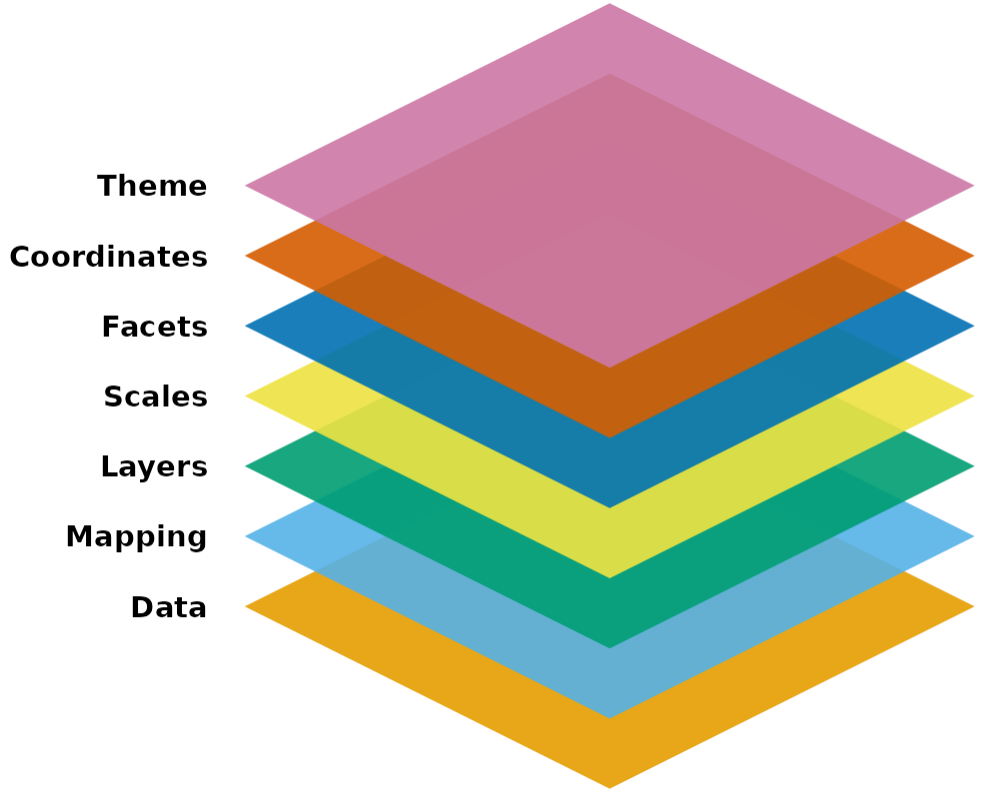
Maps



Animated

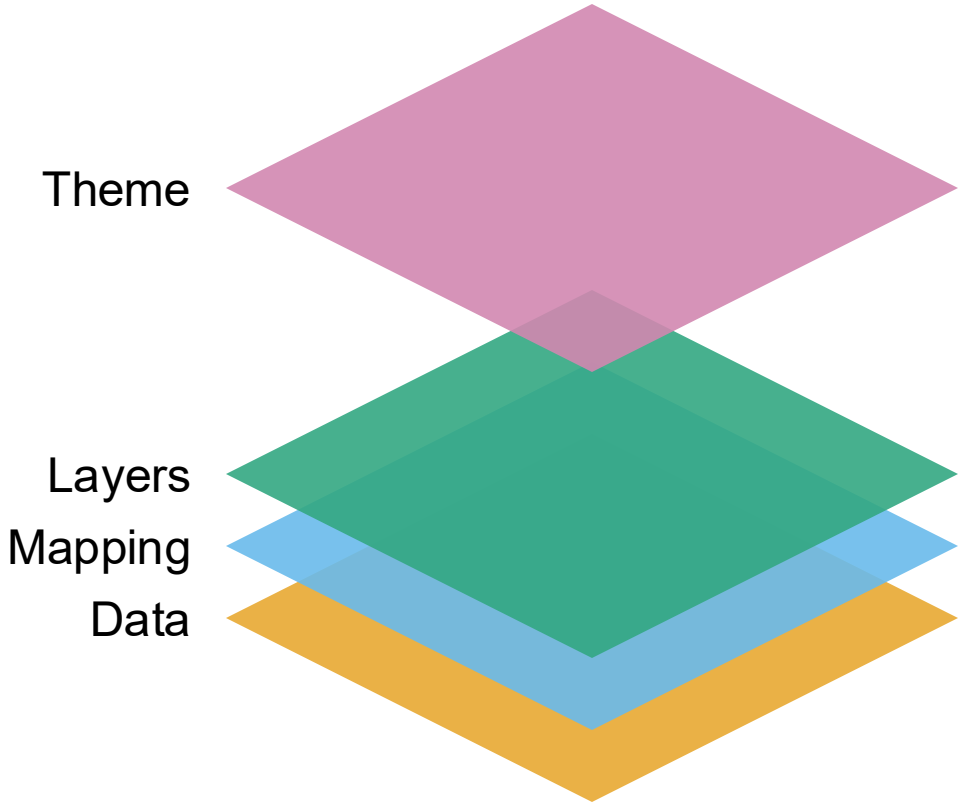
ggplot2

```
ggplot(<data>, aes(<mapping>)) +
    <layers_function>() +
    <scales_function>() +
    <facets>() +
    <coord_function>() +
    <theme_function>()
```



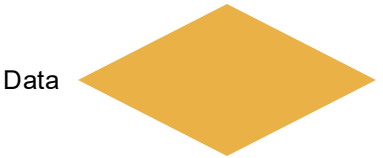
ggplot2

```
ggplot(<data>,
     aes(<mapping>)
     ) +
     <geom_function>() +
     <theme_function>()
```



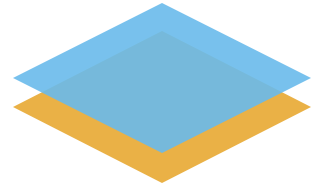
ggplot2

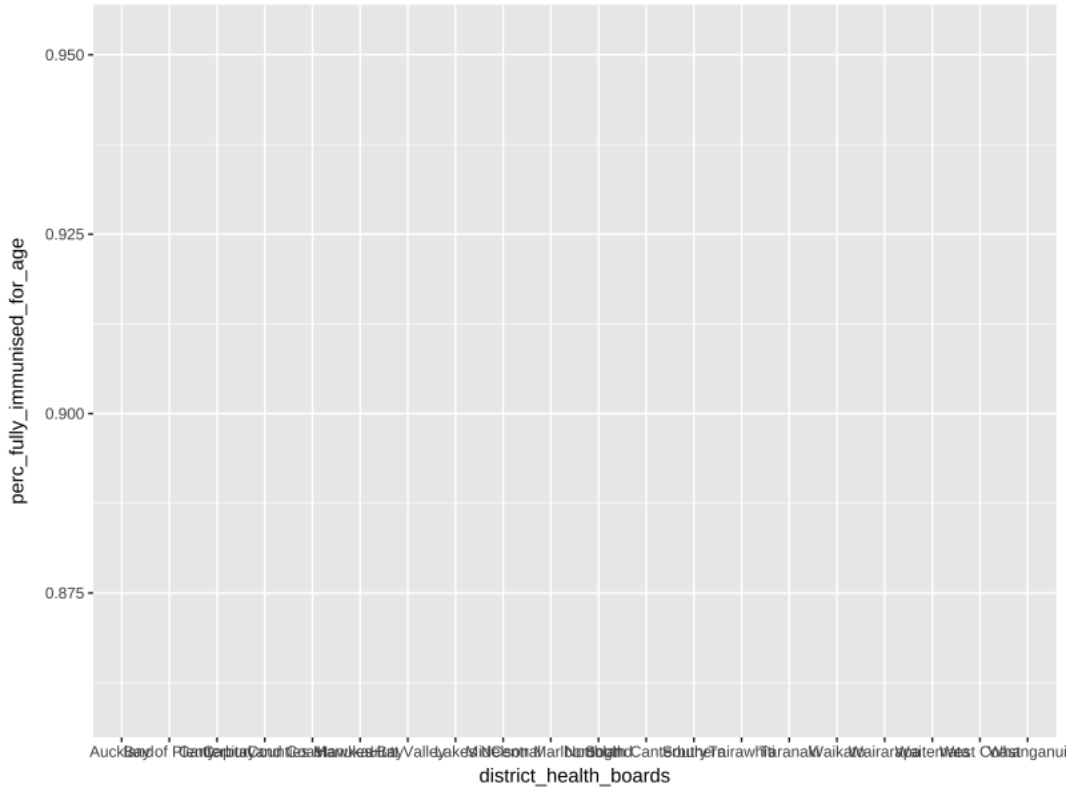
```
ggplot(child_imm_2014_dhb)
```



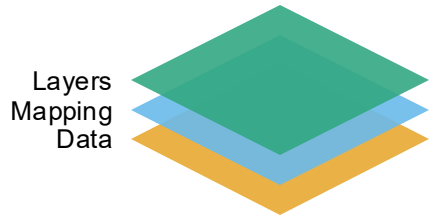
ggplot2

```
ggplot(child_imm_2014_dhb,
    aes(x = district_health_boards,
        y = perc_fully_immunised_for_age))
```

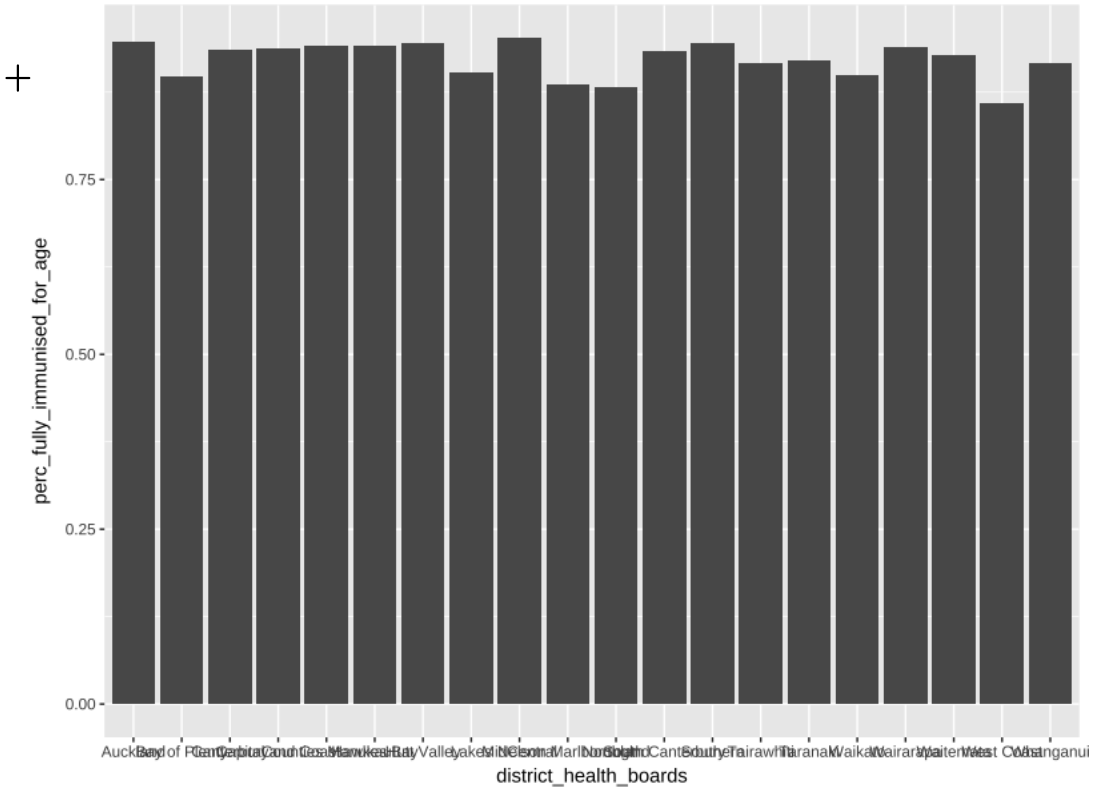




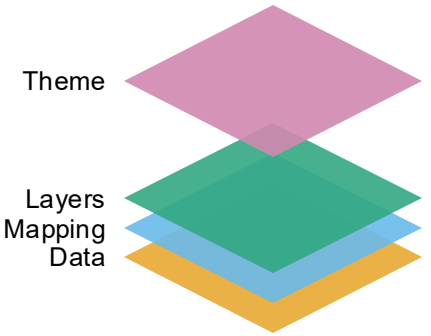
ggplot2



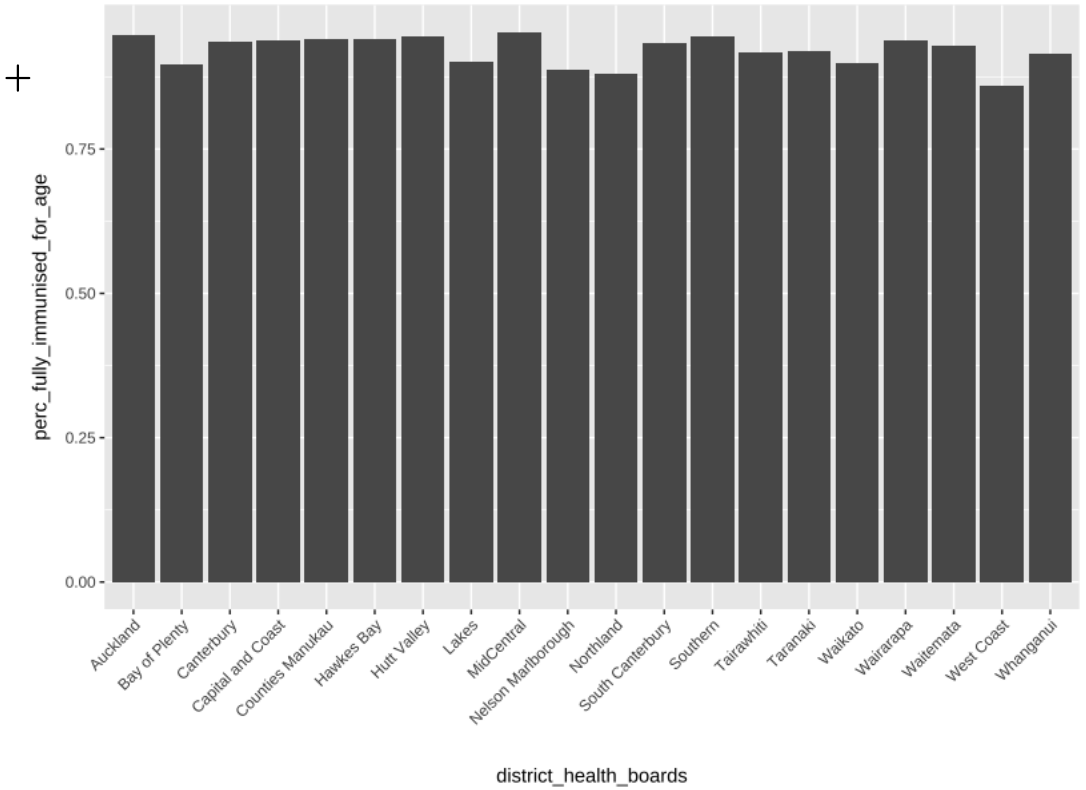

```
ggplot(child_imm_2014_dhb,
    aes(x = district_health_boards,
        y = perc_fully_immunised_for_age)) +
    geom_col()
```



ggplot2




```
ggplot(child_imm_2014_dhb,
    aes(x = district_health_boards,
        y = perc_fully_immunised_for_age)) +
    geom_col() +
    theme(axis.text.x = element_text(
        angle = 45,
        hjust = 1))
```

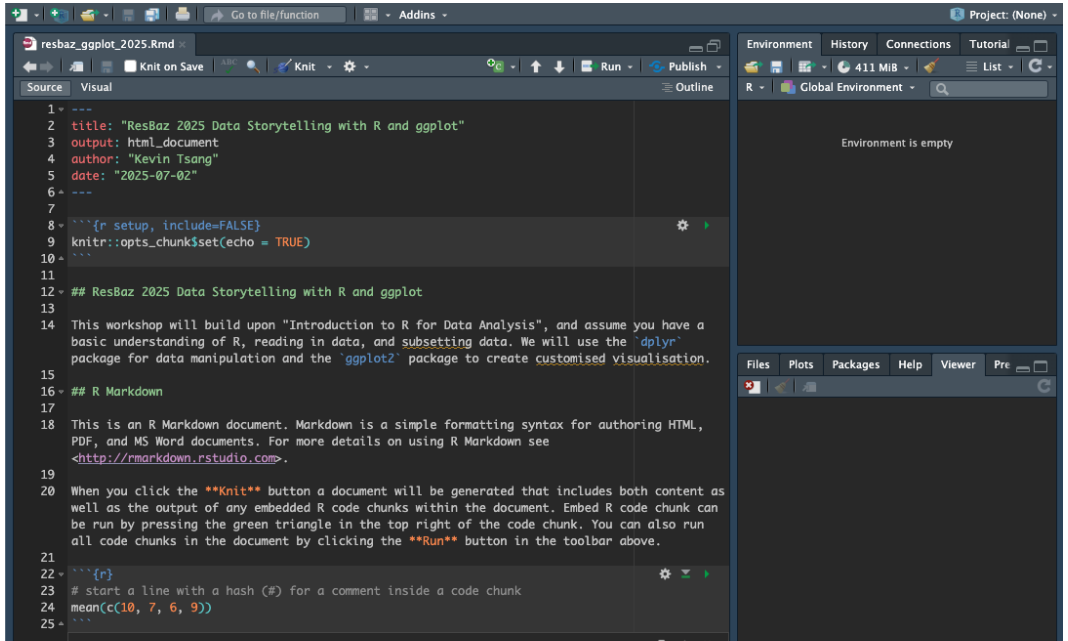


To RStudio…

You will need two download 2 files:

resbaz_ggplot_2025.Rmd

childhood_immunisation_2014_2024.csv



	year	age	district_health_boards	region	ethnicity	num_eligible	fully_immunised_for_age
1	2014	24 months	Auckland	Northern	Total	6401	6064
2	2014	24 months	Auckland	Northern	NZ European	1636	1533
3	2014	24 months	Auckland	Northern	Maori	772	727
4	2014	24 months	Auckland	Northern	Pacific	1208	1175
5	2014	24 months	Auckland	Northern	Asian	1895	1830
6	2014	24 months	Auckland	Northern	Other	890	799
7	2014	24 months	Bay of Plenty	Te Manawa Taki	Total	3121	2801
8	2014	24 months	Bay of Plenty	Te Manawa Taki	NZ European	1261	1126
9	2014	24 months	Bay of Plenty	Te Manawa Taki	Maori	1300	1189
10	2014	24 months	Bay of Plenty	Te Manawa Taki	Pacific	71	69
11	2014	24 months	Bay of Plenty	Te Manawa Taki	Asian	189	184
12	2014	24 months	Bay of Plenty	Te Manawa Taki	Other	300	233
13	2014	24 months	Canterbury	Te Waipounamu	Total	6280	5879
14	2014	24 months	Canterbury	Te Waipounamu	NZ European	3259	3105
15	2014	24 months	Canterbury	Te Waipounamu	Maori	966	903
16	2014	24 months	Canterbury	Te Waipounamu	Pacific	299	289
17	2014	24 months	Canterbury	Te Waipounamu	Asian	709	674
18	2014	24 months	Canterbury	Te Waipounamu	Other	1047	908
19	2014	24 months	Capital and Coast	Central	Total	3880	3637
20	2014	24 months	Capital and Coast	Central	NZ European	1469	1387

Storytelling element 3:

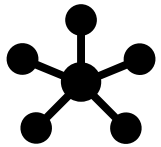
Characters

Who or what is the story about

For example:

One data point –
one district health board
experiencing a change in policy

Group of data points –
data points from one region



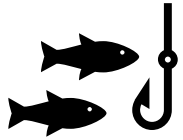
A derived variable –
year-on-year difference
in coverage

Who else is in the story

For example:

Characters on the same journey

Characters who changes main character's trajectory



Characters who reveal new dimensions of the main character

Storytelling element 4:

Message

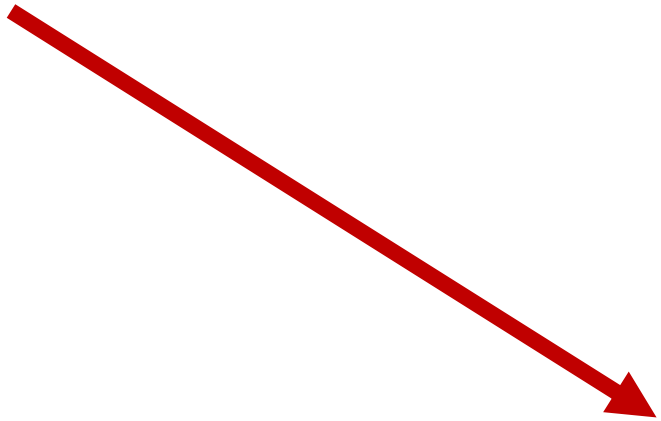
Communicate

A title should capture the message

Don’t be afraid to use text elements like subtitles

Annotations guides the reader

Look here



What actions does your data visualisation inform?

Captions can be used to add additional context or information

What stories will you tell with data?

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