@cjlortie

programming language, environment to work with data and code, and a social movement

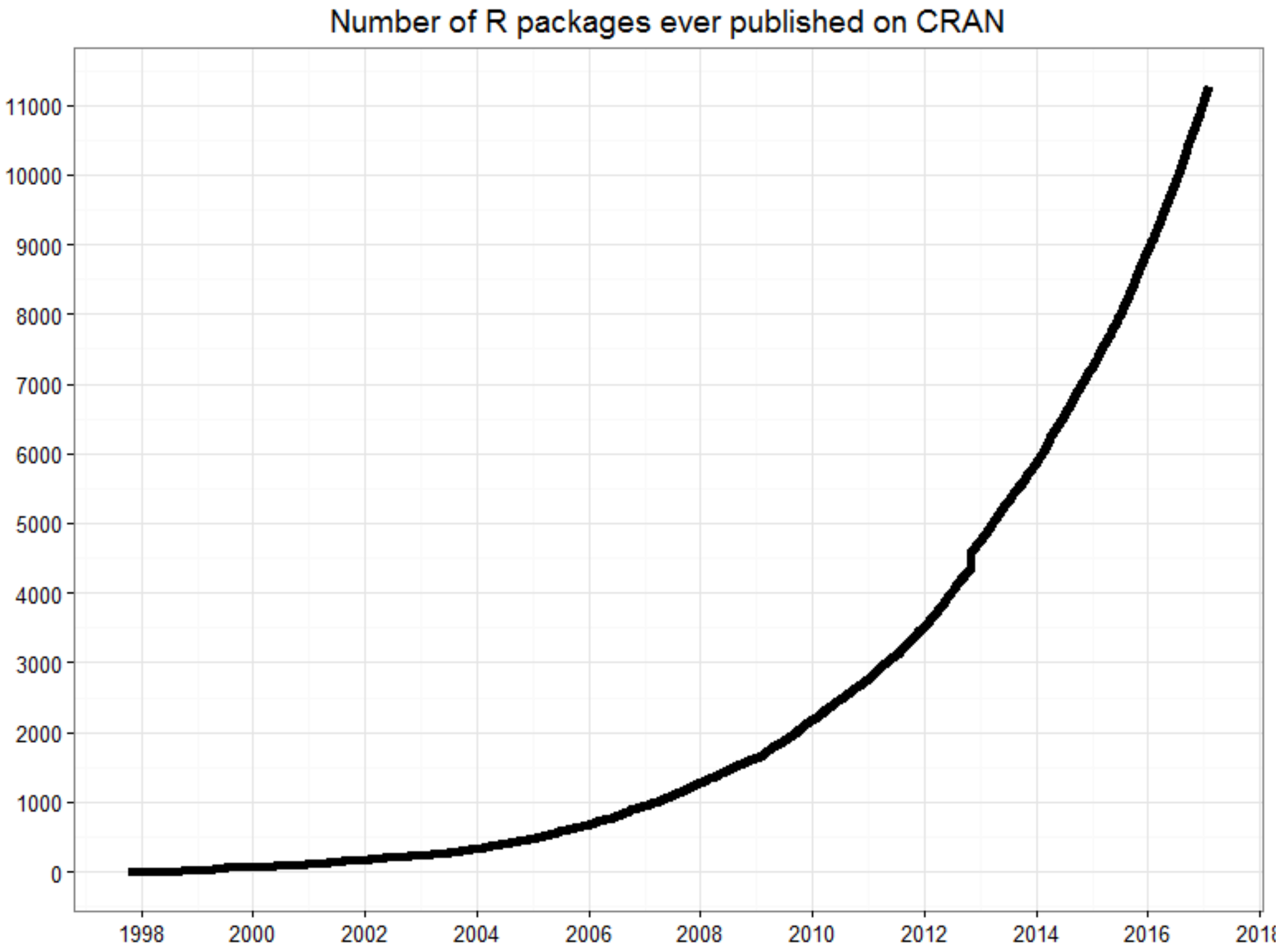
novelty

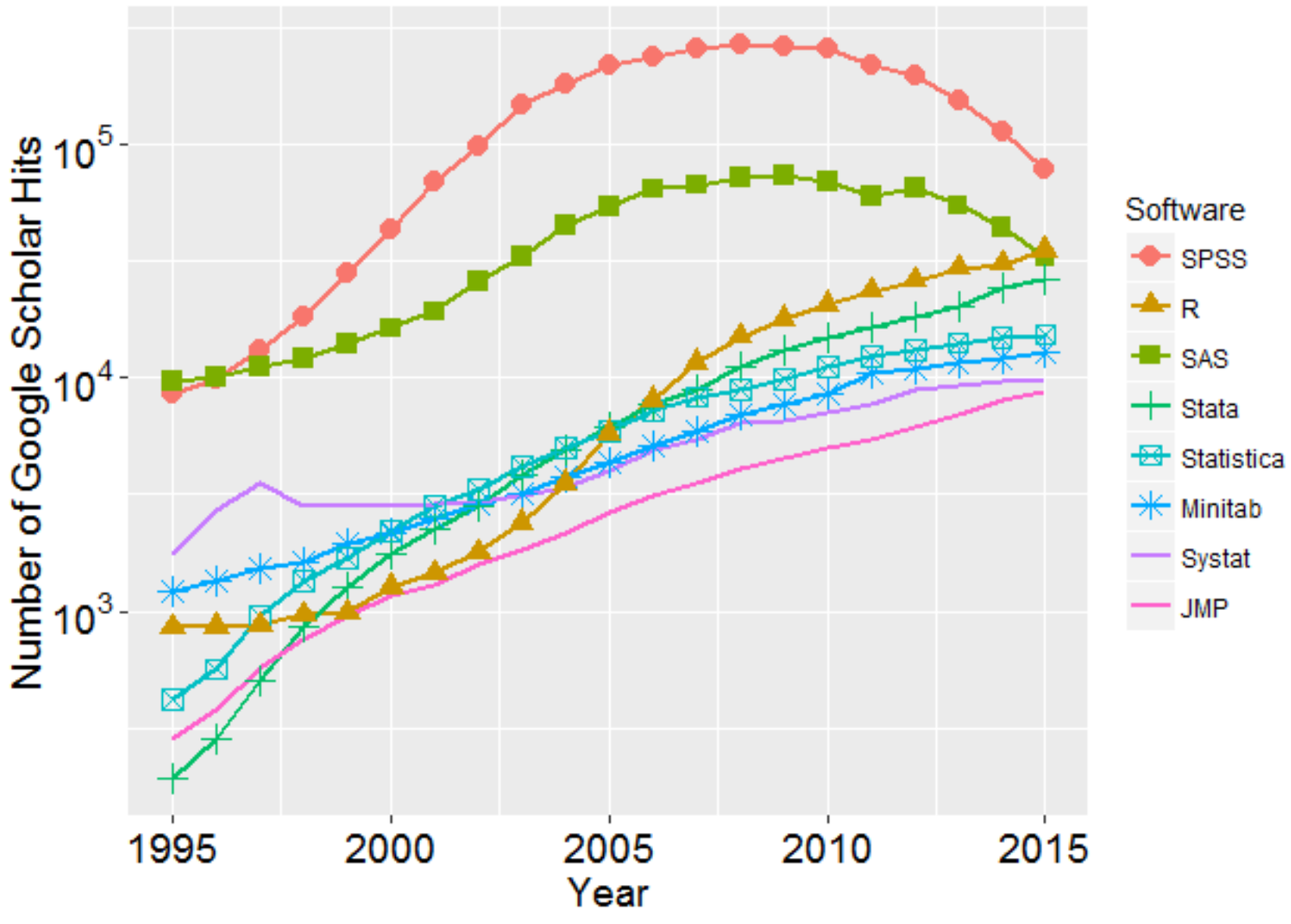
reproducible

free

needs-based development

open science and developed by anyone/everyone

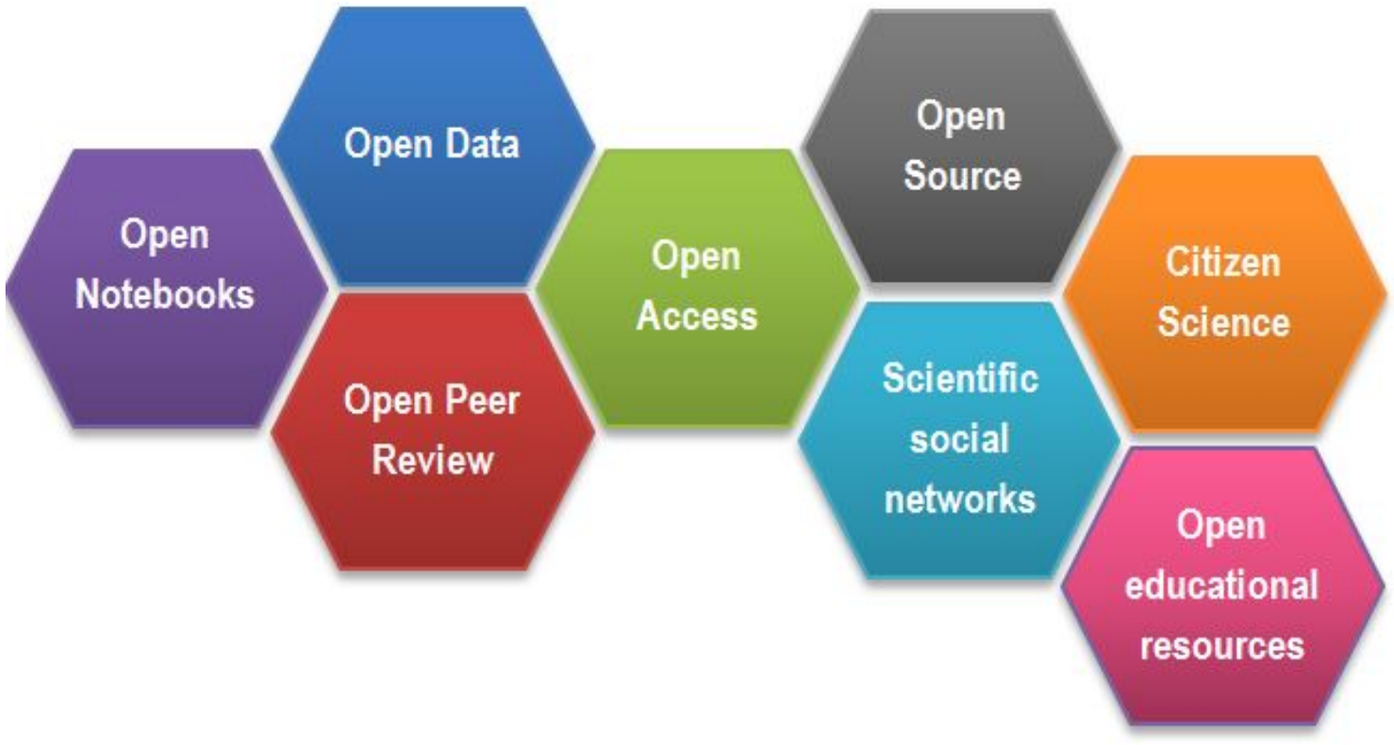

Number of R packages ever published on CRAN
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016


Number of Google Scholar Hits
10^5
10^4
10^3
1995
2000
2005
2010
2015
Year
Software
SPSS
R
SAS
Stata
Statistica
Minitab
Systat
JMP

challenge

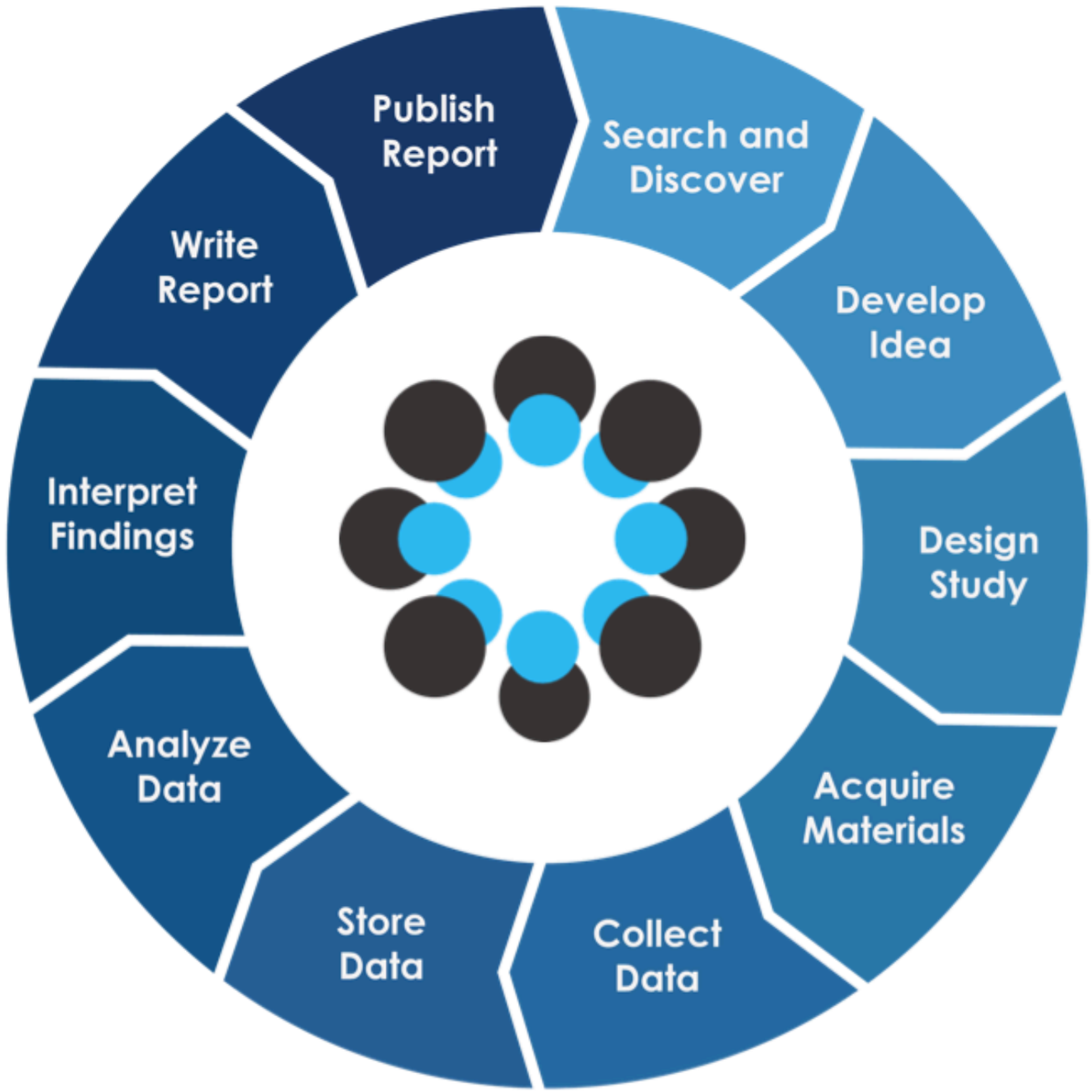
literacy

coding is the only mechanism to develop reproducible, global models



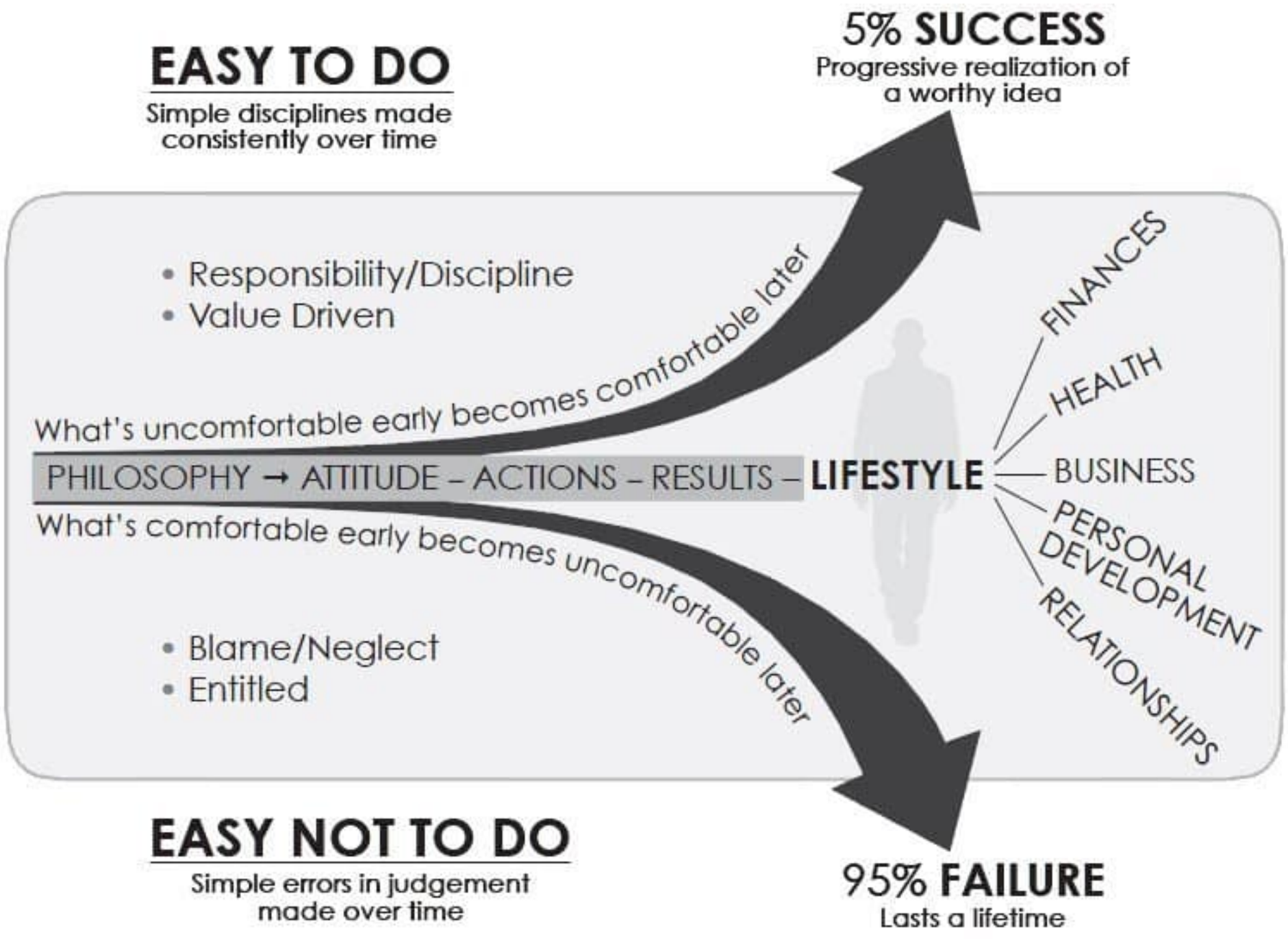
open science is a movement to promote transparency and accessibility in all domains of the scientific process

R is an ideal mechanism to enable openness
and to best promote **process**
and not just product in science and models



trickle effects of R

include reproducibility, critical thinking,
many models not one,
dynamic and not static thinking



the do-over benefits are immense

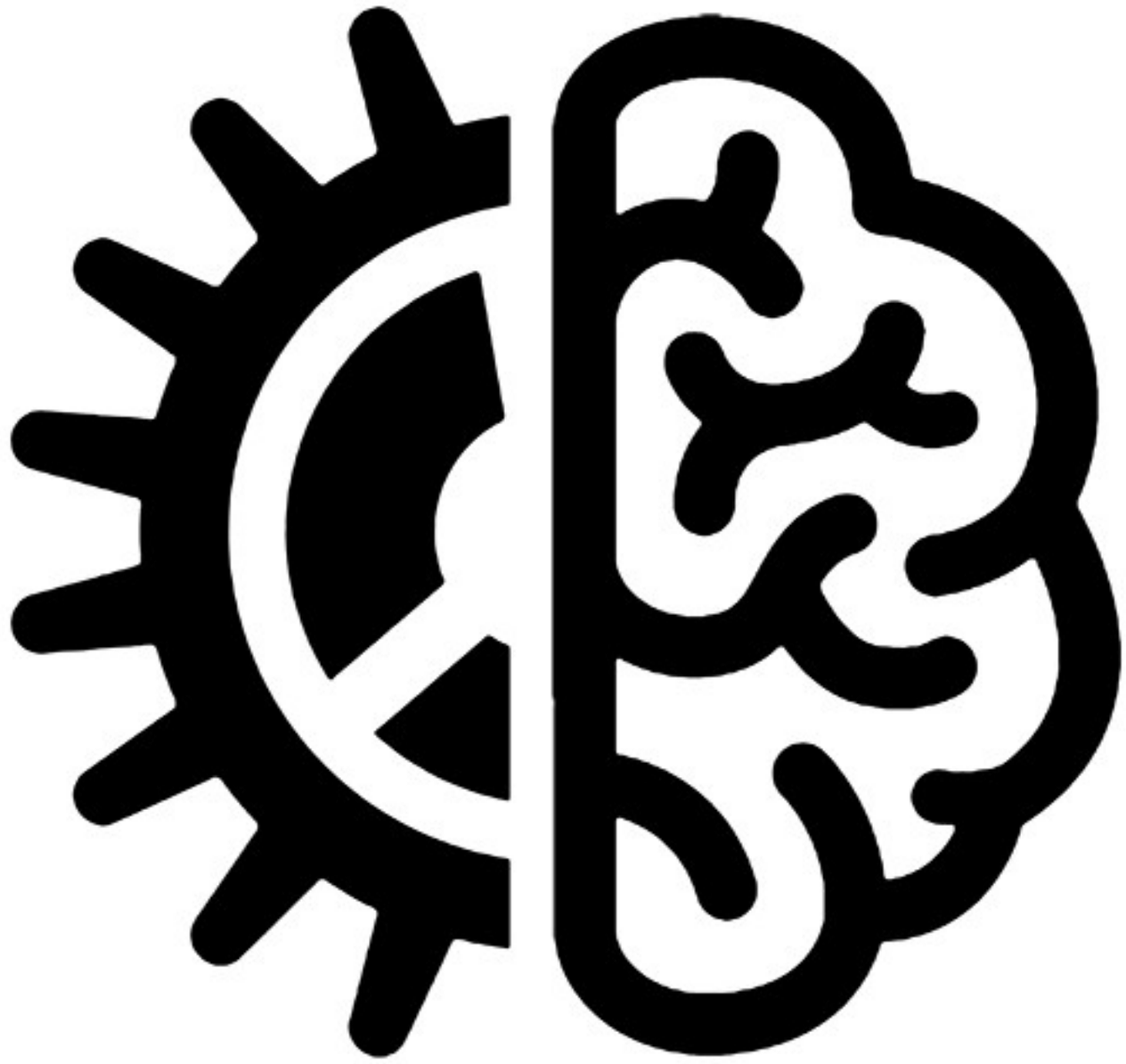
the best reverse-engineered reproducible solutions should not get lost in the weeds

O'REILLY®

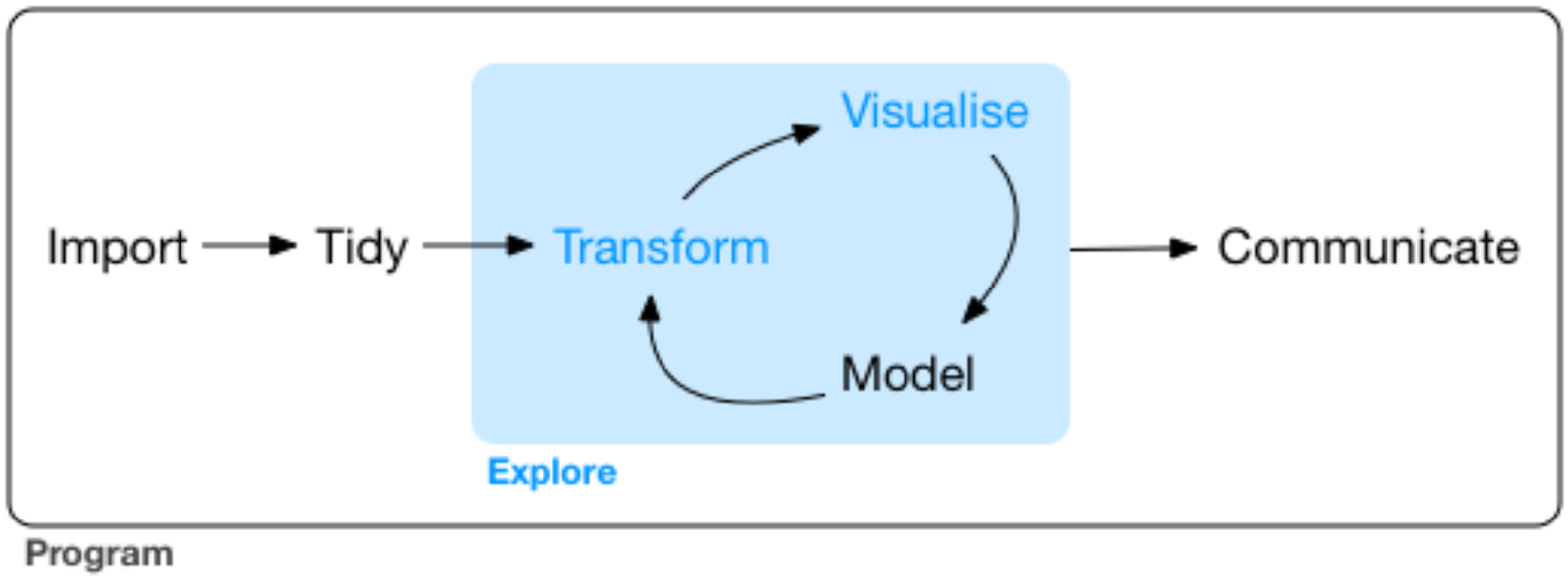
R for Data Science

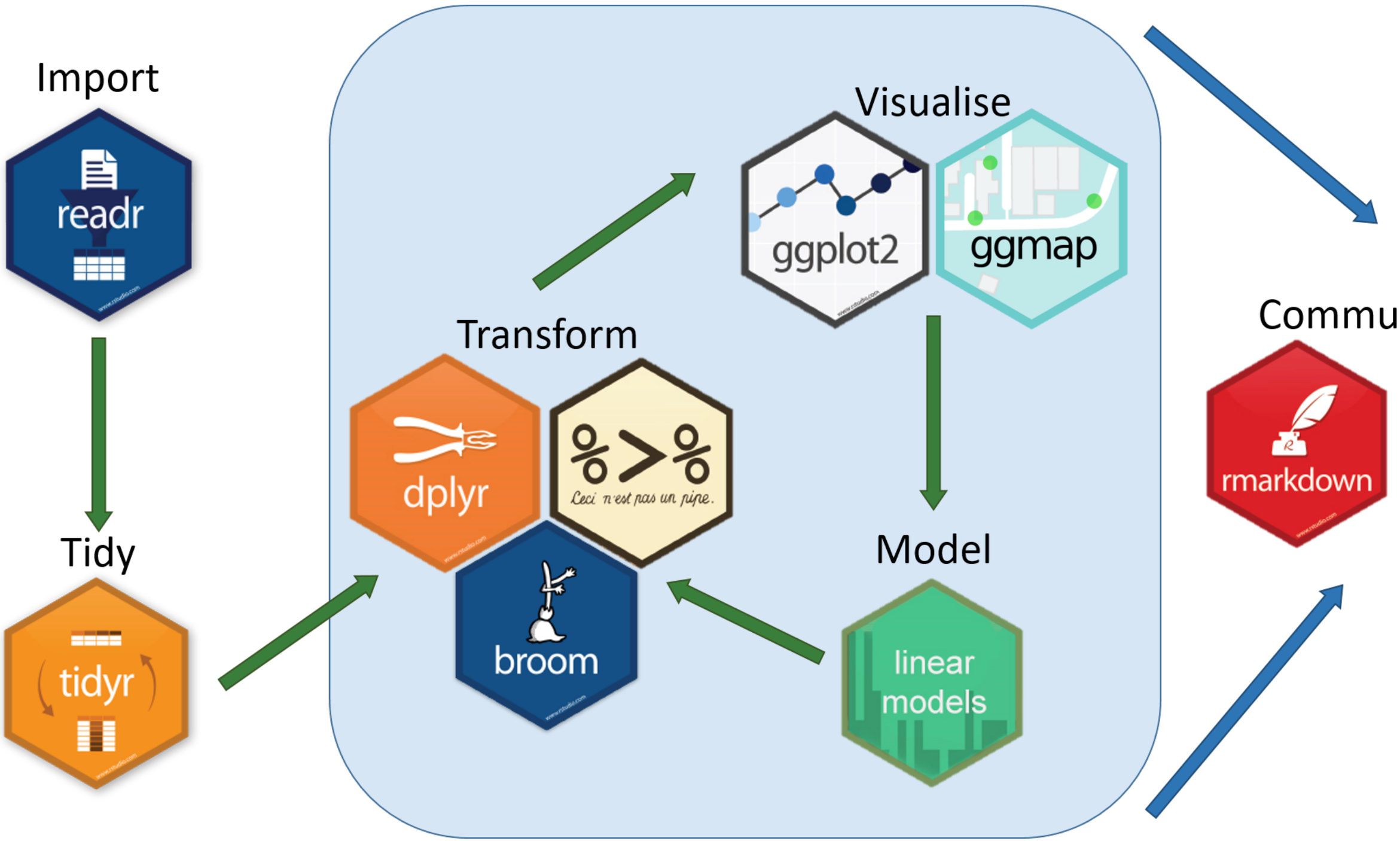
VISUALIZE, MODEL, TRANSFORM, TIDY, AND IMPORT DATA

Hadley Wickham &
Garrett Grolemund

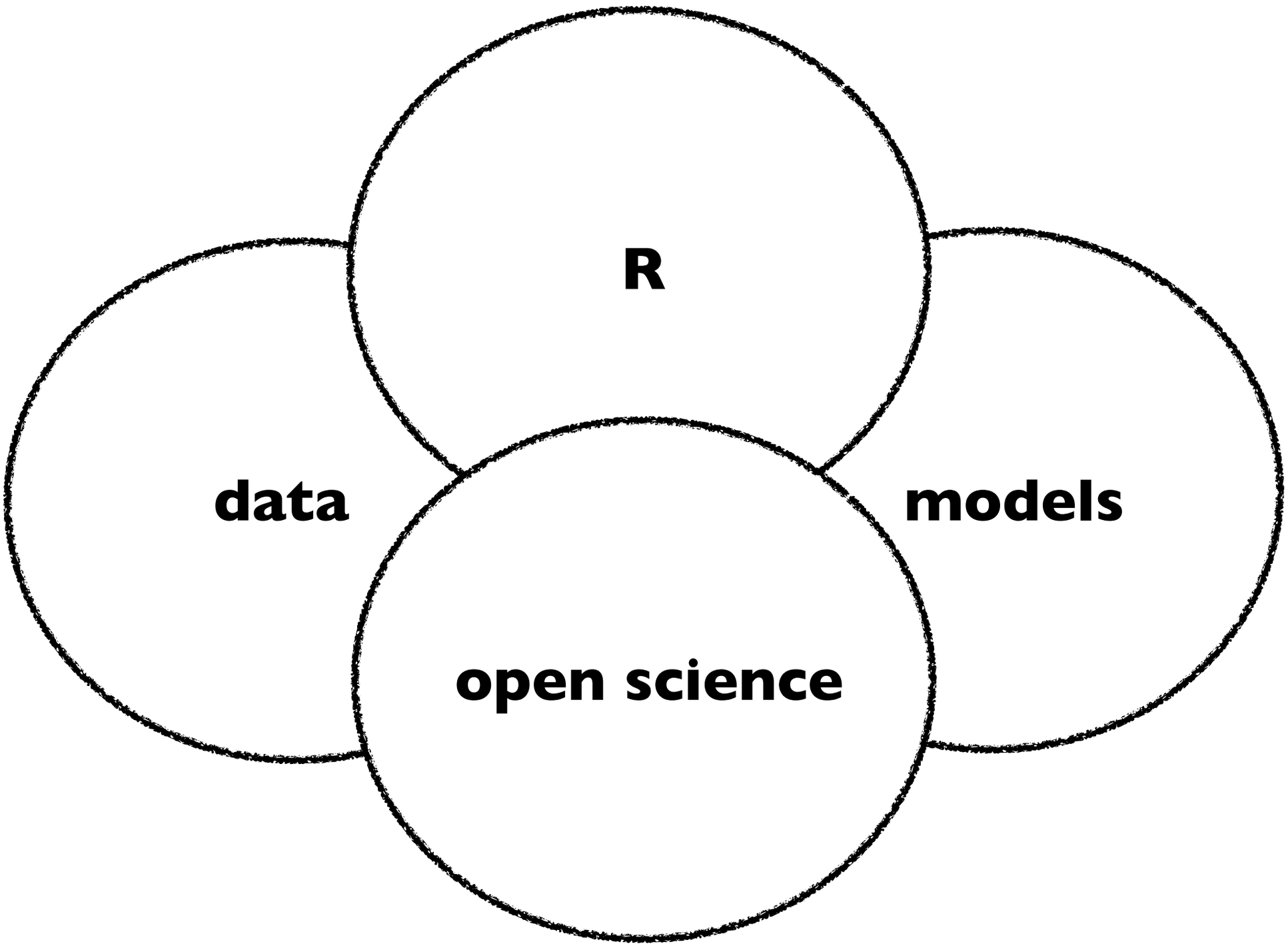


we **ALWAYS map mental models onto evidence**
or observation and
coding is a tool
that enables us to capture that process


Visualise
Import
Tidy
Transform
Communicate
Model
Explore
Program


Import
readr
Tidy
tidyr
Transform
dplyr
%>%
Leci n'est pas un pipe.
broom
Visualise
ggplot2
ggmap
Model
linear models
Communicate
rmarkdown

Split. Build. Think. Test. Know.



bio4enviro connection

evidence > mental models > code > quantitative models

critical to under environmental change and
coding in R
or any open programming languages
support discourse and transparency

implications

need to know
the
language
to build the
models