



rTempo - TEMPO Online data interface to R

by Marian Necula, Ana Maria Țîru and Bogdan Oancea

Bucharest, May 2019



Outline

- Introduction
- Development workflow
- rTempo Implementation
- Conclusions

Introduction

Open Data

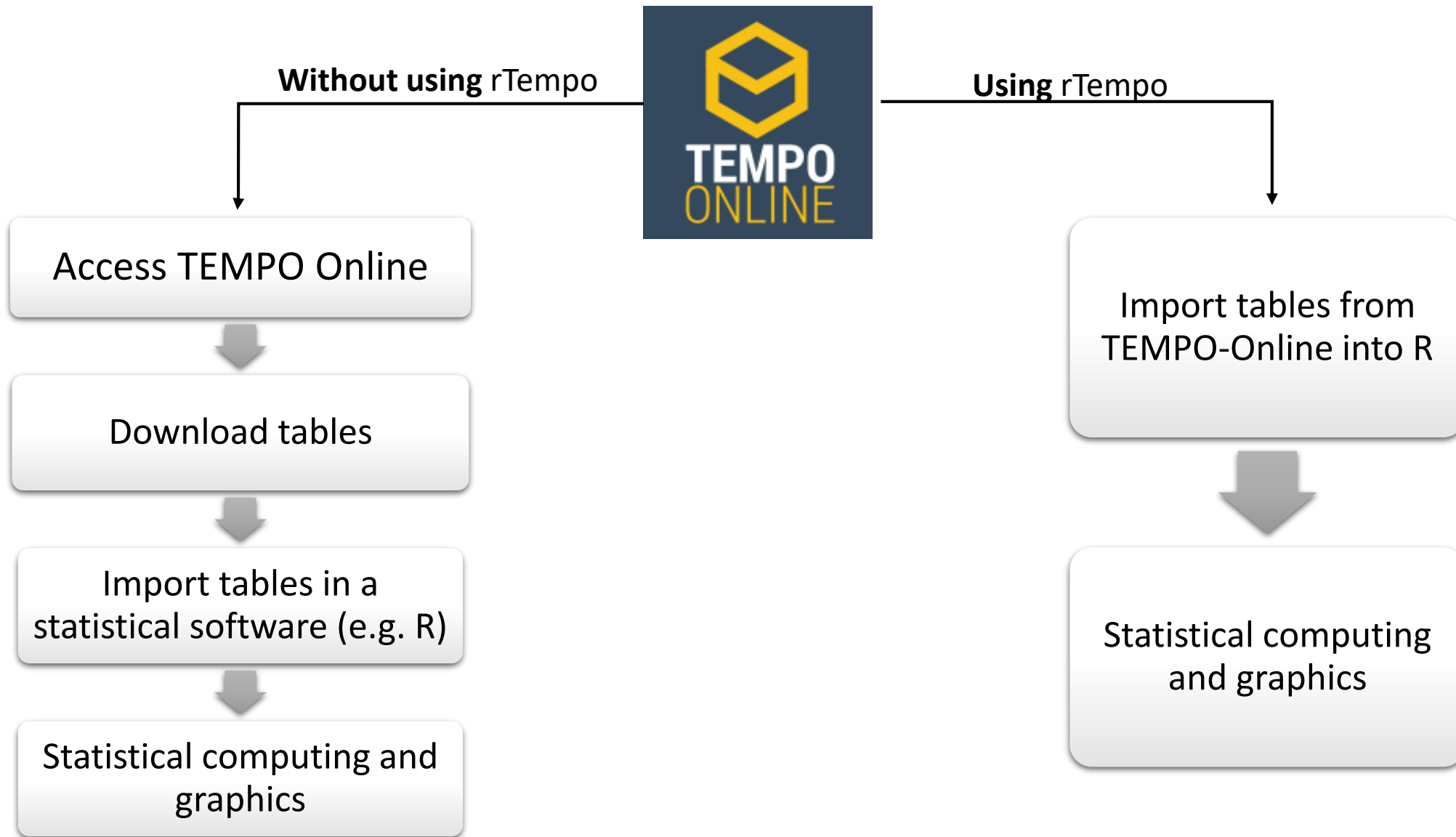
Readily and widely accessible
Available online to anyone in bulk and free of charge

TEMPO Online

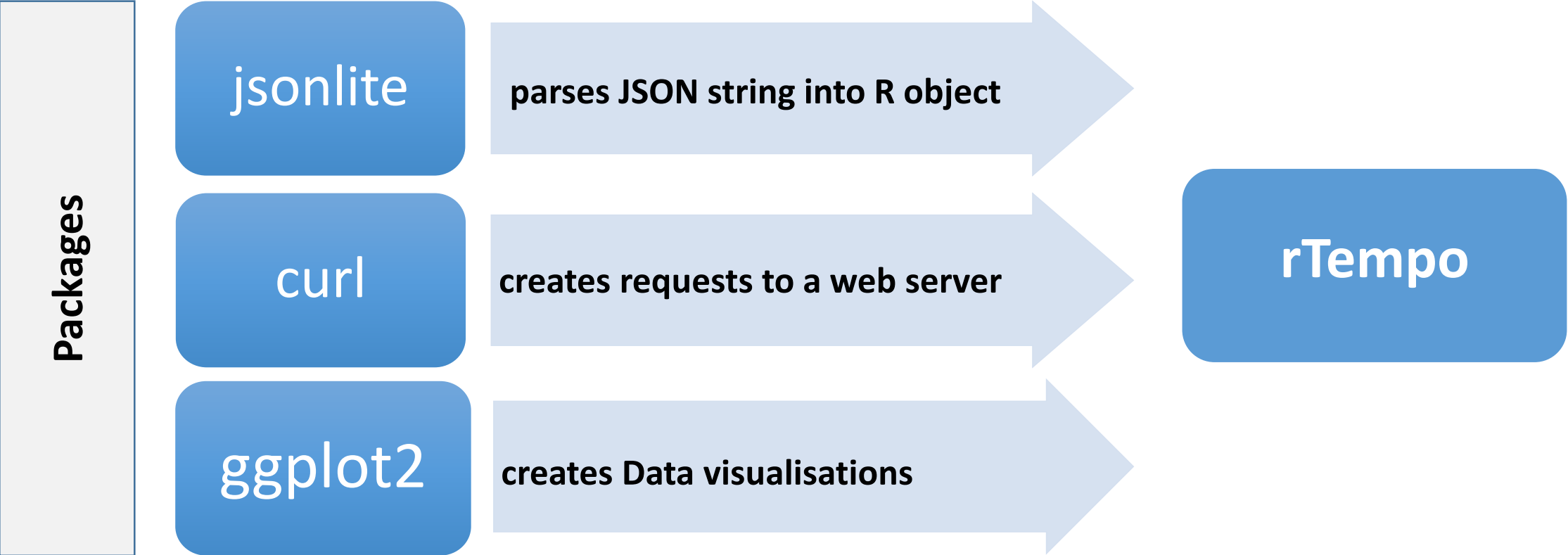
Database of National Institute of Statistics
Statistical indicators, time series, metadata etc.

R

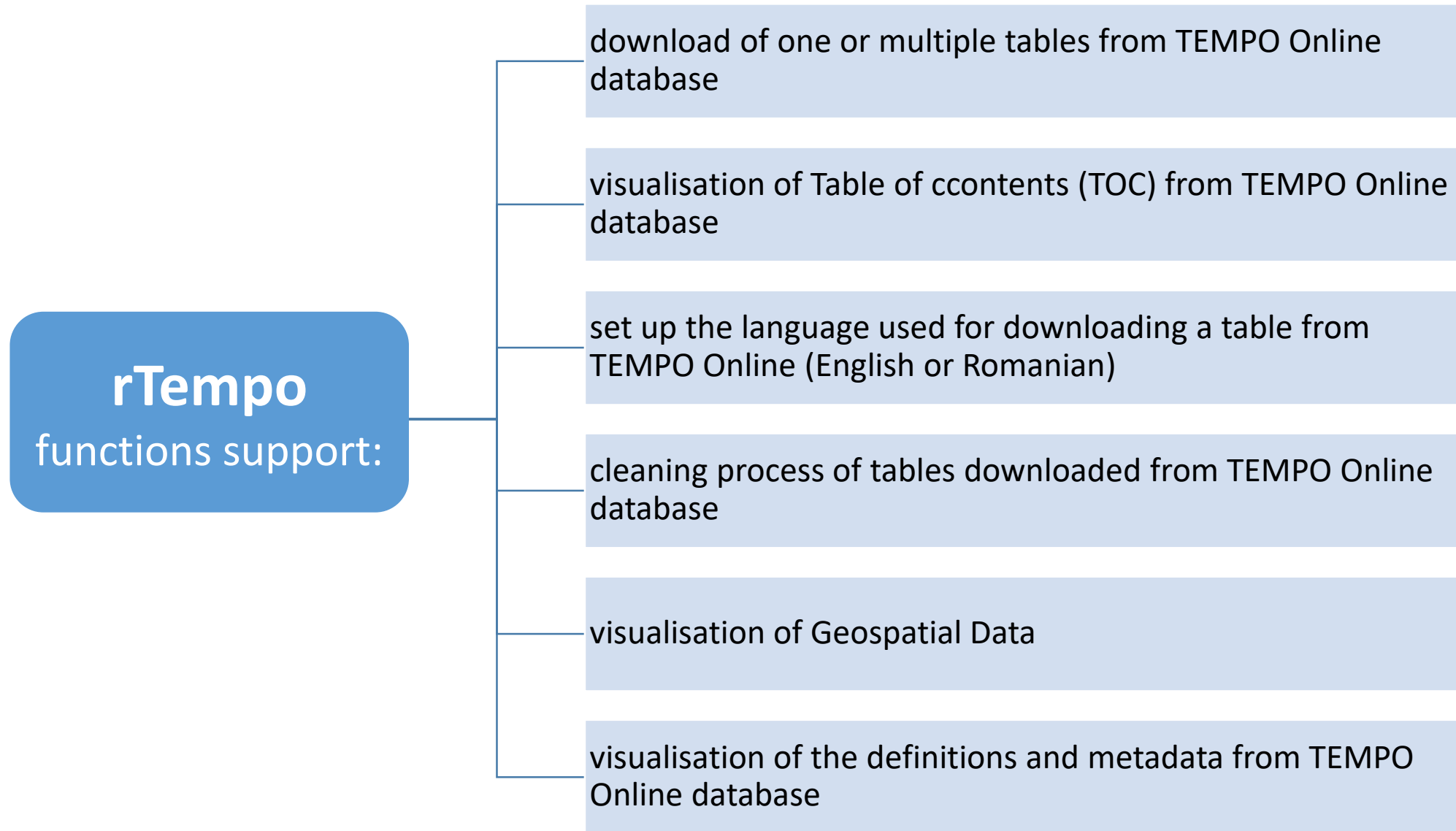
Free software for statistical analysis and graphics



Development workflow



TempoR Implementation



rTempo functions:

- **set_language** - allows the users to set the language used for downloading a table from TEMPO Online;
- **get_language**- allows the users to get the language used for downloading a table from TEMPO Online;
- **tempo_toc** - downloads the Table Of Contents (TOC) for Tempo Online database;
- **tempo_search** - downloads the Table Of Contents (TOC) for Tempo Online database and returns a TOC subset based on specified keywords;
- **tempo_bulk** - download one or multiple tables from TEMPO Online database (bulk download);

- **tempo_filter** - returns a list of vector strings containing values for subsetting a Tempo Online matrix;
- **tempo_options** - returns a list of named integers representing the codes for subsetting a Tempo Online matrix;
- **tempo_clean** - allows the users to clean a table downloaded from TEMPO Online database through tempo_bulk function, by removing redundant columns;
- **tempotime2date** - gives the possibility to convert a column of class character representing time periods (month, quarter) from a table downloaded through tempo_bulk function, to a column of class date representing calendar dates;
- **tempo_geo** - is used to plot on the Romanian country map the data downloaded through tempo_bulk function.



Example:

```
library(TEMPO)

set_language(language = "en")
tempo_search(keyword = c("vineyards"))

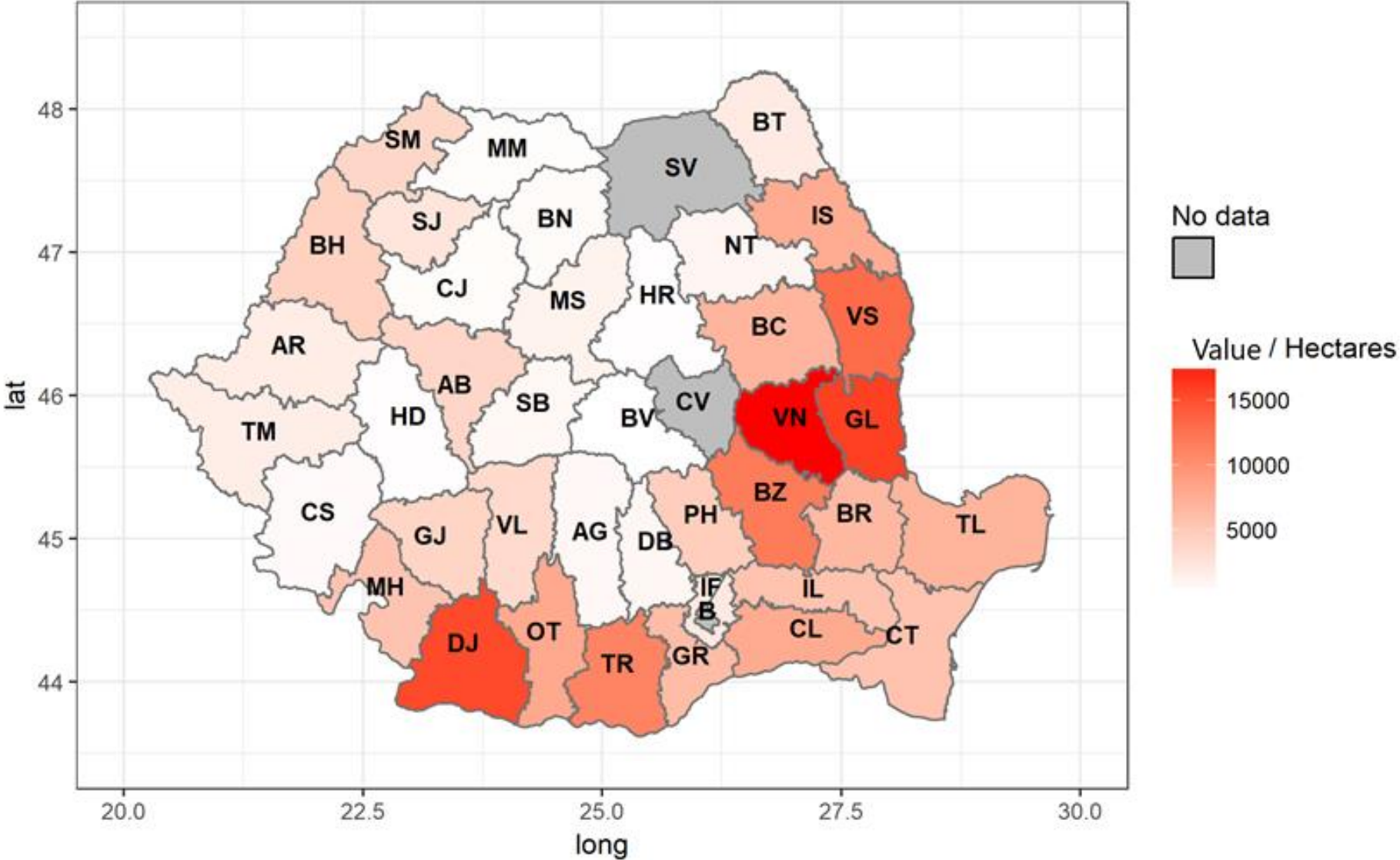
##
name
## 23 Area of the vineyards in bearing by ownership form, macroregions, devel
opment regions and counties
##      code
## 23 AGR111A

tempo_bulk(codes = "AGR111A")

AGR111A <- read.csv("AGR111A.csv")

tempo_geo(matrix = AGR111A, year = "2000", area = "counties",
          filter = c("Wine grapes", "Private sector"))
```

Wine grapes Private sector Year 2000



Conclusions

- provides modern tools for data scientists by adding higher abstraction layers and extending R functions present in other packages

R programming environment

rTempo

- provides an easy and fast method for integrating the data present in TEMPO-Online *directly* in the R environment without the need of using a Web browser

- one step further in the European endeavor to provide modern tools and a cohesive environment for statistics while working with open data;
- contribution to the modernisation of the National Statistical System considering the users needs.

benefits for National Institute of Statistics



Thank you for your attention!

