Using R in the Statistical Office

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WG Methodology | Luxemburg

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Introducing R

At first

- Started very “unofficial”
- Self installed R versions floating around in the office
- No support

First improvments

- Standardized R installation
- Specific units allowed to use R
- First R server

Support and policy

Support

- Official support infrastructure (Jira) and responsible unit (Methods)
- RStudio on server (and desktop)
- Presentation of R projects (twice a year)

Policy

- R is a strategic software and allowed to be used throughout the production chain

Infrastructure

- R Desktop is deprecated (to be switched off at the end of 2018?!)
- R Studio Server Pro on a Linux (Ubuntu) server with 16 cores and 128 GB memory
- about 100 users on the R server
- $\pm$ 40 weekly active users

Training

- **Introductory course**: RStudio, Import-Export, important functions and writing own functions.
- **Data manipulation**: Some R base data manipulation stuff and dplyr
- **Data manipulation with data.table**
- **Graphics**: base graphics + ggplot2
- **R for Developers**: package development, debugging, profiling, RCPP, SVN and GIT
- **R for survey data**: Handling "our" survey data with the R package survey
- **(Transitioning from desktop to server R)**

Development

- Several CRAN packages (VIM, sdcMicro, sdcTable, x12, ...)
- Internal R packages for projects or tasks, e.g.:
  - sampSTAT for sampling from the frame for households and persons
  - mountSTAT fr handling the Windows file shares under Windows

Statistics Netherlands

Introducing R

Typical hurdles (2010):

- How to install FOSS?
- OMG everybody can write CODE now!

Approach

- Project with dedicated project leader
- Standardized 3 installation types geared to different user types.
- Set up code/documentation standards

Currently

- $\pm$ 200 users ($\pm$100 active)
- One single central installation
- Refer to tidy code/documentation standard

Support and policy

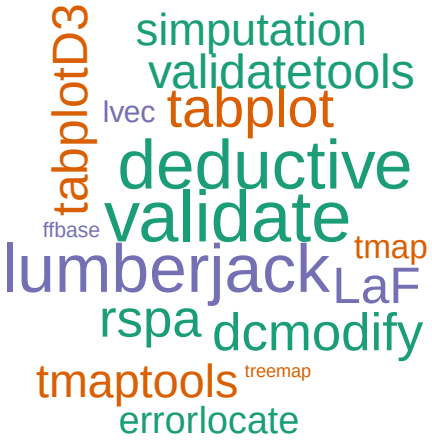
Local user group *kennR!*

- Beginner's course & advanced workshops
- User meetings & support
- Functional management

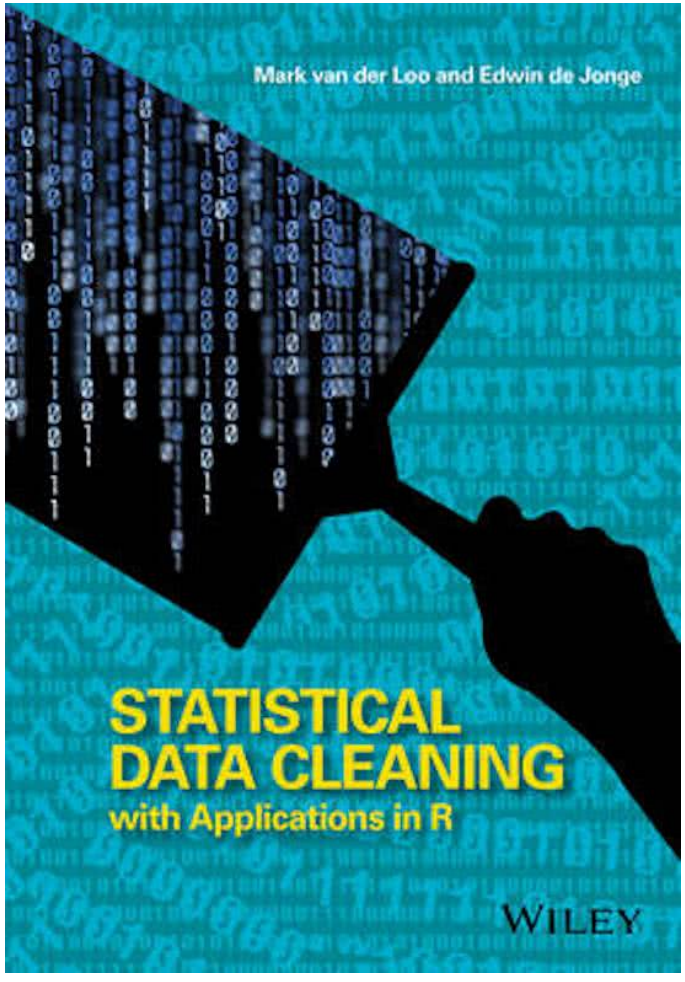
FOSS Contribution Policy (in short)

- When relevant to statistics Netherlands, with positive business case.

Packages and literature contributed



- data cleaning
- visualisation
- infrastructure



Current infrastructure

- R + RStudio on central folder
  - R-engine usable by non-programmers who just run a script
  - Selection of R packages pre-installed
  - Full CRAN repo available internally (there's no direct internet access from most VM's)
- RDS server (8core, 64G VM's) for heavier work
- Working on connection to Spark server (Sparklyr)
- Working on RStudio/Shiny server

General remarks

Lessons learned

- Central installation or server solution preferable
- Training courses are necessary
- Support is needed when the number of users grow
- Community is important
- Internal CRAN mirror for IT security
- There is a lot of free support from the world-wide community

See also

Kowarik and Van der Loo (2018). Romanian Statistical Review 1/2018 pp. 15-29

Collaboration opportunities

- Packages can be easily shared
- Interface is unified by R, including interface with C/C++, Python,...
- Bottom-up approach much more efficient than defining everything beforehand
- Interesting packages can be found at
  - Official Statistics Task View (CRAN)
  - www.awesomeofficialstatistics.org

Inivitation

Statistics Netherlands, Den Haag

- 12-14 September: uRos2018 conference
- 10-11 September: unconfUROS hackathon event

More information:

`www.uRos2018.org | @uRos2018 | uRos2018@cbs.nl`

temp

- **The use of R in official statistics**
- **unconfUROS**
- eRum 2018