Adding a corporate identity to reproducible research
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Reproducible research
- Markup languages separate content and style
- Straightforward to apply different styles to a document
- **knitr** facilitates the combination of R code with markup languages
- **LATEX**
- HTML
- Markdown
- Benefit: R code and accompanying text in the same document
- **rmarkdown** facilitates the conversion of Markdown to different output formats
- PDF
- HTML
- **MS Word**
- ...

Our solution
Two R packages
- **INBOtheme**
  - Define custom themes for **ggplot2** graphics
  - Corporate identity theme
  - Themes as required by scientific journals
- **INBOmd**
  - Currently focus on PDF output
  - **LATEX** styles
  - Pandoc templates
  - **rmarkdown** functions

Requirements corporate identity
- Consistent
  - Markup language with appropriate output format gives consistent corporate identity
- Easy to use
  - Markdown is relatively easy to learn and use
  - **LATEX** is available for more fine-grained control
- Easy to maintain
  - Packages are maintained in a private git repository
  - Allows for different versions and branches
- Easy to distribute
  - devtools::install_github makes it easy to install from a git repository
  - Avoids the need to pack the code for different R versions on different architectures
  - Users are recommended to install packages at a default location
  - The manual assumes it is installed at that location
- Documented
  - R has nice infrastructure for the documentation of code in a package
  - Vignettes allow to write more elaborate manuals and examples
- Different types of output
  - Report
  - Presentation
  - Handouts
  - Poster
- Create matching graphics

**INBOtheme** example
```r
library(ggplot2)
library(INBOtheme)
them_set(theme_inbo2015(base_size = 25))
text <- data.frame(
  Letters = LETTERS[1:9],
  Y = runif(9, 0.25, 1)
)
ggplot(
text,
  aes(x = Letters, y = Y, fill = Letters)
) +
  geom_bar(stat = "identity")
```

Figure: Example **ggplot2** graphic with corporate identity

**INBOmd** package structure
- **R** contains an **rmarkdown** function for each output style to map the variables of the YAML block to the correct pandoc template
- **inst/pandoc** contains the pandoc templates
- **inst/local_tex** contains a **LATEX** Directory Structure (TDS) with the **LATEX** styles
- **inst/inbo.cls** is a bibliography style
- **vignettes**
  - Manuals on using the corporate identity
  - Dummy documents illustrating the various components of the corporate identity

**INBOmd** **LATEX** usage
- **Add local_tex** from the package to the **LATEX** roots
- Refresh the **FND** (File Name Data Base)
  - Required each time files are added to **local_tex**
- **Add the appropriate usepackage** to the preamble of the Sweave file

**INBOmd** Markdown usage
- Prepare the **LATEX** styles
- Add the relevant YAML block at the top of the Rmd file
  - Indicates the required render function
  - Defines optional variables to pass to the Pandoc template
- Use **rmarkdown::render** to render the Rmd file to the required output
  - A small script allows to render the same document to different output formats
  - E.g. presentation, handouts and a report version of the presentation (useful when teaching R code)
  - RStudio users can use the "Knit" button, which renders the first format in the YAML block

**YAML block**
- Contains rendering metadata
- Is placed at the top of the Rmd file
- **variable**: value structure
- Hierarchy is indicated by indentation
- **output**: lists the defined output formats
- **package::function**: tells **rmarkdown** which function to use for rendering
- Other variables are passed to the function
  - Variables at the highest hierarchical level are passed to all output formats
  - Variables at the level below an output format are only passed to that output format

A **YAML** block example
```yaml
---
title: "Markdown, R and corporate identity"
author: "Thierry Onkelinx"
bibliography: "INBOmd.bib"
keep_tex: true
output:
  INBOmd::inbo_slides:
    location: "Handelsplein, 2014/12/4"
institute: "INBO"
inbo_handouts:
  location: "Handelsplein, 2014/12/4"
institute: "INBO"
inbo_rapport:
  cover: "useR-large.png"
  cover_offset: 150mm
text: "Thierry Onkelinx"
cover_text: "The R logo"
---
```

Markdown to **MS Word**?
- Pandoc can do the conversion
- **MS Word** templates are limited to style definitions
- Variables are not available in **MS Word** templates
- **Conclusions**:
  - A lot of postprocessing would be required
  - Useful when collaborating with co-authors requiring MS Word for revisions