

Chair of Information Systems and Energy Efficient Systems, Prof. Dr. Thorsten Staake

Module: EESYS-P-BIRES-M – WS 2018/19 (Mo, 16 – 18 h)

Topic: “Business intelligence dashboards for open mobility data”

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SUMMARY

- In this **Information Systems (Wirtschaftsinformatik)** project, participants will develop a **business intelligence (BI) dashboard** using state of the art technologies (R together with Shiny¹ or Tableau²).
- Students learn to work with modern data science and data analytics environments, integrate online data sources, and practice agile software development and project management using “Scrum”.
- An introduction to the software used in the project will be given in the beginning of the course.

BACKGROUND

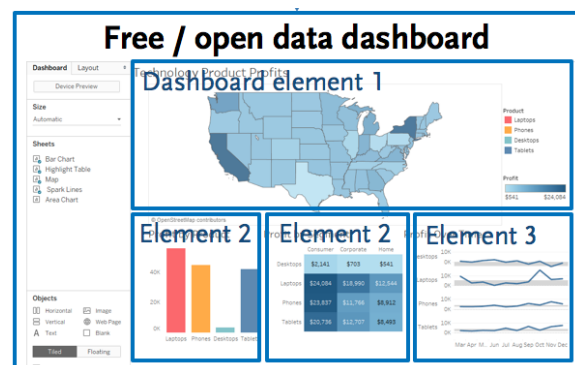
Free and open data sources hold a massive amount of information that can be used in modern business intelligence (BI) applications to create insights and finally help companies to gain a competitive edge. Analytics platforms such as GNU R and Tableau provide a rich set of tools to use data with reasonable programming effort. This project will be a hands-on exercise directed to future business analysts and data scientists.

TASK DESCRIPTION

Dashboards are helpful tools and can assist managers as well as private consumers for knowledge generation and decision support. In this project, students are to exploit publicly available data sources in the context of mobility (e.g., public transportation, carsharing, electric vehicle charging, traffic data and environmental pollution), visualize the data in a BI dashboard and document their findings. Students will also work out design guidelines for dashboards and visualizations. The BI dashboard will finally give citizens insight into the mobility-related online data for a given address (possibly over time) and present it in a well-understandable dashboard.

For this purpose, online platforms containing publicly available transport data are to be collected and reviewed in the **first part of the project**. To this end, 2-4 project participants will focus on one platform and present them in a short presentation. Examples of such platforms are:

- Map data (e.g., OpenStreetMap, Google Maps, Wikimapia, Geonames)
- Public transportation (e.g., DB Open Data)
- E-mobility charging stations (e.g., OpenGridMap)
- Environmental pollution data (e.g., luftdaten.info)



In the **second project phase**, the project teams then implement interfaces to the data sources and develop one dashboard element for the data. We use GNU R as the platform for data processing and analysis. The dashboard will be implemented in the framework *Shiny* or in *Tableau* (this decision will be made with all participants). Students will work with agile software project development tools (e.g., Scrum, Git).

In the **third part of the project**, all dashboard elements are combined into a **dashboard**.

¹ See: <https://rstudio.github.io/shinydashboard/>

² See: <https://www.tableau.com/>

TARGET GROUP

Max. 15 Master Students from all WIAI programs (WI, IISM, AI, CitH, ...). Bachelor students can attend the module as part of their “Profilbildungsstudium” B1 or B2.

NECESSARY SKILLS

Some background in R and web-development (HTML, CSS) would be a plus, but is not strictly required. An introduction to the development environment will be given at the beginning of the course. The agile method "Scrum" is used for project management and Git will be used as version control and team management system.

COURSE SCHEDULE AND ORGANIZATION

Effort: 6 ECTS

Language: German or English (will be defined in the Kick-off meeting together with the participants)

Location: WE5/03.004

Time: Monday, 16:15- 17:45, plus one session per week (time and date will be arranged with all participants). Most of the time, students will be able to schedule the work by themselves.

Preliminary course schedule:

- 15.10.18 Kick-off meeting and team forming (students can join the groups **until Friday, 19.10.18**)
- 22.10.18 1st sprint planning meeting
- 12.11.18 2nd sprint planning and review meeting
- 03.12.18 3rd sprint planning and review meeting
- 07.01.19 4th sprint planning and review meeting
- 28.01.19 5th sprint planning and review meeting
- 05.02.19 Final presentation
- 03.03.19 Final report submission

Teams: you can group up in teams of 2-4 students.

CONTACT



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We are looking forward to your participation!

The EESys Team