

# T A N S F E R

A knowledge transfer project

**Acquire the relevant knowledge and go farther.**

Open-source software for science

**Professional data analysis without license fees.**



**A project of oikostat**

**oikostat.ch**

**TRansfer aims to propagate the use of the open source statistical software R ([www.R-project.org](http://www.R-project.org)) in poorer countries. Students and researchers improve their capabilities to produce up-to-date analyses that are publishable internationally.**

This project was initiated by oikostat GmbH ([www.oikostat.ch](http://www.oikostat.ch)), a small private office for statistical consulting in Switzerland.

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## Summary

Knowledge empowers and makes independent. Knowledge is one of the prerequisites for sustainable development. And research creates knowledge.

All quantitative research directions, e.g. within medicine, biology, sociology, agronomy, and economy need statistics. Statistics is needed to plan and analyse data, to present results and draw inferences from the data.

TRansfer is a project to transfer statistical know-how and the use of the software R to less developed areas. The aim is to help to empower people to do their on research according to their needs.

R ([www.r-project.org](http://www.r-project.org)) is a very powerful and widely used statistical software. Furthermore, it is open-source, so no license fees incur. With access to the internet, answers to most questions regarding the software can be found and the user becomes part of an active community that further develops and exchanges the software.

TRansfer is a project of the small statistic consultant company oikostat GmbH in Switzerland. oikostat aims to transfer R-knowledge with teaching on-site and guidance via email.

For the project, oikostat seeks partners to establish contacts with potentially interested institutes abroad, and to finance the project.

## Aim

TRansfer aims to provide a knowledge transfer from the world with great resources for education to countries with less such resources. The use of R will be taught at universities and research institutes. Courses on-site as well as well-directed assistance with specific analysis projects (on site and via email) will empower people to use this very flexible and free software and to propagate it to others. Depending on the needs, TRansfer will teach study design, basic statistical knowledge and analysis, advanced techniques and data presentation - always using the open source software R.

This is how we want to measure the success of TRansfer:

- Number of courses and participants
- use of R by students and researchers after the courses
- follow-up R courses taught by newly educated, local staff
- publications coming out of mentored analysis projects
- increased international networking of researchers

## Statistics and R

Statistical know-how is a prerequisite for successful quantitative research. Statistics is needed for example in various areas of biology, medicine, sociology, agronomy, and economy. Statistics answers questions about how data should be collected, presented and analysed in order to reach conclusions from the data.

In order to apply statistical methods a basic knowledge is needed. However, learning statistics never ends: New projects often require the application of new statistical methods that need to be understood before one is able to do the analysis.

R ([www.r-project.org](http://www.r-project.org)) is a widely used, very flexible and professional open source software for data analysis and presentation. R does not provide a menu-driven user interface, but the needed operations have to be entered using a command language. Therefore, some extra effort is needed at the beginning, but once one is familiar with the (simple) language one can make use of the enormous flexibility of the program. R-versions are freely available for all platforms.

R allows the user to produce virtually any desired graphic. Even geographic data can now be presented using recently developed packages.

Yet another advantage of R is that there is a lively exchange among R users. Help lists, mailing groups and so forth are available. The active R user becomes part of a community that exchanges ideas and techniques.

## oikostat

oikostat GmbH (from *Ökologie* = ecology and *statistics*) is a small company in Switzerland providing statistical consulting ([www.oikostat.ch](http://www.oikostat.ch)). We are three biologists (PhD), and we all have additional training in applied statistics. We work part time for oikostat. Founder and owner of oikostat are Fränzi Korner and Pius Korner.

Our customers are mainly students and researchers in biology and practical ecologists. Some projects are in the area of agronomy, sociology, and medicine. We give courses at various levels using R.

Apart from oikostat we all work in research, too. We are, therefore, user of statistical techniques (not developers), and this ability we would like to propagate in the project TRansfer.

## Short CV

Additional information can be access at [www.oikostat.ch/team\\_dt.htm](http://www.oikostat.ch/team_dt.htm)

	<b>Pius Korner</b>	<b>Fränzi Korner</b>
year of birth	1972	1972
nationality	CH	CH
education	biology Univ. Basle PhD biology ETH Zurich (2003) Post-diploma course "applied statistics" ETH Zurich (2003)	biology Univ. Zurich PhD biology Univ. Zurich (2003) Post-diploma course "applied statistics" ETH Zurich (2003) Diploma "applied statistics" Univ. Bern (2008)
positions (PK and FK)	2003-2009: Manager of a nature education centre: environmental education and courses for all ages, maintenance, project management since 2007: Swiss Ornithological Institute, data analysis, and oikostat	
teaching	1995/97: substitution at high school; 1998 statistics demonstrator Univ. Basle	various courses and workshops Univ. Zurich, Max-Planck Inst. and others
visits	USA (1 y), South Africa (1 y), Geneva (1 y), Mauritania (2 mo), eastern Europe (5 mo)	Norway (8 mo), USA (4 mo), Mauritania (2 mo), eastern Europe (5 mo)
languages	lecture: ger, en others: fre, arab, (ita)	lecture: ger, en others: fre, norwegian

## Scope of the project

In a first stage the project may involve one to three institutes and provide for example a one week course on-site to each, plus some guidance with specific projects ("learning by doing"). The course will fit the needs of the institute. In the future, more courses and more institutes may be included.

## Project development

- ↓ contact with potential institutes interested in a course
- ↓ fundraising in the rich world (government, foundations, private persons, companies)
- ↓ definition of the needs of the institute
- ↓ infrastructure and hardware available?
- ↓ elaboration of the course
- ↓ arrange stay at the institute
- ↓ guidance for the institute to prepare for the course
- ↓ course at the institute
- ↓ project-specific guidance for analyses on-site and via email
- ↓ eventually, second course at the institute
- ↓ continuous evaluation

The input at the institute may be a general course and/or an instruction in connection with a specific analysis project. In any case, the main aim is to learn and use R, be it through a course or through "learning by doing". Also, a course will always include a lot of practical work.

## Splitting of costs

Target groups for TRansfer are institutes in countries with very limited resources for education. Nevertheless, TRansfer requires a minimal contribution from the institute, namely a suitable course locality, local organisation of the course, reception and hosting of the lecturer.

The costs for the course as such and the mentoring of specific analysis cannot be covered by the institute. Therefore, TRansfer seeks partners in the rich world that are willing to finance the project and, in this way, make TRansfer possible.