



TECHNISCHE UNIVERSITÄT
BERGAKADEMIE FREIBERG
Die Ressourcenuniversität. Seit 1765.



Science with and without e



A qualitative analysis of a everyday professional life of scientists

„Google is my best friend“

- It encompasses a **transformation into online** of information technologies in general. It does transform transform
- Science referred

„I solely use my computer“

„Blogs contain nothing helpful for my research“

„Well, besides it is forbidden by my employer, I use dropbox“

„My favourite tool among the creative phase is paper and pencil“

„Data analytics is important. I always use Excel for that. It's easy.“

Related Work & Methodology (excerpt)

Related work

- Inquiries quantifying use of online tools (sometimes in regards to intentions) like the Science 2.0 Survey
- Case studies presenting the application of e-science information technologies to projects
- Research models like the one of Töpfer being far from a everyday professional life but systemizing the research process
- Process model of Kraker & Lindstaedt defining a first attempt to a systemizing the work of scientists

Methodology

- Qualitative study by expert interviews (alternatives: self logging + prove slips) because we wanted to gather information from three perspectives: Human Task Technology

Statistics

no	discipline	Academic degree	Institution	Age	Gen-der
01	Computer science	Prof.	University	30-40	m
02	Economics	Prof.	University	40-50	m
03	Economics	Ba/Ma/ Diploma	University	20 - 30	m
04	Computer science	Prof.	University	50 -60	m
05	Psychology	Prof.	University of applied sciences	50 -60	m
06	Biology	PhD	Extra – academic institutions	40-50	m
07	Engineering (material science)	Prof.	University	50 - 60	m
08	Economics	Ba/Ma/ Diploma	University	20 - 30	m
09	Economics	Prof.	University of applied sciences	40 - 50	m
10	Jura	Prof.	University of applied sciences	40 - 50	m
11	Politics	PhD	Extra – academic institutions	40 - 50	fm
12	Humanities	PhD	Extra – academic institutions	30 - 40	m
13	Jura	Prof.	University	60 - 70	m
14	Computer science	Ba/Ma/ Diploma	University	20 - 30	m
15	Mathematics	Prof.	University	50 -60	fm
16	Information Science	PhD	Extra – academic institutions	30 -40	m
17	Mining	Prof.	University	40 - 50	m
18	Computer Science	Prof.	University	50 - 60	m
19	Humanities	PhD	University	30 - 40	m

Areas of everyday professional life

- Teaching (depending on institution and degree)
- Administration
 - Academic
 - All professors and PhDs called the particular field of administration, but only by one of the reserach assistant holding a bachelor/master/diploma degree
 - Tasks: preparation of committees, the organization of workshops or events, the work in administrative positions like dean of a faculty, supervision of cooperation treaties
 - Project/funding related
 - Project management,
 - project acquisition
 - Networking
 - supervisions
- Funding
 - Funding dictates research vs. funding has a bad cost/outcome relation and is irrelevant
- Research
 - Project idea, literature search, data preparation, writing, presentation, writing reviews
- Proportion of each task?

Area independent task related issues

- Research Processes
 - **Structured vs. chaotic?**
- Communication/ Data exchange
 - Direct (meetings)
 - Indirect (preferred media e-mail)
 - **Science communication (blogs?)**
- Collaboration/Cooperation
 - Important (besides for one) – **increasing or stable?**
 - Reason: **Quality control for ideas?**
 - Multi-disciplinary
- Virtual social networks
 - Mendeley, Twitter, Academia, ResearchGate, Xing
- Data Exchange
 - Even though people are aware of the critical issues related to intellectual property, tools like Drop box are **booming?**

Tools: science

Task	Without e	With e
Idea generation	<ul style="list-style-type: none"> - Discussions with colleagues - Reading publications - Attending conferences 	
Data collection (Literature search)	<ul style="list-style-type: none"> - Reading books as hardcopy (one) 	<ul style="list-style-type: none"> - First step: google (scholar) - second: literature databases
Data collection (not literature search)	<ul style="list-style-type: none"> - Measuring - Modelling - Interviewing 	<ul style="list-style-type: none"> - Online questionnaire
Creative phase	<ul style="list-style-type: none"> - Paper and pencil - Discussion face to face - Mindmaps 	
Data preparation	<ul style="list-style-type: none"> - Excel, SPSS - R - Rapid Miner 	
Writing	<ul style="list-style-type: none"> - Word - LateX - Powerpoint 	
Presentation	<ul style="list-style-type: none"> - PowerPoint - Prezi - LateX Beamer 	
Science Communication	<ul style="list-style-type: none"> - PowerPoint 	<ul style="list-style-type: none"> - Blogs - Twitter - Facebook



Findings III - HUMAN

Scientist

- Age
- Role
- Internationalisation
- Networks

Efficiency

Integration

practice