

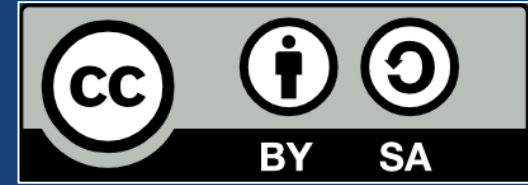
Methodology and Tools for Research: Being a researcher

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- For any comment on this course, do not hesitate to contact me: yannick.prie@univ-nantes.fr or @yprie

Objectives of this course

- Discover some researchers workflows
 - and the associated tools (if not already seen)
- Q/A with researchers
 - visit researcher websites
 - prepare your questions!

- Ressources for the course

<http://www.scoop.it/t/toolsandmethodologyforresearch>

Outline

- Workflows
- Putting it all together
- A job like the others?

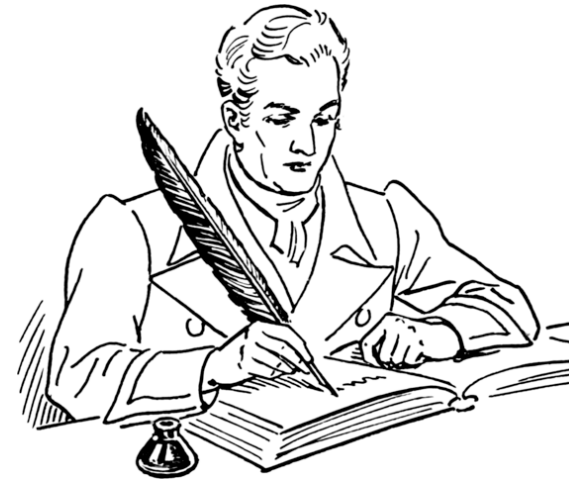
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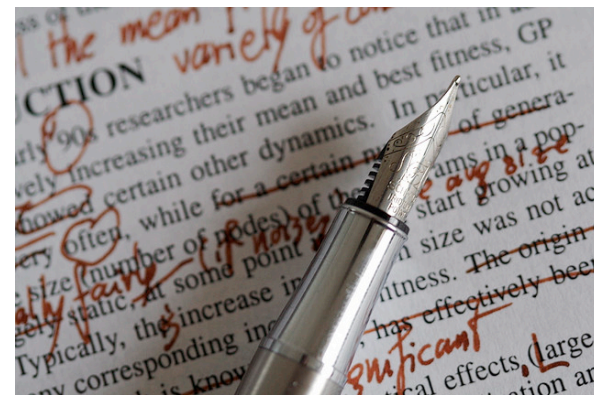
Workflow I: write a paper

- Duration:
 - 2 months to several years
- From
 - “I/we should write something on that topic”
- To
 - “the final version of the paper was send yesterday”

2 results from google image: "write a paper"



Line art representation of a Quill
by Pearson Scott Foresman is Public Domain



2008-01-26 (Editing a paper) - 31
by Nic McPhee is CC BY SA 2.0

Workflow 2: supervise PhD students

- Duration
 - several months to 5 years
- From
 - “ok I will take you as a PhD student”
- To
 - “congrats for getting your PhD!”

2 results from google image: “supervise PhD students”



Michael Carroll, Sarah Hinchliff Pearson and Diane Peters
by Joi Ito is CC BY SA 2.0



Aquatint of a Doctor in divinity at the University of Oxford
by Rudolph Ackermann is Public Domain

Workflow 3: write a grant proposal

1 result from google image: "write a grant proposal"

- Duration
 - several days to several months
- From
 - “this call should be for us”
- To
 - “the last signature for the proposal deposit has been sent”



A ball point pen in use
by Ildar Sagdejev is CC BY SA 3.0

Workflow 4: participate to a research project

2 results from google image: "participate to a research project"

- Duration
 - duration of the project + several months
- From
 - "we have been accepted"
- To
 - "final report has been sent"



Research project with Fraunhofer Institute
by David Din is CC BY 2.0



ZOOLOGY STUDENTS FROM THE UNIVERSITY OF VIENNA PARTICIPATE
IN A SCIENTIFIC CRUISE... by Yoichi Robert Okamoto is Public Domain

Workflow 5: attend a conference

- Duration
 - several days
- From
 - “where is that cab?”
- To
 - “welcome home!”

2 results from google image: "attend a conference"



Web Summit 2013 In The RDS In Dublin [Ireland] - Day One
by William Murphy is CC BY SA 2.0

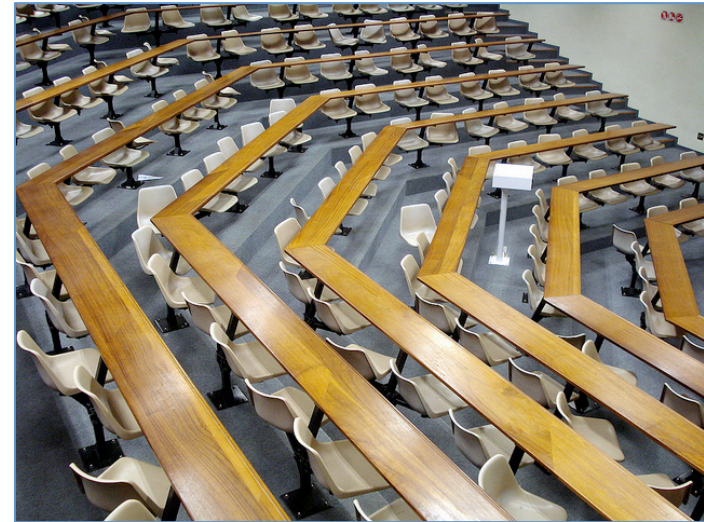


Web Summit 2013 In The RDS In Dublin [Ireland] - Day One
by William Murphy is CC BY SA 2.0

Workflow 6: be the local chair of a conference

2 results from google image: "local chair of a conference"

- Duration
 - several years
- From
 - “would you like to be the local chair of the conference?”
- To
 - “at last everything is finished”



Inside Leslie Social lecture theatre at UCT
by Ian Barbour is CC BY SA 2.0



ICPHSO 2012 by US CPSC is CC BY 2.0

Workflow 7: drive the community

1 result from google image: "drive the scientific community"

- Duration
 - (permanent)
 - several months/years
- Examples
 - be at the board of a scholar society
 - organize workshops/conferences
 - do some lobbying with funding agencies
 - participate to forums, mailing-lists
 - ...



Valedictory session of the 100th Indian Science Congress
by Biswarup Gangulyis CC BY 3.0

Workflow 8: know what's happening

- Duration
 - permanent
- Examples
 - set up intelligence tools
 - RSS, twitter, ML...
 - participate to events where you meet colleagues
 - conferences, workgroups, etc.
 - read proceedings
 - ...

2 results from google image: "know what's happening"



Dogs wanting to know what's happening outside
by Ann Larie Valentine is [CC BY SA 2.0](#)



The graph that shows what's happening to the stock market today
by Dave Winer is [CC BY SA 2.0](#)

Others workflows

- Read a paper, a book
- Present a communication
 - workshop, invited conference
- Do a research trip in another laboratory
- Prepare an evaluation
 - oneself, team, lab

Others workflows (cont.)

- Promote research
 - popularize science
 - “fête de la science”, cultural events, etc.
 - write books
 - teaching or research
 - have your courses/seminar recorded and broadcasted
 - write patents
 - create companies
 - ...

Others workflows

- Do some networking
 - communicate about oneself and one's research
 - more or less 😊
 - webpage, blog, twitter...
 - be present where it is important to be
 - take responsibilities
 - organize, helping organize
 - know (or trying to) know the good persons
 - get access to information
 - ...
 - (but try not to be perceived as only doing that for your career)

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A day of a researcher

all these workflows...

+

teaching

+

administrative work

Teaching

- Every researcher does some teaching
 - one's university or others
 - summer schools
- Workflows
 - Preparing courses
 - Syllabus
 - Course material
 - Giving lectures
 - Correcting assignments

Administrative work

- Related to teaching
 - Managing degree courses (e.g. DMKM master)
 - Preparing evolution / evaluation
- Related to team, lab, institution, university
 - Weekly/monthly team meetings
 - scientific presentations + administrative decisions
 - Lab councils
 - decide, evaluate, animate, etc.
 - Institution, university councils
 - prepare the future
- Related to funding bodies
 - Participate to national programs committees

A day of a researcher is a long day



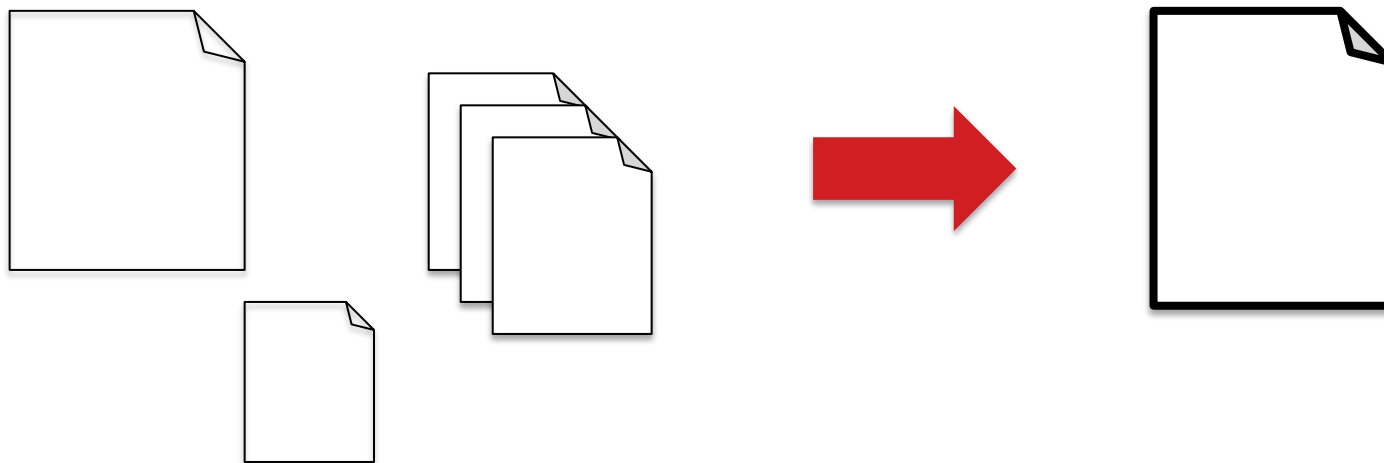
Unorganized
by Alan Levine
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Knowledge work

- Activity based on data and **documents** that mainly produces new data and **documents**
 - Engineers, business intelligence workers, researchers, teachers, designers, etc.



Science as knowledge work

- **Read** documents

- Literature
 - Articles, books, journals, PhD thesis
- Reports
- Blogs
- Reports
- Grant description
- Mails
- Meeting minutes
- ...

- **Produce** documents

- Literature
 - Articles, books, PhD thesis, etc.
- Slides
- Reports
- Reviews
- Grant proposal
- PhD thesis subjects
- Mails
- Memos
- Budgets
- Minutes
- Experimental data
- ...

Personal Knowledge Management

Much of what we do when interacting with computer systems is information management. By “information” here, I mean items such as email messages, files, folders, financial records, digital images, web pages, database records, contact information, calendar entries and so on. By “management”, I mean the various tasks that these items require – sorting, searching, clustering, creating, monitoring, etc.

(Dourish et Button, 1998)

Scientific activity as PKM

Read documents

Manage

(keep, sort, search)

- Documents
- Personal notes
- Data

Produce documents

Monitor the outside

- Documents
- Data

Nothing really original, except the **publication workflows**

A job like the others?

- In some ways: yes
 - Not exciting all the time
- In other ways: no
 - Freedom
 - Peer evaluation
 - Travels
 - Sometimes you find something really interesting

Important qualities for being a researcher

- Logical thinking
 - especially for writing
- Synthesis spirit
 - Being able to make sense out of a large body of works
- Critical spirit
 - Being able to see the flaws in other's work
- Reflexivity
 - Being able to honestly assess one's processes and production
 - Eliminate bad ideas without remorse
 - Organize one's objectives
 - Know how to "sell" one's production

Important qualities (cont.)

- **Curiosity**
 - What others do could be interesting
- **Mobility**
 - Both intellectual and geographical
- **Tenacity**
 - If you believe in what you are doing, do not give up

You never stop doing research

- The mind does not stop
 - travel, shower, sleep, etc.
- In modern connected life solicitations never stop
 - step outside of the day to day routine
 - step completely outside of the job once in a while

Choosing a good research topic

- Permits to build from previous work/knowledge
 - Changing from one's sub-discipline to another takes a lot of time and energy
- Suited to publishing
- Has a good duration
 - At least several years
- Fashionable
- Not too close to industrial R&D
 - Could you compete with 10 or 100 engineers and researchers at Google or IBM?

Researcher AND teacher

- Every researcher does some teaching
 - Even “pure” researchers
 - Teaching is a necessity to fully understand one’s research domain
- Universities are the places for research and teaching
 - What is taught evolves with the evolution of scientific knowledge
 - Teaching is based on recent research
 - Even undergraduates benefit from courses by researchers

Pros / cons (Colin de la Higuera)

- Contact with young brilliant people
- Feeling to do something useful
- Meeting interestingg / exceptional people
- Top research questions
- Travels
- Freedom
- Many travels
 - Day to day
 - From one job to another
- Frustrations
 - Unmotivated students
 - Research ideas than remain ideas
 - Funding problems
- Good ideas that do not function

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- **Questions and Answers!**