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Research howtos. Three fascicles for students, analysts and their supervisors

Minh Ha-Duong

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Research howtos. Three fascicles for students, analysts and their supervisors

Minh Ha-Duong

2022-04-12 – First edition

About the author

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Credits

Chapter illustrations by Randal Munroe, reproduced under Creative Commons Attribution-NonCommercial 2.5 License from XKCD.

The quote on page 21 is from Newton (1675), although the phrase was previously attributed to Bernard de Chartres (XIIth century). The quote on page 54 is from Stephen Jay Gould, The Panda's Thumb. The others are popular sayings or mine.

I thanks E. Rosenzweig for comments and suggestions.

Serving suggestion

PDF formatted mobile-first, to be read on your commute.

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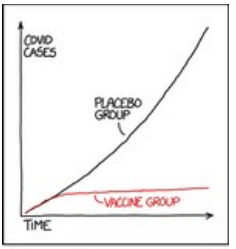
Introduction

Here is a compact handbook for learning and mastering the rules of quality in scholarly studies, based on more than thirty years of experience conducting interdisciplinary research, training Master and Doctoral students and supervising junior analysts.



STATISTICS TIP: ALWAYS TRY TO GET DATA THAT'S GOOD ENOUGH THAT YOU DON'T NEED TO DO STATISTICS ON IT

This handbook defines soft skills, the way of the researcher, in one-page practical notes covering all the need-to-know trade procedures. To learn about the fine art of data analysis, modelling, visualization, statistics or software engineering, you will find more specialised guidance elsewhere. See xkcd #2400 left.

I wrote these pages for myself first, a daily reference. By sharing, I hope these directives and checklists will be helpful to my peers, aspiring researchers, and junior analysts alike.

The practices described hereafter will serve well beyond the community of Economists engaged with Sustainability Sciences to which the author belongs. These howtos are anchored in my day to day experience, not abstract. I will introduce you to the Grammarly language checker, the HAL and Zenodo open archive repositories, the Zotero e-library manager, LibreOffice. Even if your work environment uses different software, these are well worth knowing. These power tools are available at a very reasonable cost.

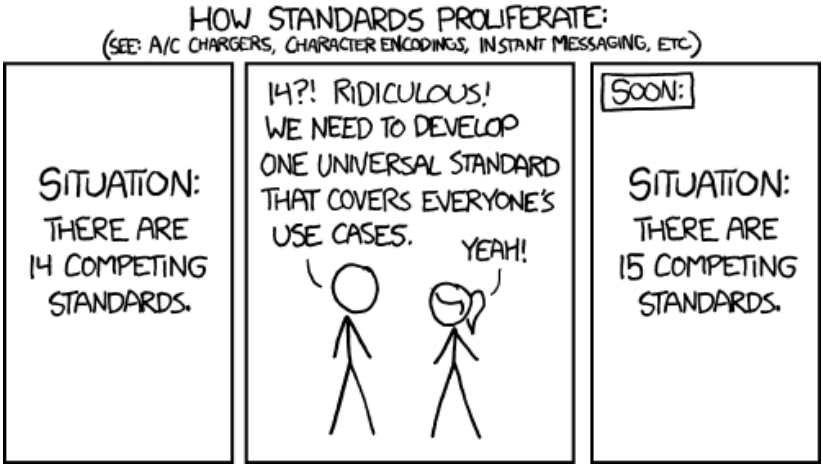
This handbook shows how to conduct quality research at three levels: the article, the scientist, and the project team levels. Thus, the first fascicle explains how to write high-quality scholarly work. The second is about winning the reputation game. The third is about managing teams and research projects.

Fascicle 1. Quality production

Learn the rules, Master the rules, Break the rules.

Chapter 1

Reference quality levels for manuscripts



xkcd #927

Checklists in this chapter define four different document quality levels, and when to use them. The most important message is: Remember to sign, date and title anything you show.

Howto 1: Identify all documents

Anything you produce must have:

- Title
- Author
- Date

Apply this rule universally, from paintings to books, including emails, notes, memos, drafts reports, finalised reports, papers, tests, audio or video recordings.

Misidentified information cannot be archived and referred to conveniently later. It is not be usable in a rational, scientific debate.

Sending incompletely identified documents is a frequent error. A sensitive receiver may perceive carelessness as a lack of etiquette. I rarely feel obligated to read and help with such a document.

Howto 2: Deliver a plausibly acceptable document

At that second quality level, the contents may be genius or garbage, but at least the document meets minimal formal expectations.

- Well identified
- On-time
- On length
- Page numbers
- File format as requested and PDF
- Computer spell-checked
- All figures and tables have captions
- Author's affiliations
- Corresponding author email
- Encode any text file as UTF-8 and Unicode.

This quality level is appropriate when sending me an early draft. The low standard makes it easier to keep the ball in play. It is a mistake to aim for a higher quality level, procrastinate and deliver nothing.

Good collaborators always meet this standard. At school, failing any of this is ground for a non-passing grade or a summary reject.

Time is of the essence.

Howto 3: Write a document carefully

A Master thesis, a scholarly manuscript, an expert report should have these qualities on top of the ones before:

- File size minimal
- Summary or abstract
- Bullet list of main findings, take-home messages, highlights
- All figures and tables are referenced in the text
- English meaning clarity checked by another reader
- Typos, grammar, style copy-edited by a qualified editor
- No plagiarism: quote and attribute any copied sentence.
- Explicit copyright assignment and permissions to reproduce any external intellectual property
- Citations consistently follow a citation style
- Bibliography includes all and only cited references
- All references cited have author(s), title, year, DOI (Digital Object Identifier) or URL.

To test if your text is understandable, ask the first person to walk in front of your office to read it. Don't be afraid; this is what co-working with others is about. Even better if that colleague is not a specialist of your subject.

A copyeditor does not have to be human. Modern artificial intelligence language checkers, e.g. *Grammarly*, obsoleted Strunk and White's *Elements of Style*.

I use *Zotero*, a bibliography management tool (citation or reference management software), to ensure the last three points.

Howto 4: Write professionally

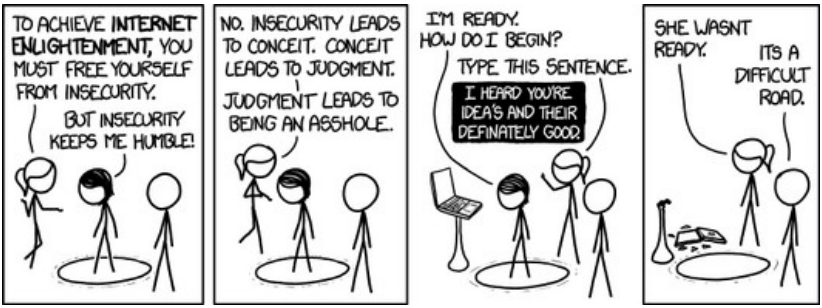
Lastly, here is the expected level for a finalised PhD thesis, a submission to a peer-review journal, a highly professional consulting report:

- Always use styles to get entirely consistent documents.
- Remove all direct formatting, white spaces trailing at the end of lines, empty blank lines.
- Number chapters, figures, tables, cross-references automatically.
- Internet links in the bibliography are active.
- Proofread the print-ready version on paper.
- Archive everything needed to reproduce results as supplementary electronic material: data files, model code, spreadsheets, questionnaires (e.g. Zenodo or HAL). Cite these supplements by DOI.
- Provide the high-resolution Figures files as separate files.
- Follow typographic guidelines, e.g. the *Manuel de règles typographiques en usage à l'Imprimerie Nationale.*
- Follow language style guidelines, e.g. *The Economist style guide* prescribes -ise, vs *Oxford English Dictionary* -ize.
- Use the Système International (SI) for units.
- Up to date computer-readable metadata included in the file (e.g. File | Properties to set title, author, date, summary)

Break the rules to adapt to the audience, e.g. energy professionals use non-SI units gigawatt-hour and ton of oil instead of Joules.

Chapter 2

How to write quality manuscripts



xkcd #1238

This chapter provides tips for you to transform a first draft into a release-ready document with a nice layout, photos and style. As a writer, using an AI assistant software changed my life.

Howto 5: Manuscript-improving manoeuvers

Well done! You wrote the “beta version”, the first draft, with nothing missing. Here is how to progress to “release ready”:

- Choose a quality level. Do you need it plausibly acceptable, quality written or professional?
- Clean up the layout. Clear all manual formatting, use styles and edit the stylesheet—an easy way to reread everything.
- Write the takeaways messages. No more than five, under 80 characters each. What is your contribution to knowledge?
- Move the last paragraph of the manuscript, which sums up results, in the introduction instead.
- Remove your gloves and rewrite the abstract, introduction, and conclusion. These are what people read most, yet what authors spend the least time writing.
- Change the title to describe the final manuscript finding, not the initial research idea.

Scientific writing is rigorous. If you have any doubt about some text, follow your gut and fix it now. Otherwise, the reviewers will flag it.

After spending ~~days~~ ~~weeks~~ months polishing every word, going back to the big picture helps. At the "finalise” stage of the writing process:

- Print the paper and spread it on a table. The bird’s eye view gives a fresh critical look at the outline. The unbalanced sections stand out. Reorganise by moving around big chunks of content. Delete the weakest without mercy.

Howto 6: Stay safe with type

It is easy to produce quality documents with modern tools and easy to go wrong. Stay out of Uglyland by following these rules:

- Never use more than two typefaces on a page, and in this case, only a serif and a sans serif.
- Set vertical line spacing to 1.15 lines. In technical terms, set leading to 120% of the body copy size.
- Set font size and paragraph width at 50-75 characters per line for print and desktop, 30-40 for mobile.
- For academic writings, use a font close to what the reader is used to seeing.
- Use a serif font on the web. Modern displays have high DPI.
- Use whitespace liberally, avoid producing a page full of uninterrupted text.

For free serif fonts with international coverage, I recommend **Alegreya** and **Vollkorn**. Use **Times New Roman** or the free equivalent **Liberation Serif** as a fallback.

I recommend **Source Sans Pro** and **Lato**, where a sans serif is needed. As a fallback, use **Arial** or the free equivalent **Liberation Sans**.

When preparing an overhead presentation:

- The smallest text should be at least 24pt, or *"Age of the oldest person in the room, divided by two."*
- Title font size should be 36-44pt.

Howto 7: Add copyleft, relevant and beautiful photos

Photos are precious to give an immediate understanding of a key message. Prioritise 1/ Clear reuse rights, 2/ Exact obvious scientific and technical relation to what the text says, and 3/ Esthetic qualities.

- Reuse an image or illustration only when you know its rights. Never reuse images from the internet without a license.
- Mention the source, author, year and licence in the image description.
- The copyright attribution should be visually quiet.

You can find images with a clear copyleft by:

- Your photo collection or the supply of a colleague.
- Your team's or institution's photo bank, CNRS images.
- An open repository such as Wikimedia commons or cc0.photo.
- A free repository such as Pixabay or Shutterstock.

Take photos when on a mission, field trips, site visits. Good images are worth archiving in your and your team's photo bank for further reuse. Archive them with the metadata (embedded or separate file) specifying author, year, place, license.

Also, upload perfect original research images on the CNRS photo bank. They will count as a "science dissemination" product for you.

Only publish images of recognizable people when you have their explicit permission.

Howto 8: Use an AI writing assistant software

The free version of *Grammarly.com* covers the bases: spelling, grammar, punctuation and verbosity errors.

As a writing professional, I found it worth it to fork the $144/year for a premium subscription. Extra features include style, tone, clarity improvement, and plagiarism checking.

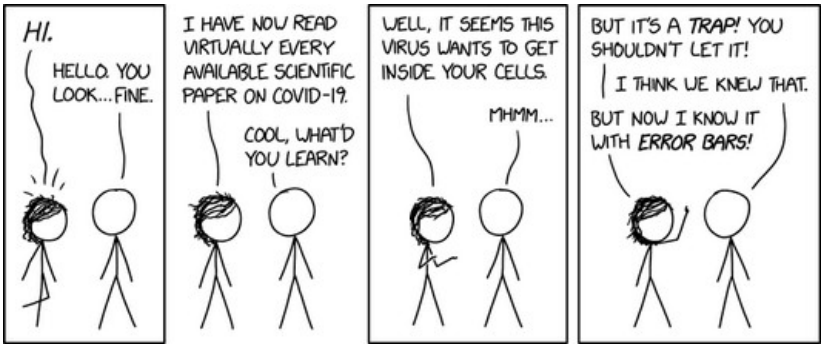
I did not try the competition *Wordtune*, *Ginger Software*, or *Writer*.

I edit my documents with the *LibreOffice* word processor. Unfortunately, *Grammarly* does not have a plugin for *LibreOffice*, and the web app does not preserve fields and styles for ODT files as it should. Possible workarounds include:

- Lots of cut and paste between two windows.
- Assuming the document file is named "*main.odt*", you can upload it into Grammarly, fix it there and get back a file named "*main.edited.odt*". From the original file, use the "Track changes | Compare document" to see the edits. Then in the "Manage changes" dialogue, click Accept to keep old, Reject to take in new edits. Accept the old fields for crossrefs, titles, indexes.

Chapter 3

How to research



xkcd #2281

This chapter explains the research production cycle from research idea to published article. The zoom on the literature review provides a simple and productive way to start any research.

Howto 9: Activities in the research production cycle

Activities of our industry's production cycle:

1. Discuss the research idea over tea. Write the pitch.
2. Define the original contribution, data source, method.
3. Review the literature
4. Obtain and analyse the data
5. Outline then draft the manuscript
6. Review by select colleagues in-house, then revise
7. Present at an internal research seminar, then revise
8. Publish related Technical Report, Data Paper, or Working Paper
9. Present to national or international conferences
10. Finalise the manuscript, package the code and electronic supplements
11. Submit to peer review and wait
12. Revise and resubmit

I have a portfolio of projects at different stages in the pipeline at any moment. Priority goes to the most advanced.

A three-month internship would take about one month on each of step 3, 4 and 5.

Howto 10: Deliverables in the research production cycle

As a research idea advances through the stages of the production cycle, it manifests in these forms:

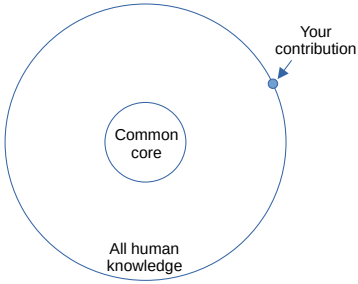
- On the back of an envelope or a café napkin. Really. An idea is only clear enough when it fits in one picture or sentence. Plus, scribbling on cheap paper unchains creativity.
- A research project note defining the original contribution, data source, method.
- After first data analysis: working code and preliminary results.
- First draft: Alpha version for internal review.
- Slide deck + second draft: Beta version for external review.
- Non peer-reviewed Technical Report, Data Paper, or Working Paper.
- Submitted manuscript and cover letter + Electronic supplements: annexes, data, code and results + Archived author's preprint.
- Reply to reviewers' comments + revised versions of the above.

You are a scientist when to you, the word "Article" means "accepted in a peer reviewed journal publication", and it is one of your life goals. Sacred, hence capitalised.

Howto 11: Review the literature

You have a paragraph describing the research idea and a few relevant articles.

Your first goal is to know what has been done in this domain (results) and how (methods). Position your contribution at the frontier of human knowledge →



The literature review is a crawl.

1. For each article you have, lookup its references. Use the article page on the editor's website (access by DOI) and a general search engine (Google Scholar) to discover AI-based suggestions of related articles. Search key authors / teams / conference sessions web pages for ongoing work.
2. Read the title and abstract of related articles. Click the likely ones into your Zotero e-library. Assess the contents and for exciting papers, write a reading note. See Howto: Get paywalled articles.
3. Repeat until you have collected seminal papers that everybody cites and the contributions at most recent conferences in the field.

A literature survey is sometimes sufficient, always necessary.

If I have seen further it is by standing on the sholders of Giants.

Howto 12: Write a reading note

Writing the literature review is a big task. Break it down into a collection of smaller ones: writing reading notes.

A reading note has two parts. The first summarises the article or report, and the second provides your critical analysis of it. It concludes on its relevance for your work.

Writing reading notes trains you to produce carefully written documents:

- The title of the reading note is not the title of the article. The author of the reading note is you. The date is when you wrote it.
- A note is one or two pages. I assign a beginning student two articles or reports the first week. After that, capacities define the rhythm of the literature review.
- By the third week, I expect to see carefully written documents and a small but well-indexed Zotero e-library with its full texts database.

In research, reading means writing.

You are not paid for reading.

Howto 13: Self-archive electronic supplements in Zenodo

Zenodo is an open archive where you can deposit data, code, or technical documentation and receive a DOI for it. There is no peer review.

A dataset must satisfy the following criteria before depositing in *Zenodo*.

- The title is unambiguous and meaningful, standing alone.
- The author is the person/organisation who has done the work (i.e. generate/collect data).
- The date is when the data was first released/published by the author (i.e. the date on the statistical yearbook).
- The description of data collection methods is detailed enough to allow another researcher to reproduce the results in principle.
- Each file of the dataset has a contents description.

When publishing on *Zenodo*:

1. Choose a community. I use *Vietnam Energy System Modeling*.
2. Include your hashtag in the data description, e.g. #VIETSE.
3. Verify that the correct type of upload is selected, the verify the language, author and publication date.

Chapter 4

How to manage your e-library

xkcd #1179

Most researchers hoard academic articles and reports, knowledge is our raw material. This chapter's techniques will help to with the electronic document management up to thousands of articles. The open source solution *Zotero* is easy to learn and offers free storage up to 300MB.

Howto 14: Access paywalled articles

To obtain the full text of an article, you should know its DOI, or the authors – year – title.

1. Search your and your team's group (≈supervisor's) library.
2. Search your institution's library: ENPC, CNRS.
3. Google it. The first result usually is for the publisher's website. If your boss has paid access fees, you may see something like « Brought to you by: ***» instead of a price.
4. Google Scholar results appear above organic results. Non-paywalled PDF may be listed as *other versions of the article*.
5. Download from Sci-Hub. It is a cat and mouse game. Ask around if https://sci-hub.se/ works. Check r/scihub. You may have to use duckduckgo, a VPN, or the Tor browser.
6. Ask colleagues orally, by slack, by mail.
7. Ask by mail to the corresponding author.
8. Go to the National Library or a university library. Librarians are kind and happy to help.

After you get a paper, archive the copy in the group library

Required logins are / should be provided as part of the onboarding procedure, i.e. CIRED's Livret d'Accueil.

Howto 15: Manage documentation with an e-library

Back in the 20th century, I had a shelf full of paper articles. Now I use an e-library to store metadata and full-text copies of documents. Its web browser plugin automagically import articles from the web, and its word processor plugin takes care of citations and bibliographies.

- Add a copy of anything you cite into your e-library. Storage is cheap, so archive the full PDF, not just a reference.
- Add anything you publish yourself to your library.
- Add all documents you find interesting to read, even if you do not cite them.
- Add only static contents: documents that will not change.

If you download documents in a manuscript's working directory during the research process:

- Store them in a temporary subdirectory named ./doc.
- Move them into the e-library as soon as possible.

I use *Zotero* (and a legacy BibLaTeX file). The library can be a/ on your computer, b/ stored online in a "Group library", or c/ both, which is better. Zotero is open source and free up to 300MB of online storage. I pay $120 per year for the unlimited plan, so I don't need to worry about size provided I store only text. About 11.6Gb and adding daily.

Do not store Audio/video content in the e-library. You would not retrieve oversized luggage on the carousel at the airport either.

My library is a shared Group Library, but I do not provide access immediately to any intern. A new user should qualify by first practising on their own local Zotero library – their sandbox.

Howto 16: Fill the core fields Title, Author, Year, DOI

The four required fields are Title, Author, Year, and Identifier.

- The year is the document's publication date in the ISO format YYYY-MM-DD. You can drop the month and day if unknown.
- The title is indexed as shown on the document's first page. Except if it appears in ALL CAPS. Index the title using standard sentence capitalisation, only the first letter.
- Record the authors as printed in the document. Exception 1: Use original national writing for names, with accents, diacritics, or fancy letters. Exception 2: Use a unique name for an author in the database.
- The identifier is a journal article's DOI, a book's ISBN, a web page's URL, a technical report or an administrative document Number.

I find the documents I need using a full-text search plus sorting by date added, date, creator and title. I don't bother with manual tags (Keywords) or Related links. They have their uses but I prefer to wait for an automatic clustering and topic identification plugin.

I group documents about the same research project by collections. A Zotero's collection is not like a folder but works like a playlist in a music player:

- One document can be in many collections at the same time.
- Removing an item from a collection does not delete it from the library.

A database is made of rectangular tables, not tree-shaped like a filesystem.

Howto 17: Determine a document type

Here are the keys to determining a document type:

- Book has an ISBN.
- A book section is part of a book with a title or number.
- Presentation, Conference paper has a place and date. Presentation = slide deck, Conference paper = like an article.
- Journal Article: published in a peer-review scholarly journal, should have a DOI if recent. Volume can be "Online first."
- Magazine article, Newspaper article: not peer-reviewed. It can be online only.
- Web page: For blogs, not online magazines or newspapers.
- Bill, Statute: a Bill is a proposed law; a Statute is a law voted by the National Assembly (Ministries do not make laws).
- Report: material published by an institution. It has a Number and a Type. Spell out the institution's name in full. Index as Author the name of the people who signed it or wrote it. Use the URL of the institution that officially published the report. Include governmental Decrees, Decisions, not Laws.
- Letter, Encyclopedia Article, Interview: self-explaining.
- Web page, Document, Manuscript: when nothing else fits. Use Manuscript for unpublished, personal communications.

Howto 18: Maintain the e-library

Wiktionary.org defines *bitrot* as “the putative tendency of content in storage to become corrupt over time”. All databases should be cleaned from time to time – a good activity for a low-energy day.

Metadata normalisation involves:

- Find and add the missing “Creator” or “Date” fields.
- Rewrite dates in ISO format YYYY-MM-DD, YYYY-MM or YYYY
- Unify organisations names, expanding initials or acronyms.
- Unify author names, in the original language.
- Capitalise only the first letter in the title.
- Verify that all *your* publications are included and up to date.

Deduplicate. Check the “Duplicate items” collection at the bottom of the left panel, then merge them (instead of deleting records).

Until *Zotero* gets properly multilingual, I use these kludges:

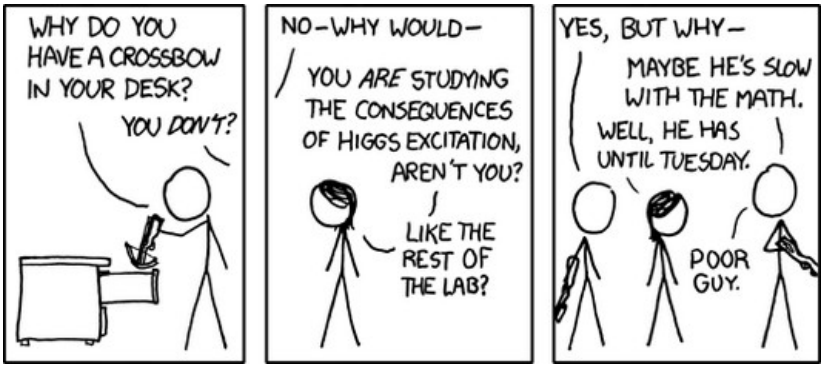
- Index in the original language.
- Translate the title in the Abstract field.
- Attach both the original and translated versions to the same record.

Fascicle 2. Win the reputation game

They traveled across the seas to hear you, you owe them your best.

Chapter 5

How to interact in the lab



xkcd #564

This chapter four Howtos describe generally expected behavior from the lab team mates.

Howto 19: Join the team

Putting together a thesis is always a miracle since one needs to align four stars: a supervisor, a candidate, a subject and funding. And funding is requested depending on the subject and the candidate, preferably before the master's internship begins.

We are always open to meeting an excellent potential collaborator. The subject may take a few weeks of reflection, but we can always find a tailor-made, motivating and accessible research topic.

Hiring requires a cost-benefit analysis: The scarce resources are finance and attention. Office space is always tight, but not a real issue. The benefit is the prospect of a peer-reviewed scientific publication – or three for a PhD.

- As Master 2 internships begin in April/May, the high recruitment season is December/January.
- Well-organised PhD candidates have already talked to a lab before starting their Master 2 in September. Use a gap year, summer internship, or short training to be known.
- Before contacting a potential supervisor, a candidate should look at their publications. We will google you too.
- Then approach the researcher in person, after a class or a scientific seminar.
- When applying spontaneously by email, follow up by phone within 15 days.
- I do not answer anonymous contacts sent via the "contact us" form on the lab's website. We do not follow up either if the French or English is incorrect.

Howto 20: Assemble a complete application

A complete job application should include:

- The motivation letter. It can be the cover email. Your field of interest is essential. If it does not match the supervisor's, there was insufficient effort to prepare the letter. The letter must also explain the institutional and financial framework of the internship, its duration, and what you want to do after – A PhD or not?
- CV. I prefer PDF. You will lose one geek point if you send me a .doc file. Win one culture point if your CV has a "Selected publications" section.
- Recent Grades. With quantiles or ranks. Academic excellence means being top of your class. Only a top third Master's student should consider doing a PhD.
- One personal production. Or two. Group works mean nothing. I want to see your capacity to write a quality manuscript. Have you ever produced a text significant enough to be published on the web with your signature? Show it.
- Recommendations. You should be known already; see Howto 19: Join the team. Otherwise, recommendation letters are standard practice in the academic world. They are a bit formal, and confidential; you do not read them. Please provide the first draft when asking me such a letter for you.

Bonus point(s) if you have a non-zero LinkedIn / ResearchGate / Google Scholar profile or an internet homepage.

Howto 21: Keep accounting happy

As a team member, you shall:

- Prepare an estimated cost if you ask to go somewhere. For a conference, provide justified estimates of the transportation costs, accommodation costs, and registration fees.
- Fill out your mission expense report asking refund.
- Provide original receipts of any expense you claim a refund. Bills have to show the VAT amount.
- Fill out personal timesheets if you work for a project that requires so.

You should also know that:

- You need a signed Ordre de Mission before going anywhere for CNRS. The forms are at e-missions.cnrs.fr.
- To convert currencies for the French administration, use the official taux de chancellerie.
- French public institutions do not refund more than the official barême des frais de mission.

The general rules with spending money are “ask before”, “keep a written trail”, and “follow the regulations”. It takes bureaucratic skills to determine the applicable regulations and who to ask, so be kind to yourself and others. Public money spending must be controlled tightly for obvious reasons that need no reminding here.

Howto 22: Keep coauthors happy

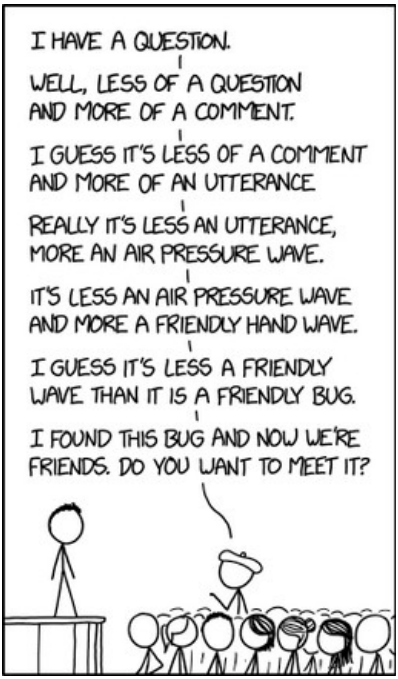
The protocol for signing research papers is critical since research is a reputation game.

- Signing authors should be those who had a significant contribution to the research.
- Significance depends on the cultural environment, the discipline and the lab.
- The meaning of the order is also culturally dependent. In Economics, the principal author signs first, supervisor last.
- When the first author signs paperwork on behalf of all authors, they should ask by email to everybody if they agree. To avoid blocking, I always add that I will respectfully take no reply as implicit yes after *X* days.
- Discuss and agree on signatures early on before starting the research. Consent to coauthor must be explicit. Don't add people without asking.
- Revisit authorship before submission. Those who did not contribute significantly should say so. If not coauthors, they can be named in the acknowledgement section. Alternatively, they can sign on a line below the regular authors after the mention "Contributing authors:".
- Use the acknowledgement section to explicit who did what.
- Authors should note as affiliations the organizations that significantly supported the work.

Everybody makes social mistakes. Open and early discussion is the fix.

Chapter 6

How to speak



xkcd #2191

This chapter is about conferences, teaching, interviews. The arts of Rhetoric and Argumentation are not discussed here.

Howto 23: Before a conference

Bring the following documents for any mission.

- Ordre de mission.
- Receipt of paying the registration fees, if any.
- Transport e-ticket.
- Plan for transfer from station/airport to hotel/Airbnb.
- Accommodation reservation number and address.
- Travel document: passport, health certificates.
- Business cards.

For a conference, also bring:

- The programme, with location, meeting point.
- Book of abstracts. Only take the electronic version.
- Brief of your session. Day, duration, time of your presentation.
- Name of session chair and other speakers.
- Your presentation's title and summary, as announced to the audience.
- Hardcopy of the manuscript you present.

I bring a paper copy whenever I anticipate I may need it.

Never engage an expense without knowing its refund regulations.

If CNRS pays for the mission, you must use its online systems for travel and accommodation.

Check the weather forecasts before packing. Always bring swimsuit.

Howto 24: During a conference

Conferences are social events:

- Mark people you want to see in the list of attendees.
- You can skip formal opening speeches, but do attend the keynotes. These are icebreakers to engage fellow attendees.
- “What are you interested in” means “Pitch me your paper”.
- It is okay to be active: Stay standing up at the back of the room, Switch rooms between two talks, Meet people to talk in the lobby during the sessions.
- You don’t know anybody the first time. But it is a community, so you will eventually ~~drink with~~ befriends colleagues. Socialising tip: Hang out in the conference hotel lobby after hours. A party going out will invite you to join.
- Real-time tweeting and LinkedIn reporting are appreciated.

If you speak:

- Introduce yourself to your session Chair as early as possible. The welcome party is appropriate.
- Send your slide deck the night before. Make three copies: organisers, session chair, your USB key.
- Half an hour before the session start, check with technicians that your slides work. Remind Chair how to say your name.
- Rehearse your talk as much as necessary to fit the time.
- Don’t fear questions. Nobody knows the subject matter better than you do. Most will be basic clarification questions. Joker: “Thank you, let us talk after the session.”

Howto 25: After a talk

The convention to approach a speaker after their talk is to compliment them on how interesting it was. That is not flattery but politeness. Hear what they want after that.

After or during an event:

- Send a meeting report for the colleagues. I write it in real-time during the sessions.
- Paste business cards in your work notebook, send out promised papers and do other follow-ups.
- Download and archive the electronic proceedings. Read any exciting communications you missed.
- Update your list of publications and HAL with your presentation.
- Post about the conference and your talk on LinkedIn and Twitter.
- Fill out the expenses claim form.
- Cleanup the mission directory and move it to “mission/done”.

Howto 26: Prepare a teaching intervention

You need to know:

- Address with the room number. Starting and ending times. Is there a break?
- Level and number of the audience. Will you give grades?
- Which languages to use for the talk and the slides. They do not have to be the same.
- Should you sign up when arriving and where? Is there an attendance sheet for students?
- Would you be able to distribute files or photocopies? In advance? Can you give assignments? How?

I prepare two slide decks as PDFs. One with title, session plan, and instructions for next time. The other with the lesson sequence itself. Other files may include:

- Video or illustrative documents.
- Simple exercises to understand the concepts.
- Solutions to the exercises.
- A glossary can help when teaching abroad.

Arrive 15 minutes early to connect the audio/video.

Start by reviewing the previous intervention as a warm-up so that latecomers don't miss out on the day's new ideas.

Do not teach in vain. When solicited, consider what is in for you. Money? Interns? Job experience?

Those who can, do; those who can't, teach.

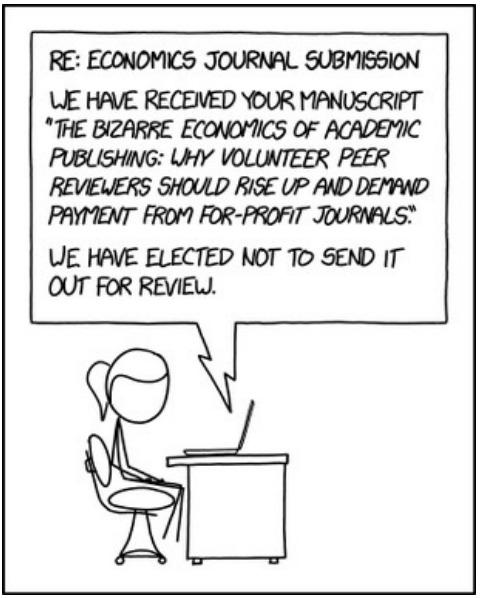
Howto 27: Handle an interview request

It is okay to:

- Go for it. An expert is just someone who claims to be so.
- Be reactive. Journalists work for the next edition of their journal, not by academic time. They don't have much time; therefore, they won't take much of your time.
- Check who asks. A good journalist sends you references to their papers when asking to interview you.
- Expect your words to be surprisingly edited in any case.
- Ask for questions in advance. Radio/TV interviewers usually discuss the questions informally to rehearse before recording.
- Stand your ground assertively. Fight your psychological bias to simp and follow where the journalist leads. Interviewers know that bias and use it. Deliver the message *you* want instead of what they want you to say.

Chapter 7

How to Publish



xkcd #2025

Publications in peer-reviewed academic journals is what distinguishes the work of Researchers from the work of experts, analysts or consultants. This chapter explains how to. You will have to write detailed, point-by-point replies to reviewers' comments.

Howto 28: Choose journals to submit to

Prepare a hit list with five journals ranked most desired first. If one rejects the paper, your priority is to resubmit it quickly down one step.

- Never publish in a paying journal; 95% are scams editors with fake reviews. Only top tier journals listed below can charge author processing charges.
- Publish to be read and cited. Getting more cites is more important than getting in a highly ranked journal.
- Aim to publish works that receive more citations than your *h* index (see Howto 33: Know the reputation game).
- The journals cited in your bibliography are interesting.
- Prioritise journals indexed in Web of Science (previously known as ISI journals) or Scopus. The latter is more comprehensive than the former in the SHS domain.

For Economists, prioritise journals listed both in

- RePEc. Only those count for your and your group's RePEc ranking.
- CNRS list of Economics and Management Journals (the Liste de la section 37). Avoid those ranked Category 4.

The top scientific journals are *Nature* and *Science*.

The top economic journals are *AER*, *Econometrica*, *JEL*, *JPE*, *QJE*, *MS* and *QJE*, Amen.

Use academic-accelerator to explore journals by keywords, publication speed, impact factors.

Howto 29: Submit a manuscript

The first author sends the manuscript. Before sending:

- Sleep on the finished product overnight.
- Get the green light from all co-authors.
- Produce an archive file with everything needed to reproduce results: raw data, scripts, processed data, code, documentation. Then rebuild the paper, figures and tables from that file.
- Tag the release in the source control, package the files on Github.
- Archive data, code and results on Zenodo.
- Archive a copy of the submitted material as read-only files.
- Write the submission letter.

Do check plagiarism before turning in your prose. All modern manuscript submission systems have an automatic similarity threshold barrier.

For initial upload to the editor's submission system, a single PDF is generally accepted. Later you may have to split the manuscript into many files for abstract, highlights, text, tables, figures and supplements.

Howto 30: After sending a manuscript

In Economics, it does not count as prior publication:

- To release working papers before peer-review.
- To archive the submitted version at the author's home page.
- To deposit the manuscript in the author's institution's open archive repository (HAL).

To keep science open and public, do:

- Make a standalone author's preprint PDF with French abstract and keywords and own formatting.
- Archive that author's preprint on HAL.
- Update your list of publications, referencing that unpublished author's preprint in HAL.
- Consider early release as a working paper in a reputable collection (i.e. listed in SSRN).
- Move the working directory from "papier/actif/" to "papier/sent".
- Send co-authors an electronic copy of the submitted PDF, the author's preprint, and all source files.

If an editor is unhappy with this:

- Push back, politely explains them the customs in our field.
- Choose a different journal.
- In HAL, set an embargo period for the full-text release.

Howto 31: Revise a manuscript

Congratulations, the managing editor sent you a “revise and resubmit” decision.

- Move back the paper’s directory to “papier/actif”.
- Concatenate all reviewer’s comments in one document. It will become your detailed reply to reviewers. Each comment gets one paragraph, and your response appears under each paragraph. Use paragraph styles to distinguish comments from your responses.
- Set a goal to answer a few comments per day.
- Start by answering the easy comments.
- You don’t have to accept all comments. When you reject one, your answer has to convince the editor, not the reviewer.

The deliverables are:

- Revised manuscript
- Revised manuscript with changes highlighted
- Detailed reply to reviewers
- Resubmission letter to the editor.

These practices apply among collaborators, albeit less formally. If I give you comments on a manuscript, pray tell me what you made of them before asking for another round.

Howto 32: What to do at acceptance / publication

Hurray! The editor accepted the manuscript. You may now call it an Article.

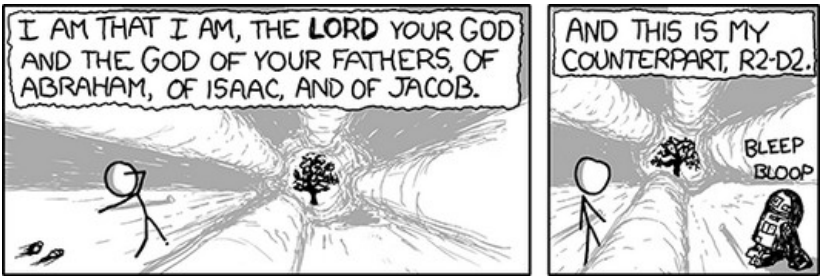
- Inform co-authors.
- Update the author's draft to say "Accepted in…".
- Update your list of publications.
- Update the metadata in HAL. Some journals may permit to archive their reprint in HAL.
- Add the full text of the published version to your and your team's publications database.

Cleanup the manuscript's directory:

- Index and archive into the Zotero database all supporting material not already there.
- Delete the obsolete drafts, text fragments, contributions.
- Move the directory from "papier/sent/" to "papier/published".

Chapter 8

How to optimise your personal brand



xkcd #709

Academics is a reputation game. Reputation attracts collaborators, funding and career advances. This chapter tells you more about the *h*-index, ORCID, research social networks, the difference between a publication and a production, and reporting.

Howto 33: Know the reputation game

You get known by citations to your works. Works get cited when they are original, meaningful and published in quality journals.

You also get known by teaching, attending events like conferences, workshops, seminars, and posting on social networks.

All your communications participate in building a personal brand.

A communication strategy is a slide deck answering:

- What are the short term and long term communication objectives? Reputation as a scientist? As an expert? On which topic?…
- In which kind of journals will you publish? national/international, specialised/disciplinary/generalist, academic/professional press/general audience.
- On what other channels you will communicate? Which social networks? Books?
- Who is the target audience for these channels?
- How much communication activity do you target? Papers and conferences per year? Other Key Performance Indicators?

Your h-index is the largest number h such that h articles have at least h citations each.

Howto 34: Choose a pen name and own your ORCID

Choose a way to write your name and stick to it. For example I sign Minh Ha-Duong, no computer or human can parse Hà Dương Minh.

- Most legacy western name-processing systems use a schema with two boxes: given name and family name. Be consistent on how to map your name into this schema.
- Consider using - the hyphen, a punctuation mark used to join words.
- When in doubt, which is often in a multicultural context, underline the family name part or set it in bold. Using SMALL CAPS is last century. Only ISO does it, and see the quote below.
- Make sure your pen name works decently in multiple languages and without diacritics.

Because your pen name is not guaranteed to be globally unique, it does not identify you unambiguously. Your email is globally unique but not lifelong. Many organizations issue you a persistent unique identifier.

- A publishing researcher's widely used identifier is their 16-digit number ORCID, or *Open Researcher and Contributor ID*.
- Make sure you have only one ORCID. Your profile page at https://orcid.org should link to all your emails. If not, deprecate the duplicate(s).
- Other identifiers important for a French economist are the RePEc Short-ID, the idHAL and the GitHub username.

The ISO 3103 standard tea brewing time is six minutes.

Howto 35: Host your list of publications

Too many social networks compete to host your list of publications. You control the first two. The others harvest with a robot.

- Homepage on your domain name. Hosting is cheap, about €12 per year. The cost is in the time to maintain the page. Worth it if you are in research for the long run.
- HAL is the national institutional open archive. Mandatory use in France.
- RepEc is the economists' open archive. It provides rankings.
- Google Scholar. It provides bibliometry.
- Researchgate.
- ORCID.

All require initial registration and periodic maintenance.

- Set up your name and name variants.
- Remove falsely attributed publications.
- Deduplicate by merging different versions of the same document. That can sometimes bump your *h* index.

Pages on a project, team or lab website are unsuitable because they live much shorter than you.

I use LinkedIn only for posting as an expert about the energy transition in Vietnam.

I use Twitter only as a channel to advertise my productions.

Other networks are not about scientific research communication.

Howto 36: Archive all your productions

In the scientific context, a *publication* usually means a peer-reviewed scholarly article. More generally, a publication is something someone made public for others to know, at least once. It can be written, spoken or visual. It includes but is not limited to books, thesis, articles, chapters, working papers, manuscripts, syllabus, course plans, presentations, posters, blog posts.

Making public means communicating the information to an audience open in principle, even if very few people attended: in a scientific journal (even pay per access), at a seminar where anybody could access (even by paying), your PhD defence, an open archive.

Production means something you finished making, published or not– for example, a confidential referee report or technical expertise report, a project proposal, or a recommendation letter.

Maintain an archive of all your productions, including but not limited to your academic publications, that is:

- Private.
- Secure in the long term.

This archive should contains the source documents in editable form. It is your basis for doing further derived works. It is also your reference to prepare annual reports and CVs.

My archive is not my list of publications: my filesystem is the archive. The metadata is in the file and directory names. They include the production year, the location for presentations, the receiver for reports.

Howto 37: Report

Everybody reports, although at a different frequency:

- First-year master interns need to report at least weekly.
- Second-year master interns should meet with supervisors every other week.
- PhDs discuss work progress at least monthly.
- Postdocs are autonomous and can report as needed for the work.
- Tenured CNRS scientists, like all professionals, report annually. I take it as an opportunity to update my web page, HAL, and think about the following year.

Better collaborators complete assignments faster and hence meet supervisors more frequently than above.

Reports are meetings: they must have an agenda, a written summary of decisions, a tentative date for the next meeting, and written progress reports to review should be sent in advance.

The supervisor's job is not to run after the student.

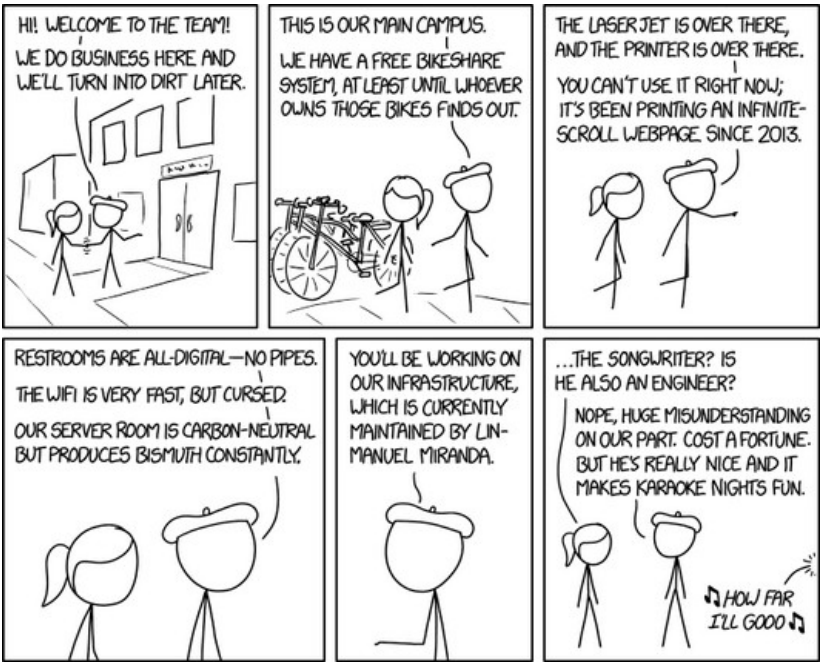
Teams typically have a weekly meeting. It can be stand-up to make it short, two or three minutes per person. Say what you have done, plan to do, where you need help. I like to frame these meetings as a sharing experience: Use deep listening, do not discuss or critique.

Fascicle 3. Run a research group

I am, somehow, less interested in the weight and convolutions of Einstein's brain than in the near certainty that people of equal talent have lived and died in cotton fields and sweatshops.

Chapter 9

How to manage people



xkcd #1812

Research is not Management, but it often takes place with a team. Integrating a group is never easy, especially as technical and analytical skills sought by researchers correlate with Asperger's syndrome. A high IQ does not imply high EQ. Here are the Howtos on personal productivity, onboarding and personal data.

Howto 38: Time management

I use a science notebook and an email+calendaring+contacts system. My daily tasks list is on paper:

- Prepare it the previous evening.
- Limit it to a handful of tasks. A dozen is over-detailed.
- Start each line with a verb.
- Cross out completed lines for a free pleasure rush.

My weekly tasks list is also on paper:

- Prepare it on Sunday evenings.
- Include tasks advancing all your life goals: work, health, family, friends, love, finance, repairs.

Agenda:

- Answer variants of « Give me some of your attention for no real benefit to you » with « No » by default. Apply to: surveys, feedback requests, webinar invitations and the like.
- Answer « When are you available? » with « My calendar is at https://xxx.yyy/my_calendar»
- Answer "Let's have a meeting" with « What is the agenda? May I have the preparatory documents a day before?»

Email:

- Make a habit of enjoying "zero inbox bliss" every day.
- Use a "one-touch" method, where messages are read once and dealt with on the spot. Junk, Delete, Archive, or Act upon what you can. Move anything else into a calendaring system as an appointment, a meeting or a scheduled task.

Howto 39: Onboard a colleague, the office

Print a list of things to do first for a new colleague. After the welcome café, have an overview with them. The list includes real-world and virtual-world items to check. The first category includes:

- Sign work contract.
- Discuss the group mission, values and code of conduct.
- Discuss and sign the internal regulations.
- Tour the facilities.
- Receive room key.
- Receive wifi login.
- Procure necessary IT hardware.
- Procure business cards.
- Introduce yourself to everybody.
- Share food with the team.

The last item is to integrate the group on an animalistic level.

@Newcomer: Bring a hometown specialty at the weekly common meal.

@Team manager: Organise such regular conviviality moments.

Howto 40: Onboard a colleague, the digital

The onboarding checklist also charts the integration into the group's digital infrastructure such as email, calendar, chat, web, file sharing, kanban, e-library. The list can include:

- Update affiliations: LinkedIn, RepEc Authors Service.
- Give a picture and a short bio to create your public profile on the team's website.
- Subscribe to the group electronic agenda.
- Receive login on the file-sharing system, filesystem visit, test download and upload files.
- Discuss access to the group e-library.
- Get a task assigned and done in the project management.
- Answer an email sent at your team address.
- Join the instant messaging chat group.
- Install document templates.
- Print a sample page.
- Test backup and recovery process.
- Read the recent team meeting reports.

@Team manager: Customise the list according to your practices.

Howto 41: Maintain contact lists

Minimise the number of contact lists. Europeans enjoy strict privacy protection thanks to the RGPD:

- Collect personal data only as necessary for a defined goal, no more, and do not reuse them.
- Inform individuals about the purpose of data collection, who you are, and their rights to access/change the data or oppose its use.
- Organise a contact procedure for people to use their rights.
- Destroy the data after reaching the goal.
- Secure the data.
- Give responsibility to a Data Protection Officer.

The RGPD applies to the internal directory of your team members.

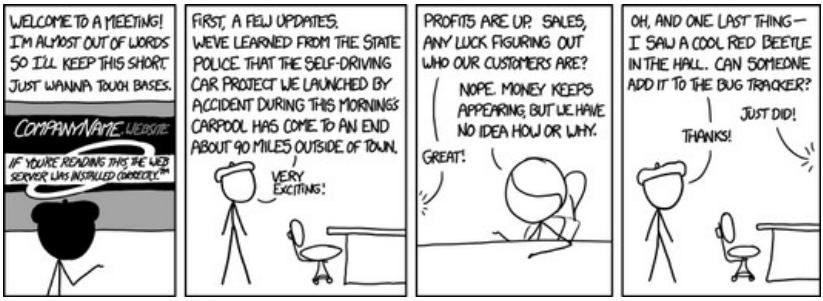
The RGPD applies lists of invitees and participants in events. Obtain opt-in for sharing. Destroy or archive them after the event.

Think twice before creating a newsletter. Producing a stream of quality original content takes lots of work. Assign a qualified editor the necessary time.

To solve the RGPD compliance problem, use LinkedIn, Facebook or Twitter page followers and groups members.

Chapter 10

How to run a meeting



xkcd #1493

Nothing reveals more about the mentality of a group than the way it runs meetings. These Howtos describe the respective roles of the Organizer, Secretary and Chair. These recommendations are generally applicable in the professional world, not just academia. The chapter's fourth Howto is completes them, focusing specifically on organizing a research seminar.

Howto 42: Organise a meeting

Before:

- If it is only for top-down information, use asynchronous communication modes instead of a meeting.
- Decide a place, starting time and duration.
- Prepare a preliminary agenda, chair, secretary, participants.
- Book and confirm the room.
- Finalise agenda and preparatory documents.
- Formally invite participants with all information above and an RSVP. Ask about missing agenda items.
- Remind a meeting's topic, place and time in all emails.
- Accept that most attendees will not read the long pieces, send summaries of the preparatory documents.
- Reinvite the desired attendees who did not register.
- Remind and confirm on the day before, resending all info.
- Order food three days before.
- Reserve the video projection well in advance.

Invitations lacking duration, agenda and documents are poorly prepared and likely not worth attending.

After:

- Meetings must have a report listing decisions and actions.
- Adapt the report's form to the nature of the meeting.
- An event's report can contain a quantified evaluation of its effectiveness and lessons learnt for quality improvement.

Howto 43: Local secretariat

A meeting's secretary takes notes to write the report. In addition, they contribute to preparation (see Fascicle 3Howto 42: Organise a meeting), logistics during the event and maintaining the agenda.

Logistics:

- Arrange the room strategically, considering social interactions. Face to face alpha males tend to fight.
- Have a backup plan for web conferencing. Get the phone number of key speakers, an alternate system, and presentations emailed in advance if screencasting fails.
- Accept audio-only. Video is dispensable.
- Take minutes in real-time using a cloud editor.
- Name a Timekeeper and announce their role.

Typical meeting agenda:

1. Social time, technical connection, new people introduction.
2. Agree on Chair and Secretary. Read and agree on the agenda, completing if necessary.
3. Discuss each item on the agenda. The discussion starts with a participant exposing, ends with a conclusion.
4. Wrap up. Review the agreed-upon decisions, who does what, when. Set up the next meeting, thank participants.

In phase 2: remind confidentiality rules or encourage tweeting.

At the end of phase 3: ask for additional points. Then deal with simple matters on the spot, defer the rest to the next meeting.

Howto 44: Chair a meeting

For all kinds of meetings:

- Start on time. If necessary, start with minor points that do not need the missing participants.
- Listen and reformulate what speakers say to improve shared understanding.
- Explicitly give the floor as necessary so that everybody has an opportunity to speak, and nobody takes over the meeting, especially the boss. Boss talks last.
- Give the floor around in a predictable way.
- Accept personal stories and emotions.
- Respect silences.
- Encourage partial attendance. One should leave when not interested or needed.

Tips for remote meetings:

- Leave the hands-on software tuning to a technical assistant.
- Ensure that remote attendees use headsets.
- Remind distant participants to mute their mics.
- Remind participants to use Discussion and Q&A chats. Initiate these channels with the first post.
- Be explicit when asking a remote participant to speak.

Howto 45: Invite to a seminar session

This checklist applies to a seminar session –a recurring event where a researcher presents their work– and small one-off events like a public conference or a small roundtable. See forward Howto 48: Hold project work meetings and Howto 49: Organise a conference for other kinds of events.

At least two weeks before:

- Get the title and summary of the talk from the speaker.
- Prepare the invitation and disseminate it by mail.
- Update the seminar web page.
- Post the invitation to social networks (if public).

A day before:

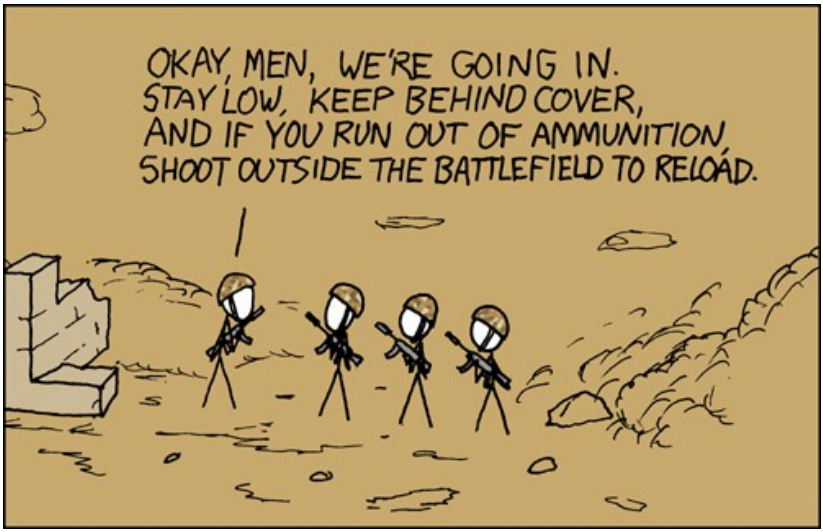
- Post the notice with access instructions around the campus.
- Confirm by mail and on social networks (if public).

After the event:

- Request the slides of the presentation.
- Take down fliers pinned on the campus walls.
- Update the web announcement. Upload the slide deck to make it accessible to everyone.

Chapter 11

How to lead a project



xkcd #188

A bright scientist will soon be tasked to multiply their talents by leading a research team. This chapter's howtos are based on experience with European research projects, which tend to be complicated science-diplomacy multi-years, multi-millions affairs. It stresses that psychological safety is the main condition for collective performance.

Howto 46: Build a high performance group

The research project leader is called the "Principal Investigator", or PI. Their first task, starting even before the project is submitted, is to build the project team.

The essential characteristic of a high-performance group is psychological safety: a shared belief held by team members that the place is safe for interpersonal risk-taking. In a psychologically safe team, members feel accepted and respected. To promote psychological safety:

- Legitimate the PI or project's board final decision-making authority by participatory management, not by a vertical management structure. Empower group members to participate in the project's decision making. Science's power arises from peer to peer discussion.
- Encourage all to voice their opinions. Ensure that everyone has spoken roughly the same amount by the end of the day. Equalise the distribution of conversational turn-taking.
- Use face-to-face communication modes (i.e. not email) for discussions requiring social sensitivity. A group with high average social sensitivity –i.e. wherein members are skilled in intuiting how others feel based on their tone of voice, expressions and other nonverbal cues– feel safer.
- Assign each work package and each project deliverable to one responsible. In a clear team structure, members understand their role on the team.
- Celebrate successes. Perform group-building activities. Strong relationships increase team cohesiveness.

Howto 47: Submit a project proposal

Early discuss your research proposal idea with the potential managing unit (e.g. CNRS SPV, SMASH). Then fit the project's financial and administrative proposition to their constraints.

Before sending a proposal to a financing sponsor:

- Greenlight the final version with all project partners.
- See Howto 3: Write a document carefully.
- Enter a first release candidate in the submission system at least a day before the deadline. Then update it with the final version at the deadline.

After the submission:

- Email the submission PDF(s) and its receipt to project partners.
- Archive those in a "./release-YYYYMMDD" subdirectory.
- Email a summary of the project to the Director, the Accountant and other colleagues. In that email, give a link to the submission PDF(s).
- Clean up the project working directory.
- Archive the editable source files: zip everything, write-protect, and move into the release subdirectory.
- Move the project directory from "projects/active" to "projects/submitted.

Persist. Like articles, projects proposals rarely succeed on the first try.

Howto 48: Hold project work meetings

A European research project typically involves a dozen participants from all over the continent. Projects start with a kickoff meeting to:

- Get everybody to know each other.
- Share a common understanding of the project goals, method and distributed responsibilities.
- Agree on communication procedures: mail, chat, audio/video meeting, filesharing.
- Start the project by giving a small task.

Then the consortium meets every three months with this schedule:

9h15 Welcome coffee. Roundtable introduction.

9h30 Project administration. Updates on the environment.

10h15 Project research advance overview.

10h30 Coffee break

10h45 Detailed review of work done and results.

12h15 Discussion, next period planning, plenary closing.

13h00 Lunch

14h-17h Parallel work sessions.

A digital kickoff or progress meeting should be shorter: half a day.

Everything is posted and discussed on the project's groupware.

European research project success condition 1 is:
"They still talk to each other at the end."

Howto 49: Organise a conference

A project's final dissemination event is typically a public conference with over 100 attendees. Distribute these roles to the team:

1. Agenda, speakers
2. Fundraising and sponsoring
3. Institutional liaison with board or tutelle
4. Finance and accounting
5. Communication: public, media, participants, sponsors
6. Food, accommodation, rooms, audio/video
7. Side program: project celebration parties, field visits
8. Registration, tags, welcome desk

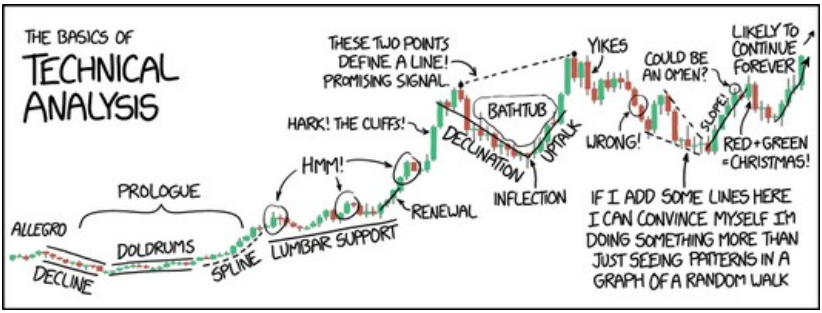
Sometimes the conference committee in charge of lines 1-4 is distinct from the local team responsible for 5-8. In addition, an external scientific board can review submitted communications, and famous high-level speaker(s) can gild the event's image.

A conference starts with a concept note which defines its contents, location and date; names desired audience and speakers; set a budget envelope and funding sources. A kickstart meeting ensues to:

- Rebudget, estimate logistical needs for rooms and meals.
- Discuss funding: sponsors, companies and grants.
- Review and rank side events concepts.
- Review and rank available venues.
- Review and rank available conference management systems.
- Discuss a communication plan, write a communiqué.

Chapter 12

How to manage finances



xkcd #2101

The better you conserve money, the better you can hire smart people help with the good ideas. A PI should never take for granted that finances will take care of themselves unsupervised. Schedule a monthly meeting with the colleague in charge of administrating your funds.

Howto 50: Prepare a project financial budget

For the personnel line, ask three times the net salary. Personnel costs stack up from net salary to total budget cost:

- Net pay to the employee.
- Plus employee contributions for health insurance, unemployment, retirement (social security).
- Plus company contributions to the same.
- Plus direct costs for travel, workstation, supervisor. These will need to be justified.
- Plus indirect costs for no-justification-required administration overheads (rent, electricity, support staff).
- Plus VAT
- Plus a risk premium, because recruitment is complicated.

Don't improvise for personnel costs and tax rates. Use local norms, e.g. CNRS personnel costs or the EU costs norms.

Add more national and international missions than you think you need. Use official per diem and economy class rates.

Equipment means big-ticket items, economists don't use many.

Funders often limit "indirect costs" since this is money without ties attached. Use the maximum permissible rate.

Use private sector partnerships where permitted, directly or by subcontracting.

A project less than 50 k€ is rarely interesting: your management time substracts from your research time.

Howto 51: Track project funds

The project manager uses a spreadsheet, single-entry accounting to:

- To track and categorise project expenses and incomes.
- To forecast project cash flows and to manage the risk of delays.
- To reconcile monthly payments and income statements before reviewing project finances with the team accountant.
- To prepare their project's periodic and final financial reports to conform with the contract requirements.

The project manager honours constraints on money spending:

- Public procurement above some thresholds requires competitive quotes.
- Budget flexibility. Fungibility rules between personnel, material, services, subcontracting lines are donor-specific.
- Spending windows. Spend only during the project, preferably only the funds already received. Beware of the annual accounting book closing period in December.

It is often necessary to propose an amendment to extend the contract duration, to spend all money.

Anticipate one project partner defaulting during the project.

Anything unclear can be an anomaly, and remember:

Accounting is to ensure money goes where it is supposed to.

Howto 52: Accounting skills progression

Accounting is like a martial art. Professional accountants are black belts, but there is a lesser scale for the rest of us:

- Yellow belt: See Howto 21: Keep accounting happy.
- Green belt: See Howto 51: Track project funds.
- Blue belt: See Howto 50: Prepare a project financial budget.
- Brown belt: managing a company or team's finances.

Brown belt requires:

- Master accounting basics concepts: annualization; expense lifecycle; accrual basis vs cash basis; double-entry vs single-entry bookkeeping; financial reports: balance sheet, income statement, change in equity, cash flow; forecasting and budgeting. As necessary to talk with accountants.
- Master the company Chart of Accounts (see Howto 53: Read a chart of accounts).
- Conduct monthly company financial review meetings to track and solve anomalies, update the spreadsheet which forecasts company cash flows, and manage the risks.
- Drive the annual reporting process.
- Drive the accounting system's continuous improvement, including human resource training, procedures and deployment of IT tools.

Howto 53: Read a chart of accounts

A chart of accounts is a hierarchical list of financial accounts numbered between 1 and 999999 (a tree at most 9-wide and 6-deep).

The IFRS standard recognises five categories of top accounts: assets, liabilities, equity, revenue and expenses. The first three account for the Balance Sheet, the last two for the Income Statement.

The shape of a chart of account has to follow a different model in each country: the French Plan Comptable Général differs from the US GAAP. Here is an example from a Vietnamese company:

1. Current assets. 111 Cash on hand. 112 Cash in the bank. 131 Trade receivables (pending requests for payment). 133 Deductible VAT.

2. Fixed assets. 211 Fixed assets (tangible, e.g. machines, real estate and intangible, e.g. brands).

3. Liabilities. 331 Trade payables. 333 Taxes. 334 Payables to employees. 338 Other payables (social insurance, unemployment insurance, health insurance). 341 Borrowings.

4. Equity. 411 Paid-in capital. 421 Undistributed after-tax profit.

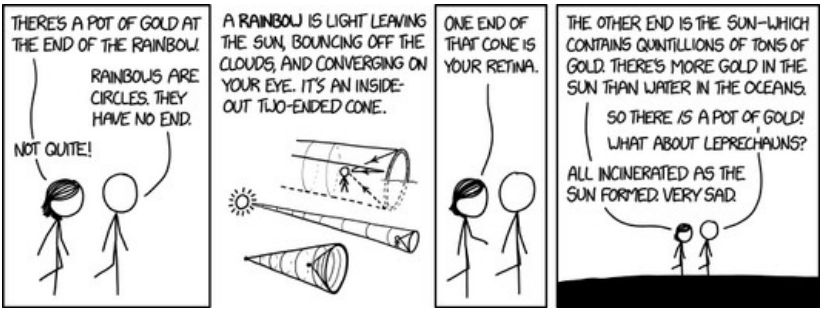
5. Revenue. 511 Revenues from services. 515 Financial incomes.

6. Costs. 632 Costs of goods sold, services (external experts). 642 Management expenses (salaries).

7. Other income. 711 Other income (e.g. refunded air ticket).

8. Other expenses. 811 Other expenses (e.g. tax penalty).

9. Business result. 911 Business result (used at the end of the year to close all the other accounts).



xkcd 1944

End