How to write and publish a scientific paper: natural and social sciences perspectives

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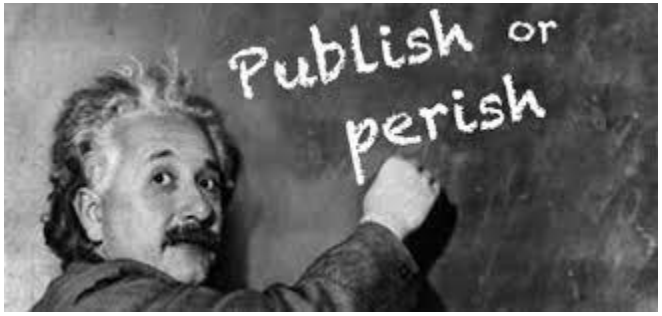
Outline

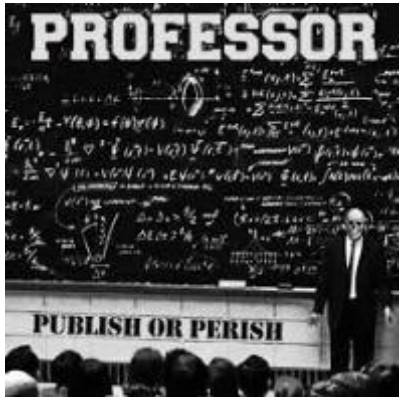
- Why do we publish?
- Different kinds of publications
- A cookbook approach (IMRAD)
  - The structure of a scientific manuscript
  - How you do it
- Research and reporting in different disciplines
  - (Natural) Sciences
  - Social Sciences and Humanities

Forbes

PUBLISH or PERISH

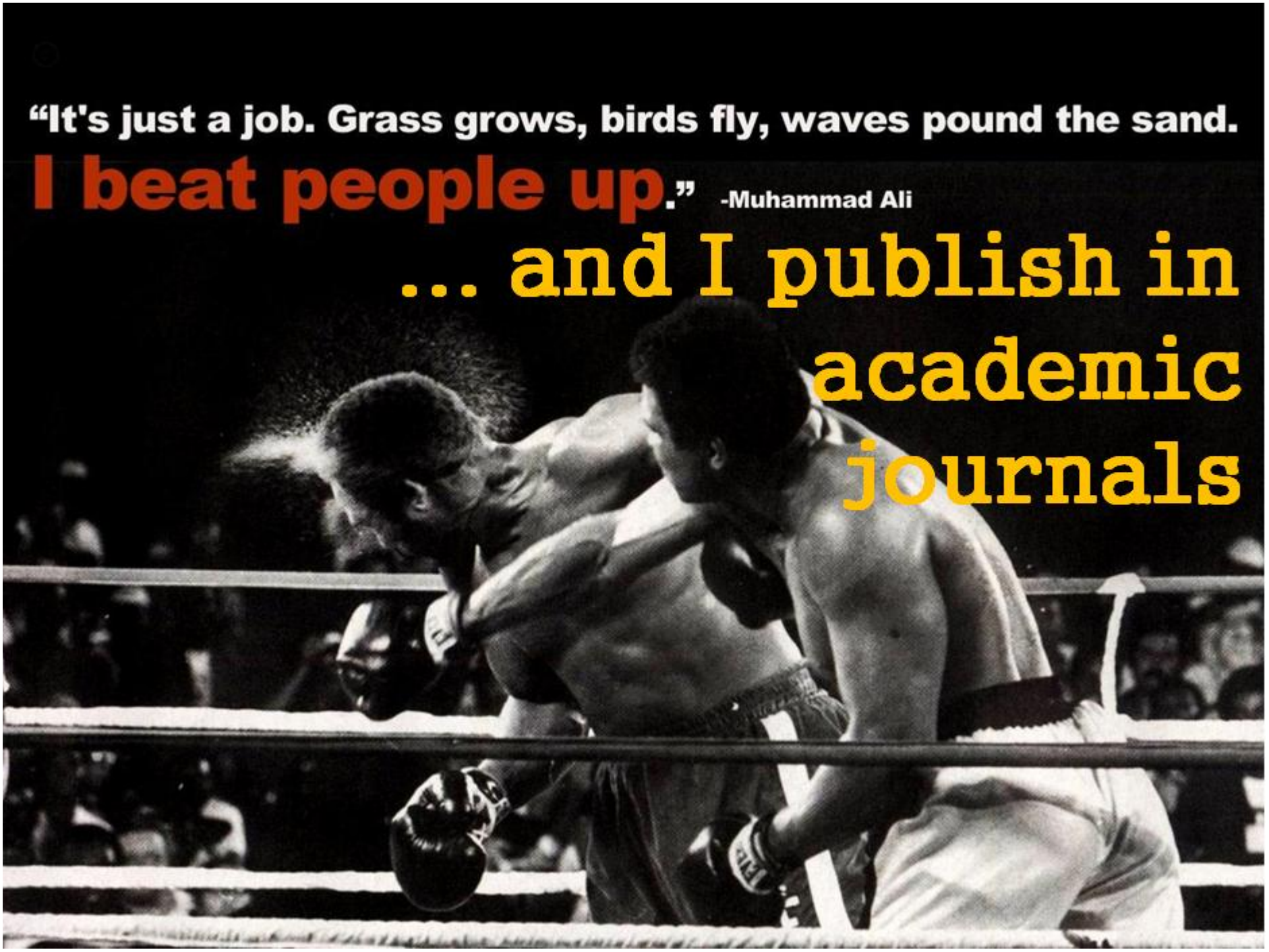
A CMO ROADMAP FOR MANAGING, SYSTEMATIZING AND OPTIMIZING THE MARKETING CONTENT SUPPLY CHAIN





Scientific publication

- A scientific study is not completed until the results are published...and understood
  - What you did
  - Why it was done
  - How it was done
  - What was learned from it
- Reproduction of the study (=quality)
- Original research results (=new)
- Availability within the scientific community


"It's just a job. Grass grows, birds fly, waves pound the sand.
I beat people up." -Muhammad Ali
... and I publish in academic journals

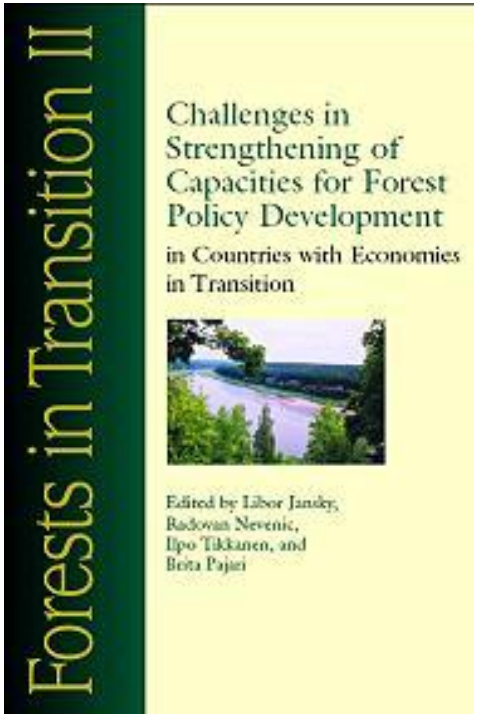
Publishing and publications

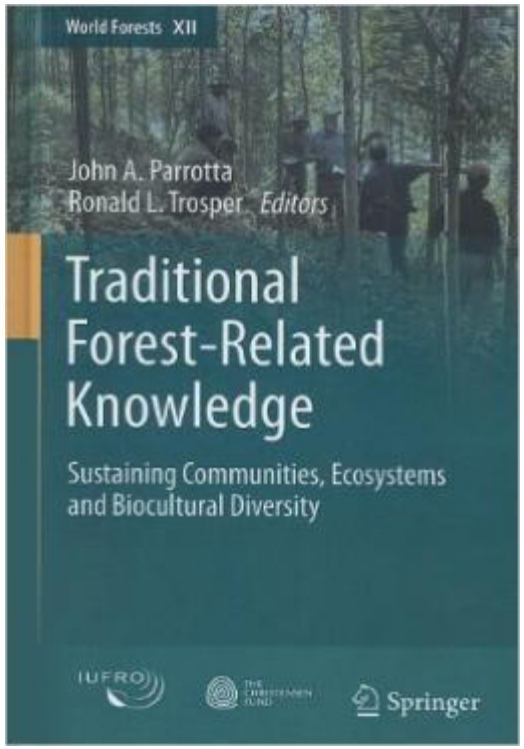
- **(Natural) science publications**
  - **Primary results, peer-review.**
- Review paper
  - Summarise, analyse, evaluate, synthesise studies
- Conference report
  - Reviews, work in progress, later a scientific publication
- Abstract and extended abstract
  - 200-300 words
  - A miniatyre paper to advertise work (2 pages)
- Thesis, book, edited book

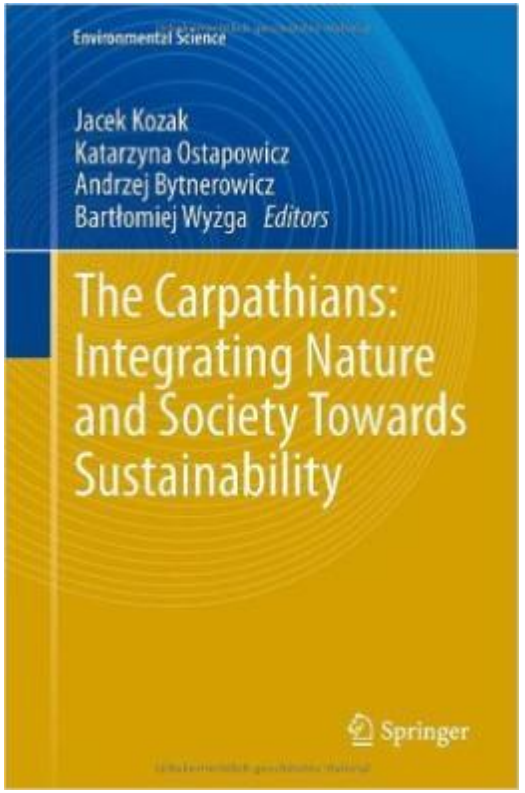
Sample of your list of publications classification

- Peer-reviewed journal article
- Peer-reviewed book chapter
- Book, peer-reviewed
- Conference proceedings, not peer-reviewed
- Published reports: a) peer-reviewed; b) not peer-reviewed
- Journal letter, commentary, or book review: a) peer reviewed; b) editor review only

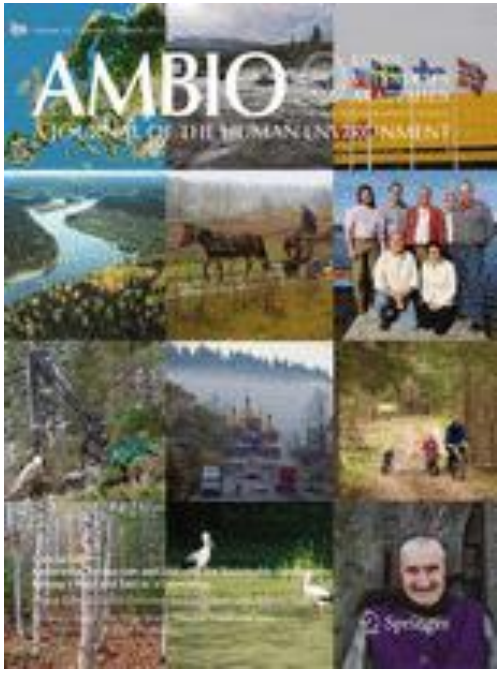
From my own publication experiences …







From my more recent publication experiences …



Four groups of journal

- *The hottest journals* —the journals with the highest impact.
- *Journals indexed by ISI* — ISI monitors journals and, based on some minimum quality criteria, selects journals that it will index.
- *Other international journals* — Many journals are not indexed by ISI but still offer a chance to communicate your ideas to a wider audience.
- *Local journals* — Papers in what we call local journals are either not accessible to a wider audience or the review process is 'too soft'.

‘What's the best journal for my paper?' New tool can help

By Elizabeth Ash and Lyndsay Scholefield Posted on 5 June 2013

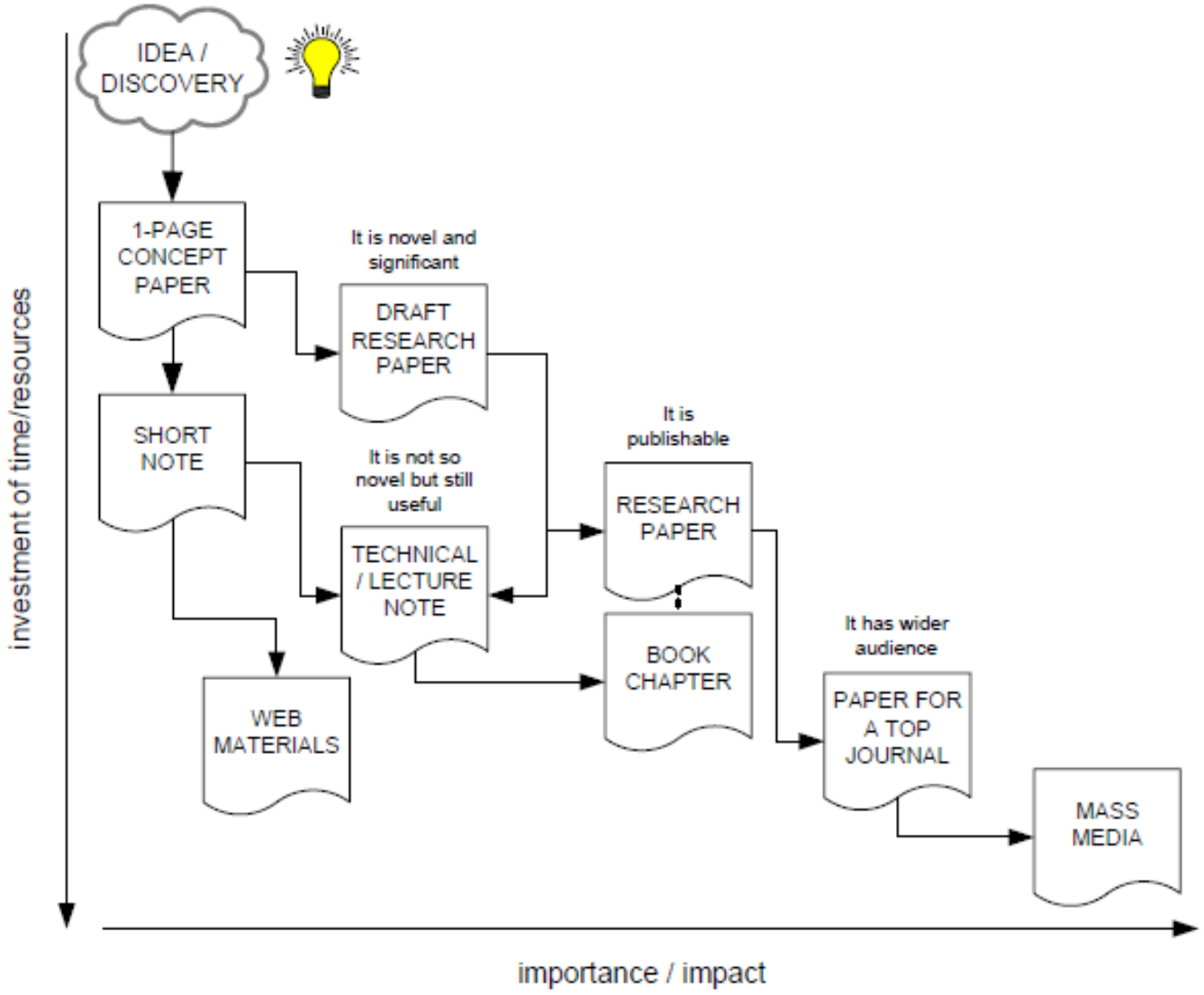
Share story:

Getting a research paper published can be a challenge. It's even more challenging when considering rejection that comes from submitting a paper to a journal that's not the right fit.

The Journal Finder tool

- Helps inexperienced authors to select the correct journals for their papers
- Highlights journals that offer open-access options

For inexperienced authors, this is a particular pain point, leading to rejections, adding months to pub slowing career progress. Nearly a third of visitors to Elsevier's Authors' Home are trying to decide wh should submit their paper to.



Types of publication in relation to investment of time resources and impact (Hengl and Gould 2006)

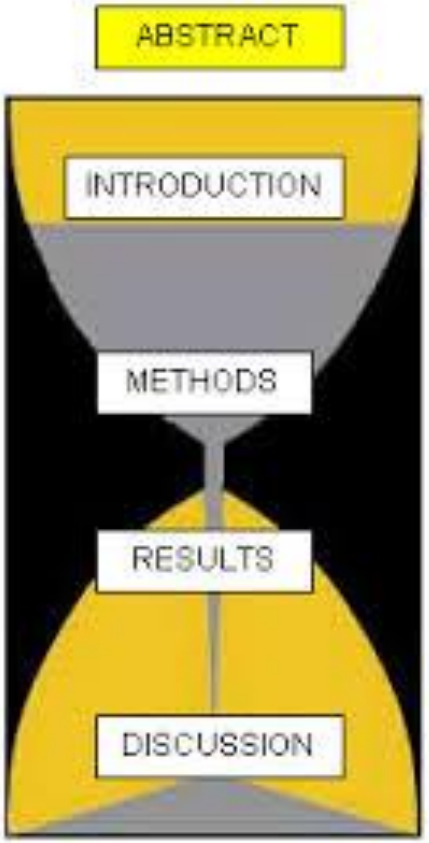
Scientific publication

- Clarity
- For the first time
- Understood by readers
- As simple as possible
- Clear organisation
- English is the (main) language

The structure of research paper

Organisation - IMRAD

- Introduction
- Methods
- Results
  - And,
- Discussion

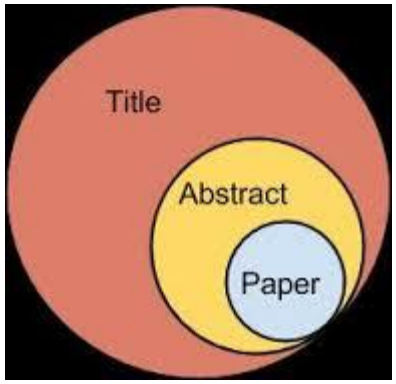


Other ingredients

- Title
- Authors
- Abstract
- (IMRAD)
- Acknowledgements
- References

- Tables
- Figures

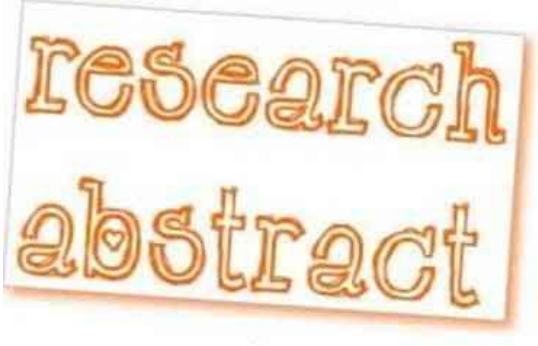
Title



- The title is a label, and not a sentence
  - Choose words with great care
  - Used for indexing and abstracting
  - Be specific
  - This is what others use to decide whether or not to read your report – the most important part of the paper in the long run!!

The authors

- Decide authorship before starting
  - Alphabetical
  - Head of laboratory/department last/first
  - **Order according to research work (senior author et al. according to input)**
- Active substantial contribution
  - Design (often related to project funding)
  - Execution (not just assistant)
  - Reporting



Abstract

- Summary of the information in the document (IMRAD)
- ”An extended introduction”
- 200-300 words
- A single paragraph
- Past tense

Introduction

- Clearly state what you report, define nature and and scope of the problem
  - Define the problem, why that, and why it is important
  - Find ”hook” to catch readers’ attention (be a journalist!)
  - Summarise in 1-2 precise sentences – check with title
- Review the pertinent literature
- Methods in brief
- Principal results
- Principal conclusions drawn
- Use present tense

Methods

- How did you collect your data (original or reviewed); chronological order
- Material
- Where did you do it (study area can be separate section)
- No results here!!
- Past tense
- Most readers never read this!!

Results

- Prepare tables and/or figures about the data
  - Good to use ”dummy” tables and figures
- Write a text that explains what you found, and make reference to your tables/figures presenting the results
  - Present the ”big picture” first
  - Present the data
  - ”the fool collects facts, the wise wo/man selects them”
- Crystal clarity (Einstein: ”if you are out to describe the truth, leave elegance to the tailor”)
- Usually the shortest section in the paper
- Past tense

Discussion

- Bring out the most import results (principles, relationships, generalisations)
- Be self-critical to what you did, be your own referee
- Discuss results in relation to other studies (agree or contrast)
- Don’t be shy!! – state the theoretical and practical implications
- State conclusions, and summarise you evidence for each conclusion – never assume!
- Significance of the work and a fitting ”climax”
- The simplest statements evoke the most wisdom!!

Step by step to conclusions….

Acknowledgements

- Thank your supporters
  - Persons that provided technical help to carry out the work
  - Persons that provided critical and constructive comments
  - Financial assistance (grants, contracts)
  - Be corteous

References

- List only signficant and published references, or in press
- Be complete!
- Check all parts of every reference at least twice!!
  - Submission
  - Galley proofs
- Different journals have different styles
- Order of references
  - Name and year
  - By number from alphabetical list
  - By number in order of citation
  - (foot-notes)

At the end

- All the tables
  - Horisontal lines
  - Description above
- Figures
  - Graph, histogram, map etc
  - Legend below

Making an outline (IMRAD) - 1

- Start with the introduction (what you want to do in this study)
  - Formulate your study objectives in 2-3 sentences
  - Write the title
  - Read others' work!!, and start working with the reference list
- Design your study (how to collect, analyse and present your data)
  - Who are the authors
  - Methods, results (make dummy graphs and tables)
- Collect your data, analyse them and present them
  - Results and analyses

Making an outline (IMRAD) - 2

- Discussion
  - Bring out the best!
  - Critisise yourself, discuss what could be done better/next
  - Compare what you did with what others did
  - How is this work useful, and for whom
  - Finish with a clear take-home message
- Informal review
  - Let 2-3 of your nice colleagues read what you did, revise
  - Let 2-3 of your angry colleagues read what you did, revise
- Send the manuscript to a suitable journal (clever to think about this when you write the ms., and even design the study)
  - Wait for referees' comments (several months)
  - Revise, if all goes well!!! (several months)
  - Check galley proofs (another few months)
- Published!!!!

Challenges for applied research

- *Different scientific disciplines*
  - (Natural) Science
  - Human Science
    - Social sciences
    - Humanities (Arts)
- *Different cultures and traditions*
  - Language (style and family)
  - Education system
  - Theoretical and practical

Natural and human science

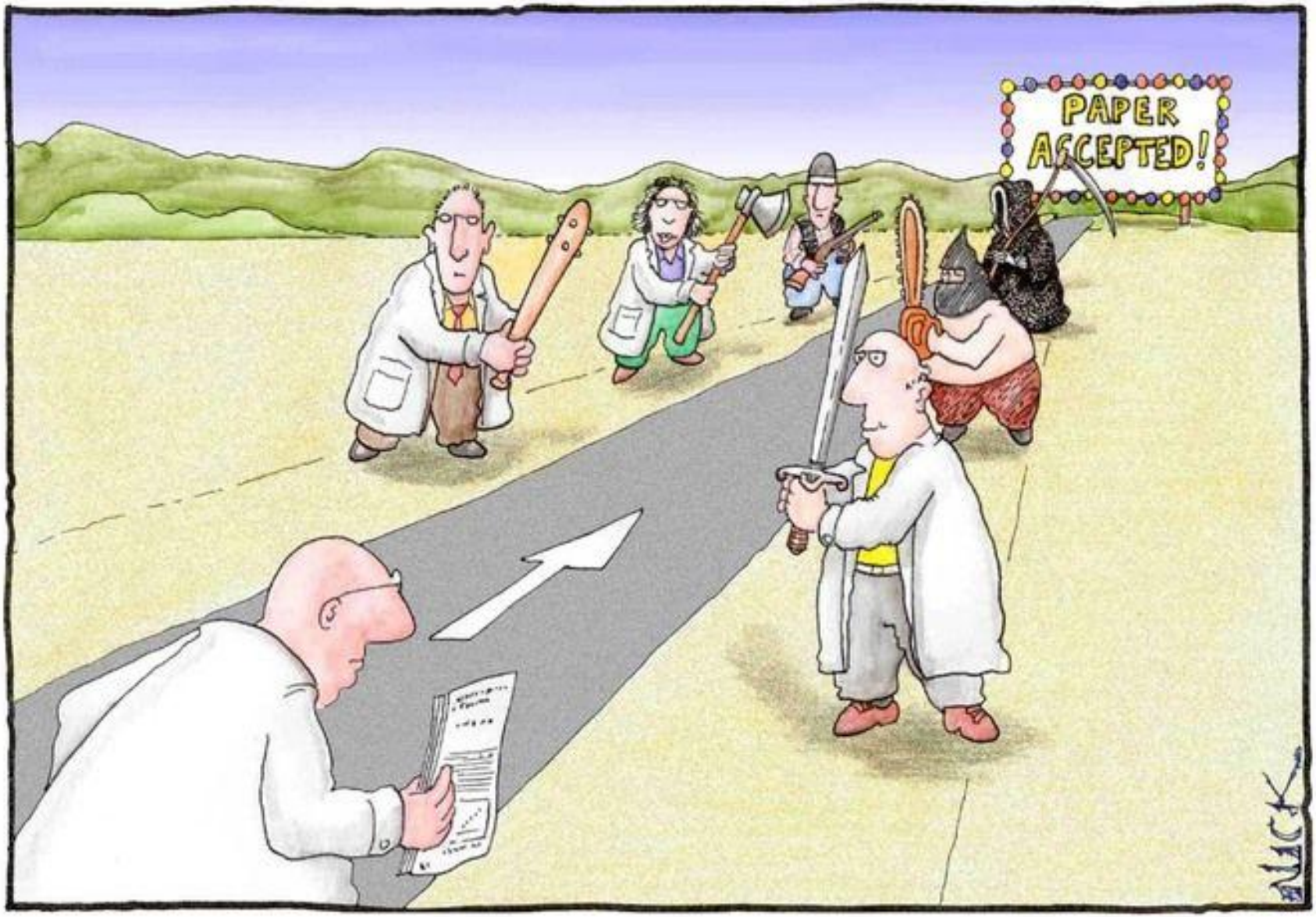
- English
- Papers
- Technical language
- Numbers
- IMRAD
- Narrow topic
- Harvard system
- Number of papers
- Often international
- Competitive

- Native language
- Book + monographs
- Rich language
- Text
- Free disposition
- Broad presentation
- Footnotes
- Books and # of pages
- Often regional
- ”Booked” subjects

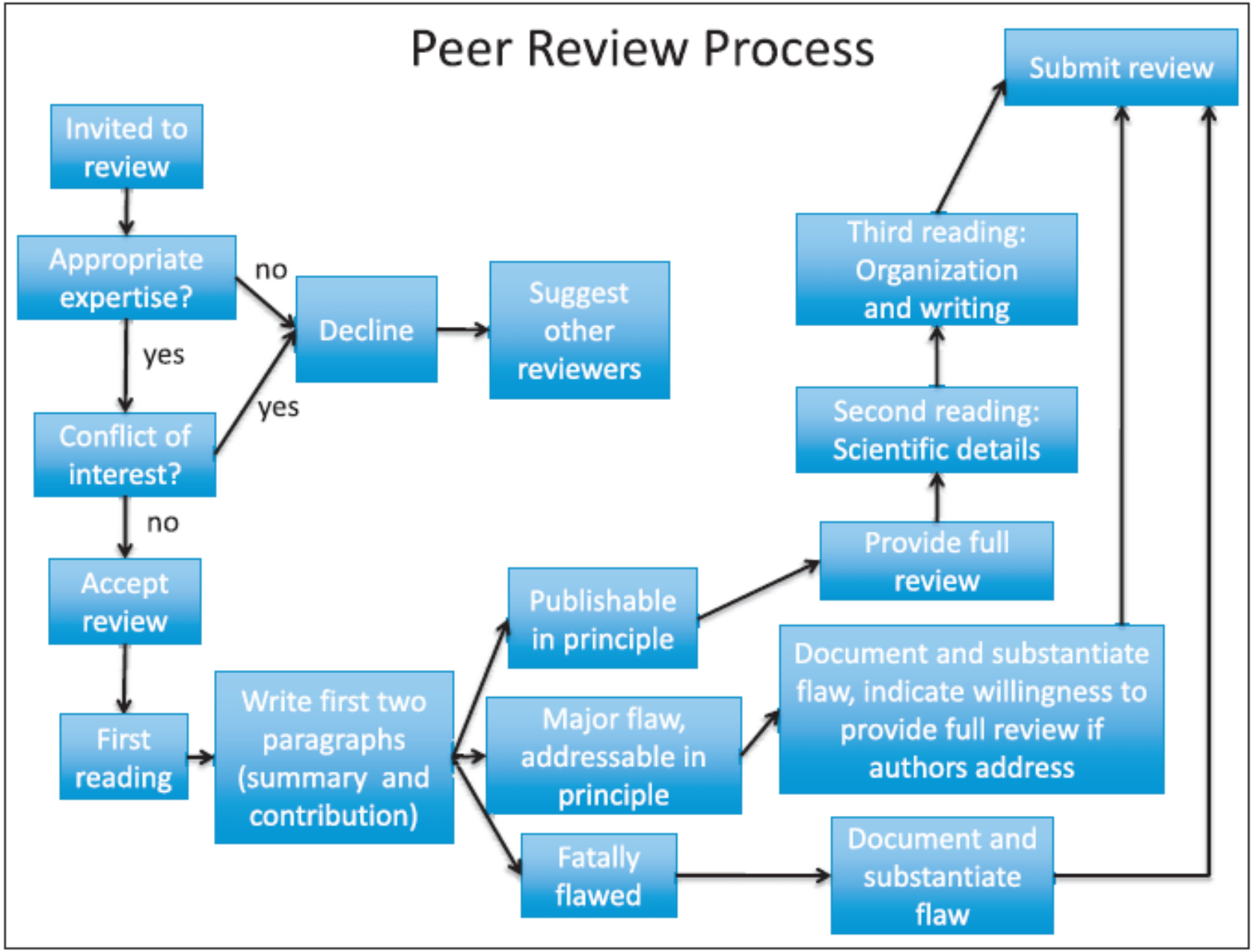
Some **Do's** and **Don'ts** that you might consider before submitting your article (Hengl and Gould, 2006).

- You have carefully and systematically studied *the work of colleagues* and referred to it
- You have critically evaluated your *methods/results* versus the state-ofthe-art findings
- You have tested the performance of your technique using *multiple case studies / experiments*
- You make significant claims, but these are backed up by *strong arguments*
- You have considered what implications of this work are and how these ideas/discoveries can be used to solve *real-life problems*
- You have adjusted your *style* and jargon to the target audience

- You do not actually know what has been published by others on this topic
- You are sure that your technique is optimal and that there is no better alternative
- You do not actually know if you will get the same results under various conditions
- You do not want to make significant claims or you are making them without sufficient proof
- You do not actually know how your technique can be applied to solve real-life problems and what the implications of your findings are
- You have not previously tried to communicate your ideas/results to the targeted research group



Most scientists regarded the new streamlined peer-review process as "quite an improvement."



K. Nicholas and W. Gordon, 2011

Five categories of articles

- Born-dead papers
- Proving-the-known papers
- Promising papers
- Most cited papers
- Breakthrough papers

Scenarios in case your paper get rejected

- You have send it to the wrong journal
- You have received a lousy review
- The reviewers are correct and clear

The researcher should be always very flexible in considering a change of course or even a change of topic he/she is working on.

Дякую за увагу.