

Reproducible Manuscript Writing With Quarto

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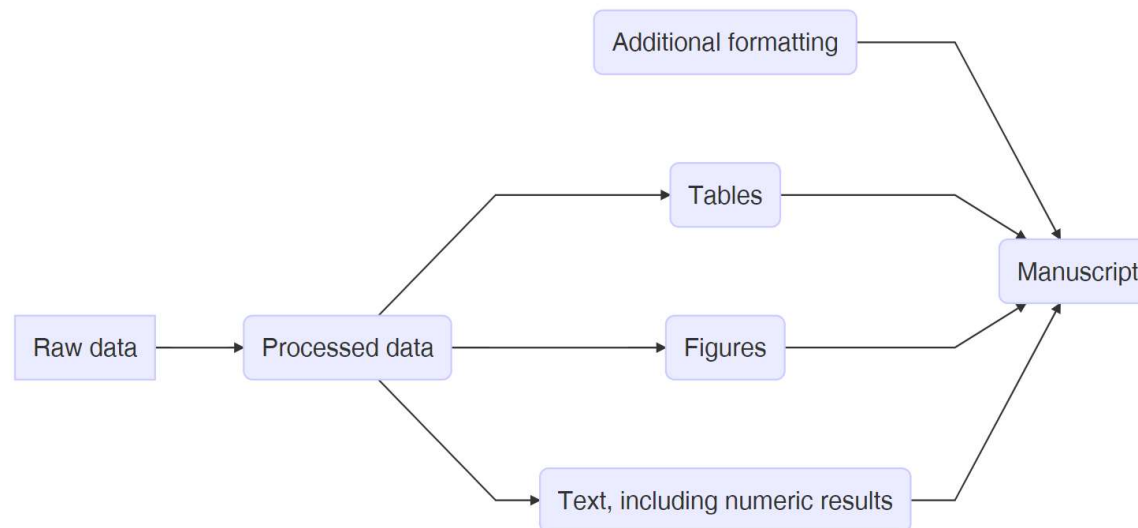
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Writing papers is a core scientific task

Traditional methods have serious drawbacks:

- **Separating narrative from analysis = barrier to reproducibility**
- **Emphasis on quantity and venue, not on trustworthiness**
- **Re-submission cycle with painstaking reformatting**

Computationally reproducible manuscripts increase transparency

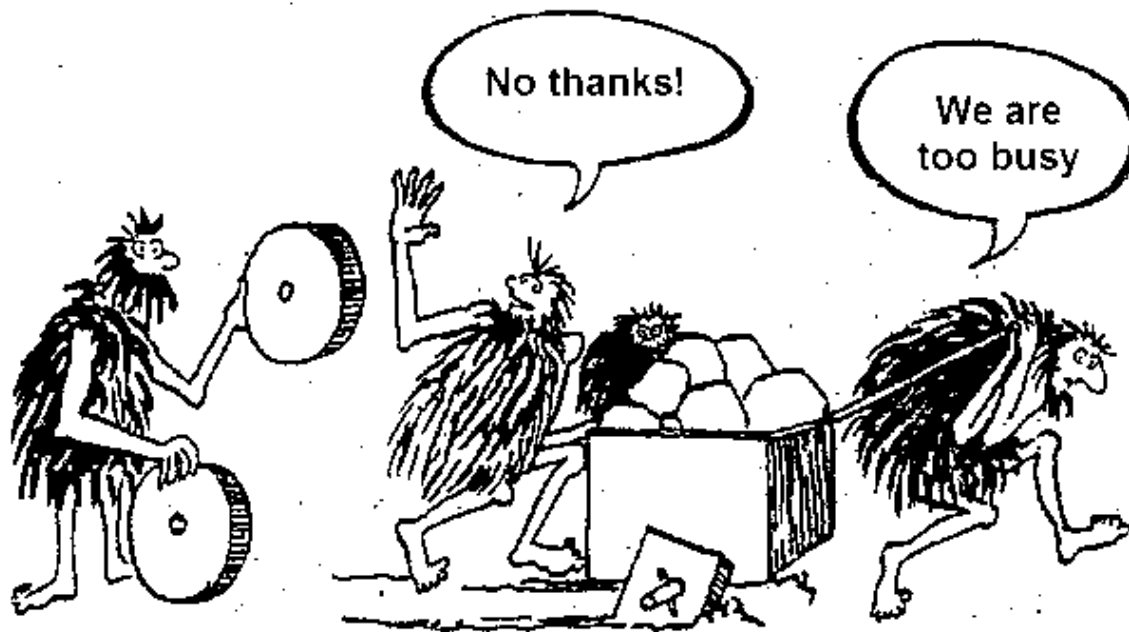


A project folder with data, code, and narrative all in one place

Which method for document preparation do scientists currently use?

Let us find out! (Survey in Teams)

Probably some flavor of a What You See Is What You Get (WYSIWYG) Editor (e.g. MS Word)?



source hard to trace

What You See Is What You *Mean* (WYSIWYM) Editor

- **Working documents are plain text files**
- **Content authored with markdown (language controlling the structure and formatting of text documents)**
- **Computational engine generates figures, tables, etc. from executable code integrated into document**

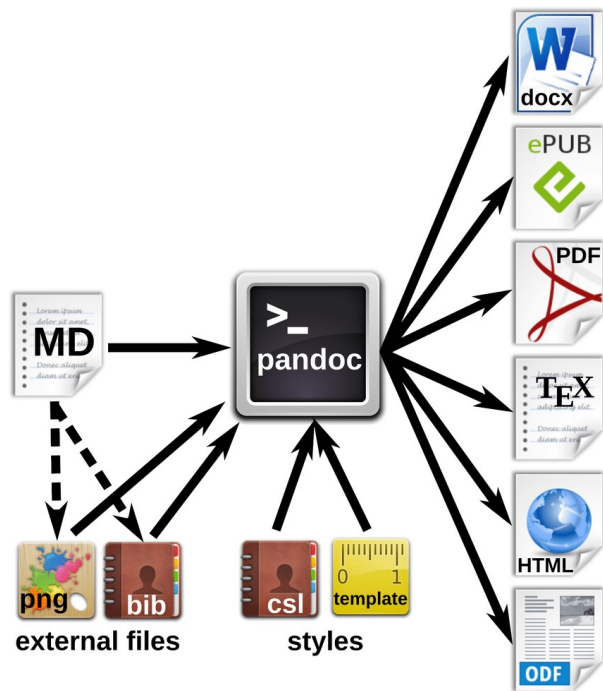
Quarto: Main benefits

(Quarto is named after a book format where one sheet of paper produces four leaves)

Not just a WYSIWYM editor but a publishing environment with a markdown language and integrated tools

- **Open Source**
- **Reproducibility by default**
- **Visual editing also possible**
- **Reference management**
- **Cross references**
- **Versatility (Choice of editors and output formats)**

Pick an output and editor of your choice



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Authoring software options:

- RStudio
- JupyterLab
- VS Code

Quarto for Presentations

Quarto enables you to weave together content and executable code into a finished manuscript or presentation. To learn more about Quarto presentations see <https://quarto.org/docs/presentations/>.

Conclusions

- **The tools are there to allow fully reproducible manuscripts**
- **Still some barriers to adoption (growing pains)**
- **A potential for a QUEST award for reproducible manuscript?**
- **(Live demo of Quarto in action)**