



Enhancing Trust, Integrity and  
Efficiency in Research through  
next-level Reproducibility



# WP5 - Development of tools and practices for communities

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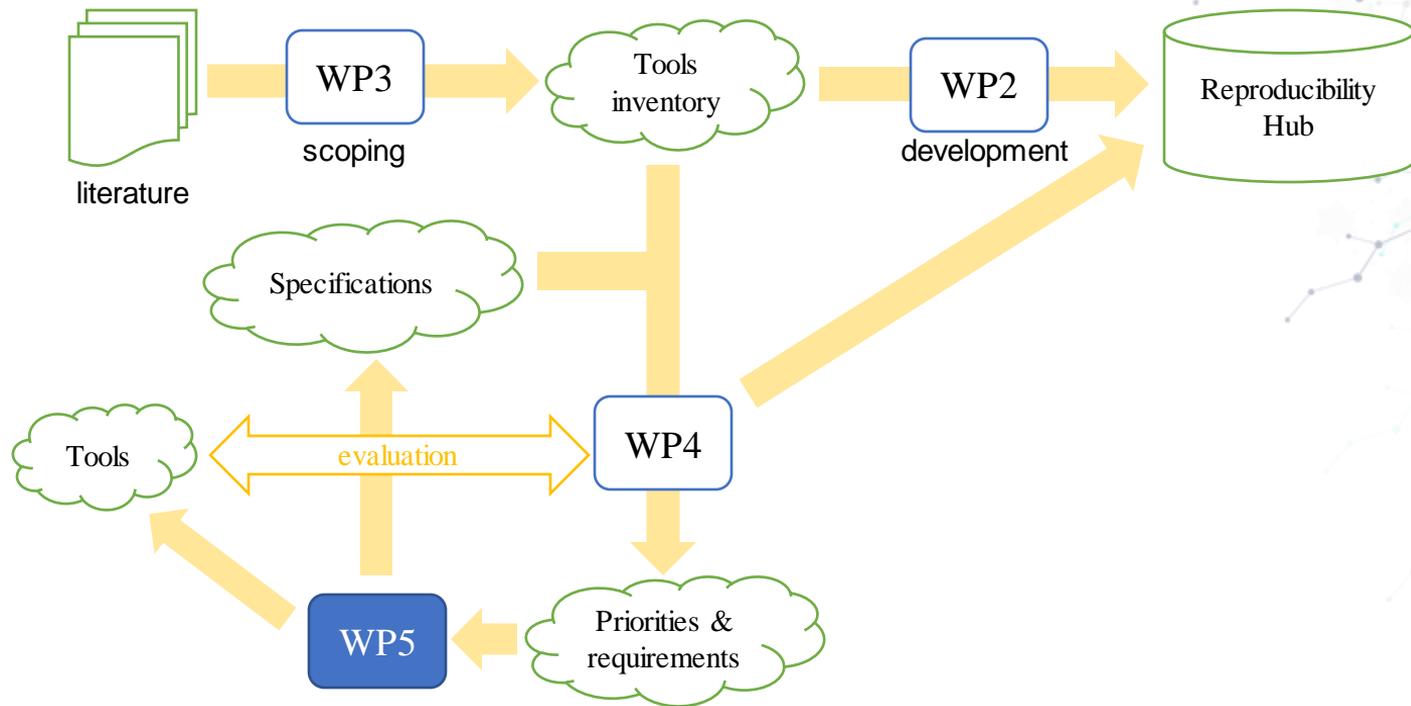
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# WP5 overview

- Objectives
  - Develop, extend and/or adapt practical **reproducibility-related tools & practices** for funders, publishers & researchers.
- Tasks
  - **Task 5.1** Practical tools and practices for **researchers**
  - **Task 5.2** Practical tools and practices for **publishers**
  - **Task 5.3** Practical tools and practices for **funders**
- Contributors
  - ARC [lead], KNOW, VUmc, GESIS, OpenAIRE, UOXF, F1000
- Running time (M9-M34)

# Comment on Methodology

- Agile, co-creation design & development
- Constant dialogue with WP4 (T4.2-4.4) to ensure that pilot needs & requirements are met
- Tools included here based on priorities identified by the scoping work during proposal preparation
- Co-creation: will drive development around these tools according to user needs.



# Task 5.1 – Practical tools and practices for researchers

- Task objectives
  - Implementation, customisation, & deployment of practical tools & practices for **researchers** that promote & facilitate reproducibility of scientific results during all phases of the research lifecycle.
- Task main methods
  - Create an interactive **Reproducibility Checklist** to guide researchers in best reproducibility practices for their epistemic context.
  - Extend DMPs to RMPs -“**Reproducibility Management Plans**” that will include additional reproducibility-related metadata for the reported research.
  - Ensure the **Reproducibility of Workflows** by leveraging software containerisation technologies, workflow description languages (e.g., CWL), & experiment packaging specifications (e.g. RO-crate).

# Task 5.1 – Timelines, Deliverables & Milestones

- Task timeline (M9-M34)
- Deliverables and Milestones
  - *D5.1: Reproducibility toolset (tools & practices) for researchers (ARC, M34)*
  - *M5.1: TIER2 researcher reproducibility toolset first release (M22)*

# Task 5.1 – Key challenges and immediate priorities

- Key challenges
  - Dependencies with WP4.
  - Implementation of co-design approach.
  - Map the tools to the pilot needs.
- Immediate priorities
  - Establish communication with pilots (WP4) at an early stage to mitigate the relevant risks.

# Task 5.1 – Interrelation with other tasks, WPs & partners

- Task 5.1 will be implemented based on the scoping & co-creation activities in **WPs3/4**.
- All the subtasks will be further refined through the **WP4** co-creation design processes.
- In subtask 5.1.1 we will create an interactive Reproducibility Checklist built upon the scoping work from **WP3**.
- This checklist will be hosted via the Reproducibility Hub of **WP2**.
- Link to work in T1.3, piloting the RMP ourselves.

# Task 5.1 – Discussion points

- Feedback on methodology?
- Early insights on the tasks...

# Task 5.2 – Practical tools and practices for publishers

- Task objectives

- Implementation, customization, validation & deployment of practical tools & practices that *promote, facilitate, monitor* & *assess* reproducibility of research outputs taking into consideration the special needs & requirements of **publishers**.

- Task main methods

- (1) Develop **streamlined workflows to review & validate datasets & code** from manuscripts at submission time, including a common system of ‘stamps’ or validity marks to indicate that work has been checked
  - Exploit the Reproducibility Assessment Toolkit (part of the **SciNoBo** suite) to **spot research artefacts indicating potential missing metadata elements** that should accompany & enrich research output.
- (2) Investigate potential protocols including RO-Crate, Nanopublications, Docmaps & others & implement **threaded publication** approaches.
- (3) Investigate potential use of **registered reports & open publishing models** in new concepts (based on extensions of the models/workflows of F1000 and T&F)

# Task 5.2 – Timelines, Deliverables & Milestones

- Task timeline (M9-M34)
- Deliverables and Milestones
  - *D5.2: Reproducibility toolset (tools & practices) for publishers (UOXF, M34)*
  - *M5.2: TIER2 publisher reproducibility toolset first release (M22)*

# Task 5.2 – Key challenges and immediate priorities

- Key challenges

- Dependencies with WP4, and map the tools to the pilot needs within Context (Social Science, Computer Science, Life Sciences, **Publishers**)
- Have a real impact on publishers' current practices
  - Publishers' internal production processes are very different, and their ability to change them varies a lot
  - Some will engage at publisher level, some at journal level; others will be scholarly communication platforms
  - The three methods are very technical: some may be willing to test tools, but will they put them in production?

- Immediate priorities

- Establish communication with pilots (WP4) to mitigate the relevant risks
- Identify interested publishers (WP2) and start inventory of existing practices (WP3)
  - UOXF has just started this via **FAIRsharing**, and to date the following have agreed to participate: OUP, eLife, Springer Nature, PLOS, GigaScience, BMJ, and of course F1000 and Pensoft

## Task 5.2 – Interrelation with other tasks, WPs & partners

- *All the subtasks will be further refined through the **WP4** co-creation design processes.*

# Task 5.2 – Discussion points

- Feedback on methodology?
- Maturity of the tools we use:
  - e.g. is the Reproducibility Assessment Toolkit live, and provided as a service? It was not at writing stage
- Turn publishers' diversity to our advantage to maximize our impact: some will be publishers interested in policy to promote across a number of journals, some will come with their journal's editor hat on, others will be more tech savvy working on publication platforms.
  - Perhaps we need to modify the three methods, and have one method that is more focused on creating a 'checklist, policy and practice' guidelines they can all adopt and implement
  - The other two methods can be more focused on specific tools (e.g. ROAL), protocols (e.g. nanopubs), publishing models (with F1000 and T&F)

# Task 5.3 – Practical tools and practices for funders

- Task objectives

- *Implementation, customization & deployment of practical tools & practices that enable & support funding institutions in prioritising & tracking reproducibility within their funded projects.*

- Task main methods

- *Produce practical advice for funders on how to create “**Reproducibility Promotion Plans**” (RePPs), through a close collaboration with funders & other stakeholders.*
- *Extend machine actionable **RMP tools** to offer evaluation & reporting functionalities for the officers in funding organisations.*
- *Leverage the reporting standards in **FAIRsharing** to assist in assessing levels of FAIRness.*
- *Develop tools that enable funding agencies in **tracking & monitoring** reusability of research artefacts (reproducibility monitoring dashboard).*

# Task 5.3 – Timelines, Deliverables & Milestones

- Task timeline (M9-M34)
- Deliverables and Milestones
  - **D5.3:** *Reproducibility toolset (tools & practices) for funders (ARC, M34)*
  - **M5.3:** *TIER2 funder reproducibility toolset first release (M22)*

# Task 5.3 – Key challenges and immediate priorities

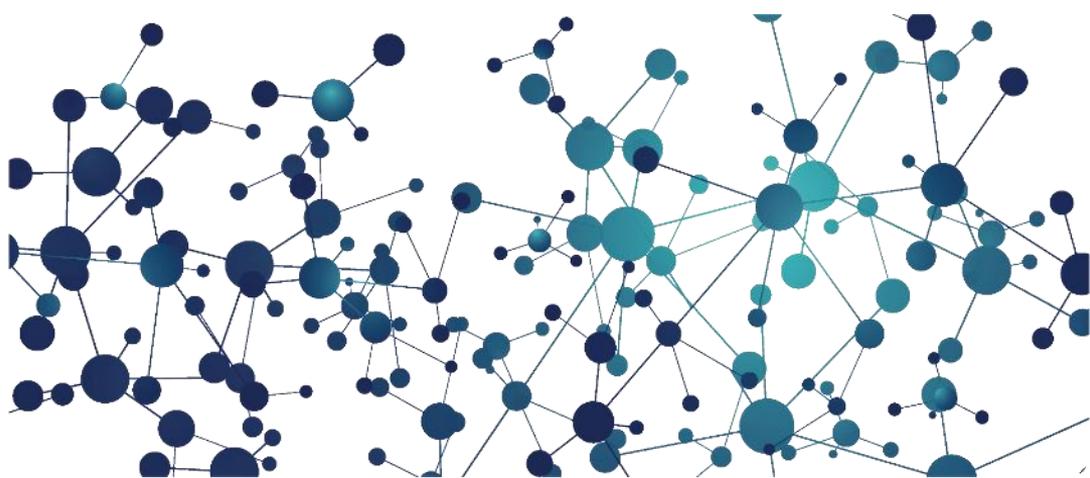
- Key challenges
  - Dependencies with WP4.
  - Implementation of co-design approach.
  - Map the tools to the pilot needs.
- Immediate priorities
  - Establish communication with pilots (WP4) at an early stage to mitigate the relevant risks
  - Identify interested funders (WP2) and start inventory of existing practices (WP3)

## Task 5.3 – Interrelation with other tasks, WPs & partners

- In subtask **5.3.2** we will extend the machine actionable RMP tools that will be developed in **T4.1.2** to offer evaluation & reporting functionalities for the officers in funding organisations.
- All the subtasks will be further refined through the **WP4** co-creation design processes.

# Task 5.3 – Discussion points

- Feedback on methodology?
- Early insights on the tasks
  - Reproducibility monitoring dashboard: What to monitor; How to measure; How to report;



# Thank you!

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