CS TRACK
Investigating Citizen Science

# Recommendations for Policy Makers – D3.3 [2023-01-25]

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# FOCUS:

Use monitoring to identify and actively support volunteer engagement

**Recommendation #1**

Be aware of side effects when using SDGs as a target criterion for CS activities

**Recommendation #2**

# POLICY RECOMMENDATION #1

**Use monitoring to identify and actively support volunteer engagement**

## Recommendation #1

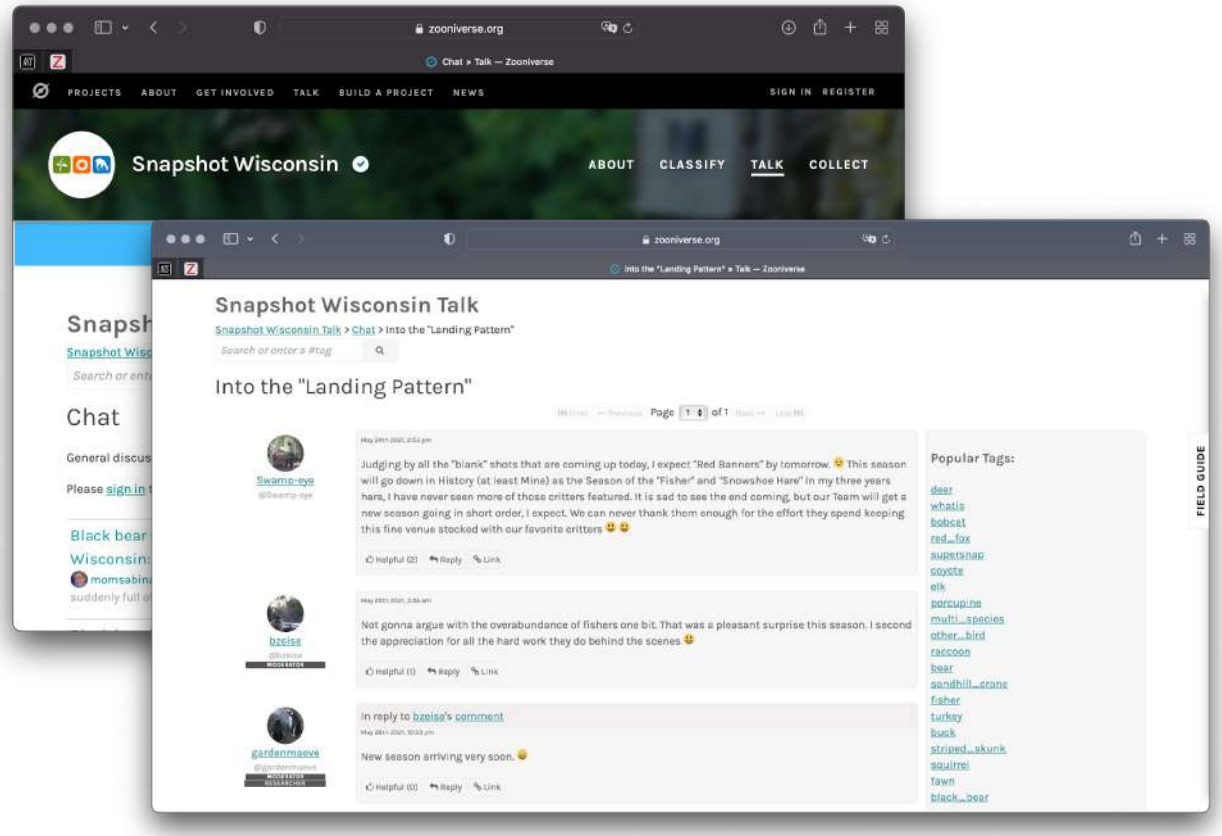
- Use monitoring tools to be able to provide moderation support
  - Positive feedback & rewards
  - Granting additional rights to engaged volunteers
- Recruit community managers
  - Prepare them in advance
  - Assign them to projects
  - Provide them with positive feedback and rewards (payment/other benefits)

# BACKGROUND

**Use monitoring to identify and actively support volunteer engagement**

- **Study** by Krukowski et al. (2022) on whether volunteer engagement in online citizen science platforms „pays off“
- **Rationale:** Contributory CS projects in online platforms might be instrumentalising volunteers for annotation & categorisation tasks
- **RQ:** Do volunteers actively participate in the scientific process & what benefits do they get?

ZOONIVERSE

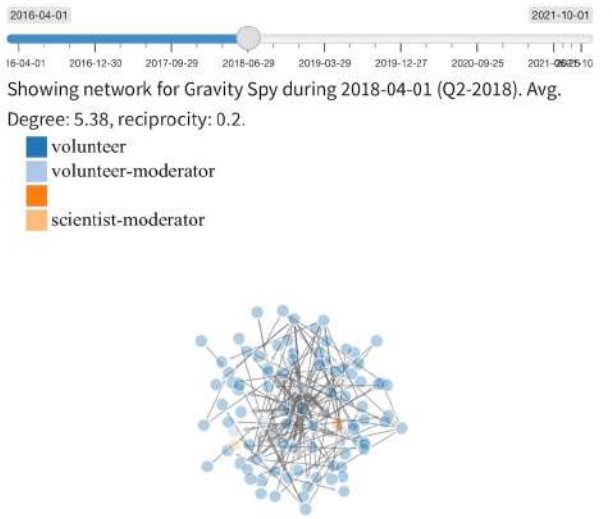


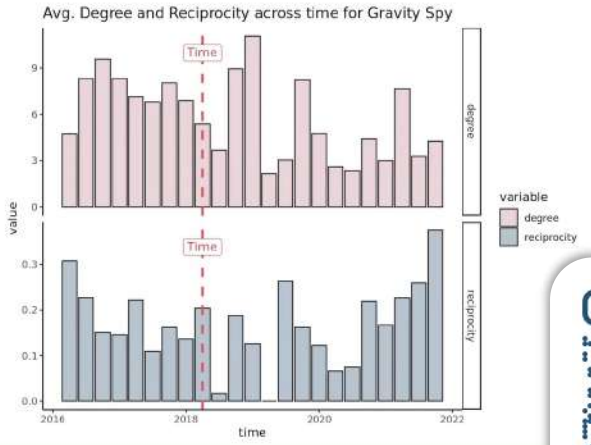
# APPROACH

**Use monitoring to identify and actively support volunteer engagement**

- **Approach**: Creation of time-dependent graphs of forum interactions for sample of Zooniverse projects

- **Analysis** of interactions/participation over time
  - User roles (e.g., volunteer, moderator)
  - Participation metrics (avg. degree, mutuality)
  - Prevalence of user roles & changes
  - Individual trajectories and „careers“ of users



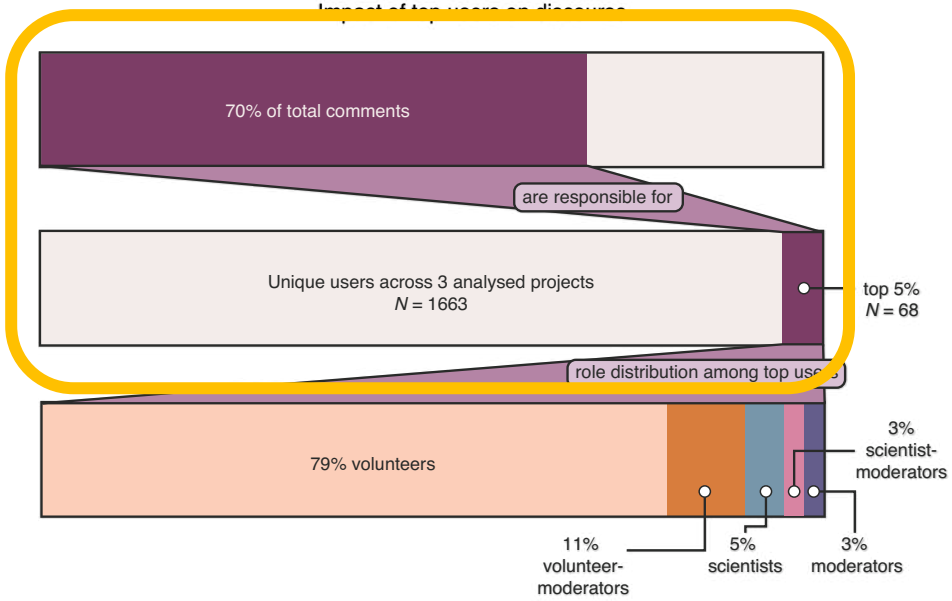



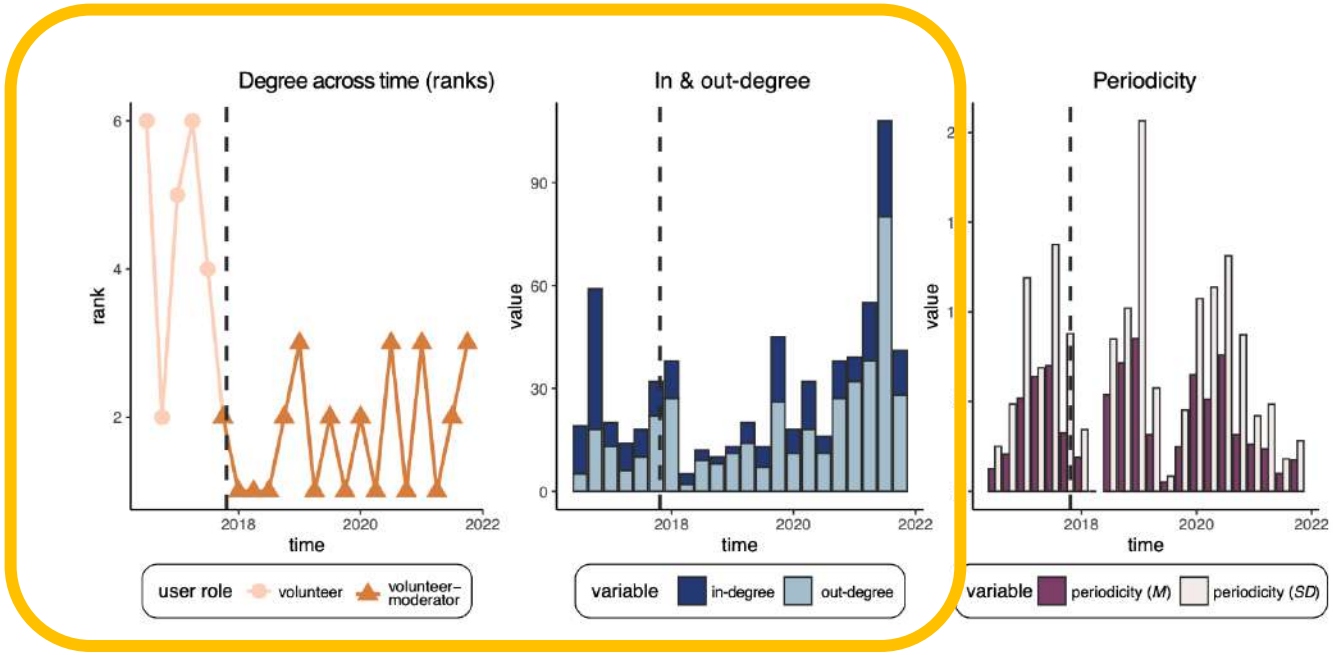
# RESULTS

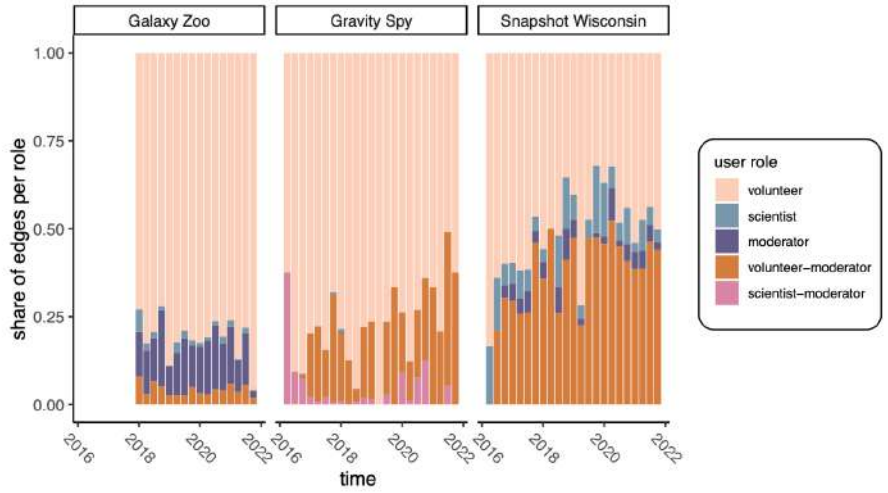
**Use monitoring to identify and actively support volunteer engagement**

Volunteers and promoted volunteers (volunteer-moderators) responsible for most of discourse, but only top 5%

- Increased participation by promoted volunteer-moderators over time –> **role changes**



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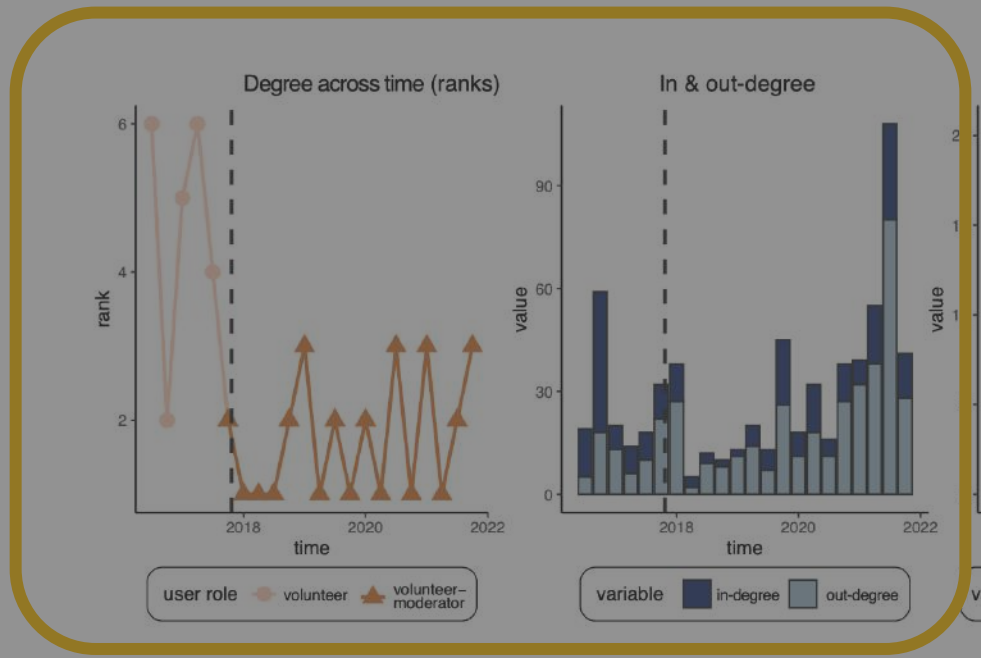


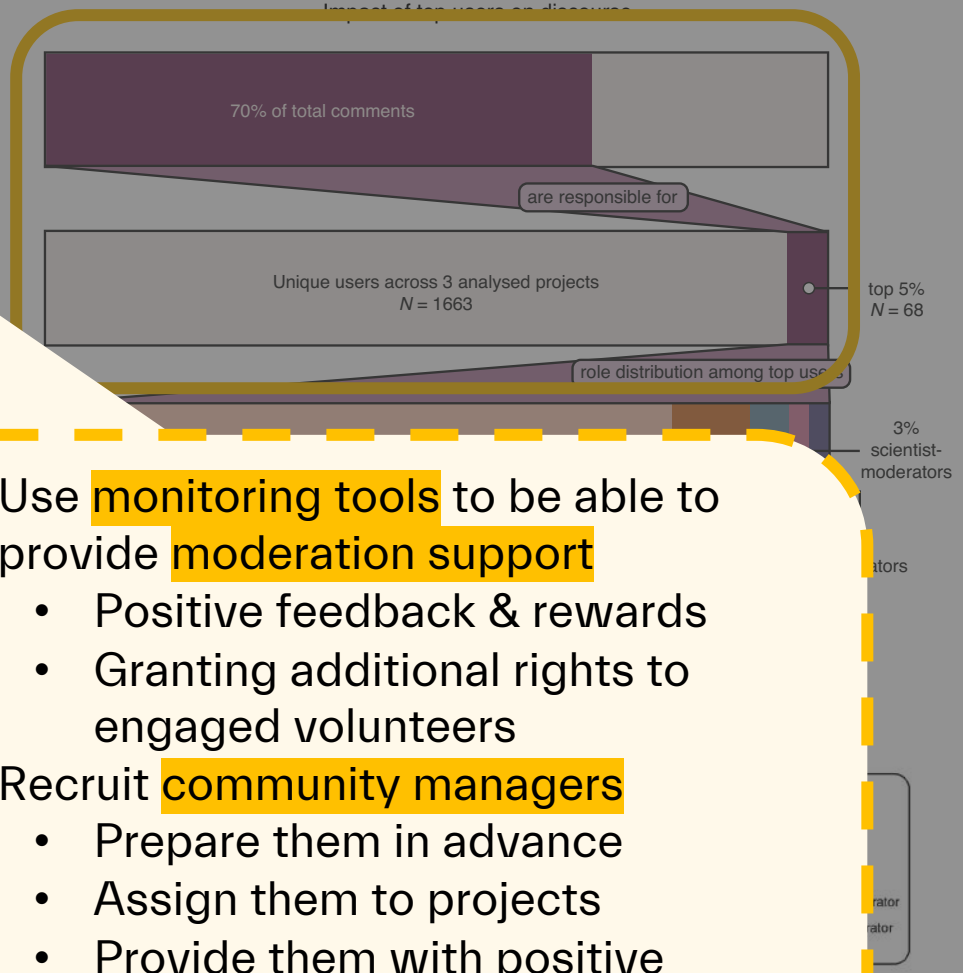


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# POLICY RECOMMENDATION #2

- Be aware that certain research areas might be **left behind** when focussing **too strongly** on **SDGs**
  e.g.:
  - astronomy/astrophysics
  - arts & humanities
  - ornithology

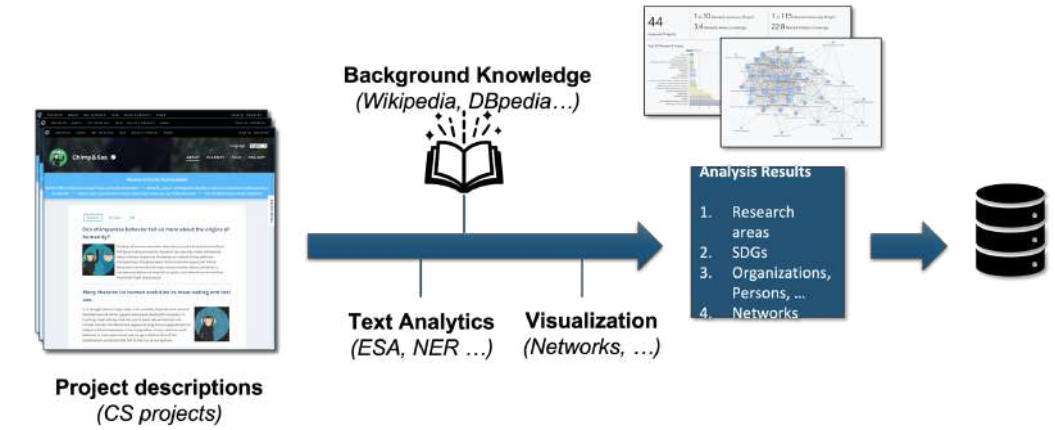
**Be aware of side effects when using SDGs as a target criterion for CS activities**

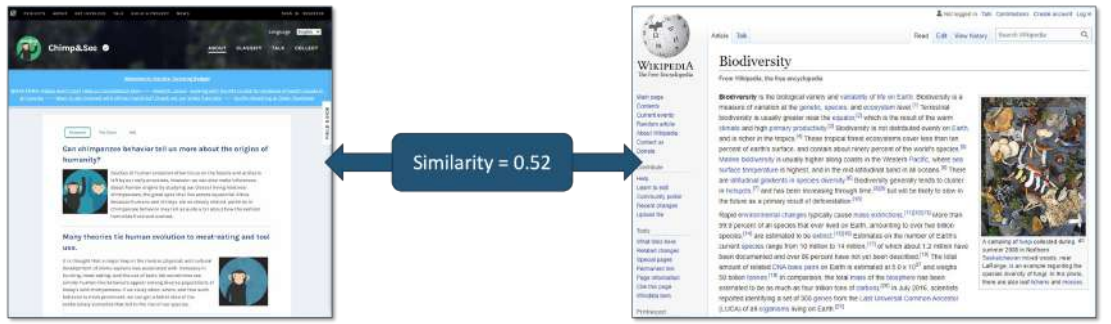
**Recommendation #2**

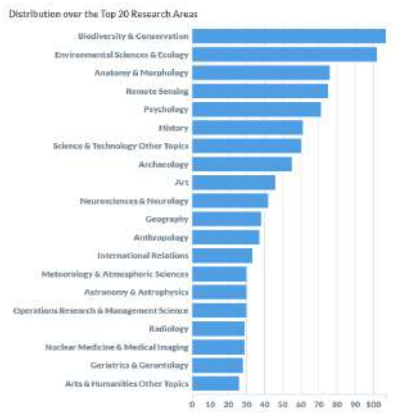
# BACKGROUND

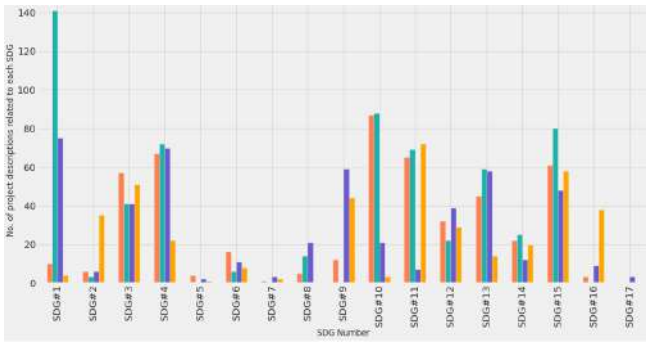
**Be aware of side effects when using SDGs as a target criterion for CS activities**

- **Study** by Hoppe et al. (2022)
- **Rationale**: Analysis of project descriptions of CS projects
  - Crawling of 200+ Zooniverse projects
  - Analysis of project descriptions
  - Calculation of similarity (ESA) between project description and research areas (RAs), sustainable development goals (SDGs)
- **RQs**: To what extent do RAs in project descriptions resonate with SDGs?



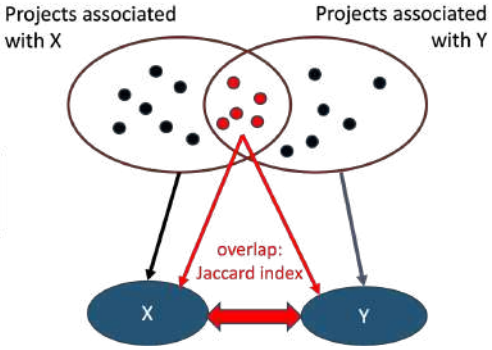



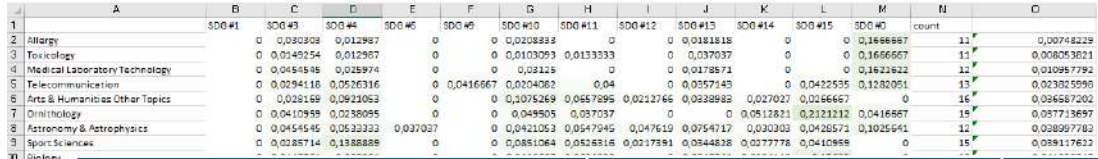
# APPROACH & RESULTS

**Be aware of side effects when using SDGs as a target criterion for CS activities**

- **Approach**: Compare the resonance of RAs in project descriptions to SDGs
- **Analysis** of similarities with SDGs
  - Calculation of average similarity with specific and all SDGs using Jaccard-Similarity
- No surprise regarding the RAs that show high resonance with SDGs
- Only 3.9% of projects with astronomy & astrophysics resonate with SDGs
- Ornithology and Arts & Humanities score lower than “Astro”
- Orientation towards SDGs as criterion for relevance?

$$Sim(X,Y) = \frac{(Number\ of\ projects\ associated\ with\ X\ \textbf{and}\ Y)}{(Number\ of\ projects\ associated\ with\ X\ \textbf{or}\ Y)}$$



| Research Area | Average resonance with all SDGs in % | Resonance with SDG 4 (Qual. Edu.) in % |
|---|---|---|
| Environmental Science & Ecology | 16.1 | 17.8 |
| Biodiversity & Conservation | 13.5 | 16.2 |
| Life Sciences & Biomedicine | 11.2 | 20.7 |
| Education & Ed. Research | 7.9 | 26.5 |
| [illegible] | [illegible] | 5.4 |
| Astronomy & Astrophysics | 3.9 | 5.3 |
| Ornithology | 3.8 | 2.4 |
| Arts & Humanities | 3.7 | 9.2 |

# APPROACH & RESULTS

**Be aware of side effects when using SDGs as a target criterion for CS activities**

- Be aware that certain research areas might be **left behind** when focussing **too strongly** on **SDGs**
  e.g.:
  - astronomy/astrophysics
  - arts & humanities
  - ornithology

- No surprise regarding the [illegible] that show high resonance with SDGs
- Only 3.9% of projects with astronomy & astrophysics resonate with SDGs
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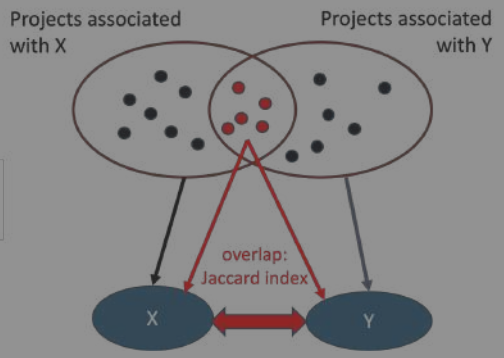


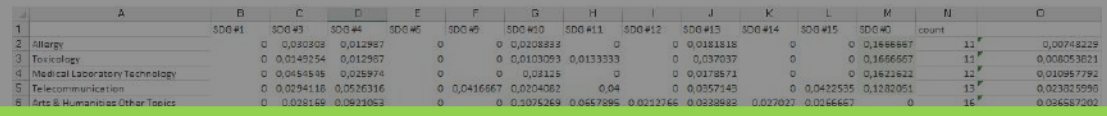

**Be aware of side effects when using SDGs as a target criterion for CS activities**

| | | |
|---|---|---|
| Life Sciences & Biomedicine | 11.2 | 20.7 |
| Education & Ed. Research | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] |
| Astronomy & Astrophysics | 3.9 | 5.3 |
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**Recommendation #2**

# DISCUSSION

- Questions?
- Remarks?