101 Innovations in Scholarly Communication

The Changing Research Workflow

Science is in transition. This poster gives an impression of the exploratory phase of a project aiming to chart innovation in scholarly information and communication flows from evolutionary and network perspectives.

101 Innovative tools and sites in 6 research workflow phases (< 2000 - 2015)

We intend to address the questions of what drives innovation and how these innovations change research workflows and may contribute to more open, efficient and good science.

Most important developments in 6 research workflow phases

<table>
<thead>
<tr>
<th>Trends</th>
<th>Discovery</th>
<th>Analysis</th>
<th>Writing</th>
<th>Publication</th>
<th>Outreach</th>
<th>Assessment</th>
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<tbody>
<tr>
<td>Social Discovery tools</td>
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<td>collaborative online writing</td>
<td>more use of &quot;publish first, judge later&quot;</td>
<td>more open and post-publication peer review</td>
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<tr>
<td>Growing importance of data discovery</td>
<td>more online analysis tools</td>
<td>more integration with publication &amp; assessment tools</td>
<td>use of altmetrics for monitoring outreach</td>
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<td>Support for full-text search and text mining</td>
<td>willingness to share in analysis phase</td>
<td>acceptance of collaborative online writing</td>
<td>more open and post-publication peer review</td>
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<td>Effect of journal/publisher status</td>
<td>openness to aggregated full-text</td>
<td>readiness to share in analysis phase</td>
<td>using repositories for institutional visibility</td>
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<tr>
<td>Requirements of funders &amp; institutions</td>
<td>openness to use of repositories</td>
<td>readiness to share in analysis phase</td>
<td>using author-publication and affiliation IDs</td>
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<td>Reproducibility</td>
<td>real semantic search (concepts &amp; relations)</td>
<td>reproduction of online writing</td>
<td>making outreach a two-way discussion</td>
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<td>Safety/privacy of online writing</td>
<td>openness to social tagging while writing</td>
<td>accessibility of perceiving sciences standards</td>
<td>quality of measuring tools</td>
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Most important long-term development

- Multidisciplinary & citation-enhanced databases
- Collaboration + data-driven
- Online writing platforms
- Open Access
- More & better connected researcher profiles
- Moving away from simple quantitative indicators

Potentially most disruptive development

- Semantic/concept search + contextual/social recommendations
- Open science
- Collaborative writing + integration with publishing
- Documenting traditional publishers
- Public access to research findings, also for agenda setting
- Important of societal relevance + non-publication contributions
- Moving away from simple quantitative indicators

Typical workflow examples

- Traditional
- Modern
- Innovative
- Experimental
- Google
- NPG/Macmillan