

Generic Risk Analysis

Open Access for your institution

1 Executive Summary

This is a generic risk analysis for any institution (university, research organization, etc) contemplating the installation of an Open Access Repository. It covers the major risks identified by experienced repository operators. The key risks are 2.1b, 2.3 and 2.8, and actions are recommended to reduce these risks to 'low' (scoring 6 or below out of a possible 25). If these actions are taken, establishing an Open Access Repository is truly a low risk operation.

This analysis does not specifically address benefits of an Open Access Repository, which can be found elsewhere. It is assumed that your institution has made an in-principle decision, at least.

Thanks to all the members of the international community of Open Access who contributed to this document.

Arthur Sale

2 Risk summary

Event	Time Frame	Probability		Impact		Risk	
2.1 All universities have OAR	Short-term	low	2	low	1	negligible	2
	Long-term	very high	5	moderate	3	moderate	15
2.2 No universities have OAR		very low	1	moderate	2	negligible	2
2.3 OAR is empty		high	4	severe	5	high	20
2.4 Journals will fail		very low	1	severe	5	low	5
2.5 Refusal to accept our research		very low	1	severe	5	low	5
2.6 No benefit to us		very low	1	moderate	3	negligible	3
2.7 Regarded as second class		very low	1	severe	5	low	5
2.8 Costs too high		moderate	3	moderate	3	low-mod	9
2.9 Future high costs		very low	1	low	2	negligible	2
2.1 ₀ Copyright litigation		very low	1	severe	5	low	5
2.1 ₁ Refusal to collaborate		very low	1	severe	5	low	5
2.1 ₂ Insurrection in the ranks		low	2	moderate	3	low	6

Probability and impact are rated on a scale of 1 (very low) to 5 (very high or severe). Risk is calculated as (probability × impact) and is therefore on a scale of 1 to 25.

3 Risk detail

3.1 Risk: All (or nearly all) universities in country will create Open Access Repositories (OAR)

Analysis: In the short term (0-3 years) the probability of this event is Low to Moderate. In the longer term (4-10 years) the probability rises to Certain. The impact of the event is that the initial competitive advantage of going OA for the university, a relative advantage, of course ends once all universities have gone OA but intrinsic advantages remain. These include:

- *Quality Advantage:* better, more relevant articles will be more cited because affordability constraints will be removed: ‘level playing field’¹ and
- *Usage Advantage:* Up to three times as many citations for your institution’s articles².

The strategic advantages of going OA early should be weighed by each institution, as these may position it better in competitive terms such as Australia’s RQF and the UK’s RAE³, with long term consequences. In other words, the competitive advantage is to the early adopters (both among institutions and among nations), and that advantage sticks and continues even when all the rest adopt: this follows directly from Kurtz’s *Early Advantage* findings⁴.

Action: Desirable to minimize this risk by establishing an OAR as soon as possible.

3.2 Risk: No other (or very few) universities in country will create Open Access Repositories

Analysis: The probability of this event is very low; indeed in most countries OARs already exist in significant numbers. The probability of their ceasing to operate is considered Very Low. The impact of the event is that the university will (a) look foolish, and (b) have wasted resources in establishing an OAR. This is balanced against the competitive advantage for early adopters.

Action: The risk is considered negligible. No action required.

3.3 Risk: Our OAR will not attract all our research output

Analysis: Global experience is that if deposit into the OAR relies only on spontaneous submission by the researchers, at most 15% of the institution’s research output will be deposited⁵. There appear to be no exceptions to this finding. At this baseline level of deposit, an OAR benefits only a minority of researchers and the institution hardly at all.

The alternative is to have an institution-wide policy which requires researchers to deposit their research output. There are two indicators which show that such a policy reduces the High risk to Low.

- Several institutions have established such policies (often called a ‘mandate’). Their ratio of deposits to output is either close to 100% or shows strong signs of growing to reach it. Such a requirement needs no enforcement (any more than a requirement to publish research needs enforcement). Appropriate library support, promotion, and increasing bureaucratic dependency on the OAR (for example cv-generating, RAE/RQF reporting, usage monitoring, performance review, etc) are sufficient to ensure the outcome. This does however need to be formalized as an institutional policy and endorsed by the senior executive bodies.
- A JISC-funded seminal study⁶ by Key Perspectives Ltd also shows self-reported likelihood of at least 95% compliance with a ‘requirement policy’ by researchers⁷. This is borne out by the above experiences. This is confirmed by the JISC-funded study on *Disciplinary Differences and Needs*⁸.

Action: Establishing an OAR and not having a deposit policy is Very High risk. The institution should adopt a deposit requirement policy in parallel with establishment of the OAR, use the OAR for record-submission and fulfillment etc, and establish a library self-archiving support service. This reduces the risk to Low.

3.4 Risk: Our OAR will result in the business failure of journals or publishers we use to publicize our research

Analysis: Fifteen years of Open Access Repository experience to date have shown no evidence that your OAR poses risk to journals. It is unlikely that any whole country of OARs (except the USA) would have an appreciable effect on the content of most journals, or their business.

This hypothetical risk to journals is not one for which individual or even collective OARs have responsibility. The advent of the Internet has changed the environment of commercial and society publishers, and they are in transition with new business models co-existing with traditional ones.

All evidence to date is for peaceful co-existence between self-archiving (open access) and journal publishing, with no effects on subscription revenue, and the publishers most affected to date (in physics: APS, IOPP) have endorsed and supported the practice of author self-archiving, even hosting mirror sites of the central OAR of physics, Arxiv⁶.

If self-archiving ever does reduce journal subscription revenues to unsustainable levels, journals can transition to the ‘OA publishing’ model (which about 10% of them have already adopted) where costs are recovered from author-institution publication charges or outside subsidy instead of reader-institution subscription charges. The institutional windfall savings from any subscription cancellations can be rechanneled toward covering OA publishing costs. Funding councils are already considering covering such costs too.

But this is all premature, as there is no sign at all (let alone evidence) of subscription decline associated with self-archiving. Publishers will adjust

their business models and their revenue expectations according to market conditions as required. This is already taking place.

Action: No immediate action required. In the longer term, be prepared to draw up contingency plans for re-channeling any eventual institutional windfall savings from subscription cancellations to covering institutional authors' publication costs for publishing in OA journals.

3.5 Risk: Journals will refuse to accept articles from our researchers because we have an OAR and a requirement policy.

Analysis: Ninety-three percent of journals already endorse author self-archiving⁹. The option of depositing the full-text but blocking [open] access to all but the bibliographic metadata is available for the 7% of journals that have not endorsed self-archiving. Most journals already have a policy that authors' institutional requirements take precedence over journal policy – this is why US federal employees can retain copyright even with journals that request copyright assignment. In addition, it is editors and referees that decide on acceptance/rejection, and editors and referees decide on the basis of merit of the submission, not on the basis of the author's institutional OAR policy. Wellcome Trust has issued a self-archiving mandate and the response from (so far) Springer, Blackwell and OUP has been to announce their compliance, as publishers, with Wellcome's conditions. This is a first-indicator for the rest of the industry.¹⁰

Action: No action required, risk is negligible.

3.6 Risk: We will contribute to the worldwide pool of OA articles, but will not receive a corresponding benefit of access to others' articles

Analysis: OA self-archiving has two benefits, one direct and one indirect. The direct benefit is increasing the research impact of the author's own research output; the indirect benefit is to encourage other authors to self-archive, thereby increasing the access to their output. The direct benefit has been repeatedly demonstrated empirically.

The indirect benefit is already making itself felt through the growth of existing OA repositories. Further expansion is highly probable through actions like the one your institution is considering, and for the same reasons (because it is in each institution's self-interest in respect of the direct benefits).

Action: The risk of no benefit is Zero, but access to most of the world's research will take several years to eventuate. See also section 2.2.

3.7 Risk: Our research will be regarded as second-class if we establish an OAR.

Analysis: An OAR is primarily for existing published research. It merely increases access to it; it does not alter its content or quality. Existing quality control mechanisms (such as refereeing, peer review, etc) continue to validate the

research. But increasing the accessibility increases usage and impact, and hence the visibility and both the perceived and actual ‘class’ of the research are raised.

Leading universities in all the major research-producing countries have established OARs, which they would not have done if this risk had any validity. Moreover, all evidence is that it is the best researchers who are self-archiving (their best articles) first¹¹.

Action: Risk of research being seen as second-class is zero: the probable outcome is the exact opposite.

3.8 Risk: Our OAR costs will be too high.

Analysis: There is expensive software and there is free software. There is software that creates OARs whose upkeep is expensive, and software that creates OARs whose upkeep is inexpensive. There are also commercial solutions to provide an OAR service. Within this range, institutions are free to choose according to their purse.

An OAR becomes very expensive if an institution does not have a clear and well-defined purpose for its repository. For example the following are likely to increase the cost very substantially: mixing up the OAR function for published journal content with one or more of the following:

- generic digital curation and preservation functions,
- e-research,
- image libraries,
- digitization of historical or cultural collections,
- learning objects, etc.

Such functions deserve separate projects, separate costing and possibly different databases or software. Conflation of these with OARs results in higher costs, not lower.

Actual costs cited by institutions which have implemented a focused and well-defined OAR, dedicated to published research output, are very low by the standards of institutional budgets. For example, it has been estimated that almost any institution could cover its installation and hardware, software and IT support costs at well under \$US10 000 per year¹². Commercial OAR services confirm this estimate with annual service fees of \$US10 000 to \$US20 000¹³.

This does not cover the manpower cost of repository management, and assistance to researchers, promotion of the service, etc. This second operating component of costs is from staff resources devoted to the OAR. Again, this risk appears to be minimal, with staff effort being needed mostly during the establishment phase (to convince, assist, and encourage deposition by researchers) and declining with time.

Again, experience suggests that these costs are probably around 0.5 person, maybe rising to 1.0 person for a very large institution¹⁴. Over time, the manpower costs also decline.

However, note that if the project includes retrospective digitization, or an attempt to achieve compliance (and possibly handle a backlog) in a short time-frame (for example for an RAE/RQF deadline), then costs may be much higher.

OARs will, anyway, become standard components of the management and information systems of research-based institutions and their costs will become a standard budget line.

Action: High costs are Very Low risk, if the following is actioned:

- Have a clearly defined role for the OAR, which contains published journal articles and conference papers as a base, with digital theses, preprints, book chapters and technical reports as possible add-ons.
- Do not allow this role to be extended, except with like objects.
- Choose a free software package that is specifically targeted for this application, or use a commercial service.

If the advice is not taken, the risk may rise to Moderate to High.

3.9 Risk: The software we choose may lock us into high costs in the future.

Analysis: Costs are also dealt with in section 2.8.

For free software specifically targeted on OA content (journal articles), the experience of many institutions that have been using them for years is that they do not lead to rising costs; indeed their costs per article diminish markedly as the number of articles self-archived increases.

Experience also suggests that the manpower costs of supporting an OAR reduce with time, especially after a few years.

Action: Rising costs are considered Negligible risk. No action is required.

3.10 Risk: We may be involved in copyright litigation.

Analysis: Ninety-three percent of journals already endorse author self-archiving, and no copyright issue can be expected to be raised by them. The option of depositing the full-text but blocking access to all but the bibliographic metadata is available for the 7% of journals that have not endorsed self-archiving.

Note also it is not in the interests of journals to take a hard line with an author self-archiving work that he/she authored, and then gave free to a publisher. The situation is not in any way analogous to music and video piracy.

Fifteen years and over a million and a half articles self-archived in physics and computer science (two areas which have self-archived for a long time,

and regardless of journal attitudes) have not led to a single case of copyright litigation¹⁵.

Action: The risk is Negligible. No action is required.

3.11 Risk: The researchers in our institutions will refuse to collaborate in making their articles available.

Analysis: This risk is related to Risk 2.3, and partly dealt with in that section. The Key Perspectives Ltd report, and the experience of institutions that have a requirements policy, indicate that the collaboration of 95% of researchers will be forthcoming if deposit is presented as an institutional requirement. A non-compliance rate of 5% can be tolerated, and the impact-enhancing effects for the 95% can be relied upon to eventually raise compliance to 100%.

In contrast, if deposit is voluntary, the researchers will respond largely with apathy and decline to do avoidable work, even though it only amounts to a few minutes and keystrokes per article. This will leave the institutional self-archiving rate at the 15% baseline for spontaneous self-archiving.

Action: If a requirement policy is implemented, the risk of non-compliance is considered Negligible.

3.12 Risk: Researchers will resent imposition on their time and 'academic freedom' of an institutional deposit requirement

Analysis: Requirements (mandates) are in effect in several institutions without causing insurrection, and bringing good results in terms of OAR content growth, exactly as predicted by the JISC author survey. Resentments tend to be 'before the event' or even 'in principle' mutterings¹⁶ but do not translate into action after the event. Indeed, after researchers deposit their work, they are pleased with the benefits this brings.

Action: Advocate and explain reasons and advantages of OAR to the institution and the researchers themselves. Very low risk.

4 Summary

The above Risk Analysis has exposed the key risks (2.1b, 2.3, and 2.8) and the actions that an institution should take to reduce these risks to Low. Any institution contemplating an OAR should take the actions recommended in these sections.

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5 Glossary

<i>OA</i>	Open Access – free online access to research articles, by anyone, across the Internet.
<i>OAI</i>	The Open Archives Initiative develops and promotes interoperability standards that aim to facilitate the efficient dissemination of content. The Open Archives Initiative has its roots in an effort to enhance access to e-print archives as a means of increasing the availability of scholarly communication. Continued support of this work remains a cornerstone of the Open Archives program.
<i>OAR</i>	Open Access Repository; in other words a repository established in an institution with the intention of providing open access to the institution’s published research output.
<i>RAE</i>	[UK] Research Assessment Exercise ¹⁷ (see also RQF).
<i>Requirement Policy</i>	Policy adopted by institution whereby researchers are required to deposit their published articles in an OAR, as a routine activity. NOTE 1: The <i>requirement</i> is often called a ‘mandate’. NOTE 2: <i>Deposit</i> means just deposition; the decision as to making the deposit of the full text open access or restricted is not part of a base-level requirement policy, nor is it essential.
<i>RQF</i>	[Australian] Research Quality Framework ¹⁸ (see also RAE).

6 References

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