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Eve, Martin Paul and Inglis, Kitty and Prosser, David and Speicher, Lara and Stone, Graham (2017) Cost Estimates of an Open-Access Mandate for Monographs in the UK's Third Research Excellence Framework. *Insights: the UKSG journal* 30 (3), pp. 89-102. ISSN 2048-7754.

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Cost estimates of an open access mandate for monographs in the UK's third Research Excellence Framework

The recent 'Consultation on the second Research Excellence Framework' (REF) in the UK contains an annex that signals the extension of the open access mandate to monographs. In the service of promoting discussion, rather than prescribing a forward route, this article estimates the costs of implementing such a mandate based on REF 2014 volume, taking the criteria signalled in the annex, and identifies funding sources that could support it. We estimate that to publish 75% of anticipated monographic submission output for the next REF would require approximately £96m investment over the census period. This is equivalent to £19.2m per year. Academic library budgets as they are currently apportioned would not support this cost. However, these sums are but a fraction of the total quality-related funding, Arts and Humanities Research Council and Economic and Social Research Council budgets. We close with a series of provocative suggestions for how the mandate could be implemented.



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Introduction

The 2016 'Consultation on the second Research Excellence Framework', published by the Higher Education Funding Council for England (HEFCE, shortly to become Research England [RE]), signals that the third Research Excellence Framework (REF), anticipated to be held in the mid-2020s, will extend its open access (OA) mandate to long-form monographic outputs.¹ Although we recommend consulting the document itself, the basic principles of the mandate are listed below.

1. There are powerful and valid reasons why open access should be extended to monographs and other long-form publications.
2. There will be legitimate reasons why a monograph cannot be open access, and HEFCE/RE will be flexible about the proportion of monographs submitted to a future exercise that will be expected to meet OA requirements.

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3. In so far as it is practicable, the version that is made open access should be academically equivalent to the final published version of record.
 4. The monograph should at least be free to read, and ideally be licensed in a way that gives freedom to copy and reuse the published material.
 5. The monograph should be free to access in its entirety, ideally immediately upon publication.
 6. There should be no requirement that any one particular business model be used to deliver OA monographs.
 7. Further work is needed to improve the academic acceptability and long-term accessibility of digital books.

These proposed conditions have prompted much hand-wringing and discussion, with a Universities UK subgroup being composed to tackle some of the issues, but the most basic and anxiety-inducing question was expressed well by Geoffrey Crossick in his influential 2015 report: ‘any serious discussion of how to deliver open access must answer the fundamental question: who pays?’²

‘These proposed conditions have prompted much hand-wringing and discussion’

In this article, we model a range of approximate costs for the mandate based on the monographic output from the last REF. We begin by identifying the assumptions we have made in our financial calculations before proceeding to the cost estimations. We then identify sources that are capable of bearing this financial burden. Finally, we discuss a set of recommendations which we believe will make progress towards the mandate.

All the costs in this document are rough outlines for working purposes. Nonetheless, we hope that they are as close as possible to the future economic outlook for monographs as is foreseeable. We further acknowledge a weakness of our own methodology here: in modelling on a per-monograph costing basis, we seem to support book processing charge (BPC) models over other systems. This is not our intention but rather a consequence of trying to ascertain a unit cost within a publishing system where most costs are ongoing and sunk (i.e. already incurred and cannot be recovered), rather than marginal.

Assumptions

Number of books to be submitted

In REF 2014, there were 12,873 submissions of output type ‘A’ (authored books), 2,066 of output type ‘B’ (edited books), 13,253 of output type ‘C’ (chapters in books), and 436 outputs of type ‘R’ (scholarly editions). Taking a book to be composed of approximately eight chapters – an admittedly rough measure for economic purposes – this yields a total of 17,032 books submitted to the 2014 exercise (but this figure does not deduplicate books in the case of multiple book chapters). While there was a significant fall in the number of book chapters submitted between the preceding Research Assessment Exercise and the REF, all other output volumes remained relatively stable between the exercises.³ These data are shown in Table 1.

Category	Description	Output quantity	Adjusted quantity
A	authored books	12,873	12,873
B	edited books	2,066	2,066
C	chapters in books	13,253	1,657
R	scholarly editions	436	436
Totals		28,628	17,032

Table 1. Book outputs in the Research Excellence Framework 2014

91 There are some overlaps in the above calculation since it is likely that ‘chapters in books’ will also appear in ‘edited books’. There is an additional potential duplication if outputs are here double-counted due to co-authorship. This means that our output count here tends towards an upper bound.

Annex C of the ‘Consultation on the second Research Excellence Framework’ notes a flexibility around exemptions.⁴ For the purposes of economic calculations, we have therefore worked with a figure of 75% compliance volume, shown in Table 2. We do not wish, here, to suggest areas where these exemptions might be made since this could foster unrealistic expectations among certain disciplinary communities.

Category	Description	75% Adjusted Quantity
A	authored books	9,655
B	edited books	1,550
C	chapters in books	1,243
R	scholarly editions	347
Totals		12,795

Table 2. Output volumes (based on 75% compliance) from the Research Excellence Framework 2014

Costs of publishing academic books

Estimating the cost of publishing an academic book is not easy, since most publishing costs are fixed rather than a unit cost.⁵ (In other words, staff, estates and so forth are not usually affected by single increments in monograph output.) It is also the case that there may be a range of models that can support the cost of publishing monographs. That said, there have been a range of estimates for a viable unit price point. A recent Ithaka study found that the cost of publishing a single book ranged between US\$15,140 (£11,700) and US\$129,909 (£100,600).⁶

However, these price points do not tally with the current market rates (as of early 2017) for gold OA provision using a BPC in the UK, a sample of which is presented in Table 3.⁷ Data in Table 3 are from 2015; these publishers are selected because they featured in a Jisc Collections publication that surveyed a range of BPCs at the time.

Publisher	Book processing charge
Open Book Publishers	£0 to £3,500
Manchester University Press	£5,900
Cambridge University Press	£6,500
Palgrave Macmillan	£11,000

Table 3. Market rates for book processing charges in 2015

The mean of these market rates comes to £6,725. We have boosted this rate by 11.5% to reflect the range and to bring the figure to a rounded £7,500 mark for cost-modelling purposes. Note that we do not here account for VAT liabilities, since these vary from institution to institution.

This price point assumes that print sales persist, providing an ongoing additional revenue stream, since the results of recent researcher surveys indicate the continued desirability of print availability.^{8,9} Based on the work of K L Hahn for the Association of Research Libraries, we have opted, though, not to pursue the possibility of a freemium model sustaining the environment in toto.¹⁰ However, we accept that there will be multiple models and combined revenue streams. We have here, therefore, modelled the upper bound of costs. We are aware, also, of the possible unintended consequences of modelling supply-side payments (that is: BPCs) to limit innovation in the business model space. Any implementation must take care to ensure that multiple business models can access any supply-side payment system and also that supply-side payments do not limit a mixed-model approach.

‘there will be multiple models and combined revenue streams’

92 We also accept, though, that some types of publication have different costs inherent in their production. For instance, a scholarly edition, in particular, may require a higher rate, even while its digital, open dissemination remains important.¹¹ As work on the subject notes, though, 'production costs [for critical editions] are rarely consolidated and thus are practically never published'.¹² Other work notes that 'electronic editions cost no less than print editions to produce'.¹³ For the purposes of this document, we have pegged the cost of producing all types of book to the same level of £7,500. We suspect that there is variance here, though, and would recommend further research or exemptions – as recommended in Crossick¹⁴ and in Annex C¹⁵ of the 'Consultation on the second Research Excellence Framework' document – in this space.

'some types of publication have different costs inherent in their production'

A global publication ecosystem

We have assumed in our modelling and set of scenarios that the UK is the only mover to a gold OA monograph publishing ecosystem at this scale, despite seeing some evidence from other spaces.¹⁶ For even though we have seen the emergence of projects in the USA and Austria, among others, that paint a hopeful picture, it is important to assume that the UK moves alone since this has implications for the purchasing budget of academic libraries.¹⁷

We have also assumed, following Simon Tanner's analysis, that the entire withdrawal of UK academic book purchasing budget for REF titles would be an insufficient economic incentive for publishers to move their business models to an OA-only system. As Tanner puts it, 'For the 1,180 uniquely identified publishers/imprints for those books [in Panel D] submitted it is unlikely that the REF itself provides any significant motivation to their publishing business models.'¹⁸ This is because, although the UK punches above its weight in terms of research publishing and purchasing, it is relatively small on the international scale. Many more books are published around the world than those submitted to the REF.

Cultural change

We have assumed that cultural change among academics is desirable and necessary. We have, therefore, appraised the degree of culture change that each of the below models creates within the researcher community. At the same time, Crossick has suggested that this should not be done through an explicit awareness of business models.¹⁹

'cultural change among academics is desirable and necessary'

Assumed linear distribution

We have assumed in our per-year figures below a uniform expenditure over the REF cycle. We are sceptical that this is truly the case and more research is required on the timings in which monographs appear over a REF census period.

Timeline for action

Monographs take a substantial amount of time to write. We estimate a three- to five-year writing period to be common and longer is possible.²⁰ There are also often lengthy publication and revision processes that can take a couple of years or more. Assuming a REF could take place in 2026 with a mandate in force, and a seven-year lead, 2019 would be the latest that action would need to be taken for a move towards this policy goal. This would require an economic policy to achieve the mandate to be in place by the end of 2018.

The continuation of print

We have assumed that academics and other users will continue to desire print copies of books and that this will not be diminished by the availability of open access, as per the OAPEN-NL report from 2013.²¹ We have assumed that the continuation of print is important, as signalled in the Crossick report, though this is also sceptical about the data on long-term

93 financial sustainability of print.²² Print, using print-on-demand technologies, is also now far easier to keep in place than in previous eras.

The continuation of a diverse publication ecosystem

A core assumption of our modelling is the need to ensure a healthy diversity in the academic publishing sector and we specifically wanted to ensure that any recommendations here would not harm new, fledgling OA presses.

HEFCE and the devolved funding bodies

We have worked on figures derived from HEFCE's data that do not include the devolved funding bodies of Wales, Scotland and Northern Ireland. The political situation between these entities is complex and likely to be influenced by the new UK Research and Innovation body and even ongoing Brexit negotiations. Figures here for outputs are derived from the REF manager's report. Quality-related funding (QR) figures are taken from HEFCE's allocation, leading to an overestimated amount here on HEFCE. If any of these routes is pursued, it will be necessary to consult with and factor in the devolved funding bodies and to check the actual outputs from each geographic region against the funding allocations therein. Figures here are used as approximates to indicate the scale of the challenge.

Modelling of costs

Assuming a total of 12,795 books at a rate of £7,500 per book, we estimate that it would cost £96m to move the UK's monographic REF outputs to a gold OA mode over the next census period, or roughly £19.2m per year in a five-year cycle.

At the time of writing, we are awaiting information on HEFCE's implementation of the Stern review of REF and the subsequent institutional consultation. It is possible that this will alter the volume of monographs submitted to a future exercise.

There are ways in which the total cost of publication here can be lowered, specifically through applying a green route to certain types of output, of which we would envisage book chapters to be the most appropriate. We discuss this further below. Costs here, therefore, once again, represent an upper bound.

If aiming to achieve 100% gold OA monographs, the cost would be approximately £127,740,000 (£128m) over the cycle. This is a theoretical maximum since there will always be exemptions and also since this undoubtedly double-counts the volumes within which book chapters appear.

Given the need to find £19.2m per year from the university sector to secure open access to REF monographs – or to find a model that does not rely on such funding – we identified the scenarios shown in Table 4 as possible routes to the REF objectives. While all of these scenarios seem viable, which is why they occurred to us, only three actually work.

'to achieve 100% gold OA monographs, the cost would be approximately £128m over the cycle'

Number	Scenario	Viable?
1	Academic library fund diversion into OA purchasing	Not in isolation
2	QR hypothecation/top-slicing for a central OA monographs fund	Yes
3	Institutional budget reallocation	Not in isolation
4	A green OA monograph ecosystem	Yes
5	A national-level licensing agreement for OA monographs	Yes

Table 4. Scenarios for funding OA monographs for the third Research Excellence Framework

Academic library fund diversion into OA purchasing

One of the seemingly most obvious routes to achieving OA monographs is to convert the current purchasing budget in academic libraries into an OA expenditure budget.

The best benchmark that we have for UK academic library expenditure on books comes from the Society of College, National and University Libraries (SCONUL). Until 2012–2013 these statistics provided a breakdown by content type that allowed us to isolate expenditure on books. This has been in decline year on year since that point.

According to the SCONUL statistics from 2012–2013, the figure spent was £47.5m for books and printed material and £14.7m for e-books; a 'total' of £62.2m. We note, though, that figures for e-books contain book subscription services and so are not comparable like for like with the book budget. Thus the aggregation here up to £62.2m is again a generous estimate of library book purchasing figures.

Librarian members of our authorship (Inglis, Prosser and Stone) estimated from their experience that at best there was an 80:20 ratio within this budget of textbook expenditure to research monograph expenditure. (This can be estimated to be as high as 95:5 in teaching-intensive institutions.) That is, only £12.4m of the book purchasing budgets of UK academic libraries appears to be invested in purchasing research monographs every year, which would leave a shortfall of £6.8m per year even if the entire budget was converted to OA expenditure. Furthermore, a great deal of this £12.4m is spent on books that are authored outside the UK academic system and those that will not be submitted to REF. A large portion of publisher revenue for UK REF books also comes from overseas library budgets, making it difficult to incentivize a change in business model based on a shift in academic library budgets alone.²³

While libraries have a key role to play in an OA future, we conclude that it is not possible for library budgets alone to bear the costs of a transition to OA monographs, as they are currently allocated, especially given Tanner's aforesaid analysis.²⁴ We have also yet to see a transfer of library budgets away from subscriptions to pay for open access in the journal space. Even taking the most generous estimate of UK library budgets (by adding e-book expenditure and book expenditure), as above, there is a substantial shortfall here.

If library budgets are to support OA monographs for the HEFCE mandate, they would require significant additional funding to be allocated at the institutional level compared to the present state of affairs. This would be a political choice that universities could make. There are also challenges with the distribution of this funding, though, considering that it pertains to QR and REF. That is, some institutions are allocated more QR than others and so those with less funding might face a much greater challenge in reallocating funding for OA monographs.

'it is not possible for library budgets alone to bear the costs of a transition to OA monographs'

QR hypothecation/top-slicing for a central OA monographs fund

There are several research-funding budgets that contain sufficient resources to fund the transition to an OA monograph infrastructure. We identified:

- QR from HEFCE
- The Arts and Humanities Research Council (AHRC) budget
- The Economic and Social Research Council (ESRC) budget.

The total recurrent quality-related research funding award for 2017–2018 is £1.59bn. Rounding this to £1.6bn, the spend over a five-year REF cycle is approximately £8bn, which could accommodate the estimated OA monograph costs. A rationale for this money coming from QR is that this funding stream is awarded by REF. It is the money that is awarded as a result of the exercise. Since the exercise is where the mandate has originated, there is a strong rationale to fund this from QR.²⁵

'There are several research-funding budgets that contain sufficient resources to fund the transition to an OA monograph infrastructure'

95 By contrast, the AHRC has a budget of approximately £100m per year²⁶ and the ESRC has a budget of approximately £200m per year.²⁷ The rationale for the money coming from these budgets is that the humanities and social sciences are the primary producers of research monographs.

'potential to establish a centralized OA monograph funding pot'

There is the potential to establish a centralized OA monograph funding pot from these budgets. Table 5 shows these annual funding streams and the percentage that would have to be hypothecated/top-sliced in order to create such a fund.

Funding stream	Amount	Percentage required to achieve REF OA monographs
QR	£1,595,000,000	1.2%
AHRC	£100,000,000	19.2%
ESRC	£200,000,000	9.6%

Table 5. Potential funding sources for OA monographs

One possibility is that such a fund could be taken from up to 1% of QR and the remainder proportionately from the ESRC and AHRC budgets. This would balance the fact that the mandate has come from REF (and so should be funded from QR) against the disciplinary skew of the outputs. Different percentages are possible but we also note the comparative damage this could do to the budgets of the Research Councils. These budgets are among the few that are large enough to handle this load.

More research is required in order to model the typical distribution of publication over a REF cycle before a definitive recommendation is possible. That is to say that we require an answer to the fundamental question: 'Is there a spike in monograph publication in the final year of a census cycle?' We also believe that it would take time to communicate the availability of this fund to researchers, as seen in the OA journal mandate. We believe then, if aiming for the OA target of books to be achieved by the third Research Excellence Framework, the budget need not start at the full level, but could begin at, for example, the 0.5% of QR mark and move upwards with monitoring, thereby lessening the risk of underspending on a year's allocation. As above, modelling is required to determine this scaling. There are budgetary implications for scaling funding in this way if a much higher proportion of outputs are demonstrably to be expected in the final census year.

'Is there a spike in monograph publication in the final year of a census cycle?'

Another potential route through which a central draw on the fund could be reduced is by requiring each institution to fund a number of its own publications before it is allowed to resort to any central funding request. With 154 institutions (although not all of them submitting monographs in the last REF) there would be a maximum reduction of £1.2m for every publication that is required to be institutionally funded. So, at one institutionally funded publication, there is a £1.2m potential central reduction, at two publications £2.4m, etc.

We note that the top-slicing of the QR budget will be politically unpalatable and vice-chancellors are unlikely to be pleased, to put it mildly. Indeed, it is probably politically impossible. Further hypothecation of QR also poses bureaucratic overhead for HEFCE (and its successor RE). However, funding through this route would help to bring the arts, humanities, and social sciences on board with the mandate. These disciplines have often felt neglected in funding allocations and showing a willingness to make such funding available will elicit support from these disciplines for OA monographs.

Conversely, if drawing from the AHRC and ESRC budgets, many academics in these fields are likely to be displeased. They will view the mandate as a top-down imposition that is eating into already eroded funding pots without being properly resourced. We also appreciate that top-slicing these budgets may be perceived as the thin end of the wedge in terms of keeping HEFCE/RE as an arm's-length body. However, since the REF mandate has come, internally, from HEFCE, this risk is lower.

96 There are two ways in which such a centralized fund could operate – as:

- a centrally administered fund at HEFCE/RE/an outsourced institution
- a delegated block-grant fund to institutions as per the Research Councils' model.

Both of these routes have advantages and drawbacks.

The first of these routes is a centrally administered fund to which institutions could apply when their academics have a book publication nearing completion. We would recommend that payment be made only upon final publication and once the book has been made openly available with an appropriate open licence and no digital rights management technologies.²⁸

A centrally administered fund carries an overhead for HEFCE and its successor of logging and administering grants at a rate of approximately 50 books per week over the REF cycle. It is also necessary, in this case, for HEFCE/RE to keep track of funded outputs when it comes to output submissions in the REF, to ensure that these outputs are submitted. (For more on the challenges of this, see below.)

This fund could be administered on a yearly first-come, first-served basis (in which case careful definition is required of the point at which an application can be made) or it could be banded by institution based on the number of outputs in the previous REF (although this could limit institutional mobility unless there are strict no-questions-asked exemptions when an institution has exhausted its allocation). Alternatively, some measure of quality profiling could be used to appraise allocations. Whatever measure is chosen, caution should be taken in the appraisal of metrics here in order to avoid unintended consequences.²⁹

If it is undesirable for HEFCE/RE to administer this fund, a call for tender could be issued for an institution or group of institutions to manage this on an impartial basis. The other option is that such a fund could be devolved to institutions to administer themselves and to report back. This removes the central burden of accounting.

If HEFCE/RE decided to delegate such a hypothetical fund through a block-grant mechanism, as with RCUK (Research Councils UK), then there has to be an appropriate metric related to monograph production rates used for distribution and appropriate monitoring of that over the cycle. Further, if HEFCE/RE delegates the fund to institutions, there is the potential to create a functioning market and to then specify or not a BPC cap. However, we caution that we have not seen the emergence of an effective article processing charge (APC) market in the journal space as a result of this and are sceptical that one would emerge in the book space through this approach.³⁰

We would also like to caution about institutional mobility in this model. If funds are delegated according to the volumes or quality profiles from the last REF, it may make it harder for fast risers to benefit from a full OA monograph complement. Furthermore, those institutions that move down the table of submission volume may underspend. Decisions about the implementation of portability in the REF consultation review will also have an effect here.

We also note that although QR is already devolved to institutions, simply stating that this should be used for OA monographs does not adequately address the problems of distribution. That is, that some institutions publish no monographs, while for others they form a substantial proportion of their submission. Without some kind of ring-fencing of this fund and a redistribution, the money is not necessarily in the right places to facilitate the mandate for OA monographs.

If establishing a central fund for monographs, there is, we would suggest, also a need to cap the pricing in some way so as to ensure the budget is not exploited. We have suggested a price cap of £7,500 in this article based on current market BPC rates. The challenge is, of course, that those actors below any cap are likely to raise their prices in order to avail themselves of such funding, making it effectively a race to the top. Those above it will claim that the price is infeasible. A suggested solution would be to allow institutions to retain any difference for the purpose of further OA monograph publication (through any route) between the price of the monograph and the £7,500 rate, while also requiring them to pay any extra if their researchers choose more expensive providers. This incentivizes institutions to choose cheaper providers and thereby changes culture in the long run. That said, care must be taken not just to rush to the bottom in terms of price; quality of service is also important here for academic works to achieve the broadest and deepest cultural and societal impact.

'care must be taken not just to rush to the bottom in terms of price; quality of service is also important'

There are further challenges in this model for output selection and subsequent submission. Since we here appraise a transition to OA in the context of REF books, it might be reasonable to assume that any books that are funded should be submitted to the exercise. However, this considerably detracts from the ability of institutions to select which outputs they will submit once they have an overview of their whole spread of outputs. There is an argument, for the public good, that if monographs are produced using QR funding awarded from the last REF, but these outputs are nonetheless not submitted to the next REF, this was still a good use of funds. We would specifically caution against penalizing people for making books OA under this route and then finding themselves unable to submit the work since this will cause negative cultural perceptions of risk about OA. It also appears to be the policy goal to achieve broader access to books, so this would be in line with such thinking. Suggestions for how to address this challenge would be appreciated and would require consultation.

While we would recommend payment is made after a book has been made OA, the point at which institutions could apply for such funding could be any of the following (and there may be others that are suitable):

- publication date set
- firm acceptance
- publication itself.

A decision would need to be made about whether a publisher is aware of the OA funding potential for an output and at what stage, as it may affect the decisions that they make about whether to take on a title (for better or for worse).

This approach would have the effect of engendering cultural change in the sense of normalizing OA monographs at scale. It would also normalize a price point, so care must be taken. This mode does not necessarily help to develop authors' appreciation of BPC costs and sensitivity to price.

Institutional budget reallocation

Another way in which funding could be made available for OA monographs is through institutional budget reallocation; that is, institutions increase their monograph expenditure through their QR allocation. Similar to the model sketched above, it would be possible for institutions to allocate funding.

98 There were 154 institutions submitted to REF 2014, which means that to achieve the requisite £19.2m estimate, each institution would have to contribute £124,675 per year. However, this funding is not evenly dispersed throughout the sector. We also are unable to model this accurately on the basis of submission volume at this time, since we are waiting for the results of the implementation of the Stern review and the REF consultation, both of which have impacts upon the submission volumes from institutions. While some institutions could afford to set this aside – even if they might still be reluctant to do so – others simply will not have these resources to hand.

Furthermore, there are a number of smaller research-intensive higher education institutions that produce large volumes of monograph output for submission to REF but that would be unable to make such a large reallocation without damaging their performance in other areas.

We do not, therefore, propose this as a wholesale method in isolation but as a route that could be pursued in tandem with other scenarios (to offset QR/AHRC/ESRC expenditure and alongside green), firstly to facilitate redistribution of funding and secondly to provide a longer-term transition. See also the suggestion above about institutions funding a number of their own outputs.

This approach would also have a cultural change in the sense of normalizing OA monographs at scale if it worked. It does have a degree of competitive market behaviour built in, since institutions are incentivized to keep their costs down. If institutions attempt to direct their academics to publish in specific venues for cost purposes, though, this may, rightly or wrongly, be perceived as a threat to academic freedom, which would bring negative reputational consequences for open access. It is possible that the reallocation of institutional resources to OA monographs could foster resentment among academics in comparison to a centralized QR approach where the money never arrived at universities in the first place. It may also lead to compromises on quality, which would not be good for open access. We feel that the distributional risk of this model – which requires further research – is likely to lead to reputational damage to open access and is therefore undesirable as the only scenario.

A green OA monograph ecosystem

Thus far, there has been little movement towards a green environment for books. There are many challenges in an approach of this nature. Aside from many of the technical problems of versioning, among others, most notable is that Annex C of the 'Consultation on the second Research Excellence Framework' document clearly seeks to avoid the challenges of protracted negotiations with publishers and embargo periods ('ideally immediately upon publication') that have been seen in the journal space.³¹

It is also important to ensure that, if any manner of green route is pursued, it does not damage small, perhaps newer born-OA publishers by reinscribing the dominance of existing market actors who have been more reticent to embrace open access. Since it comes with no incentive to change researcher behaviour, we are also concerned that a green model may inscribe the purchase model further into institutional cultures, rather than aiding with a transition to any form of gold OA.

'it is important to avoid the administrative complexity and expense of hybrid OA'

We do see a potential in the green space for book chapters, as these units are disaggregated in a similar fashion to journal articles (under the current policy) even where a book collection does yield a synthetic unity through editorial binding. We believe it is important to avoid the administrative complexity and expense of hybrid OA that has emerged in the journal article space and there is potential to achieve this through green for book chapters.

99 That said, if a green version is desirable, we would propose the following characteristics and make the following observations.

- An embargo period that is informed by *evidence* of the *sales curve* (not the citation half-life) of monographs would be preferable. We solicited informal figures from two presses who reported back to us:
 - the first six months of hardback accounted for 70–90% of sales, followed by 80–90% of sales within the first year. Paperback sales were usually exhausted by another year after that; and
 - one to one-and-a-half-years for the scholarly monograph.
- A proposed embargo of one to two years could, therefore, be appropriate with further research. Any proposed extension beyond this – a value confirmed by our informal survey of university press publishers – should be supported by numerical evidence that is made available.
- There are still questions around the version of deposit, the licence, and under what circumstances exemptions should be granted. Again, we would urge the requirement for an evidence-based approach here in all cases.
- There is potential for academic resistance here, as there has been to the green journal policies. That said, this mode does effect a culture change since it requires academics to deposit their work.

We have not discussed green OA extensively here since much more research is needed on the effects of green OA for books on the business models of a diverse range of publishers, if this route is to be pursued. Given this situation and in light of our above timetable, we feel that a green OA mandate for books is unlikely to meet the timescale requirements for the third Research Excellence Framework. Further, we have not discussed the visibility and discoverability – or otherwise – of monographs placed in institutional repositories, an aspect recently marked as important by Richard Fisher and Michael Jubb.³²

A national-level licensing agreement for OA monographs

In recent years in the journal space, we have seen a range of national-level agreements to achieve open access to a publisher's entire list based on the nationality of the author. Such agreements could be struck with monograph publishers.

We are divided as to whether this is a good idea. The majority of authors feel that these agreements tend to benefit only the largest, established players and do not adequately facilitate innovation and downward price pressure. One author pointed out, though, that there are benefits of stability for smaller, newer, OA presses in being involved in such schemes, where, in fact, such ideas have been pioneered.

This is to say that there are probably ways of striking deals with existing publishers using the budgetary figures outlined above that could result in the vast majority of UK REF monographs becoming openly available. This might be bought, however, at the price of permanent lock-in and stagnation in the publishing market. In turn, this may damage future academic freedom around dissemination choice. The question of whether this negotiation is between funders and publishers or between institutions and publishers, mediated by

'a green OA mandate for books is unlikely to meet the timescale requirements for the third REF'

100 Jisc Collections, remains open. This has implications for the flow of funds and requires that funding for OA monographs is at the correct location, since library budgets still remain insufficient as per our above analysis.³³ It is also dependent upon publisher opt-in, which may not be forthcoming.

Further, there is a huge challenge with scaling this type of model. While 46% of books submitted to Main Panel D of REF 2014 were in the top ten publishers, there was a total of 1,180 publishers.³⁴ In other words, there is an extremely long tail here and opting for agreements with some publishers at the expense of others seems an unfair way to proceed if a market of academic publishers is to emerge.

Conclusions

We have hinted throughout at various administrative overheads in all of these approaches, and these will need to be thoroughly modelled and costed. We are nevertheless able to make the following conclusions.

- A budget transition strategy would need to be finalized by mid-2018 and implemented by 2019 if a full mandate for OA monographs is to be implemented for the third REF.
- An approach relying on library budgets to bear the load of a transition to open access for books published in the next REF is not viable on its own and contains a shortfall of approximately £6.8m per year, if the entire UK library monograph budget was spent on REF outputs alone. The fact that the UK would be moving alone within an international publication environment means that it is not possible to spend the entire budget on publishing just REF books open access. However, some offsetting could be achieved here in conjunction with other approaches in order to incentivize publisher moves to open access.
- An approach that hypothecated or top-sliced QR, the AHRC, and/or ESRC budgets potentially has enough funding to ensure the transition at current average market rates. Care must be taken around the political implications of touching these budgets, though. Decisions would need to be taken around the administration of such a fund.
- An approach that asks institutions to re-route their own funding could work, especially in conjunction with other approaches, such as partial hypothecation. However, this comes with distributional challenges; not every institution producing high-quality monographic publications will have the funding on site to cover their own outputs.
- A green open access approach appears tempting but comes with substantial challenges that have already been difficult in the journal space. Green may be appropriate for book chapters. We have not extensively covered green in this paper since it is more a logistical than a budgetary challenge for HEIs.
- A national-level licensing agreement with publishers could work – although it would still require more funding than is available/free within library budgets – but comes with substantial risk of stagnating the publishing space and favouring existing, dominant commercial entities.

'agreements with some publishers at the expense of others seems an unfair way to proceed'

'it is important that institutions can choose a range of business models through which to make their outputs OA'

In all the models above where we have proposed making funding available, it is important that institutions can choose a range of business models through which to make their outputs OA. While we have costed on a unit price per book it may be that institutions can derive better value through, say, consortial membership schemes such as Knowledge Unlatched. A variety of business models should be encouraged.

Rather than prescribing a route forward, the authors of this paper hope that it will facilitate discussion around the costs of implementing an OA mandate for monographs in the UK's third REF.

Abbreviations and Acronyms

A list of the abbreviations and acronyms used in this and other *Insights* articles can be accessed here – click on the URL below and then select the 'Abbreviations and Acronyms' link at the top of the page it directs you to: <http://www.uksg.org/publications#aa>

Competing interests

The authors have declared no competing interests.

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To cite this article:

Eve M P, Inglis K, Prosser D, Speicher L and Stone G, Cost estimates of an open access mandate for monographs in the UK's third Research Excellence Framework, *Insights*, 2017, 30(3), 89–102; DOI: <https://doi.org/10.1629/uksg.392>

Published by UKSG in association with Ubiquity Press on 08 November 2017