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<tr>
<td>Lead Institution</td>
<td>University of Bath</td>
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<td>Sarah Fahmy, Angela Hilton</td>
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<td>Project SRO (Jisc)</td>
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<td><a href="mailto:Neil.jacobs@jisc.ac.uk">Neil.jacobs@jisc.ac.uk</a></td>
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<th>Kara Jones / Liz Holliday</th>
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**Document History**

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We would also like to thank the University Librarians at the GW4 institutions for their support of the project: Kate Robinson at the University of Bath, Jessica Gardner at the University of Bristol, Clare Powne at the University of Exeter and Janet Peters at Cardiff University.
Project summary

The Jisc funded ‘OA Good Practice project’ was launched in 2014, running for two years. It aimed to reduce the burden on HEIs in implementing funders’ OA requirements through enabling universities, working with others both within and beyond the sector, to develop improvements in IT tools, standards and services, and the related workflows and organisational arrangements for OA implementation.

A suite of nine institutional Pathfinder projects were commissioned to find out what works best in implementing OA, in a variety of institutions across the sector, and to share this knowledge openly.

The GW4 Pathfinder project aimed to investigate efficiencies in the administrative overheads involved throughout the lifecycle of OA implementation, specifically:

a. To investigate the use of pre-pay bundles, deposit accounts, credit cards, voucher codes and individual invoicing to reduce workflows and finance transactions in HEIs. We briefly assessed the wider market effects of pre-payment bundles, and produced sample workflows for payment scenarios.

b. Options for streamlining administrative processes by providing guidance on reporting requirements for RCUK and HEFCE Open Access reporting, particularly mapping points of overlap between various submissions to funders.

c. To follow the development of off-setting models and providing a state-of-play update for communities using these models.

Many of the processes around OA implementation have grown organically as institutions react to a shift in scholarly publishing. This project aimed to look at a particular aspect of OA implementation, namely payment of APCs, building on previous work by the Jisc APC project and findings, and investigated options for improving efficiencies in this area.

Outputs from the project have included:

- A Functional Cost Analysis to baseline the costs of paying APCs and map workflows.
- Investigation into various payment models such as pre-payment options, credit cards and vouchers.
- A review of off-setting model implementation at the GW4 institutions.
- A report on the wider market effects of pre-payment models for APCs.

This is a rapidly evolving environment, and the outputs from this project provide a snapshot of issues and options at this time.
Main body of report

Overview and context

The project explored a particular aspect of OA implementation, namely payment of APCs and investigated options for improving efficiencies in this area. During the transition from journal subscriptions to Gold OA and APC payments, costs, both financial and administrative, are expected to increase. In building OA services HEIs need to consider staffing costs, payment options and OA reporting requirements, all of which contribute to the administrative burden on services that are often already stretched.

Project aim and objectives

The aim of this project is to provide guidance to HEIs on strategies to reduce the administrative burden of OA implementation.

The primary objective of the project was to investigate the labour cost per article, using a Functional Cost Analysis (FCA) methodology and, through understanding the workflow and processes involved in APC payment, pinpoint options that offer a reduction in administrative load for HEIs. The FCA provided a comparison of workload effort involved in different payment methods; credit cards, invoicing and pre-payment accounts. Reporting checklists and sample workflows for payment scenarios were developed from the FCA work. Potential efficiencies in the administrative workload provided by options such as pre-payments, credit cards and voucher and discount codes were evaluated and those features which reduce workload identified.

Process improvements identified by the FCA analysis were piloted using a range of approaches. The planned re-run of the Functional Cost Analysis to measure the labour cost per article has not, at the time of reporting, been undertaken so no reduction in costs can be confirmed. It is hoped to re-run this at a future date.

To assist streamlining of administrative processes a guidance on points of overlap between RCUK and HEFCE reporting requirements and an analysis of offsetting models and their implementation have been published. In the wider market the benefits and disadvantages of pre-payment deals and the issues surrounding pre-payment models and the development of the APC market have been investigated through a literature survey.

The project comprised three main areas of investigation:

1. Process Analysis and identifying the Administrative Burden
2. Process Improvement
3. Options to reduce administration and costs
1. Process Analysis and identifying the Administrative Burden

Introduction, reflection and evaluation

The first phase of the project was to analyse the APC payment process at each of the four GW4 institutions (University of Bath, University of Bristol, Cardiff University and University of Exeter) to understand where the administrative burden or work effort lay within the payment process. It was agreed the administrative burden within the process would be measured by time and costs for each task or activity within the process leading to a total time and cost to process APCs and revealing the number of separate activities in the payment process for each institution.

The Functional Cost Analysis activity provided each institution with an administrative cost and time for APC payments, identified resource intensive activities and enabled a comparison of the administrative overheads for different payment methods and between institutions. However, due to time constraints compromises on recommended FCA practice were necessary. For example FCA is a team collaboration; brainstorming is suggested as an effective means of identifying and developing ideas for change. The high level of support and time this would have required at each institution was unacceptable for the project and the alternative of email communication and project collaborators as Librarian investigators in each institution was used. The collection of data for the analysis took longer than planned which may have been due to this decision.

Workflows

Information on the activities performed for the APC payment process were collected through interviews with Research Support or Repository Librarians at each of the collaborating partners. The interview schedule is included in Appendix One.

A flowchart of the process at each institution was then constructed, identifying the process flow and activities at each stage. Re-iterative scrutiny and editing refined the flowcharts until they were agreed to be accurate and complete.

Sample Workflows

Mapping the process workflows at the four collaborating institutions identified a generic series of 'steps' in each payment scenario. This led to the development of sample workflows for each payment method (Diagrams 1 to 3). These may prove useful aids for institutions developing new, or adapting old, workflows. Institutions should compare the sample workflows with their own processes and adapt the workflows to suit their own requirements and systems. (Jones, K., Jones, F., Smith, K., Holliday, E., 2015.)
Diagram 1. Pre-paid agreement sample payment workflows.

Diagram 2. Credit card payment sample workflows.
Diagram 3. Invoice payment sample workflows.

**APC Functional Family Tree**

The generic payment workflows enabled the functions within the payment process to be identified and a functional family tree for the APC payments process to be created (Diagram 4). The functional family tree arranges functions and sub-functions in a logical fashion; illustrating inter-relationships and dependencies. The tree shows the primary function (F0) and six sub-functions; the tasks or activities of the APC payment process relate to these functions.
Diagram 4. Functional Family Tree for APC Payment Processes

1. **Ensure eligibility**
   - F1
   - Meet OA method (Gold/Green) requirements
   - F12
   - Determine payment method
   - F21
   - Monitor payments
   - F22
   - Make payment
   - F211
   - Monitor & establish pre-pay account(s)
   - F2112

2. **Pay APC charge**
   - F2
   - Pay APC
   - F0
   - Meet funder requirements
   - F3
   - Determine funder requirements and verify compliance
   - F31
   - Ensure funder acknowledgment
   - F313
   - Ensure data statement
   - F314
   - Ensure DOI
   - F315
   - Add article information
   - F51
   - Add financial information
   - F512
   - Add publication information
   - F513
   - Identify report requirements
   - F52
   - Analyse information
   - F5211
   - Ensure compliance
   - F5212

3. **Gather reporting information/data**
   - F51
   - Build reports
   - F52
   - Publicise internally
   - F61
   - Publicise externally
   - F62

4. **Meet funder requirements**
   - F3
   - Verify compliance
   - F4
   - Meet institutional requirements
   - F41

5. **Reporting**
   - F5
   - Publicise OA publication
   - F6
   - OA Good Practice Pathfinder Project - GW4/Bath University
   - January 2015
**Functional Cost Analysis**

Functional cost analysis (FCA) fits within the value engineering family of techniques for examining the cost of a product or service. FCA, when applied to internal business processes rather than a product, aims to reduce the cost of the overhead service and improve the service for internal managers, 'the customer' and ultimately external users or customers (Yoshikawa, Innes and Mitchell, 1994).

The Functional Cost Analysis (FCA) methodology provided a structured approach to analysing costs of a service or product, in our case the APC payments process (or service). Functional cost analysis (FCA) ‘uses the functions of a product as a basis’ (Yoshikawa, Innes and Mitchell, 1994) for analysis. Functions provide an abstract approach, an advantage as it enables the discovery of ‘different, and more cost effective, ways of achieving these functions’ (Yoshikawa, Innes and Mitchell, 1994) rather than just tinkering with existing activities within the service.

**Methodology**

Value Engineering and FCA are seen as team activities (Yoshikawa, Innes and Mitchell, 1994); team members are seconded from different departments involved in the service within the organisation to contribute their knowledge to the analysis. Brainstorming is suggested as an effective means of identifying and developing ideas for change. For the project email communication and collaborators as Librarian investigators in each institution was used as an alternative.

Yoshikawa, Innes and Mitchell suggest ten steps in applying functional cost analysis including preliminary selection of area for analysis and of team members, objective setting, initial information gathering, defining functions and functional maps, evaluation of the functions, suggesting and comparing alternatives, decisions and reviews. The project FCA focussed on the gathering of data, definition of functions and the cost analysis.

Functional cost analyses were carried out for each of the four universities in the GW4 alliance: Bath, Bristol, Cardiff and Exeter. Time, as a measure of effort, rather than costs, was used as the base measure for calculations as comparisons could be made between institutions and by other external parties. Costs are subject to variation dependent on the grade of the staff member performing the activity and therefore not comparable.

**Objective of the Functional Cost Analysis of the APC Payments Process**

The objective of the Functional Cost Analysis was to measure the administrative costs around APC payment and derive an administrative (labour) cost per APC payment.

**Building the FCA Matrix**

Each activity in the payment workflow was linked with the function and sub-functions it relates to in a matrix of activities against sub-functions and functions. It was then possible to record, within its sub-function, the time taken for each activity in the process and calculate the time for each sub-function (Diagram 5). The total time and costs for the payment process function and costs for each sub-function could then be calculated (Diagram 6). The data for the matrix was collected during January and February 2015.
### Diagram 5. FCA matrix of functions against activities/tasks

<table>
<thead>
<tr>
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<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
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<td></td>
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</tr>
<tr>
<td>Activities</td>
<td>Basic Function</td>
<td>First level functions</td>
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</tr>
<tr>
<td></td>
<td>Basic Function</td>
<td>F3 - Pay APC</td>
<td>F1 - Exempts eligibility</td>
<td>F2 - Pay APC charges</td>
<td>F3 - Must fund requirements</td>
<td>F4 - Must fund requirements</td>
<td>Final - Report</td>
<td>F6 - Publications OA</td>
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<td>Total time (in minutes - effort)</td>
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<td>0</td>
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<td>% of total time/effort</td>
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<td>Number of activities involved</td>
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<td>% of total activities</td>
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<th>Total activity time (hrs)</th>
<th>Max cost</th>
<th>Min cost</th>
<th>Most Likely/average cost</th>
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### Diagram 6. FCA matrix calculation of costs for functions and sub-functions

- Check funder eligibility (e.g., ORCID), reply to author if eligible.
- Determine if pre-pay account available.
- Author submits charge request to prepay account.
- Library receives pre-pay approval request email, checks application received and approves with publisher.
- Publisher deducts amount from account and sends OA team confirmation of payment. Library records payment details in spreadsheet.
- Author receives invoice, check details and payment options.
- Author requests invoice.
- Library receives invoice, checks details and payment options.
The matrix was further refined to allow comparison of the three payment methods identified: Pre-payment, Credit Card and Invoice (Diagram 7).

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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Activities</td>
<td>Basic Function</td>
<td>P8 - Pre-Pay</td>
<td>P8 - Pre-Pay APC</td>
<td>P8 - Pre-Pay APC shared</td>
<td>P8 - Pre-Pay APC on fees</td>
<td>P8 - Pre-Pay APC on credit card</td>
</tr>
<tr>
<td>3</td>
<td>Check funder eligibility (= KCUK or CONP), reply to author (ineligible)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Determine if funds available</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Check publisher &amp; journal eligibility, expected cost, licence options &amp; publisher requirements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Determine if Green OA available and if author wishes to use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Determine if pre-pay account available</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Provide details of pre-pay procedure to author</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Author submits charge request to pre-pay account</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Library receives pre-pay approval request email, checks application received and approved with publisher</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Publisher deducts amount from account and sends OA team confirmation of payment. Library records payment details in spreadsheet</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Ask author to obtain a publisher invoice</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>13</td>
<td>Author requests invoice</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Library receives invoice, checks details and payment options</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Check if supplier is new supplier, send new supplier form to publisher</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Publisher returns new supplier form</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Email finance to add supplier to list</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Record initial information against entry in spreadsheet, keep paper copies of invoice</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Determine if credit card payment possible and, if ok, send card details to publisher</td>
<td></td>
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<td></td>
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<td>20</td>
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Diagram 7. FCA cost analysis of payment methods

**Summary of Findings**

The total time to process APCs varies between 101 and 279 minutes and the number of separate activities in the payment process varies between 21 and 38 across the four institutions. Three institutions have comparable totals suggesting a similarity of effort and process implementation which allows comparisons to be made between them.

For three institutions the same three functions are similarly time intensive: paying the APC, meeting funder requirements and reporting. For the fourth institution meeting funder requirements is easily the most time intensive work.

Invoice payments are the most time intensive of the payment methods and had the highest number of activities, pre-payment accounts require significantly less effort. Credit card payments demonstrate a wide variation in the percentage of total time required to support these payments: being comparable with invoice payments in one case and with payment using a pre-pay account in another.

The average labour cost per APC payment varies from £24.77 to £102.84 over the four institutions, with three institutions in a closer cluster from £51.70 to £102.84 (assuming uncomplicated
payments with only simple issues). From this it may be inferred that the costs are of the order of £50+ per a simple APC for comparable institutions.

Detailed analysis and findings can be found in the 'Using Functional Cost Analysis to Evaluate the APC Payments Process report' (Holliday, E., Jones, K. 2015(a)).

Comparison with other work

The 'Counting the Costs of Open Access' report (Research Consulting, 2014) identified a time of 119 minutes (unweighted) and 134 minutes (weighted) to process an APC which is at the low end of our findings (101 to 279 minutes). However, our timings covered the complete payment process, including time for all three payment methods, and therefore would be higher. For cost per article the report identified a cost of £81 to administer an APC which is slightly higher than the costs of three of the four institutions in our investigation. Differences may be explained by the inclusion of complex payments in the 'Counting the Costs of Open Access' estimates and variations in staff grades; overall the findings of both reports are similar.

Conclusions and Recommendations

The time and cost to process a simple APC payment show some consistency across institutions and identify three functions as resource intensive: paying the APC, reporting, and meeting funder requirements. Payment by invoice is the most resource intensive payment method for all institutions. Both pre-payment and payment by credit card, where used, are less resource intensive than invoice payments in three of the four institutions.

Some useful actions may assist in reducing costs for other institutions. Not all will be applicable to every institution and an understanding of internal processes and systems is required to select the most beneficial for each institution.

Potentially useful actions:

- Use of pre-pay and credit card payments to lower payment costs
- Evaluate required frequency of some tasks (for example checking and reporting)
- Automate manual tasks e.g. compilation of reports
- Training lower grade staff to perform some of the tasks
- Streamlining of processes but institutions need to reflect on the probability of influencing internal institutional finance procedures and consider alternative payment methods.

The work of analysing workflows and activities demonstrated that timings and resource requirements depend on each institutional environment; the ease or not of performing activities in different functional areas, institutional requirements and priorities. The project findings can be used by other institutions to assist understanding and demonstrate requirements but should not be used as a substitute for understanding their own individual environment.

Review of the FCA methodology

The FCA methodology did enable calculation of costs for all four institutions and provided information on where to target further investigation and improvement. Performing the FCA across
four institutions was helpful in allowing comparison and identifying similarities although this is not statistically significant.

Functional cost analysis requires considerable resource investment itself to understand the methodology, obtain the information required, build matrices and perform the analysis. Performing this analysis across four institutions added additional complexity and communication issues. The investigation has value but requires considerable investment of time and resource to achieve.

Buy-in and engagement with the project and its information needs was necessary and problematical in some departments leading to missing data for some institutions. Institutional engagement would have required a high level of support within institutions and consensus from many areas.

FCA has its roots in manufacturing and may explain why the methodology is more effective with a single path process. We adapted the matrix and methodology to allow for alternative payment methods. Too many variations would increase difficulties with the matrix and interpretation of total times for the process.

The functional basis of investigation enabled an analysis of effort related to functional areas and identified resource intensive functions to target for improvement which should provide more significant change than simpler and more obvious improvements to single activities.

2. Process Improvement

Introduction, reflection and evaluation

The second phase of the project was to improve APC payment processes at the four GW4 partner institutions by addressing inefficiencies in the time and cost intensive functions identified by the FCA. Three institutions chose to explore potential improvements to payments and invoicing, one to explore potential reporting improvements and one to explore potential compliance improvements. These were the three functions identified by the FCA as time intensive: paying the APC, meeting funder requirements and reporting.

The approach taken by each institution varied and provide contrasting process improvement methods from a simple, single task improvement to improvements to several tasks within an existing process and whole process redesign through a process improvement workshop. Illustrations of each approach to improvement are explained in the three following sections (Payments and invoicing, Reporting and Compliance checking improvements) for other HEIs to evaluate the advantages, limitations and relevance of each method to their own processes and workflows.

The project also undertook to gather data on third party services (payment intermediaries) and establish if any cost or time benefits were associated with these offerings (<i>Third party services</i>). Subsequent events have superseded the requirement for this study.
Payments and invoicing

Institution Y: single task improvement

Following the FCA, workflow inefficiencies around creating purchase orders at Institution Y were highlighted. We previously emailed a purchasing team within the university, who then emailed us the generated purchase order which we then sent to the Academic.

The open access team underwent training on our finance system so we could generate purchase orders ourselves. This has had multiple process improvements.

Primarily, reducing the email trail and our reliance on another team means we can respond to Academics requests for purchase orders quicker than was previously possible, and spend less time reading and sending emails.

We can also be more agile when responding to problem invoices, changed invoice amounts and foreign payments. The various complexities we encounter are better dealt with by the OA team rather than the purchasing team who have little understanding of the Open Access environment. We are more likely to spot problems before payment is made, such as unexpected colour or page charges, or the incorrect VAT being applied. This cuts down on the amount of queries we have to manage with suppliers, which can be very time consuming and problematic. We are also able to react more quickly when problems do arise and have a better picture of the overall process.

Institution W: multiple improvements to tasks within an existing process

Gold Open Access application – from author to payment

To obtain funding to pay for article processing charges (APCs), the researcher needs to complete an application form and email it to the Open Access email account. Once processed and approved the researcher is given a reference number and instructions for arranging payment with the publisher (invoice or use of pre-payment accounts). We are not required to provide Purchase Order (PO) numbers for OA invoices. Payment of invoices requires a copy of the invoice which includes the university name in the billing address and a signed, completed Payment Grid (see Appendix Two) and then arrange payment by wire transfer, BACS or cheque. Payment methods not supported include credit cards and third party services such as PayPal. Please also see Appendix Three, APC Process Flowchart One.

Changes made to workflow in response to Functional Cost Analysis

- Authorised signatories - problems with paper trails

For the COAF and Institutional funds the Open Access Team would email the invoice and payment grid documents for signature to another office located in another university building about a mile away from the OA Team office. Problems occurred with Elsevier invoices which are received by post only, no pdf. A photocopy of the invoice and payment grid would be sent in the internal mail to the signatory’s office for signature. Some envelopes were lost but it wouldn’t be discovered until the publisher began to chase payment. A new workflow was established in July 2015 to scan all invoices received by post so the OA team would be able to email all invoices and have an auditable trail. Envelopes of signed payment grids also went missing between the signatory’s office and
payment office with the same results, we wouldn’t know there was a problem until the publisher began to chase payment. In July 2015 it was arranged that the signatory would mail the signed copies to the OA Team, who would deliver them to payments by hand. The OA Team began to record when the unsigned grids were sent to the signatory and when the signed copies were returned, once again providing an auditable trail. This system worked very well in December 2015/January 2016 when signed grids were not being returned, and the OA Team could track this, chase and/or send again as necessary.

In March 2016 the signatories for the RCUK fund became signatories for the COAF and Institutional funds meaning the paperwork is no longer moving between buildings. This eliminated the problem of missing and delayed payment grids not being returned to the OA team. Please also see APC Process Flowchart Two in Appendix Four for amended workflow.

- **Publisher chasing payment**

While sending payment grids off site for signature, missing and delayed payments occurred about 50% of the time. When an overdue notice was received by the team, there was no way to check our own finance systems to see if the payment was made. We would need to contact payments to check if payment had been made, meaning delays in response to the publisher and resolution of the query. The OA team received finance system training in July 2015 to be able to look up invoice numbers to see if they had indeed been paid or not. This is very useful for Nature Publishing Group invoices which are often chased before the payment due date. The finance system shows us that the payment is set up on the system and will be released on a particular date. The payment reminder can then be responded to with the expected payment date included.

Sometimes the publisher does not agree that we have made payment. In these cases payments provide us with payment confirmation information which we forward to the publisher.

**Evaluation of changes made**

For the COAF and Institutional funds, the amount of time taken from receiving the invoice to delivering it to the payments office has decreased dramatically. We no longer have the problem of missing or delayed payment because we are able to control the movement of the invoice ourselves and not rely on a third party signatory between the Open Access Team and the payment office. Subsequently, the number of queries about unpaid invoices accessing these two funds, previously found to be about 50% of the payments, has decreased to about 5%. This has saved time for both the OA team who would chase payment and reply to the publisher and the researcher/author who would often be the one to receive the overdue payment notice in the first instance.

**Institution Z: whole process redesign**

**Process Improvement for APC invoice payment**

The payment process for APCs has developed organically over the last few years, and the FCA showed there were elements of the process that could be made more efficient. Our University has recently developed a Process Improvement framework based on Lean methodology that we felt could be a useful structure for looking at where there are inefficiencies in our payments process.
With the help of two internal facilitators, we gathered a variety of people involved in the payments process. Representation was from the Library, Research Office, VCs Office, Faculty Finance (who also double as the 'academics' perspective) and Central Finance Office.

Examining the payments process and identifying inefficiencies and waste

The key output from the day was the development of two ‘swim lane’ charts showing the payment workflow through the various stakeholders. Mapping out the workflow like this demonstrated how convoluted the process activities had become, and having representatives from each area meant that we could streamline the process, eliminating one department altogether! The workflows before and after the discussion are shown below (Diagram 8 and Diagram 9).

Changes implemented

As a result of the workshop, we redesigned the payments process, starting from the department holding the RCUK OA block grant (which affected payment approval turnaround times); increased use of Purchase Orders to reduce errors on invoice payments; improved recording of payment details in our Finance System to make matching payments to invoices easier; reducing paper copy circulation for invoices; curtailing the number of approvals needed for each payment; and a final small point of reviewing our web application form for authors to ensure it was collecting the correct information for raising purchase orders.

Payments and invoicing conclusion

Although FCA advocates the use of functions to identify more cost effective ways of providing a service the time and people investment required for a whole process redesign are considerable. The tuning of tasks within existing workflows may provide sufficient improvements in time, costs or efficiency to meet immediate demands and delay a large scale re-design until a more convenient time. Institutions need to determine which approach and improvement method will best answer their requirements.
Diagram 8. Swim lane chart of existing APC payment process
Diagram 9. Swim lane chart of proposed APC payment process
The FCA highlighted reporting as an area where Institution Y spent substantially more time than other GW4 colleagues. As a result the OA team undertook two areas of process improvement: a fairly simple efficiency saving around our internal reporting and a genuine process improvement which has led to improved efficiency for both internal and external reporting.

Prior to the FCA exercise a Grade G member of staff in the Library produced quarterly reports for an internal Research Management group. Compiling these reports was a fairly lengthy process as they included similar information as the official RCUK report, for example publisher levels of spend, and incorporated data visualisation. Staff changes in February 2015 led to an evaluation of the report service. As reporting costs were much higher than average, the evaluation focussed strictly on requirements and this led to streamlining of our internal reporting. The quarterly reports were more detailed and more frequent than required and were replaced with ad hoc reports as required with a simplified level of detail covering total spend, number of APCs and funds remaining.

The second process improvement focussed on data gathering for external Wellcome reporting. While the library is responsible for sending the annual report to Wellcome using the JISC APC template the research accounts administrator, who manages the Wellcome Grant, sends quarterly and end of grant year financial reports to Wellcome. In initial workflow the library, working directly with authors, collected information and managed a spreadsheet of APC requests and the Research Administrator managed a spreadsheet for their financial reporting to the Wellcome Trust.

In addition to an obvious duplication of time and effort in maintaining two spreadsheets, the library collected data the research administrator could not easily locate. This resulted in requests to the library from the research administrator for additional information every time a report was due to the Wellcome Trust, creating a complex email chain and extra enquiries.

The OA team and our colleagues in the Research Office met and agreed to share one spreadsheet. Time was spent establishing the new spreadsheet to be fit for the more general information gathering required by the Library, as well as the specific work of producing the Wellcome reports. This change has saved time for both teams, the Research Office no longer gather information already collected by the Library and the Library no longer have to supply information required for the Wellcome reports.

This has resulted in a more integrated workflow and an improved working relationship between the Library and the Research Office as both teams work together more closely than previously and this has led to other benefits around managing the financial aspect of the grant in addition to the reporting improvements. Establishing close working relationships within your institution is crucial when dealing with Open Access as it covers such a wide area (seven teams are involved in Institution Y) and the complexities often generate unfamiliar enquiries.
Compliance checking improvements

The problem
The Functional Cost Analysis of the open access processes at the GW4 universities revealed that, at Institution X, we spend more time on compliance checking to make sure that papers meet RCUK and COAF’s conditions, than the other institutions.

The checking is laborious because it involves looking up each paper we have paid an APC for, to see whether it has been published. Where there is a long delay between acceptance and publication, the same paper may be checked many times. When problems are identified such as the wrong licence being applied to the paper, no deposit in PubMed Central (PMC), or the paper has not been made open access at all, the process of resolving the problem can sometimes be very protracted.

The elements of the process that could go wrong are outside our control; it is down either to the actions of the author or the publisher, so we had to find a way to make the bit we could control (actually carrying out the checks) as efficient as possible.

Our solutions
Our first action was to try to minimise the chance of non-compliant papers being published at all, particularly ones that would never be compliant. We introduced a SHERPA/FACT check for every claim so that if the publisher did not offer CC-BY on deposit in PMC (where relevant), we would not pay the APC.

After this, we addressed the mechanism for organising our compliance checks. We already had a form in our database for compliance checking. We had a query that identified the papers that needed to be checked, but this produced a mix of papers that had never been checked and ones where a problem had been identified but not fixed. The problems that had been identified were recorded in a general notes field.

The improvement we made to try and speed up the compliance checking was to create some standard categories so we could separate the papers that have never been checked and split up the different problems. In addition, we also introduced two new date fields: ‘Date last checked’ and ‘Date last chased’. We also brought in the date field ‘Date paid’ into all the queries related to compliance to quickly see whether the compliance problem was actually related to a payment problem.

New fields

<table>
<thead>
<tr>
<th>Compliance check</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliant</td>
</tr>
<tr>
<td>Not compliant</td>
</tr>
<tr>
<td>Not compliant - can't change</td>
</tr>
<tr>
<td>OA problem</td>
</tr>
<tr>
<td>----------------------------</td>
</tr>
<tr>
<td>Not OA - with publisher</td>
</tr>
<tr>
<td>Not OA - not yet chased</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Licence problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wrong licence - with author</td>
</tr>
<tr>
<td>Wrong licence - with publisher</td>
</tr>
<tr>
<td>Wrong licence - not yet chased</td>
</tr>
<tr>
<td>Different licence on HTML and PDF - with publisher</td>
</tr>
<tr>
<td>Different licence on HTML and PDF - not yet chased</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PMC problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not in PMC - Epub</td>
</tr>
<tr>
<td>Not in PMC - with publisher</td>
</tr>
<tr>
<td>Not in PMC - not yet chased</td>
</tr>
<tr>
<td>Not in PM - with publisher</td>
</tr>
<tr>
<td>Not in PM - not yet chased</td>
</tr>
</tbody>
</table>
The results

Before the creation of the new standard compliance checking categories we had over 200 papers that had either never been checked or had an already identified problem. After the creation of the new categories this was immediately divided into under 50 papers that had never been checked and the rest sorted between known problems (most of which were related to PMC, many because the papers were 'e-pub ahead of print').

The standard notes allow us to easily view the following categories:

- Papers that have never been checked
- Papers that are non-compliant but have not been chased
- Papers that are non-compliant and have been chased
- All non-compliant papers
- All RCUK non-compliant papers
- All COAF non-compliant papers
- Papers that are not open access
- Papers that are not CC-BY
- MRC and COAF papers that have not been deposited in PMC
- MRC and COAF papers that are not CC-BY in PMC
- All problems related to a particular publisher

Improvements

The changes we have made to the structure of the data for our compliance checks have had a number of benefits.
The task of compliance checking can now be more easily split between different people. Due to a historic staffing arrangement we have someone from another team in the Library who checks PMC compliance. As we can separate out this aspect of compliance checking from checking the version on the publisher website, it enables us to make greater use of the Wellcome Trust compliance checking tool, developed by Cottage Labs, so that individual records do not always have to be looked up manually in PMC.

There can also be separation of the checking and contacting of publishers. This means that one staff member can do the initial checking and easily pass all the problems that are not yet chased to a more senior staff member.

The new data structure also allows us to easily accumulate all the problems connected to a particular publisher together, so that we contact them once about many problems rather than individually for each issue.

The addition of the fields for date last checked and date last chased mean that we do not need to waste time checking papers that were checked or chased up very recently. The creation of the category of ‘Not in PMC - Epub’ has also reduced time spent repeatedly checking the same papers.

**Further work**

We think there are still improvements to be made around author education to minimise the chance that authors select the wrong licence. We are in the process of reviewing our guidance and forms to see if we can find a way to improve awareness of licence requirements.

**Third party services**

At the beginning of this pathfinder project I was tasked with examining intermediaries for APC payments, specifically in regards to reducing the Administrative burden placed on HEI’s by Open Access. It quickly became clear the rapidly changing Open Access environment had already moved past APC intermediaries as a potential solution.

Following on from the JISC/OAK Pilot I spoke to CCC, EBSCO, Swets and Turpin Distribution. Turpin Distribution had presented at UKSG 2014 and mentioned the possibility of an interface for institutions in 2015, but this has been delayed pending a review. EBSCO had plans in place but development has since been shelved.

CCC has focused its efforts on providing a third party service to publishers not institutions and are now used by a fairly large portfolio of publishers to deal with APC payments.

The intricacies and complications encountered within the JISC/OAK pilot demonstrated that it would be very hard to implement process improvement through a third party system, and there was little desire for this amongst the UK HE environment (Jones, F., 2015(b)).
Conclusions and recommendations

Work undertaken for process improvement included improving collaboration, simplifying workflow activities, developing new skills, re-examining requirements, identifying and implementing efficiencies in data structures or data recording and reducing duplication of effort. The suggested improvements, described in the Payments and invoicing, Reporting and Compliance checking improvements sections, may be useful to other HEIs or may suggest possible alternative improvements to reduce administrative effort in APC processes. At this time no measurement of new process times or costs or a new labour cost per article has been possible so we are unable to quantify savings or reductions in the administrative burden realised by the process improvements. It is hoped this work may be undertaken in the future. However, the streamlining of processes has led to acknowledged improvements in workflows and ways of working, reduced effort, faster response to problems and improved relationships.

3. Options to reduce administration and costs

During the project we examined the administrative overheads of alternative options for APC payment. Some options are an alternative to payment by invoice (credit cards, pre-payments, vouchers) and some are options to reduce payments (vouchers, offsetting). Some alternatives are provided by publishers (pre-payment, vouchers and offsetting) and for these we have compared publisher provision to identify those features which reduce the administrative burden or compared provision with principles outlining the requirements of the UK academic sector, in this case the Jisc principles for offset agreements. Credit cards are widely offered by publishers for paying APCs. Our investigation has identified the benefits and limitations and potential workflow issues for consideration when using a credit card to pay an APC.

Pre-payments

Some pre-payment accounts save time for a combination of the author, the Library or the finance department and occasionally for all three but some accounts increase work levels. Having taken on a number of pre-payment accounts to take advantage of discounts and reduce administrative costs, one institution was able to evaluate the features of pre-payment accounts and identify which save administrative time. (Smith, K., 2015)

They identified a wish list of features for the ultimate pre-payment account:

1. Process activated at the point of acceptance rather than submission.
2. Easy and intuitive system for authors with clear information about who is eligible to use the account.
3. Information for library staff about what the author will see as they go through the process.
4. Licence choice restricted to CC-BY.
5. Approval process that does not involve an extra step for the author. Codes or vouchers do not work well for us.
6. Ability to view proofs and check acknowledgements as part of the approval process.
7. Easy mechanism for managing RCUK and Wellcome Trust payments separately.
8. Ability to view online reports to monitor spending in real time.
9. Spending reported in GBP (or at least the same currency as the invoice for the original deposit).
10. Named point of contact to help when things go wrong.

Purchase or Credit Cards

Experiences from UK Universities identify circumstances when using a credit card is beneficial which may be valuable when considering this payment option. (Jones, K., 2015)

When to Use a Credit Card

➢ For rapid publication journals requiring payment before publication
➢ When paying publishers that are not on the University Finance System.
➢ Emergency payment where invoices are overdue due to processing errors or publication would be held up.
➢ When increased control is required over the payment workflow.
➢ Individual memberships on behalf of authors that enable better APC deals (e.g. PeerJ, ACS).
➢ To pay publishers with online payment systems not readily set up for invoicing (mainly US publishers).
➢ To make payments in unusual currencies.
➢ For one off payments.

However, there are limitations to credit card use which should be understood when using, or planning to use, this payment option.

Limitations to Credit card Use

➢ Spend per month is limited.
➢ Spend per transaction may be limited (i.e. £1000).
➢ The responsibility for safekeeping and safe use rests with an individual.
➢ Finance systems contain very limited information for a transaction which makes reconciliation difficult.
➢ Authorisation for spend may not be easily available.
➢ Publisher discounts may not be available or applied to the transaction.

The Functional Cost Analysis reported a reduced number of activities when paying the APC by credit card compared to paying invoices by bank transfer (Jones, K. 2015).

However, certain issues with card use and workflows have been identified when using credit cards.

Issues with card use and workflows

➢ Card Types – Most publishers will accept VISA, MasterCard and American Express – your institution will have a preference. Some publishers will also accept PayPal.
➢ Online payment - Some publishers do not accept online payment and card details must be given by phone, post, fax or email.
Storage of card details - Some manuscript submission systems include payment within an author’s workspace. There is concern that card details may be stored in this space.

Authorisation for card use – check whether authorisation for card use is internal or external to the Library. Authorisation from the budget holder may cause delays, as may requesting increases to card limits in a particular period or to pay a large APC.

Recording transactions - Credit cards may be used when bank transfers or pre-pay accounts are not available. Credit card purchase logs are used to record transactions, and card spend is reconciled against the University Finance System, usually monthly, with a strict paper trail for audit purposes.

Receipts - It can be time consuming getting receipts from some publishers, as they tend to send to the author rather than the card payer. There is sometimes difficulty getting a screen print at the correct point during the online payment process.

When planning to set up a credit card for APC payment the following good practice tips may be helpful.

Good Practice Tips

- Check the financial regulations governing the use of purchasing cards at your institution, including payment protection.
- Keep clear and accurate records on monthly spend, logging card use and collecting receipts for reconciliation against finance systems. Be aware that minimal information may appear for each transaction in finance systems.
- Small numbers of APCs that are easy to monitor and pay via credit card. We would recommend that new vendors/publishers are added to the University Finance System where possible.
- Aim to influence publishers to change their processes so publication can go ahead on trust when they are dealing with university payments of APCs.
- As with all invoices, check the VAT/tax has been correctly applied.

Vouchers

Some publishers offer vouchers and discount codes when paying Open Access Article Processing Charges (APCs). Information on the benefits and issues of such options, collected by an online survey of voucher and discount use in UK Universities, may be useful to institutions assessing these payment alternatives and to publishers looking to improve or streamline their offerings. (Holliday, E. and Jones, K., 2016) The survey questions are listed in Appendix 6.

Benefits of vouchers and discount codes

- Reduction in OA cost
- Applying a voucher online can be simpler than invoicing
- Rapid response – articles can become OA when the voucher code is submitted online or received by the publisher
- Ability to monitor remaining vouchers/codes
- Enable non-funded authors to publish work as OA which benefits authors and institutions
Ease of use

However, not all schemes are the same; the variety of schemes available means that their ease of use varies. When asked if vouchers are easier to administer than other payment methods only 15% of institutions agreed (Diagram 10).

Diagram 10. Are voucher payments easier to administer than other payment methods?

The survey showed administrative effort and costs are increased by extra steps added to workflows to process vouchers and additional effort required to set up arrangements, record activity and co-ordinate problems.

The variety of schemes (and processes) raise difficulties for authors in applying discounts or vouchers and for administrators in managing complex schemes with low or infrequent uptake.

Most issues or difficulties with voucher payments are experienced by the team who process payments (39%) or the author (38%).

Simplification and streamlining of processes would benefit all parties in reducing costs and effort.

Recommendations for institutions and publishers

In the survey institutions identified which features help and which don’t. These are the features of an easy to use voucher or discount payment system.

1. Processes should be clear and self-explanatory. A guide to the information required at each stage in online applications would assist authors and administrators. Authors do not always understand how to apply discounts to obtain reductions and often forget if infrequently carried out.
2. Voucher and discount schemes should be sustainable in the long term; cancelling or changing schemes causes confusion, frustration and diminishes reputations.
3. Remove time restrictions or expiry dates on the use of vouchers as these only increase administrative effort and annoyance for authors.
4. Providing regular updates on voucher or discount usage to administrative teams, or access to the information, is essential to a well-managed scheme.
5. Vouchers should fully-fund APC payments. Part-payment vouchers or discounts are not equitable as they are limited to authors with other funding sources and increase work, time and costs as multiple payment elements have to be processed.

6. OA being realised as soon as the voucher code is applied or received by the publisher.

7. Institutions should determine eligibility criteria for institutional voucher or discount schemes.

8. Institutional affiliation should be sufficient to obtain discounts and is a simpler alternative to specific, unique discount codes which add extra administrative burden.

9. The administrative burden for authors could be reduced by allowing administrators to present institutional codes to publishers. Requiring authors to present codes or society membership numbers increases complexity and is time-consuming.

10. The survey highlighted that there would be value in a streamlined approach to voucher or discount payments by all publishers working to an agreed framework which would improve ease of use and efficiency for all and this would be appreciated by authors. The variety of online approval, discount and authorisation codes and the processes used by each individual publisher can be confusing to authors.

**Offsetting: GW4 Offset Implementation Review**

**Introduction**

The Finch report (Finch, J., 2012) emphasised cost sharing among all stakeholders and offset deals are the main means by which this can be established. The percentage of APC payments as part of institutional Total Cost of Publication (TCP) has risen from 10% in 2013 to 12% in 2014 (Pinfield, S., Salter, J. and Bath, P.A., 2015). However, of the 10 publishers who receive the highest revenue from APC payments per year, only 3 have offset deals. These two facts demonstrate a real need for offsetting agreements and the overall slow pace of engagement so far from publishers. (Jones, F., 2015a). A summary of offset deals is included in Appendix Five.

**Comparing the Jisc principles for offsetting with the deals**

The JISC principles for Offsetting state “Offset systems should not be restricted to institutions that subscribe to large collections of journals (the big deal) but should also apply to all institutions that subscribe to individual journals with a hybrid OA offering from a publisher” (Jisc, 2015). However, a review of the available Offset offerings shows all are tied to big deals.

Several offsetting deals have subsumed the “no double dipping” policies publishers previously had in place but, due to the dominance of the subscription model in the global market, these savings have so far been fairly negligible: average reductions range from 1.5% to 5.2% compared to the rising share of TCP that APC’s now account for (12%).

Publisher’s big deal subscriptions are still generally increasing above inflation each year eliminating, for most subscribers, any potential savings from a lowered list price for UK institutions.

**The practical issues of implementing the current offsetting deals**

There is a layer of general problems related to practical administration of the schemes.
1. The GW4 group found most of the offset models do add extra administrative work. Unique voucher codes require management and tracking adding complexity whilst date expiries and voucher use restrictions introduce additional checking and management for some schemes. Schemes which automatically reduce charges (Sage), fit well with existing workflows (IOP) or do not add to authors’ administrative work (Wiley) were valued.

2. Schemes with too many vouchers of low value are less useful; a smaller number of vouchers covering a larger percentage of the APC and few limitations would be preferred.

3. There is also a need for greater communication and collaboration between Open Access and Acquisition teams within institutions where these are separate teams. In most cases information on offset deals is sent to the acquisitions team who need to be aware these details are of importance to their Open Access teams, otherwise this has led to lengthy delays in communication. Publishers do not always communicate with the correct team as they are not always aware of internal responsibilities.

4. When discussing how to implement offset deals there needs to be a good understanding of Acquisitions and Open Access workflows and good inter-team communications when discussing the re-distribution of refunded money.

5. The use of the reimbursement, which area is entitled to use the credits balanced with complying with separate funding bodies and their policies is a complex decision requiring a high level input.

6. Sometimes lecturers are simply not aware there are offset deals in place. It needs to be much clearer to authors that offset vouchers are available. In this aspect, voucher schemes compare poorly with other schemes which automatically route authors through offset workflows. Authors might be more willing to engage with the Open Access process if they became aware of such deals.

7. It is challenging for institutions to administer offsetting deals when contact with publishers is not through the library, tracking this independent Open Access activity is a widespread problem for HEIs.

8. Generally rebates are given to the home institution of the corresponding author. This is potentially a problem area; as collaborative work and the volume of OA articles increases the question of who has earned the rebate might become less clear.

9. More meaningful reductions to global subscriptions would be valued and it is hoped this will be the case as the volume of Open Access articles increases.

Detailed analysis and findings can be found in the ‘Open Access Good Practice Project: GW4 Offset Implementation Review’ (Jones, F., 2015a).

Future problems

This review of offset deals revealed several issues which, whilst not obstacles in the initial implementation, may become problematic in the future.

When money is refunded to institutions there is a potential conflict with financial planning. Subscription spend has to be fairly predictable and the volume of APCs and therefore money returned is not. If money refunded is used to pay for a publisher big deal the result may be variations in subscription budgets and less predictability.

A bi-annual cycle of credit fluctuation may arise with Wiley’s model. If a large amount of credits are generated one year which are then used the next year the resulting lower TCP would generate less credit for the next year. The fluctuation of credits may not be an issue while using money from funding bodies, but a change to institutional funding could raise similar budgeting problems as refunded money.
If offsetting schemes were to end there is an issue with the remaining reimbursement, vouchers or credit at the end of such schemes although, if offsetting becomes core to the publishing environment, deals should be standard and sustainable.

Institutions are also currently addressing how to pay for articles where the funding is more complex. Cases may arise where research is funded by multiple funder bodies, resulting articles are co-authored by several academics, potentially none of which are the grant holder, with the corresponding author from a different institution, or any combination of the above. These issues have to be considered when apportioning the benefits of offsetting. As Open Access publishing increases this could become a significant issue. Issues such returning money to RCUK or COAF, which institution should receive credits or reimbursement, and whether money should be returned to subscription budgets or used purely for APCs will need to be discussed and principles agreed.

If credit or reimbursement is based on the Total Cost of Publishing extra complications around the proportional returns to those involved are created. In the current Wiley deal, for example, currently calculate percentage tiers based on TCP and apply that tier to APC spend; it is problematic to split the benefit between institution and funding bodies. In some cases institutions have chosen not to include COAF funds in offset deals as dealing with both RCUK and COAF is simply too complicated, particularly with the COAFs more rigorous requirements for using the benefits of offset deals.

In voucher schemes decisions on their use will need to be rigorous and if uptake increases dramatically, mechanisms to track voucher use will be required.

Conclusion and suggestions

The engagement of publishers with the HE community in creating offset deals is welcome but their reception and success has been variable. Initially one offset model appeared preferable but differences between publishers and institutions makes this not viable at the moment and possibly undesirable. The funding landscape for Open Access in the long-term is not clear, and offset deals may work better with institutional funds. A sector wide shift to institutional funds may resolve some of the issues that we currently face.

In the short term improved reporting mechanisms and authors automatically being routed through the offset deal (or at the least additional information to academics informing them of the availability of offset deals during the submission process) may be attainable goals. Reporting would help us in administering the offset deals and potentially in tracking Open Access activity outside the OA team or library; a sector wide problem for the sector. More streamlined use of offset deals would boost uptake, ensure good value for institutions and simplify some administrative processes.

In the long term deals should be more inclusive both for institutions that do not or cannot subscribe to the publishers big deals, for those without pre-pay accounts and for non-funded authors and should reduce the administrative burden for authors and administrators. If a greater volume of Open Access publishing leads to greater global subscription reductions it is imperative these are applied to publisher’s big deals as well as to their individual journal subscriptions.
Conclusions and Recommendations

Whilst welcoming options to reduce both APC costs and APC administrative effort, schemes and payment processes vary widely and may increase both effort and cost for, sometimes, a small benefit. The project would advise institutions to assess the implications for their own workflows when entering into agreements or using alternative payment options. Analysis of the issues, identification of solutions and negotiations with publishers or finance departments can mitigate the issues and reduce their negative impact. It is hoped that stakeholders in the APC market will respond to the issues in these alternative options highlighted by the project.

Project outputs and outcomes

<table>
<thead>
<tr>
<th>Output / Outcome Type</th>
<th>Brief Description and URLs (where applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Report</td>
<td>Report on the use of Functional Cost Analysis (FCA) methodology to investigate labour costs per APC payment and identify resource intensive functions.</td>
</tr>
<tr>
<td></td>
<td><a href="http://find.jorum.ac.uk/resources/10949/19986">http://find.jorum.ac.uk/resources/10949/19986</a></td>
</tr>
<tr>
<td>Good practice guide</td>
<td>Using purchase cards for APC payments</td>
</tr>
<tr>
<td></td>
<td><a href="https://gw4openaccess.wordpress.com/2015/05/08/good-practice-guide-using-purchase-cards-for-apc-payments/">https://gw4openaccess.wordpress.com/2015/05/08/good-practice-guide-using-purchase-cards-for-apc-payments/</a></td>
</tr>
<tr>
<td></td>
<td><a href="http://find.jorum.ac.uk/resources/10949/20131">http://find.jorum.ac.uk/resources/10949/20131</a></td>
</tr>
<tr>
<td>Checklist and sample workflows</td>
<td>Open Access Reporting Checklist and Sample APC Payment Workflows for Institutions and an update to the checklist</td>
</tr>
<tr>
<td></td>
<td><a href="https://gw4openaccess.wordpress.com/2015/05/20/open-access-reporting-checklist-and-sample-apc-payment-workflows-for-institutions/">https://gw4openaccess.wordpress.com/2015/05/20/open-access-reporting-checklist-and-sample-apc-payment-workflows-for-institutions/</a></td>
</tr>
<tr>
<td></td>
<td><a href="https://gw4openaccess.wordpress.com/2015/06/24/update-of-the-open-access-reporting-checklist/">https://gw4openaccess.wordpress.com/2015/06/24/update-of-the-open-access-reporting-checklist/</a></td>
</tr>
<tr>
<td></td>
<td><a href="http://find.jorum.ac.uk/resources/10949/20070">http://find.jorum.ac.uk/resources/10949/20070</a></td>
</tr>
<tr>
<td>Report</td>
<td>Review of APC Intermediary Services</td>
</tr>
<tr>
<td></td>
<td><a href="https://gw4openaccess.wordpress.com/2015/06/17/review-of-apc-intermediary-services/">https://gw4openaccess.wordpress.com/2015/06/17/review-of-apc-intermediary-services/</a></td>
</tr>
</tbody>
</table>
FAQs for publishers
These 'FAQs for publishers' are intended to assist publishers in processing APC payments for Gold Open Access on behalf of authors and their institutions.

https://gw4openaccess.wordpress.com/2015/06/25/faqs-for-publishers/

http://find.jorum.ac.uk/resources/10949/20076

Good practice guide
A wish list of features for the ultimate prepayment account.

https://gw4openaccess.wordpress.com/2015/07/01/the-ultimate-prepayment-account/

http://find.jorum.ac.uk/resources/10949/20108

Case study
Key Fields for APC Internal Institutional Reporting: analysis of the data used in institutional internal APC reporting across the four GW4 collaborators.

https://gw4openaccess.wordpress.com/2015/09/16/key-fields-for-apc-internal-institutional-reporting/

http://find.jorum.ac.uk/resources/10949/20129

Case study
Managing APC payments using Access and Excel: a comparison of the experiences of using Excel and Access to record APC payments by two of the GW4 Pathfinder institutions, Bristol and Exeter.

https://gw4openaccess.wordpress.com/2015/09/22/managing-apc-payments-using-access-and-excel-a-comparison/

http://find.jorum.ac.uk/resources/10949/20130

Report
A review of current offsetting deals as implemented at GW4 institutions focusing on the practical issues of implementing the available deals and comparing the deals with the Jisc Principles for Offset Agreements.

https://gw4openaccess.wordpress.com/2015/09/29/open-access-good-practice-project-gw4-offset-implementation-review/

http://find.jorum.ac.uk/resources/10949/20132
Literature survey

A survey of the literature describing benefits and disadvantages of pre-payment deals and the issues surrounding pre-payment models and the development of the APC market.


http://find.jorum.ac.uk/resources/10949/20141

Event report

APC Payment Management: In Practice and Good Practice workshop presentation slides and summary report

Slides and summary report


Summary report only

http://find.jorum.ac.uk/resources/10949/20144

Good practice guide

Based on responses to a survey of UK universities on the use of vouchers and discount codes to pay APCs, the features of these payment options which assist users and those which hinder use.


http://find.jorum.ac.uk/resources/10949/20179

What did you learn?

The findings of the Functional Cost Analysis (FCA) are described in the 'Summary of Findings' in the Process Analysis and identifying the Administrative Burden section of this report. The FCA methodology provided an approach to calculating the time and costs to process APC payments and identify resource intensive functions. Our learning from the methodology itself and our use of it is described in 'Review of the FCA methodology'. The most significant lesson learnt is perhaps an understanding of the engagement, time and resources required to perform an FCA. This led to the employment of a 'Lite' approach to the Lean methodology used for the Process Improvement work described in 'Institution Z: whole process redesign'. 'Lite' alternatives of methodologies may be useful to colleagues investigating OA more widely.
The findings of the payments and invoicing process improvement work are described in the ‘Payments and invoicing conclusion’ section and, for all the process improvement work, in the ‘Conclusions and recommendations’ section.

In addition to the more obvious process improvements intangible benefits of improved communication and collaboration arose from this work. The methodologies and their associated investigations or workshops drew together staff from diverse areas and focussed attention on one particular aspect of their work, APC payments, raising understanding of the process and improving relationships between stakeholders evidenced in mutually agreed changes such as the elimination of one department from Institution Z’s process and of Institution Y departments sharing a spreadsheet. Identification of workflow issues has pin pointed the training needs of staff processing payments and prompted new skill development evidenced in Institution Y and W staff receiving finance system training.

The findings of the investigations into options to reduce administrative workload and costs are described in ‘Conclusions and Recommendations’ section. Institutions are advised to assess offerings against their own workflows and initiate negotiations with providers, including their own finance departments in the case of credit card use, to reduce the negative administrative impact of some schemes.

Each of the GW4 institutions has a more efficient APC payment process as a result of the work of the project and an improved understanding of the whole process within their institution. Comparison across the four institutional partners enabled the identification of resource intensive functions at each institution partner and subsequent targeted improvements.

The Functional Family Tree for APC Payment Processes produced by the project assisted the Jisc Monitor project in understanding the functions and inter-relationships within the APC payments process.
Impact

Immediate Impact: Metrics

Usage metrics from the project blog and Jorum indicate interest in our outputs across the OA community.

Project blog metrics

Diagram 11. Number of views per month from June 2014 to 17th May 2016.
Diagram 12. Total number of views of Outputs on project blog to 17th May 2016.
Diagram 13. Total downloads from Jorum from April 2015 to 17th May 2016

Outputs: Total Downloads to 17th May 2016
Feedback from the project workshop, APC Payment Management: In Practice and Good Practice, in November 2015 revealed 92% of attendees found the event increased their understanding of issues in APC payments and 79% of attendees found the workshop helped to identify good practice (Diagrams 14 and 15).

Future impact

The OA environment is rapidly evolving; activities and processes evolve as new systems and standards develop or requirements change. For example, over the two years of the project new developments, the Jisc APC project and offsetting schemes have created radical changes in the way payments are made. At this stage in the evolution of the APC market, with many new systems and standards in development or trial, it is difficult to predict how payments will be made in the future and what impact current investigations may have. The developing OA infrastructure is a journey not an event; the project outputs are relevant to the current environment but may not have relevance to any future market or infrastructure.

Conclusions

- General conclusions
  - The project was able to identify, using the Functional Cost Analysis (FCA), the administrative time and costs for APC payments in each of the four GW4 partner institutions and the resource intensive activities for each institution. As a result of the investigation each institution developed a detailed, deeper understanding of workflows and processes which facilitated later negotiations and collaborations within their institutions. Streamlined workflows have been implemented with measurable results and acknowledged improvements in ways of working and enhanced relationships.
- Conclusions relevant to the wider community
The generic workflows and the functional family tree for the APC payment process arising from the FCA investigation have provided insight into APC information structures and supporting a systematic approach to other APC developments.

The project identified potentially useful actions to reduce administrative costs and effort and practical wish lists of features for payment options; these may assist stakeholders in their developments and help to prioritise planned improvements. The issues with offsetting listed in section 3.3.4 need to be addressed collaboratively by publishers, institutions and Jisc to identify and develop shared solutions.

- Conclusions relevant to the lead and partner institutions

  The benefits of collaboration by all stakeholders to improve processes, share information, develop standards and skills should not be underestimated. Every solution identified by the project involved collaboration with internal or external parties to investigate, identify and implement.

- Conclusions relevant to Jisc

  In a rapidly evolving environment, building a community of practice has added immense value and helped focus direction for Pathfinder and other institutions.

## Recommendations

- General recommendations

  The process improvements and methods employed by the GW4 institutions were varied and need to be evaluated for their relevance and acceptability to existing tasks and teams at other institutions. Simple single task changes may provide adequate benefits and be more acceptable than a larger scale investigation. However, a larger scale investigation can bring additional benefits of awareness raising, engagement, improved collaboration and partnerships to those involved.

- Recommendations for the wider community

  Conducting the FCA across the four GW4 institutions revealed that the effort, time and costs necessary to pay each APC are dependent on the institutional environment, its requirements and processes. To streamline APC payments effectively each institution needs to fully understand their workflows and identify their resource intensive tasks. An FCA will facilitate this and increase knowledge of tasks within the process; if you need to understand the payment process at your institution an FCA will accomplish this.

  The investment of time required for a FCA is significant but worthwhile. The project investigated four payment processes, drew four flowcharts and built four FCA matrices in three and half months working two days a week. A FCA of a single institution would be less resource intensive but not proportional due to the nature of some of the work.
• Recommendations for lead and partner institutions
  
  o Comparing institutional time and costs across the four GW4 institutions was useful in highlighting areas for improvement and identifying similarities; institutions will need to continually monitor areas of increased resource and activity as the Open Access environment changes over time.
References


Jones, F., 2015(a).


Appendix One

GW4 Pathfinder project: Investigation of administrative efficiencies in APC payments: Interview Schedule

This interview schedule aims to gather information about your current process for handling APC payments to measure the administrative costs of APC payment and ‘baseline’ the activities for later comparison. The questions cover the sequence of tasks or ‘workflow’ from the start to the end of the payment process, what are the inputs to and outputs from the process, what tasks or activities are undertaken and why and who performs them.

Agree concepts and scope

APCs (article processing charges) are the publication fees charged to authors or their institutions in order to publish using Open access. This investigation focusses specifically on APC payments funded by the RCUK block grant funding mechanism for Gold Open access.

The APC payment process under investigation refers to the whole process from the first input or initiation of activity through payment and including any post publication activities.

Interview questions

The APC payment process

1. Looking first at the payment process as a whole do you have any existing workflow diagrams which illustrate the tasks involved, their sequence and start and end points?

If yes – can we use them as a basis for our discussion and take copies away at the end?

   a. Have you identified any separate stages in your process? Do they have a formal name or identifier?

      Use any existing terminology to identify the tasks in each stage – go to Q3:

      If no – continue with following explanation and question 2.

At this stage of the investigation we have limited knowledge of the activities involved in each institutions processes but hope to discover them. To help with discussion I have divided the process into three stages:

- Pre-payment processing.
- Making payments.
- Post publication processing.
2. Would this breakdown fit with your process? Do you have any additional stages?

3. For each stage we’ve identified can you describe the tasks or activities which are performed in that stage? Start with the first.....

*Build an agreed workflow diagram or list of activities and tasks within each stage. Aim to cover the following for each activity or task:*

**Task:**
- An outline of what is done (no details, describe simply what the task is).
- Why is it done? (Purpose?)
- Who does it? (Which department, function, internal/external)
- What information is needed to perform the task? Where does the information originate?
- After each activity is completed, what is the next stage?

**Starting points** or inputs:
- How is it received? Who receives it? (Department or function)
- Where does it originate?
- Any *variations* in dealing with the inputs? If yes – describe.
- Rate *frequency of occurrence* of inputs/starting points in % terms.

**Outputs:**
- What outputs are there? Who are the recipients? What do they need?
- Are they internal to dept.? Internal to institution? External to institution?
- Any additional outputs or variations on the main outputs requested as one-offs?

Thank you for your assistance with the investigation
Appendix Two

Payment Grid

<table>
<thead>
<tr>
<th>Manual Payment Authorisation</th>
<th>School</th>
<th>Directorate</th>
<th>Authorised Signatory</th>
<th>Goods received and prices checked</th>
<th>Description</th>
<th>Publisher - Author - OA reference number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Invoice Amount</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**General Ledger (number of digits in brackets)**

<table>
<thead>
<tr>
<th>Cost Centre</th>
<th>Analysis (10)</th>
<th>Account Code (5)</th>
<th>VAT Treatment</th>
<th>Net Amount</th>
<th>Tick if purchase for resale</th>
</tr>
</thead>
</table>

**Project Information**

<table>
<thead>
<tr>
<th>Project Number</th>
<th>EC Project Yes or No</th>
<th>Task</th>
<th>Expenditure Type</th>
<th>Expenditure Organisation</th>
<th>VAT Treatment</th>
<th>Net Amount</th>
<th>Recoverable Project Yes or No</th>
</tr>
</thead>
</table>

*For information on VAT Treatment refer to VAT guidance*
Appendix Three

APC Process Flowchart One

Pre-payment processes
### Appendix Five

**Table Summary of Offset Deals**

<table>
<thead>
<tr>
<th>Who</th>
<th>What</th>
<th>Big Deal</th>
<th>Current Deal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Institute of Physics</strong></td>
<td>A sliding scale of “local” or “global” reductions based on the percentage of Open Access articles within each Hybrid journal. Currently 90% of each institution’s APC spend is returned to them. As the percentage of OA articles grows, there will be a resulting reduction in global subscription costs and a smaller percentage of APC spend returned to each institution.</td>
<td>Not tied to a JISC specific deal, but must subscribe to IOPscience extra.</td>
<td>May 2014-May 2017</td>
</tr>
<tr>
<td><strong>Taylor and Francis</strong></td>
<td>A number of vouchers are supplied to each institution based on their previous institutional spend. These vouchers give a 75% discount to APCs, to a flat fee of £450+VAT. These can only be used in Hybrid Journals. Taylor and Francis also apply a global reduction of a journal’s subscription price when more than 5% of that journal’s content is Open Access.</td>
<td>Yes</td>
<td>January 2015-December 2016</td>
</tr>
<tr>
<td><strong>Wiley</strong></td>
<td>To take advantage of the offsetting deal you must have a prepay “Wiley Open Access Account”. All APCs are reduced by 25%. Institutions are also credited on their APC expenditure. The tier of credit is worked out by combining institutional spend and APC spend, and is then applied to the previous year’s APC spend. Wiley also apply a global reduction of a journal’s subscription price directly proportional to the percentage of Open Access articles in each journal.</td>
<td>Yes</td>
<td>January 2015-December 2017</td>
</tr>
<tr>
<td><strong>Sage</strong></td>
<td>Participating institutions have a flat fee of £200+VAT for APCs. There is a global reduction of a journal’s subscription price when more than 5% of that journal’s content is Open Access.</td>
<td>Yes</td>
<td>January 2015-December 2016</td>
</tr>
<tr>
<td><strong>Springer</strong></td>
<td>A single invoice covering the total cost of publication with Springer: subscription expenditure and APCs. Articles published by UK corresponding authors will automatically become Open Access. Figure based on 2015 subscription fee and 2014 APC expenditure, with a very small annual increase. N.B. Final model details have not yet been released.</td>
<td>Yes</td>
<td>January 2016-December 2018</td>
</tr>
<tr>
<td><strong>Royal Society of Chemistry, “Gold for Gold”</strong></td>
<td>A number of vouchers based on the institutional spend on the RSC gold package, divided by £1,600, the APC. Each voucher fully covers one APC.</td>
<td>Not tied to a JISC specific deal, but must subscribe to RSC Gold.</td>
<td>January 2013-</td>
</tr>
</tbody>
</table>
Appendix Six

1 / 9

A survey of the use of APC voucher payments and schemes

Page 1: Introduction, Terminology and Use of the Data

Introduction
This survey will provide a snapshot of the current use of vouchers to pay APCs. Your answers will help us to understand if using vouchers creates additional complexity, time or costs or if they ease payment processes in any way. We are also interested in your view on the benefits and issues of APC payment by voucher. The survey should take around 15 minutes to complete. Some of the questions ask for further explanation to help us develop a deeper understanding of the use of vouchers.

Terminology
We are including waiver codes and discount mechanisms within our use of the term 'voucher payments' as they all create a change in the cost of an APC and generate administrative variations in the processing of payments.

NB The terms 'discounts' and 'discount mechanisms' used in this survey do not include any discounts linked to pre-payment agreements.

Use of the data
Your answers are confidential; they will be collated, analysed and the findings will contribute to a case study on the use of vouchers to pay APCs in HEIs. If any comments are quoted within the case study no identifying information will be given. The survey only seeks to understand your role, you do not need to identify yourself.

Please complete this survey if you have used publisher vouchers, waiver codes or a discount mechanism (other than discounts associated with pre-payment agreements) to pay APCs.

Contact us
If you have any questions about the survey please email the project Librarian e.m.holliday@bath.ac.uk
Your use of APC payment vouchers

1 For which publishers have you used vouchers, codes or discount mechanisms to pay APCs? NB 'discount mechanisms' does not include any discounts or discount mechanisms linked to pre-payment agreements.

Royal Society of Chemistry (RSC)
American Chemical Society (ACS)
BMJ or Sage (Waiver codes)
Taylor & Francis (offsetting discount)
Other

1a If you selected Other, please specify the publisher:

2 Please estimate the number of APC voucher payments (including waiver codes or discounted payments) you make in an average month?

3 Are voucher payments easier to administer than other payment methods? If different answers apply to different publisher vouchers, codes or discounts please tick "It varies".

Yes
No
It varies

3a Please explain the reasons for your answer:

4 Please describe briefly how your institution processes APC payment vouchers? A list of steps is fine. If you have different workflows for different publisher vouchers please describe the workflow process you use most frequently.

5 Are any additional costs or time associated with processing or supporting APC payment vouchers?

Yes
No
5a If yes, please give a brief description of the additional time or costs.

Benefits and Issues

6 Can you describe what benefits you associate with using vouchers for APC payment?

7 Which of these four stakeholders do you believe benefits most from voucher payments?

- Your institution
- The OA team who process payments
- The author
- The publisher

8 Can you describe any issues or difficulties you have experienced with using vouchers for APC payments? If you have not experienced any issues or difficulties with voucher payments please write 'no issues' as your response.

9 Which of these four stakeholders do you believe has the most issues or difficulties with voucher payments?

- Your institution
- The OA team who process payments
- The author
- The publisher
- No issues or difficulties experienced by any stakeholder

10 What is your role within Open Access and APC payments?

- Institutional professional services staff processing APC payments
- Repository support staff (but not processing APC payments)
- Research support (but not processing APC payments)
- Other

10. a If you selected Other, please describe your role:
Thank You
Thank you for your help with our investigation of APC voucher payments.

Case study
The resulting case study, with the findings and conclusions from this survey, will be an output of the GW4 project 'Options for Administrative Efficiencies in OA Implementation', one of the Jisc Open Access Good Practice Pathfinder projects, and will be published on the project blog.

Liz Holliday, Kara Jones
Jisc OA Good Practice Pathfinder Project
University of Bath
# Appendix Seven

## Glossary of Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACS</td>
<td>American Chemical Society</td>
</tr>
<tr>
<td>APC</td>
<td>Article Processing Charge</td>
</tr>
<tr>
<td>BACS</td>
<td>Bankers’ Automated Clearing Services</td>
</tr>
<tr>
<td>CCC</td>
<td>Copyright Clearance Center</td>
</tr>
<tr>
<td>COAF</td>
<td>Charities Open Access Fund</td>
</tr>
<tr>
<td>F0</td>
<td>Primary Function of a functional family tree</td>
</tr>
<tr>
<td>FCA</td>
<td>Functional Cost Analysis</td>
</tr>
<tr>
<td>GBP</td>
<td>Pounds Sterling</td>
</tr>
<tr>
<td>GW4</td>
<td>Great Western Four (Alliance of four universities)</td>
</tr>
<tr>
<td>HE</td>
<td>Higher Education</td>
</tr>
<tr>
<td>HEFCE</td>
<td>Higher Education Funding Council for England</td>
</tr>
<tr>
<td>HEI</td>
<td>Higher Education Institution</td>
</tr>
<tr>
<td>MRC</td>
<td>Medical Research Council</td>
</tr>
<tr>
<td>OA</td>
<td>Open Access</td>
</tr>
<tr>
<td>OAK</td>
<td>Open Access Key</td>
</tr>
<tr>
<td>PI</td>
<td>Principal Investigator</td>
</tr>
<tr>
<td>PMC</td>
<td>PubMed Central</td>
</tr>
<tr>
<td>PO</td>
<td>Purchase Order</td>
</tr>
<tr>
<td>RCUK</td>
<td>Research Councils UK</td>
</tr>
<tr>
<td>SHERPA/FACT</td>
<td>SHERPA/Funders and Authors Compliance Tool</td>
</tr>
<tr>
<td>TCP</td>
<td>Total Cost of Publication</td>
</tr>
<tr>
<td>UKSG</td>
<td>UK Serials Group</td>
</tr>
<tr>
<td>VAT</td>
<td>Value Added Tax</td>
</tr>
</tbody>
</table>