What direct support is available for open-access Diamond journals? Funding models and arrangements for implementation

Quentin Dufour, David Pontille, Didier Torny

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Quentin DUFOUR
David PONTILLE
Didier TORNY

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MINISTÈRE
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Funding models and arrangements for implementation

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Socio-Economics of Scientific Publications Project

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Quentin DUFOUR
CNRS, Innovation Centre of Sociology

David Pontille
CNRS, Innovation Centre of Sociology

Didier Torny
CNRS, Innovation Centre of Sociology

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List of figures, tables and acronyms

Acronymes

ACM: Association for Computing Machinery

APC: Article Processing Charges

BMC: BioMed Central

BOAI: Budapest Open Access Initiative

CNRS: Centre National de la Recherche Scientifique (French National Centre of Scientific Research)

DOAB: Directory of Open Access Books

DOAJ: Directory of Open Access Journals

DOI: Digital Object Identifier

FTE: Full Time Equivalent

ISSN: International Standard Serial Number

JTCAM: Journal of Theoretical, Computational and Applied Mathematics

MDPI: Multidisciplinary Digital Publishing Institute

NGO: Non-Governmental Organisation

OA: Open Access

OJS: Open Journal Systems

OLH: Open Library of Humanities

OPERAS: Open scholarly communication in the European Union Research Area for Social sciences and humanities

PKP: Public Knowledge Project

PLOS: Public Library Of Science

PSL: Paris Sciences et Lettres (Paris Sciences and Arts)

SCOSS: The Global Sustainability Coalition for Open Science Services

SNF: Swiss National Fund

SPARC: Scholarly Publishing and Academic Resources Coalition

SSHRC: Social Sciences and Humanities Research Council

Executive summary

Aims:

The author-pays model for open-access journals is increasingly criticised because of the inequalities it generates and its unsustainability due to a lack of cost control. In this context, our study examines the funding models for Diamond journals - academic journals which are published with no direct payment made by the readers (unlike the subscription model) nor by the authors (author pays model). The aim of this work is to test the feasibility, as well as the desirability of a direct or explicit funding model for Diamond journals, something which is almost non-existent at present. We have two objectives here: on one hand, to understand the current Diamond journal funding arrangements and constraints, and on the other hand to propose specific arrangements for funding Diamond journals by research funders.

Background

In 2020, we participated with the OPERAS consortium in the OA Diamond Journals study, the purpose of which was to quantify and qualify the worldwide Diamond journals ecosystem, focusing on journals and platforms located in Europe and South America. One of the many recommendations in the final report was the proposal to establish direct funding for Diamond journals by institutions which do not currently provide support. This work follows on from the recommendation. It complements the work done in 2020 by focusing on a specific aspect of the Diamond ecosystem, namely the ways in which they are funded. The aim in exploring in detail the current funding options for Diamond journals is to identify the specific forms that permanent funding models could take.

Method

This study is mainly based on a questionnaire survey which was sent to over a thousand Diamond journals and to which 260 people responded. We have put together a matrix of questions structured around 4 subjects, enabling us to understand their financial situation: the journal's financial configuration, the publication acts, the relationship with funders and with the quantitative reports, and opinions regarding a direct funding model. Most of the questions are closed and provide a quantifiable view of the financial realities confronting the Diamond journals. Some open questions were handled separately using qualitative software.

Results

1. Four direct funding models for Diamond journals

Our questionnaire survey identified the various forms of support available. In addition to the development of publication infrastructures and the availability of services, we also focused on direct funding models. Our research has led to the creation of four models that are, to a greater or lesser degree, linked to the publication yield and are based on annual funding:

- The white list. Journals meeting the criteria that make them eligible for inclusion in a funding list, would obtain access to a fixed sum of money, irrespective of the content of the articles and the publication levels or yield.
- The threshold. A set amount of money is allocated to the journal, subject to a minimum number of publications that are of interest to the funder.
- The slots. The sums of money paid to the journal do not depend linearly on the number of articles which are of interest to a funder, but on "publication tranches", within which the amount is fixed.
- The yield. A sum of money is allocated to the journal on the basis of the annual publication yield, in line with the notion of "fund as you publish" as used in some transformational agreements.

2. Who acts in which acts when a scientific journal is published?

In order to enable us to look in detail at the publication process, we have put together a list of 26 acts which delineate the production of a scientific article within a journal. These 26 acts are grouped into 3 major categories: certification (*reception*, assessment, *response to author*, etc.), physical production of the document (*copy editing*, *proofreading*, *coding/conversion*, etc.), dissemination (*rights/contracts*, *assigning a DOI*, *assigning metadata*, dissemination, archiving, etc.) By using a questionnaire survey, we were able to identify patterns within the Diamond journals that we investigated.

- The editors and their assistants "cover" all of the publication acts: they oversee all acts and execute all or part of most acts. They take the lead in the certification process (which is shared with members of the editorial board) and in the acts related to dissemination.
- The sub-editors and external service providers contribute in more specific ways to the physical production of the document. To a lesser extent, they also take part in the dissemination acts.
- Certain specific acts involve two entities: external assessors are the most involved (45% of respondents for *reviewing*, whereas the use of software is quite evident when

used for checking plagiarism (*plagiarism check*, 22% of respondents) and *assigning a DOI* (19% of respondents).

3. Which acts in the publication process could be funded?

The survey highlights the importance of unremunerated work within the journals, but goes only as far as underlining all of the tasks involved. This situation is characteristic of scientific publishing, where scientific staff are paid by the institution they work for to carry out all the work that their research covers. Thus the work carried out in a journal is not subject to additional remuneration, as it is considered to be part of the work done by employees working in higher education and research (for which they already receive salaries). This peculiarity of academic journals is even more marked for Diamond journals, as suggested by the OA Diamond Journals survey. Additionally, certain acts in the publishing process that are performed by external service providers, are indeed subject to financial transactions. In this respect, this work allows us to identify direct funding focus areas:

- The acts involving certifying manuscripts have the lowest percentage of monetary transactions. Even in an ideal world without financial constraints, Diamond journals would be fairly unwilling to finance this part of the publication process, in particular because they wish to retain their editorial independence in scientific publishing.
- The second category of publication acts relating to the physical production of documents, involves the highest monetary transaction percentages. It's also the category for which journals are the most willing to pay in an "ideal" situation" free of all financial constraints.
- As regards the dissemination acts, some of the journals are in favour of remunerating some of them.

4. The technical conditions for implementing direct funding models.

Regardless of the model selected, a certain number of technical conditions are required for the implementation of direct funding:

- The ability to carry out monetary transactions ("transactional capability"). Around 80% of the journals surveyed state that they are capable of accepting money, either directly or indirectly. This percentage increases to 86% if potential capabilities are taken into account - the willingness of journals to implement an accounting system provided adequate funding is available.
- The ability to make funders visible. 51% of the journals surveyed already have the means to create *reports* in order to specify the contributions made by funders to the publication in question. Of those who are not currently able to do so, 73% state that they are ready to adopt a system of this kind, provided there is adequate funding.

- The regulatory opportunity for research funders to provide direct support for journals.

5. Benefits and limits of direct funding models.

Through the use of open questions, we were able to identify the benefits anticipated by the journals which would come from direct funding, as well as the potential pitfalls to be avoided. These elements are summarised in the table below.

Table 1. Benefits and pitfalls of direct funding of Diamond journals

Benefits	Pitfalls to be avoided
Continuity of the journal	Risking loss of the editorial board's scientific independence
Valuation of work that is often done voluntarily	New administrative burden associated with financial transactions and with providing funder visibility
Outsourcing and professionalising certain acts	Development of predatory Diamond journals
Refocusing the editorial board on certification work	Institutional or legal inability to attract direct funding of journals in certain countries
Compliance with various technical standards	University assessment criteria not in line with publication in Diamond journals
Redirection of financial flows away from major commercial publishers	Lack of interest on the part of the research funders in Diamant journals
Increase in the number of Diamond journals	Publications based on non-financed research do not fund the journal

In accordance with the requirements of open science, all the data that can be disseminated has been deposited on the Recherche Data Gouv platform at the following address: https://doi.org/10.57745/YGUK

Lastly, some of the results have been refined for prepublication under a CC-BY licence at the following address: https://www.biorxiv.org/content/10.1101/2023.05.03.539231v1

Introduction

From the BOAI to the OA Diamond Journals report: direct funding of journals for open-access publishing

In December 2001, the Budapest Open Access Initiative (BOAI) brought together publishers, librarians belonging to or affiliated with SPARC[1], proponents of open and self-archiving archives, as well as one of the authors of the PLoS petition letter. Together they defined a very broad version of open access, published in February 2002, which later was legally implemented by *Creative Commons* licences. However, BOAI did not restrict itself to defining open access. It also launched an appeal to any establishment that was likely to support it, while recommending practical solutions. Two main approaches were identified, which embodied the aims of the stakeholders involved. The first approach promoted the self-archiving of peer-reviewed journal articles in open, computerised archives based on the technical standards of interoperability which were already defined by the Open Archive Initiative to ensure that they were highly visible. The second approach was less established, and involved a variety of formulas to identify who would take on publication costs:

> *"For this purpose, there are a great many alternative sources of funding including institutions and governments which fund research, universities and laboratories which employ researchers, endowments granted by field or institution, allies of the open access cause, profits generated by the sale of additions to core texts, funding freed up by the transformation or the demise of traditional fee-based periodicals, and even contributions from the researchers themselves. There is no need to prioritise one solution over another for all fields and all countries, nor to cease seeking out new, original alternatives"*[2].

By emphasizing the wide range of resources available, this second approach incorporated several options previously considered, such as SPARC's proposals relating to the lowering of subscription costs or the financial model developed by BMC of leveraging other

[1] https://sparcopen.org

[2] Budapest Open Access Initiative, https://www.budapestopenaccessinitiative.org/read/french-translation/, Page consultée le 03/12/2021.

content other than the research articles themselves. Financial contributions from authors were only considered as a last resort, if they were mentioned at all. However, this model of last resort is the one that developed in the following years as a result of a double dynamic. On the one hand, from 2003-2004, publishers like BMC and PLOS began to charge for open-source publication with a fixed price per article. On the other hand, research funders, predominantly the Wellcome Trust, indicated that open access publication costs would be covered by the grants won by the research teams. By the end of the decade, support from the Wellcome Trust to this financial model already exceeded £2.4 million a year[3].

A market was thus gradually created in the 2000s, as a result of the emergence of public pricing and a funding source for publishers which was initially for the benefit of new market entrants who specialised in open access publishing (BMC, PLOS). Throughout the 2010s, all publishers, whether they had already adopted this business model (MDPI, Frontiers, Hindawi, etc.) or if only part of their business fell under it (Springer Nature, Wiley, Sage, Elsevier, Informa, etc.), were migrating towards hybrid journals and/or entirely open access journals. Despite persistent and increasingly widespread criticism of rising article prices, this business model is continuing to be supported by a majority of research funders, and in some cases by libraries and research institutions. This is particularly true for the United Kingdom, where the "blocks grants" model involving funds granted to universities to pay APCs was implemented as a national public policy from 2013 onwards, with a £17 million fund for the first year[4]. Starting in 2015, the so-called "transformational agreements" in a great many European countries have been taking over by again funding APCs, most frequently from grants which were previously solely intended for journal subscriptions[5]. Even today, a whole host of institutions are directly funding APCs. One example is Utrecht University, which, until 2021, only reimbursed 50% of APCs up to €1,000. Now it fully subsidises the self-payer model.

Full reimbursement

In 2022 the Open Access Fund will refund all costs of publishing articles in full open access journals, under the condition that the article processing charge (APC) amounts to a maximum of €2,500.

Open access books

[3] https://wellcome.figshare.com/articles/dataset/Wellcome_Trust_open_access_APC_spend_2010_11_2011_12_/1004743.

[4] https://www.ukri.org/about-us/policies-standards-and-data/data-collection/open-access-block-grant-awards/

[5] Quentin Dufour, David Pontille, Didier Torny. Contracter à l'heure de la publication en accès ouvert. Une analyse systématique des accords transformants. [Rapport de recherche] 206 150, CNRS; Comité pour la science ouverte. 2021, pp.81. doi.org/10.52949/2

The ambition to achieve full open accessibility of scientific publications as soon as possible also applies to books. That is why in the case of open access books a maximum reimbursement of €4,000 per book is available in the OA Fund in 2022.

No reimbursement

The OA Fund does not refund costs of publications that are the result of external research funding (for instance NWO and ERC). These costs can be financed by means of project funding[6]*.*

Support for articles publishing articles is possible if the journal in which they are published is a member of the au Directory of Open Access journals (DOAJ) (similarly for books if their publisher is a member of the Directory of Open Access Books, DOAB). The only condition is a financial one: costs are not to exceed a specific amount, and of course the journals or books are not already receiving support from open access publishing funders. The same kind of open access pattern can be seen in university libraries surveyed by SPARC in North America, where there are few constraints on publication media or open access pricing. This gradual alignment of players who are likely to pay for open access publishing costs has not only enabled the APC model to develop; it has also given it high visibility. From the 2010s onwards, open access publishing, the BOAI's second line of approach, was limited to a single financial model for many players: the self-payer model, which is now subsidised from different sources (funders, universities, libraries, national funds, etc.). This means that today, for many players with different financial capabilities, the funding of open access publishing involves paying higher and higher APCs.

Understanding the funding of Diamond journals more clearly

In the light of this consistent support for a single financial model, is there still a place for what was originally intended to be the core of open access publishing financial models? While some have fought to invalidate the "gold open access = APC" equation, others have sought to give greater visibility to these alternative journals by inventing new labels for them, such as "Platinum open access" or "non-APC open access". The thing that these names have in common is that they negatively characterise the financial model: the lack of the requirement for authors to fund open access publishing. This characterisation also exists as a filter in the DOAJ: "With no article processing charges (APC)". But these labels reveal nothing about the funding sources and concrete support, the diversity of the different financial models, and the costs associated with them.

[6] https://www.uu.nl/en/university-library/advice-support-to/researchers/publishing-support/open-access/open-access-costs/open-access-fund

For two decades, there has been frequent mention (in the literature) of the range of different models possible, based in particular on proposals by Peter Suber (2007), ranging from direct institutional support to the advertising model. This low-volume literature almost always expounds the same standpoint: providing journals that are currently in subscription mode, with a business model allowing them to switch to open access. Most recently, the best writing on this subject is by Wise and Estelle dealing with transition models which are "compatible with Plan S" towards open access for scientific societies[7]. The authors identify different options: "transformational" models, i.e. redirecting library subscription costs towards open access publishing; establishing a cooperative publishing infrastructure between the publisher and libraries; authorising self-archiving of "author-accepted manuscripts" or postprint; various forms of APC; open publishing platforms (F1000, Emerald Open Publishing), or a preprint deposit with paid peer reviewing services; "other forms of funding" which include freemium, subsidy, crowdfunding, publishing, syndication or the *Subscribe to Open* model which is growing in popularity; and finally, cost reduction (cancelling or combining journals, sharing management software, stopping the production of paper versions, etc..). Although some platforms or publishers present solutions that they found, or their costing model, we still have no research on the actual business models of non-APC journals, despite the fact that there is an increasing amount of literature on APC prices or on the modelling of publishing costs[8].

It took until 2020, before the consortium around OPERAS (funded by Coalition S) published a huge survey that describes and quantifies these journals' ecosystems, establishing the name OA Diamond Journals as standard.[9] The results of this research into the Diamond ecosystem are presented in four parts: the first part provides general information on the number of journals, the disciplines and the geographical areas covered; the second part looks at the issues of quality and technical compliance; the third part covers the way in which the journals function, their governance and the resources available to them; the last part considers the issues of continuity of the journals by looking at funding and operational cost issues. On the basis of these results, a second volume presents a great many

[7] Wise, Alicia, and Lorraine Estelle. "Society publishers accelerating open access and Plan S-final project report." (2019). Wise, Alicia, and Lorraine Estelle. "How society publishers can accelerate their transition to open access and align with Plan S." Learned Publishing 33.1 (2020): 14-27.

[8] Grossmann, Alexander, and Björn Brembs. "Current market rates for scholarly publishing services." *F1000Research* 10 (2021). See also Antoine Blanchard, Diane Thierry, Maurits van der Graaf. Retrospective and prospective study of the evolution of APC costs and electronic subscriptions for French institutions. Comité pour la science ouverte. 2022. doi.org/10.52949/26

[9] Bosman, Jeroen, Jan Erik Frantsvåg, Bianca Kramer, Pierre-Carl Langlais, and Vanessa Proudman. "The OA diamond journals study. Part 1: Findings." (2021). Becerril, Arianna, Lars Bjørnshauge, Jeroen Bosman, Jan Erik Frantsvåg, Bianca Kramer, Pierre-Carl Langlais, Pierre Mounier, Vanessa Proudman, Claire Redhead, and Didier Torny. "The OA Diamond Journals Study. Part 2: Recommendations." (2021).

recommendations for developing and perpetuating these journals within the scientific publishing economy.

The main findings of the report consist of the identification of a vast universe of potentially close to 30,000 journals, only a third of which were referenced in the DOAJ. In contrast to the commonly-held view, even if SSH (Social sciences and Humanities) disciplines are in the overwhelming majority, STM (Science, Technology, Medicine) disciplines are well represented (39% of the journals identified). Unsurprisingly in this world, there is much greater linguistic diversity than in the APC model journals. As regards the subjects at the heart of our own study, the report emphasizes the importance of those contributions to the publishing process that are not directly remunerated, thereby exposing the diverse nature of the financial contributions required in order for them to operate: grants, donations, crowdfunding, shared infrastructures, the institutional support model, and the *freemium* model. This is overwhelmingly a "small-scale economy", with the majority of journals having less than one full-time employee, and 70% of them posting less than €10,000 in costs per year. Although research and teaching organisations have a key role to play in supporting the Diamond ecosystem, this currently turns out be much less so for research funders.

Based on results like these, recommendations for support beyond the funding of production, dissemination, and archiving, include the implementation of direct funding models for journals produced by diverse players in the research community. Funders are specifically targeted as sources of direct support. Although we have just reiterated the role they play at the heart of the APC system, they are today almost completely absent from the Diamond ecosystem. Our current work is in line with this recommendation because we declared in the OA Diamond journals report our desire to carry out this additional survey. It therefore constitutes a second study of the Diamond journals, and focuses on their funding arrangements. Based on a questionnaire survey, we will look at direct funding models and reflect on the practicalities of implementing them.

Although they have not been systematically documented, many different kinds of direct support for Diamond journals have clearly emerged following the BOAI. In addition to infrastructure support, the OA Diamond Journals study showed that the most frequent form of support was either institutional (through the provision of personnel), or participatory (through participation of the publishing entity in the production and dissemination of the journal instead of direct financial compensation). However, the payment or making available of monetary sums by authors has also been described - even if this was done voluntarily. Moreover, some respondents to our survey didn't fail to point out the existence of direct funders. These are generally public entities (research institutions, universities), sometimes referred to by name (such as the Swiss SNF or 3 Canadian agencies). It appears that this financial - and not only human and institutional - support has had a limited impact on the

Diamond ecosystem, notably because these supporting parties are attached to an institution, or a discipline, or at best a national institution, without any overall coordination despite initiatives like the Global Sustainability Coalition for Open Science Services (SCOSS). Following on from the 2020 survey, we are therefore suggesting ways of organising and mainstreaming direct funding models to which all Diamond journals could potentially apply, in the same way that APC-type journals are able to benefit almost unconditionally from research project funding.

One of the major problems confronting recommendations for financial support is the lack of knowledge of the administrative, accounting, and financial situation of the Diamond journals, and of their current business models. As referred to earlier, academic literature on open access funding mainly includes reviews of funding models which provide little specific information on Diamond journals, or on monographs relating to a journal, or a publishing infrastructure. Despite the quality and unique nature of the OA Diamond Journals survey itself, it was not possible to delve into the financial details. The report takes a fairly broad focus, providing little by way of specific information on the concrete funding arrangements of Diamond journals.

The aim of our study is test the feasibility, as well as the desirability, of a direct funding model for Diamond journals. Can Diamond journals be funded, and how? What are the possible direct funding models? What current means of funding for Diamond journals and constraints need to be taken on board? These are the questions we are striving to answer.

In order to do this, the report is primarily based on a questionnaire survey of Diamond journals. This questionnaire was drafted between March and June 2021, and aims to record the current funding models of the relevant journals and to explore new ways of funding them. We have put together a matrix of questions structured around four subjects, enabling us to understand the journals' financial situation and their view of a direct funding system: the journal's financial configuration, the publishing acts, the relationship with funders plus their ability to report certain information, and their opinion regarding a model of direct financial support. Most of the questions are closed and provide a quantifiable view of the financial realities confronting the Diamond journals. Some open questions were handled separately using qualitative software.

After cleaning the dataset and deleting duplicates, we have gathered a total of 260 usable responses. As in the OA Diamond Journals survey, we received responses coming from a wide range of journals because 55 countries were represented, with the UK, Italy, and France dominating. Similarly, one can run through a wide range of disciplines - from the humanities to information technology, encountering chemistry and medicine along the way. Nonetheless, the results obtained allow us to identify certain trends. In the appendix to the report, you can

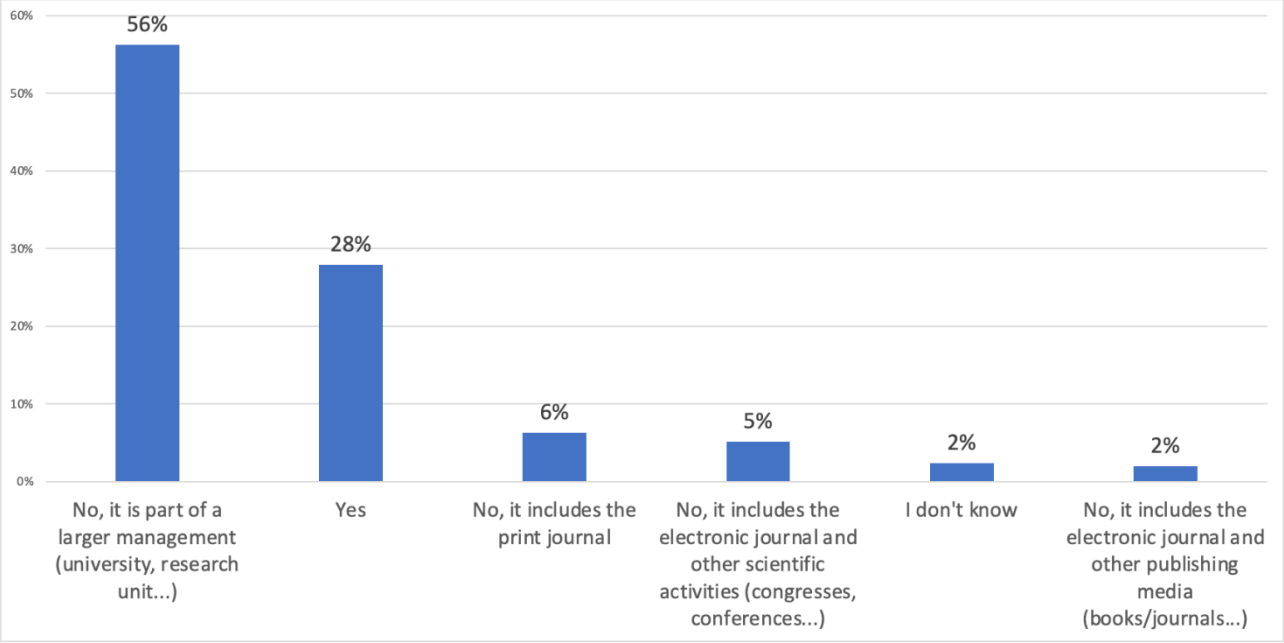
consult the descriptions on how the questionnaire was developed, how the data was gathered and processed, and how representative the responding journals were.

The starting point was the Diamond journals' financial situation.

The initial survey questions covered the range of current situations in which the Diamond journals are operating. The OA Diamond Journals report established that the main physical difference between the OAC Diamond Journals and the APC journals was the virtual absence in the Diamond population of very large journals publishing huge numbers of articles. Unsurprisingly, the journals that responded are "small" ones, publishing a maximum of 288 articles a year (an average of 31 and a median of 22 articles), with a very low estimated annual budget (75% below €10k), and a very limited number of paid employees (85% with less than the equivalent of 2 people in full-time employment). The first two results of our survey should be read with this general economy in mind; that is small journals with limited budgets.

We note that the journals lack financial autonomy when they are included in, or are linked to an entity via an institutional affiliation (figure 1). In this respect, they are no different than the great majority of non-Diamond journals, whether they belong to a scientific society, a university press, or a commercial publisher.

Figure 1. The financial autonomy of Diamond journals

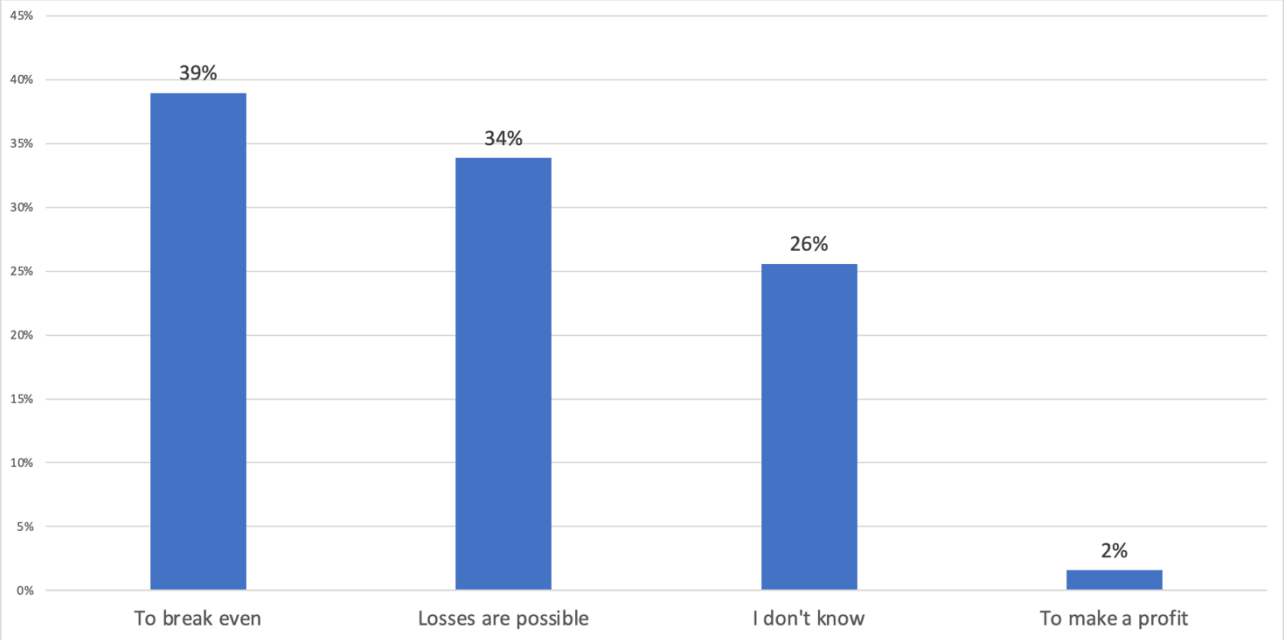


Indeed, of the 254 respondents to Q2.1, a majority (56%) of journals belong to a much bigger financial entity, such as a laboratory or a university. Moreover, 7% of all respondents maintain an economy of online journals alongside other businesses, such as book publishing or organising conferences and seminars. Only 28% of journals were counted by us as being

entirely autonomous in relation to other activities, meaning that the organisation's sole issue is to operate the online journal. To this, we can add the 6% of journals with a mixed electronic open access and paper model that have to be paid or have controlled dissemination.

Having established that two thirds of journals represent a non-autonomous economic setup, we can turn to the question of the financial objectives set for them. Indeed, the idea that a highly profitable journal allows scientific societies to fund their other activities is very present. This is based on what is a financial reality for a certain number of companies, particularly in the STM area, hence their recurring opposition to open archive deposit obligations, which they perceive as a threat to their existence. Nonetheless, the Diamond journals that responded to us show very different economic setups. This is highlighted by figure 2 which gathers 254 responses.

Figure 2. Breakdown of financial targets



This figure shows results similar to those representing the finances of scientific societies' journals up to the middle of the 20th century: either a break-even target (39%) is shown, or the possibility of making a loss (34%) is conceded. Indeed, before this time, the concept of academic yield being profit-making was very rare, particularly for academic institutions[10]. It was only after the Second World War that there was any real financial development of academic journals and academic publishing companies, in particular through

[10] For the Royal Society, see Fyfe, Aileen, Julie McDougall-Waters, and Noah Moxham. "Credit, copyright, and the dissemination of scientific knowledge: The Royal Society in the long nineteenth century." *Victorian Periodicals Review* 51.4 (2018): 597-615.

the internationalisation of a subscription-prone customer base, journals thus becoming profitable merchandise.[11].

Turning journals into a commodity is clearly a foreign concept in the world of Diamond journals of our survey, as only 2% of them have the aim of making a profit. A little over a quarter of respondents (26%) say that they are unaware of this, which reflects the highly heterogeneous nature of organisations within the Diamond ecosystem. This makes them ideal candidates for direct funding support from the point of view of funders who are seeking to ensure that their money is actually used for publishing.

Report outline: from models to implementation issues

On the basis of this assessment of the Diamond journals' financial situation, the report is arranged as follows: The first part has proposals for the funding of journals, based on the responses to the survey. This is also based on what we have read, and on previous work. What we end up with is four models of direct funding which are more or less coupled to the publication yield. In order to outline the practical challenges of funding journals, the second part examines where funding goes within the publishing process. We present a list of the acts that make up scientific publishing, in order to identify the acts which are currently paid for, and those that would be paid for in an ideal world where there were no financial constraints at all. The third part looks at the technical conditions for implementing the models. It examines the key factors involved in implementing a model, such as journals' [technical and organisational] ability to conduct financial transactions, the possibility of providing greater funder visibility, and the legal basis allowing funders to provide direct support for journals. This report concludes with the benefits associated with direct funding models for journals, as well as the challenges and problems that they may elicit. The appendix to the report examines the survey methods, specifically the way in which the questionnaire was drafted and circulated, as well as the ways in which the data was analysed.

The team, funding sources, and survey context

We are researchers from the Centre de Sociologie de l'Innovation (Centre of Innovation Sociology (i3, UMR CNRS 9217)). Our work has been funded by the *Comité pour la Science Ouverte* (French Open Science Committee) within the French Ministry for Higher Education and Research, with the contract being managed by the CNRS. Within the OPERAS consortium, we participated in the first OA Diamond Journals survey in 2020. We would like to thank all of the people who have helped us carry out this survey, as well as those within the Open Science

[11] Fyfe, Aileen. "Self-help for learned journals: Scientific societies and the commerce of publishing in the 1950s." History of Science (2021):

Committee and the Ministry who have provided comments on the presentations and the interim versions of this report.

- Part I -

Funding models for Diamond journals

This first part covers the funding models for Diamond journals. In the first section, we highlight the empirical results of our survey of the models which the journals themselves were able to propose (1.1). These results enable us to identify three general funding models, only one of which is direct funding. In the second section, we focus on direct funding models (1.2) On the basis of the survey results, as well as our prior work, we are proposing four direct funding models which vary in terms of their relationship to the actual publication yield.

Section 1

General models for funding publishing.

In this first section, we organise and analyse proposals regarding the general publishing support models from the Diamond journals themselves. We use the term “support” because all of these models are not necessarily financial in nature. Among the answers to our question 5.2, three kinds of support models can be distinguished which take up the central recommendations of the OA Diamond Journals study in identifying the Diamond ecosystem: publishing infrastructures (1.1), availability of services (1.2), direct funding (1.3).

1.1 Providing support for publishing infrastructures

The first model therefore concerns supporting infrastructures - whether they be software or distribution platforms.

> *ID 12747276117 : « What we need funding for to keep going is the software and platform ».*

> *ID 12784421591 : « For overlay journals like ours, the fundings should go to the hosting platform to enable them to offer editorial services ».*

We would like to point out that tools of this type already exist, such as software that exhibits OJS functionality, or platforms such as the Amelica/Redalyc, OpenEdition, Episciences, or OLH, which integrate software.

> *ID 12747678560 : « Funding should be directed towards infrastructure (central archiving and metadata collection, managed OJS instances, free service providers for copyediting etc.) such as the épisciences platform that provide their services free to scholarly diamond OA journals ».*

> *ID 12773341792 : « We are published and funded by the Open Library of Humanities which operates with a consortial funding model in which institutions, including some funding organisations, pool their resources in order to facilitate open access publishing without the need to charge authors or readers ».*

> *ID 12781741225 : « I guess the best use of their money would be to fund platforms such as SciELO and Redalyc/AmeliCA. This platforms in turn would pay contractors for copy editing or translation, xml production etc. This should come with a commitment from these platforms to be forthcoming with any journal currently indexed in DOAJ (or maybe LILACS and its equivalents in other regions or disciplines) ».*

1.2 Making services available

The second model is about making services available. It may involve making staff available as FTE (full time equivalent) workers by public entities, or a "capacity centre" like the one that was highly recommended at the end of the OA Diamond Journals study.

> *ID 12790655591 : « I think a funding scheme should be channelled via organisations of journals in a discipline, or a capacity centre, who can then distribute the money as needed, and would account for it on a yearly basis. We need to avoid the rise of predatory behaviour among diamond journals. Let's not repeat the mistakes of the past… ».*

> *ID 12784967875 : « Through shared services installed within the University – proofreading, DOI requesting etcetera ».*

1.3 Direct funding of Journals

We have identified a third model whereby funds would be directly allocated to the journals. The variety of one-off sources of funding identified by the 2020 survey was already impressive, but when the journals are asked about new funding options, they reveal that these options can be applied in very diverse ways. This diversity can be broken down between models which are uncoupled from the actual yields published - by far the ones most frequently mentioned - and coupled models.

Models that are not coupled to the publication yield

Models which are uncoupled from publication yields include, first and foremost, self-financing by the journals themselves through advertising, fundraising, or voluntary donations.

> *ID 12749980911 : « Bulk advertisement at the prevailing rates […]. Sponsored special sections on an area that falls within the Aims and Scope of the journal ».*

> *ID 12788598386 : « Publicising of our journal is supported by NGO [Journal's name], which makes some fund-raising ».*

> *ID 12778607986 : « I would like to solicit the main disciplinary associations for donations. Obviously that is not sustainable, but I think it would be a good source of funds ».*

Next, the journals report on receiving fixed sums of money - a yearly, twice yearly, or monthly amount, thereby promoting budgetary predictability.

> *ID 12789712473 : « The most effective would be funding on annual basis, with receiving funding in January (currently the journal receives its budget usually in May or June, however it has to be spent by December) ».*

ID 12801450379 : « Something that provided us with a predictable level of annual funding so that we could (ideally) contract appropriate administrative support, pay for hosting subscriptions, and have a fund to use for the purposes of generating or enhancing content, e.g. annual workshops or symposia ».

Some of the respondents were keen to point out that this model is already in operation via all sorts of stakeholders such as government funds, or their university, scientific society or publisher, not to mention consortium-based arrangements such as the OpenEdition freemium or OLH's fund allocations.

ID 12759546500 : « In our situation we have funding from the ministry responsible for scientific system and this funding together with Faculty co-financing enable the journal issuing ».

ID 12803238097 : « We are funded by the Open Library of Humanities which operates with a consortial funding model in which institutions, including some funding organisations, pool their resources in order to facilitate open access publishing without the need to charge authors or readers ».

Others mention funding entities such as the SSHRC in Canada and the Nordic Research Funding Organisation. Funds earmarked for journals, irrespective of their business model, can also be accessed by our respondents.

ID 12794160585 : « We're under such a regime already in Canada through the SSHRC Aid to Scholarly Journals programme (ASJ). This is important because it both funds the journal but also involves a commitment to OA across the funders programmes ».

ID 12803074154 : « I think that research funding organizations should give direct financial support to journals like mine […] and in fact my journal already receives (every 2 years) somewhat less than half its funding from a Nordic research funding organization ».

The third arrangement consists of a variant on the previous example: receiving a fixed amount based on applications for subsidy (known as "*grants*"), which would guarantee financial stability for the journal for a number of years (from 3 to 5 years).

ID 12802066735 : « I would hope to see a granting agency solicit applications, complete with budgets and past costs, and then award multi-year grants to journals permitting us to plan ».

ID 12777587588 : « I think that there could be open competitive convocatories for pluri-annual financial support of OA diamond journals, as is the case of research projects ».

ID 12747596354 : « Aid to scholarly fund grant competitions, e.g., every 3 years (with 3 years funding) ».

Finally, some propose more vaguely the awarding of grants based on visibility or recognition criteria, somewhat corresponding to a subsidy system.

> *ID 12754720887 : « An annual competition, including criteria related to the journal visibility (position in different rankings with metrics – Clarivate Analytics, Scopus, Index Copernicus), number of indexations etc., plus other criteria used to assess the journal quality in such rankings ».*

Models coupled to publication yield

As well as these models, other respondents suggest models that are coupled to the amounts published, i.e. models where funding partly depends on the number of articles published. Therefore, there exist funding proposals which dispense funding in proportion to the publication yield posted by a *reporting* system.

> *ID 12753610726 : « We would suggest a contribution per article for every article that publishes research funded by the public purse, from an academic source ».*

> *ID 12747041478 : « As a small publisher, our running cost is much smaller than in big corporations. "cheap" OA usually charges around 500€ per piece published. If we got that, we could certainly pay reviewers and outsource some other tasks, improving quality ».*

This arrangement already exists in Switzerland, and is promoted by the SNF despite the difficulty in setting up a suitable *reporting* system.

> *ID 12762191352 : « Especially in Switzerland, we currently see the SNF funding APC to the authors who need to have their paper reviewed by the SNF before submission. For the authors, this is a long and risky 2-acts process which could easily be switched: authors directly submit their papers. Once the papers is accepted the funding institution receives an automatic notification from the journal's software (e.g. OJS plugin). Funding will be paid to the journal twice per year according to the number of papers accepted per funder. The journal on the other hand needs to publicly report on managing and production costs and incomes in order to publicly document their not-for-profit status (as in Diamond OA). In our case this is between 500 and 800 Swiss Francs per paper. The standardization of such a report is difficult. The APC monitoring by JISC in UK was somewhat unsuccessful in these terms and did not succeed in setting up a standard ».*

Finally, we need to mention a unique model based on PCAs, only for authors who are solvent. This is the case for the Indian journal *Conversation & Society* mentioned by one respondent, which invoices the authors for publishing if their university is in one of the "upper middle income countries" as defined by the World Bank. The payment of APCs is waived if the university is already funding the journal or if the author is a student or on a low income.

ID 12749980911 : « It is possible to imagine a model that Conservation and Society has adopted recently. It cross subsidises papers from the global south by the fees applicable on papers from the global north ».

This is a much-mentioned borderline case between authors being obliged to pay (subject to different exceptions or waivers), and voluntary contributions from the authors to the journal's general finances if they are able to do so, coming for instance from the funding of a project. In our view, the above-mentioned redistribution model falls outside the Diamond framework because some authors are required to pay.

Section 2

Four direct funding models

We have referred to proposals for Diamond journals in connection with models that provide publishing support. In line with the OA Diamond Journals study which was published in 2020, we intend to focus in particular on the third proposal, which is direct funding. The aim of this approach is not to underestimate the contributions made by other means of support, but rather to develop the "direct funding" sector. In this section, we draw on the survey responses together with our prior work in order to organise and refine the direct funding models. The refined
funding models should be in a better position to address the issues of predictability and lack of certainty (2.1). *In the end*, we propose four models where the link with the actual publication yield varies (2.2).

2.1 Funding of scientific publishing: from predictability to uncertainty

Our previous survey examined the "transformative" agreements. These agreements were signed from 2015 onwards between national consortiums of university libraries (at least in Europe) and publishers[12]. What distinguishes "transformative" agreements is that they bring together two fairly different approaches to research publishing within the same contract: the classic subscription-based approach providing access to content for a limited audience against a paid fee; and more recently, an open access approach where, by definition, access is free of charge but producing articles is charged to institutions in the form of publishing costs. Two lessons can be drawn from joining these two worlds via transformative agreements.

First of all, a confrontation between two major financial configurations can be identified within the "transformative" agreements. On the one hand, there is the configuration that pursues complete predictability in the amounts exchanged by both parties. This originally comes from the print model, where a specific number of issues or articles is bought, with the material costs and the amount of labour being strongly correlated to this amount. This is characteristic of the way subscriptions work. On the other hand there is the "complete uncertainty" configuration, which is characteristic of open access (in the gold-APC

[12] Dufour, Quentin, David Pontille, et Didier Torny. *Contracter à l'heure de la publication en accès ouvert. Une analyse systématique des accords transformants*. Diss. CNRS, 2021 **10.52949/2**

variant), where a reduction in publishing services dragged the concomitant costs down to those of an individual article, ultimately making financial models entirely dependent on the amounts published. The discussions around PLOS ONE and its incredible success (with a peak of over 30,000 articles per annum that was followed by a reduction in the amount published) have clearly shown the financial consequences of uncertainty in the yield. In a similar vein, suspicions that some publishers would be prepared to sacrifice their editorial integrity in favour of the profit generated by accepting an article - rather than rejecting it and incurring costs but no revenue - have highlighted the risks associated with the financial incentives to publish. We should also remember here that the growth of the "predator publisher" category stems from the existence of the APC economic model. One of our respondents highlighted one risk that is inherent in payment per article: "I do not think individual articles should be supported, as this may lead to Diamond predatory journals". The Diamond journals' responses to this survey by sometimes proposing fixed funding and sometimes models which are coupled to the amounts published reflect this confrontation between predictability and uncertainty. We will propose direct funding models based on all of this.

Second, rarely do the "transformative" agreements present a head-on confrontation between predictability and uncertainty. Novel ways of arranging these financial configurations are usually found. Put otherwise, the agreements we have studied exhibit a continuum from complete predictability to complete uncertainty. Building on this continuum concept, we have put together, not two, but four direct funding models for Diamond journals. These models represent a refinement of the binary confrontation between predictability and uncertainty, specifically because they provide the option of progressing from one to the other. We will see that they are partly inspired by original ways of structuring predictability and uncertainty that we identified in several transformative agreements.

2.2 Four models: link to publication volumes and managing uncertainty

The four models we have constructed propose a continuum ranging from predictability to uncertainty, with the model increasingly coupled to the published yields. We assume an annual payment once the journal is published for two reasons: from an administrative point of view, we wish to limit the number of transactions – costly for the funder and the journal; from a political point of view, we want to clearly distinguish this kind of support for Diamond journals from the APC model, where payment is demanded, in advance, for each article. Obviously it is possible to envisage more regular support, depending on the amounts of money involved or other constraints.

A Yearly flat-rate funding models

A1 The “white list” (based on criteria)

Many publishing stakeholders and research institutions draw up lists of journals. Inclusion in the list is based either on a quality certification policy, a financial incentive to publish, or association with recognised professional or academic entities[13]. As a result of the controversy triggered in particular by the work of Jeffrey Beall[14], the DOAJ has strengthened its inclusion criteria. Since 2016, it has functioned as a “white list” in the open access journals field. This filtering notion amounts to drawing up "lists of journals" (based on interest criteria) which would receive support simply because of their presence in such a list. As an example, the following could be cross-referenced: “presence in the DOAJ” + “kind of licence” + “country where carried out”. This first model ensures complete predictability for the journal (given that it meets the criteria for inclusion in the list), with a fixed annual sum of money allocated to it. The same level of financial predictability occurs here as in the classic subscription approach.

A2 The threshold

The history of library science, including the computerised era, is constantly pervaded by the issue of selecting relevant support based on “thresholds” (of metered usage, citation, or user demand). Compared to the previous model, it is the funders who define a minimum usage criterion. By way of example: for a research funder, these would be journals which have published at least one article coming from a research project which has benefitted from his/her funding in the last two years. There is an element of unpredictability in this model, as the journal is required to publish a minimum number of articles coming from a research project in order to benefit from funding.

B Funding models dependent on the yearly number of articles

B1 The tranches

In our research on transformative agreements, we analysed the model developed as a means of support for libraries by ACM (a publisher in the IT field), when shifting from subscription to open access. It divided publication volumes into 10 different tranches with the highest allowing an unlimited number of articles to be published, the lowest to 1 to 3 articles per year; each tranche has a fixed price. Using this model for Diamond journals, the highest tranche would be the maximum amount of support from a funder, which is granted if the publishing yield exceeds a certain level and if predefined interest criteria have been met. There is a higher

[13] Pontille, David, et Didier Torny. "Excellence internationale, pertinence linguistique: les classements de revues en SHS." *L’Université en contexte plurilingue dans la dynamique numérique* (2016): 221-227.

[14] Mounier, Pierre. "‘Publication favela’or bibliodiversity? Open access publishing viewed from a European perspective." Learned Publishing 31 (2018): 299-305.

level of uncertainty here than with the previous models but it remains framed by the tranche system and the existence of a maximum tranche representing the maximum amount of support for a given journal from a funder.

B2 The yield

This involves the journal totalling the number of articles of interest for a funder and receiving in return an amount of money that depends linearly on this number of articles. This makes it a direct equivalent of the APC for a Diamond journal. As an example, Amsterdam University allocates a given sum to all DOAJ journals publishing articles signed by its lecturers. There is a maximum level of uncertainty here because it depends on the actual publication yield. This configuration is close to the “Pay as you publish” model that we have established for transformative agreements. In the context of the funding of Diamond journals, we find ourselves in a symmetrical situation of “fund as you publish”.

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Obviously, it is possible to have other models than those mentioned here, particularly all of those which derive from a “funding” model reserved for Diamond journals where the annual sum is set in advance. In the same way as all funds already devoted to APCs, they apply rules of the “first come, first served” type or, conversely, calculating an allocation based on realised publications. In this sense, although they guarantee maximum predictability for funders who grant a total lump sum, they set journals against each other or, at least, make the amounts they actually receive uncertain.

- Part II -

What are these models funding?

In the previous section, we presented the general publication support models. By cross-referencing responses to our questionnaire as well as elements from the literature, we have ended up with four funding models with varying levels of coupling to the publication yield. Regardless of the model selected, similar questions are posed by each of them, and these are covered next in the report: the precise destination of the financing (part 2) and the implementation conditions (part 3). In the second part, we will take a close look at the destination of funding: when we claim to fund Diamond journals, what exactly are we finding?

The answer to this question requires prior deliberation on the content of the publishing process. In the following section, we will begin by identifying a series of acts which are part of the publishing process, along with a number of entities which carry them out (3.1) Based on this representation of the publishing process, we can then proceed to examine the current monetisation of the publishing acts within the Diamond journals (3.2). In the third and final section, we will be exploring journals' funding needs in an "ideal world", i.e. in a hypothetical world without any financial constraints (3.3)

Section 3

Exploring publishing processes

Although some forms of financial support for Diamond journals already exist on the basis of general criteria (e.g. how well it fits the editorial line, expressing interest in a special issue, involving researchers from the institution), opening up to other forms of funding requires identifying the different operations in the publishing process with a view to transparency, as especially promoted these days by funders (https://www.coalition-s.org/price-and-service-transparency-frameworks/). This demands precise identification of the transformation acts - from a submitted manuscript to a published text (e.g. scientific article, editorial, minutes etc.) - which are likely to be "billed" by the journals. Although the focus here is on Diamond journals, the issue under discussion in this section is a more general reflection which applies to all scientific journals: the series of acts required to produce and circulate articles.

In a first part, we suggest a way of specifying the journal publication process by identifying a set of discrete acts and the entities which are likely to perform them (3.1). To do this, we have drawn up two lists (one with the acts and one with the entities) for which we indicate the methodological safeguards to be adopted and the limitations that arise. In the second part, we present the results of our survey using a breakdown that shows how different entities share the work - how different entities share execution of the Diamond journals publishing acts. (3.2).

3.1 Two lists for exploring the publication of scientific articles

A list of acts

The first list covers the publishing acts which are usually performed to ensure the publication of scientific articles in a journal. We have compiled it based on literature describing how scientific journals function. Although this literature is scarce, it does offer several taxonomies for the tasks performed within a scientific journal. The most extensive task consists of 102 operations[15]. Our work is based on these propositions, as well as our experience of the way in which several journals function internally (with two team members being part of the editorial board). The list of operations that we have put together has a very specific objective: to

[15] Anderson, 2018, "Focusing on Value – 102 Things Journal Publishers Do (2018 Update)", *Scholarly Kitchen,* Feb 6, 2018, accessed 16/03/2021.

identify the very clearly circumscribed acts to which research funders can consider allocating funds.

In this respect, the list has several specific features. Firstly, it is designed for open access journals (Diamond or otherwise) given that research funders who will be contacted are those funders who are already providing funding or who would now like to be funding this publishing method. Therefore, it does not include aspects relating to paper publishing nor the specifics relating to subscriptions. Secondly, it focuses solely on operations which are directly involved in the progressive transformation from submitted manuscript to published article, voluntarily eliminating aspects that are definitely important for a journal to function but which go beyond the process of strictly producing scientific articles. These aspects include defining an editorial line, the make-up of the editorial board, developing assessment procedures depending on the kinds of texts, managing editorial flows, research and management of funding, long-term archiving, etc. It must be borne in mind that some of these aspects have already been considered within the OA Diamond Journals study. Thirdly, the list is designed to be a process of discrete tasks which flow in a linear fashion. The reality of the publishing process is definitely more convoluted and complex, so the challenge is to present things with enough clarity to make it easier for funders to become involved.

We have ended up with a list of 26 acts, ranging from receiving the submitted manuscript through its assessment up to its dissemination as a published text (e.g. scientific article, editorial, minutes, etc.), describing along the way how it is evaluated and how its physical format is produced. We have selected the acts which are widely shared by scientific journals, regardless of whether it is a Diamond journal or not. Furthermore, we will see that some acts are more common than others. As is the case with all selection processes, we could come up with a different categorisation. In order to identify any potential gaps, each of the questions give respondents the opportunity to respond freely, thus providing details that did not fit the formal structure of our list. Some acts, such as website maintenance or archiving, were left out. The aim of our work, however is not to exhaustively cover every situation nor the specific situation of each and every journal, but instead to define clearly identifiable publication acts. This should make it easier for funders to support the publishing of Diamond journals. In so doing, our approach disregards some specifics in favour of more general trends.

The three questions Q 3.1. Q 3.2 and Q 3.3 have multiples answers, ie one per task, hence a variable number of answers, some journals having answered for each task, others for certain ones only. Consequently, the different answers to the questionnaire mean that the final results are presented as percentages rather than in absolute numbers of journals: we have counted between 216 and 232 responses for Q3.1, between 203 and 231 for Q3.2 and between 202 and 231 for Q3.3. The number of responses remains high, yet this part of the

survey enables us to identify trends with respect to the execution and funding of publication acts performed by journals.

The initial list of 26 acts has led to the development of three levels ranging from the most disaggregated to the most aggregated (Table 2). At the first level, each item corresponds to a single acts. This first level is designed to be a linear tracking the process of publishing texts in a scientific journal, stage by stage. This is the version of the list to which the surveys have had access.

At the second level, we have grouped the acts into seven distinct groupings: manuscript handling, manuscript assessment, author information gathering, document production, rights management, metadata assignment, and dissemination. This second level was not made visible to respondents, as it was above all a tool for processing responses. Although it is less exact than the first level, it makes the list easier to work with when identifying thematic trends.

Finally a third level of aggregation around three major categories gradually became apparent, i.e. certification, physical production of the document, and distribution. The distinguishing feature of this third level is thatit is inferred inductively from the survey's empirical results. Indeed, we will see in the rest of this report that the distribution of responses to the questions on publication acts is systematically organised around these three major categories.

Table 2 Three levels of aggregation of production acts

Act	Act no.	Group of acts	Major categories
Reception of a manuscript ("*reception*")	1	I. Acceptance of the document	Certification
Formatting the manuscript before entering the editorial process ("*preformatting*")	2		
Communication with authors ("*author communication*")	3		
Finding reviewers and monitoring their work, scheduling, etc. ("f*inding reviewers*")	4		
Reviewing (definition of criteria, written evaluation format, traceability of exchanges)("*reviewing*")	5	II. Assessment	
Decision of the editorial board (procedures and archiving)("*board decision*")	6		
Response to the author (acceptance, rejection, revision) and management of the re-submission process ("*response to author*")	7		
Plagiarism check ("*plagiarism check*")	8		

Identification of the author(s) (“*author identification*”)	9	III. Gathering of information about the author	
Conflict of interest check (declaration form and archiving)(“*conflict of interests check*”)	10		
Copy editing (grammar, spelling, style, etc.)(“*copy editing*”)	11	IV. Content production	physical production of the document
Language editing (“*language editing*”)	12		
Checking compliance with the template (“*template compliance*”)	13		
Graphic work (figures, graphs, tables, photos, transcription conventions, etc.)(“*graphics*”)	14		
Proofreading and checking the integration of changes (“*proofreading*”)	15		
Translation (summary, keywords, full article, etc.) (“*translation*”)	16		
Production of specific format (PDF, HTML, XML) (“*coding/conversion*”)	17		
Semantization of references (“*reference semantization*”)	18		
Image rights (“*image rights*”)	19	V. Rights management	Dissemination
Managing licences (“*licence management*”)	20		
Rights management and author’s contract (“*rights/contracts*”)	21		
Addition of metadata (“*assigning metadata*”)	22	VI. Metadata	
Assigning a DOI (“*assigning a DOI*”)	23		
Integration of the manuscript into an issue (“*integration*”)	24		
Putting the document online and making it accessible (“*posting online*”)	25	VII. Propagation	
Publication of data associated with the article (“*article data publication*”)	26		

A list of entities carrying out the acts

In parallel with the list of 26 acts, we have drawn up a list of the entities likely to undertake them. Hence our question: “For any given act, who does it?” The entities selected are as follows:

- Editor-in-chief, assistant
- Member of the editorial board

- Copy editor
- Reviewer
- Software
- Contractor (specify)
- Other (specify)
- I don't know

Similarly to the first list, drawing up these categories *a priori* to embrace the multiple realities of the way in which Diamond journals operate presents major coding challenges. For example, we expect in response the entity that most often performs the indicated task, thus excluding multiple responses or weighting. The free response linked to this question enabled us to expand the number of entities and to put our results into context. It is worth mentioning three things here. Firstly, in relation to the number of entities that are covered by "Diamond Journal". There are respondents from modestly-sized journals where the team sometimes consists of just one person:

> *ID 12747246985 : « One person does all these tasks ».*

À l'inverse, d'autres revues sont organisées selon une division du travail éditorial entre plusieurs équipes :

> *ID 12747276117 : « We have a lot of specialised staff members, layout assistants and editors (typesetting and formatting), section editors who are responsible for review in their areas, an Illustrations Editor who deals with images and rights and a proofreading team »*

This range of different organisational arrangements corresponds to multiple job titles attributed to positions within the journal. The role of editor-in-chief remains constant, but it is accompanied by other different roles such as editorial assistant, editorial teams, managing editors, section editors, scientific editors, and technical editor. This variation in naming was also found in the OA Diamond Journals study. In this survey, carried out in six languages, there were no less than 70 different respondent job titles for the journals which took part in our survey[16].

[16] Assistant Editor, Assistente editorial ,Associate Editor, Associate Editor in Chief, Chair of the Editorial Board and Technical Editor, Chairman, Chargé de le valorisation de la revue, Chief Editor, Co-Associate Editor, Co-directora, co-directrice de la revue, Co-editor, Co-Editor-in-Chief, Co-responsable d'une rubrique et chargée de la mise en ligne, Codirettore, Commissioning Editor, consultante, Coordenação Editorial, Coordinador Editorial, Coordonnatrice de rédaction et de production - Managing Editor, Curatore, Deputy Editor, Desing an editor junior, Directeur de la publication, Director, , Director of Open Science Strategy & Licensing, Directrice de publication, Directrice éditoriale, direttore, Direttore scientifico, Editeur principal, editeur scientifique, Editor and Journal Manager, Editor Asociado, Editor en Jefe, Editor in Chief, Editor Jefe, Editor-Chefe, Editora, Editora

Furthermore, the acts (performing the assessment as part of the *reviewing* act, interaction with authors as part of the *author communication* and *response to author* acts, checking for plagiarism as part of the *plagiarism check* act, etc.) and the statuses can vary significantly within the organisation, as in this journal where the editor-in-chief is not paid, unlike the production manager:

> *ID 12803074154 « Manuscripts go through two phases of copy-editing: one by one of the Editors-in-Chief (not paid) and one by the Production Manager (paid) ».*

Several journals also mention that masters and doctoral students generally assume the role of editorial assistants and sub-editors in their publishing operation We realise that in order to faithfully reflect the diversity of organisational arrangements, we should have conducted another survey with more specifically targeted questions. We have chosen to use generic categories (editor-in-chief, editorial board, etc.), in order to enable us to explore the entities involved, while still being able to easily link them to questions on financing.

Secondly, in their free responses to Q3.4.1, several journals pointed out some shortcomings. The most frequently mentioned is the author (37 occurrences), who is involved in a wide range of acts (*translation*, *image rights*, *preformatting*, *copy editing*, *graphics*, *proofreading*, etc.). Furthermore, many of the envisaged acts (*image rights*, *assigning a DOI*, *preformatting*, *conflict of interest check*, and *plagiarism check*) are sometimes not undertaken within the journals (29 occurrences). Almost systematically, these framing problems were resolved by respondents ticking the *other* or *I don't know* answers. As will be seen, the percentages for these categories are relatively small in relation to all responses, and are thus unlikely to alter the trends we observed. As well as the role of the authors and the "non-achievement", we should point out the occasional mentioning of the "university" and "publisher" entities. Although these remarks may be important regarding the limitations of our study, they should not detract from the main aim of these two lists: to explore the acts in the production of an article for which funding is possible. Our approach does not intend to reflect all of the aspects that make up the reality of a daily journal.

Adjunta, Editora ejecutiva, Editora general, Editora responsable, Editorial Assistant, Editorial Manager, Editorial office assistant, Éditrice, Editrice en chef, Executive Director, Executive editor, Executive secretary, Founder, Founder and chief editor, Founding Editor, Geschäftsführender Herausgeber, Gestor da Revista, Gestora Editorial, Herausgeberin, Information manager, Journal Manager, Leitender Herausgeber, manager/webmaster/maquettiste, Managing editor, Managing/Executive Editor, Managing/senior editor, manuscript editor and editorial assistant, Marketing Officer, Membre de la direction, Membre du comité de suivi de la revue, membre du comité technique, Owner-Editor, Publisher and scientific direction, Production Editor, Redakteurin, Redattore, Responsable administrative de la maison d'édition, Responsible of Communication, Web, and Social Networks, science editor, Secrétaire de rédaction, Secretaria, Secretario, Secretary, Section editor, Senior Editor, Senior Publisher, Sraff, Submissions Editor, Technical editor.[17]Copernicus, *APC Information*, https://publications.copernicus.org/apc_information.html, page consultée le 16/03/2021

Thirdly, the free responses to the question on the completion of tasks have enabled us to clarify certain aspects. Thus, among services providers there are also companies which are able to take over several acts, and freelancers who often specialise in one act, (for example *copy editing*, website management, etc.). Similarly, and unsurprisingly, we encountered the [familiar] names of the main infrastructures used by Diamond journals – Amelica, Erudit, JTCAM, Lodel, OJS, OLH, OpenEdition, Ubiquity – as well as certain providers of specific services such as CrossRef for article metadata, or Lockss/clocks for archiving and conservation.

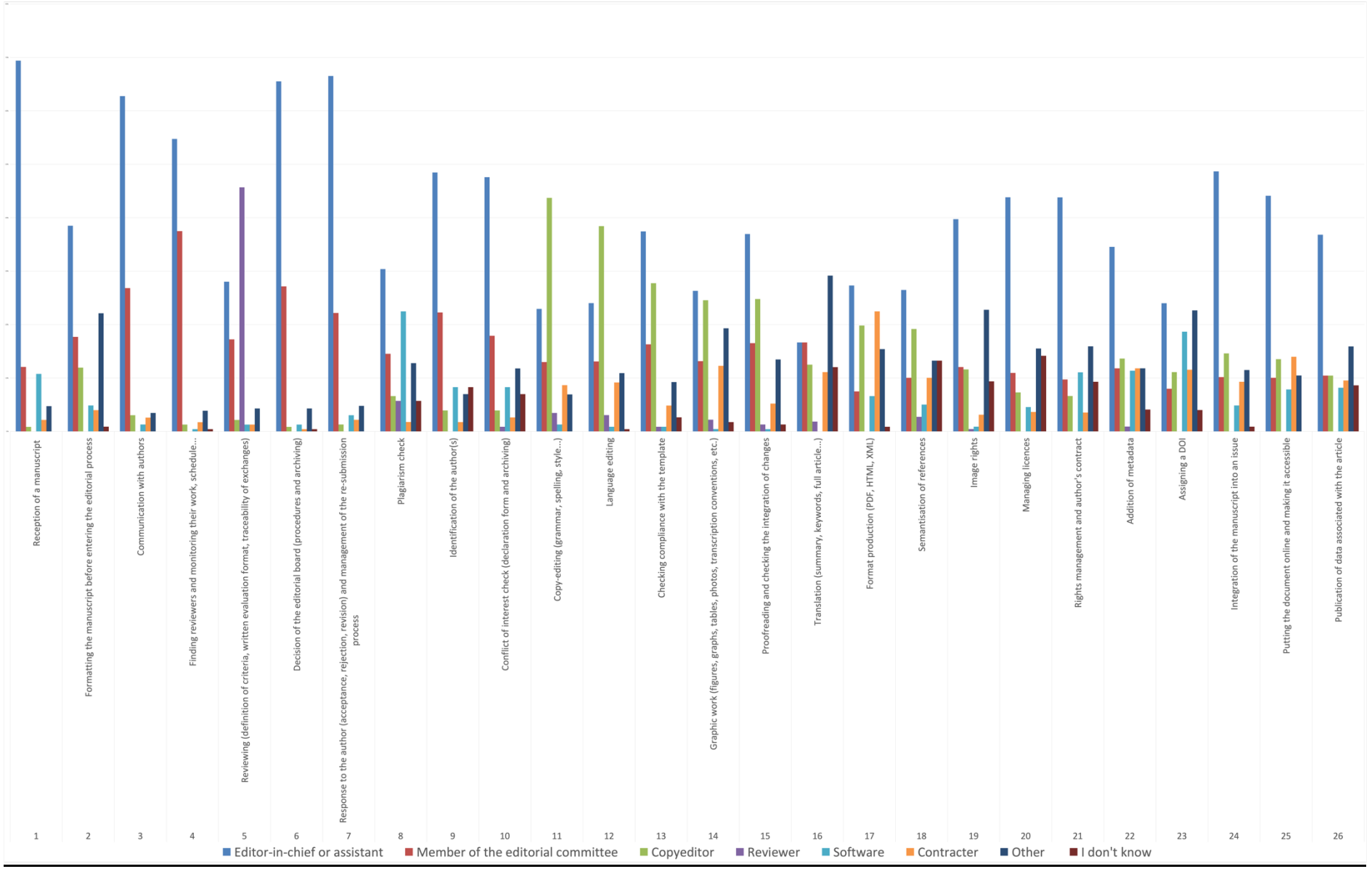
3.2 Which entities for which acts?

The way in which the acts are distributed in Diamond journals, arising from responses to question 3.1, shows trends which can be grouped into three major categories. As shown in Figure 7, a first category (acts 1 to 10) is marked by a strong preponderance of editors-in-chief and the editorial board. There are also two acts where there is a significant presence of external assessors (5. *Reviewing*) and software (8. *Plagiarism check*). This first category corresponds to certification work which includes processing the manuscript, assessing it, as well as gathering author information.

Figure 3 also highlights a second category grouping acts 11 to 18. Editors are still present, but new entities are appearing, such as sub-editors and service providers. This category therefore covers all the acts dedicated to the physical production of the document.

Finally, the third and final category (acts 19 to 26) also shows a preponderance of editors-in-chief. However, there are several entities working elbow to elbow, such as service providers, members of the editorial board, as well as the categories “other” and “I don’t know”, members of which have taken on the unfinished tasks. This category bundles the dissemination acts, i.e. the acts performed once the scientific article has been produced such as rights management (*rights/contracts*, *licence management*, etc.), the addition of metadata and the distribution itself. In the following, we propose to organise the way in which results are presented based on this emerging categorisation. This will then enable us to explore more specifically the trends within each of these three categories.

Figure 3. Distribution of the 26 acts by entity



Category 1: certification

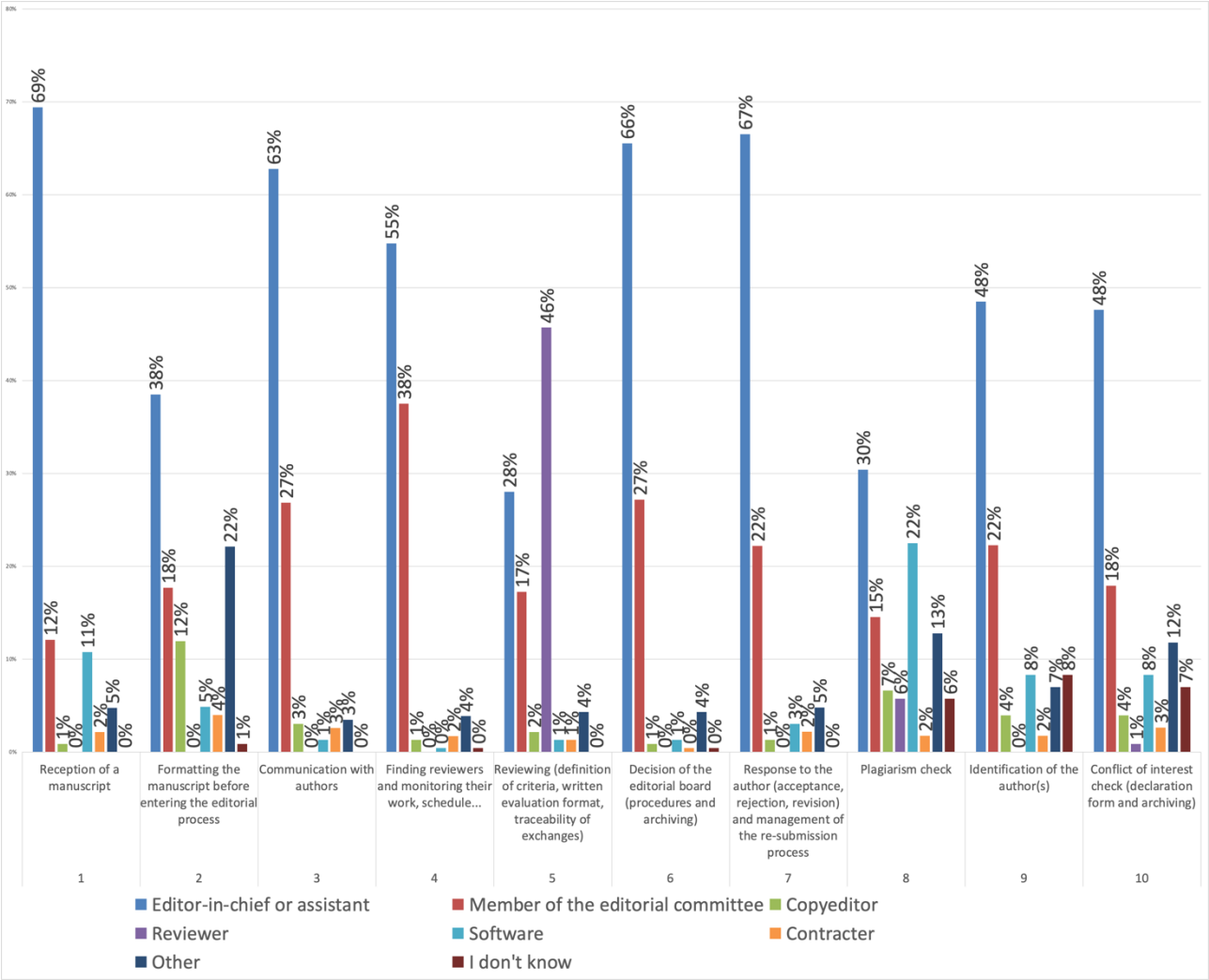
By focussing on the first category, it is possible to get a clearer picture of the way in which the acts related to publication are distributed (for acts 1 to 10, see figure 3a). This can be broken down into the processing of the manuscript, assessing it and collecting information about authors. Broadly speaking, the majority of actors who mainly carry out these acts are internal to the journal: the editor-in-chief or his/her assistants top the list of almost all responses (between 38% and 69%), followed by members of the editorial board, especially for *author communication* (27%) and *finding reviewers* (38%). Furthermore, the percentage of contracting is very low (from 0% to 4%).

In addition to the prominence of the editor-in-chief for the handling of the manuscript, we note the importance of the *other* category for the second act (2. *Preformatting*). From reading the comments in the free fields, we see that it is mainly the authors who do the preformatting themselves for many journals.

The role of external reviewers predominates for reviewing manuscripts (46%), even if the editor-in-chief and editorial board members occupy a significant place (28% and 17%). In the *response to author* act, the decision to accept or reject texts and replying to authors are generally done internally, first by the editor-in-chief (66%), then by editorial board members (27%). Finally, the *plagiarism check* is shared between the different entities: while the editor-in-chief predominates in this act (30%), it is delegated to a software package in 22% of cases, and in 13% of cases it is performed by entities that are specified in the responses given in the *other* category which, based on the free responses, again often correspond to the authors themselves.

Primary information processing on manuscripts (8. *Plagiarism check*, 9. *Author identification* is always one of the acts which is mainly carried out by the editors-in-chief and members of the editorial board (respectively 50% and 20%). Here too, the “author” role can be seen in the *other* responses, because it varies between 7% and 12% In a similar way to other certification-related acts, the percentage of journals that perform the contracting act remains low.

Figure 3a. Distribution of certification acts certification

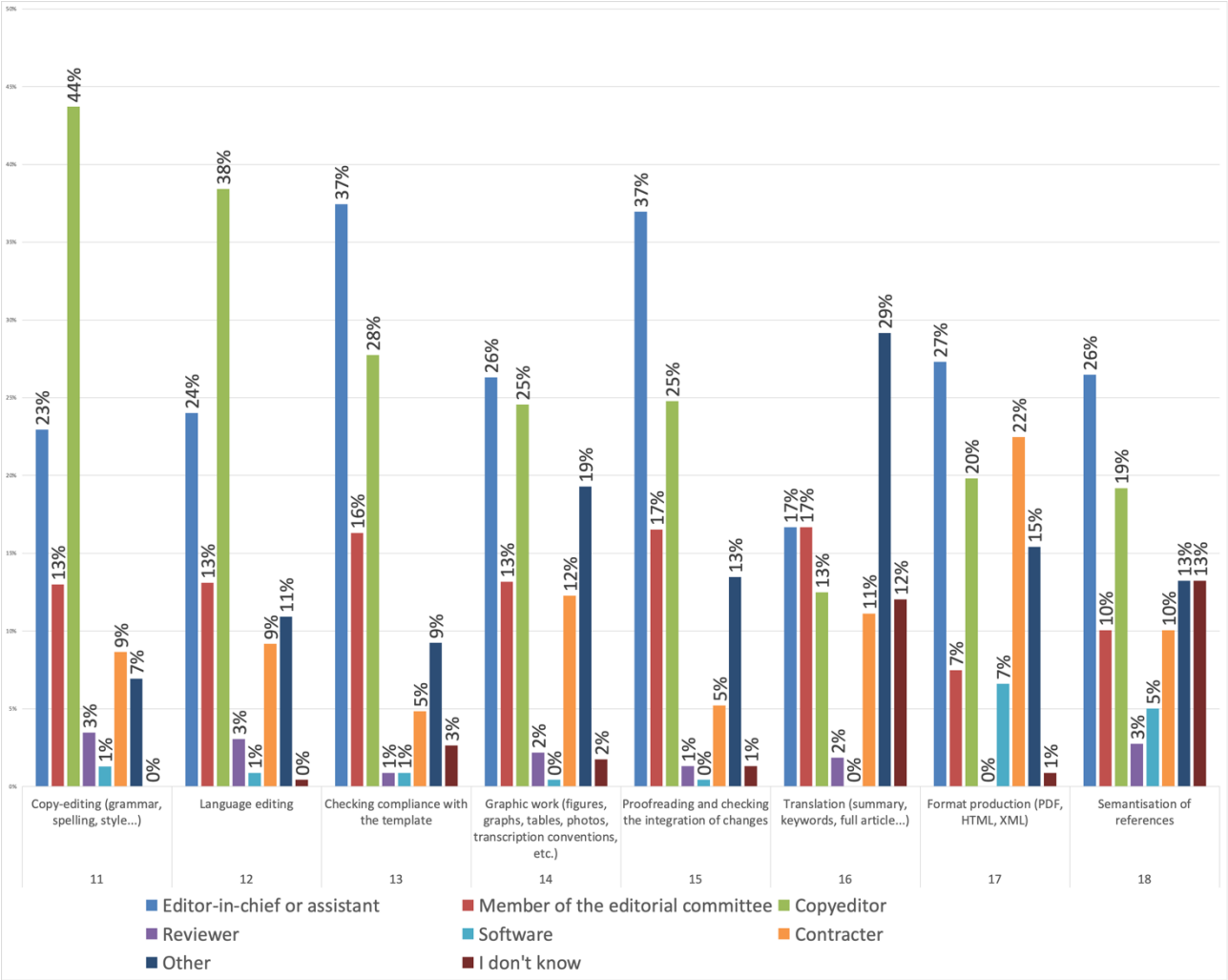


Category 2: physical production of the document

The physical production of texts encompasses a large group of acts (11 to 18) which are shown in Figure 3b. *Copy editing* (11), *language editing* (12), *template compliance* (13), *graphics* (14), *proofreading* (15), *translation* (16), *coding/conversion* (17), and finally *reference semantization* (18).

The first five acts are dominated by a main activity of the journals' internal staff: *copy editing* and *language editing* are mostly done by sub-editors (44% and 38%), followed by the editor-in-chief (23% and 24%) and member of the editorial board (13% et 13%). *Template compliance*, *graphics*, and *proofreading* are primarily undertaken by editors-in-chief (37%, 26% and 37%), or by sub-editors (28%, 25%, 25%). We note that *graphics* is taken on by the *other* category at 19%, where once again the free responses reveal the author role. Translation plays a special role: journals' internal members (editor-in-chief, sub-editors and board members) account for slightly less than 50% of the responses, while the *other* category peaks at 29%. The free responses indicate that this percentage is shared between the authors who directly undertake the translation work, and situations where translation is not done by the journal.

Figure 3b. Distribution of the physical production acts



A greater spread of responses is seen in the formatting of the text (to html, pdf, xml via *coding/conversion*) and in *reference semantization*. *Coding/conversion* is undertaken by the editors-in-chief (27%), by an external service provider, (22%) or by the sub-editors (20%). As for *reference semantization*, this is done by editors-in-chief (26%) and sub-editors (19%), although service providers and authors (as indicated in the *other* response) play a significant role here (10% and 13%). We also point out that 13% of respondents are unaware of who undertakes this act.

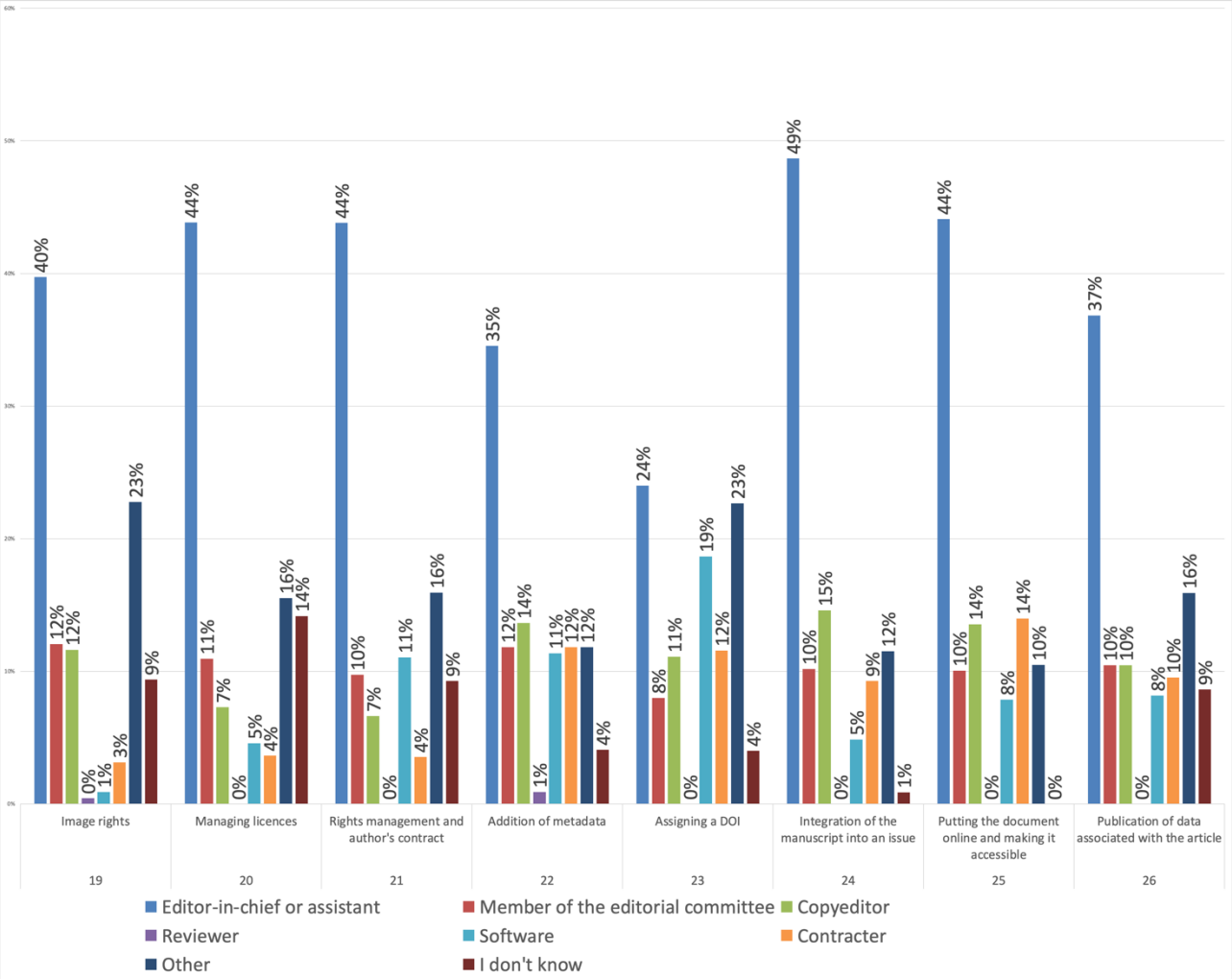
Generally speaking, acts involving the physical production of the texts are more likely to require external service providers than those in the first major category relating to certification. Acts that are outsourced to service providers often represent between 5% and 13% of responses, and can even rise to almost a quarter for *coding/conversion* (22%), as already highlighted by us.

Category 3: Dissemination

The last major category, which bundles acts 19 to 26, is dissemination (figure 3c): the acts associated with rights management, assigning metadata, and distribution. For the most part, rights management, which includes *image rights*, *licence management*, and *rights/contracts*, is

undertaken by the editors-in-chief (between 40% and 44%). This group of acts is also managed internally by the editorial board (at a level somewhat above 10%) and sub-editors (between 7% and 12%). There is significant sharing of these three acts with the *other* response category (between 16 and 23%). Free responses indicate that these acts are sometimes undertaken by authors, or are not done at all. Another significant trend is that the share of respondents who don't know the answer varies between 9% and 14%. We also show that the share of services subcontracted to external service providers is low: the highest percentage reaches 4%.

Figure 3c. Distribution of dissemination acts



The text publishing process also involves assigning metadata: textual metadata (title, abstract), assignment of a DOI, and incorporation into a broader document. Here again, the editor-in-chief's role is the most important (respectively 35%, 24% and 49%), with other members of the journal (editorial board and sub-editor) together accounting for between 19% and 26% of journals for each of these acts. Software has a clear role in integrating metadata and DOI (11% and 19%), but the role played by external service providers is also more prominent, as they undertake 12% of this part of the distribution work. Finally, the prevalence of the *other* category (23%) for assigning a DOI

(according to the free responses) reflects the statement made by some journals that they do not assign DOIs.

Text distribution involves putting it online and publishing its metadata. Once again, this work is dominated by the editor-in-chief (44% and 37%), and supported by the combined input of the editorial board and the sub-editor (28% and 20%). Service providers are involved in these operations to the respective levels of 14% and 10%, as well as the software developer (8% for both acts). Finally, in 9% of cases, respondents are unaware of who undertakes to publish metadata. The free responses particularly show that this work is sometimes not carried out.

To conclude this inventory, we should point out that we are unaware of actually who has answered this set of very precise questions. We have used the contact provided when the OA Diamond Journals study was carried out in 2020, but we are unable to be sure whether it is the same person, someone else, even a collective who actually responded. Nonetheless, based on the status given by the respondents of this previous study, over 80% of them were editors-in-chief or members of the editorial board, whereas only 15% of them came from the "technical" side of the teams, particularly the sub-editor, with the remainder coming from the distribution platforms or editors. Therefore, it is possible that these responses reflect the vision of these same stakeholders and that they have elevated their role to the detriment of others. Despite this uncertainty about the exact nature of the respondents within the journals, our survey reveals a rich, diverse field of stakeholders who participate in the publishing process.

Section 4

Monetisation of the publishing acts

We have described scientific publishing as a production process that sets in motion differently organised entities in order to perform a series of specific acts. This first exploration now allows us to examine more closely how the monetary transactions are distributed within Diamond journals, in order to assess their current funding arrangements.

The first section looks at the distribution of the sums of money by publishing acts. It reports the answers given to the question: “For each act, is there a monetary transaction or not?” (4.1). The second section looks at the different entities which are remunerated when a given act is the subject of a monetary transaction (4.2).

We have chosen to use the term “monetary transaction” rather than “payment” in order to clarify what appeared to be ambiguous, after the results of the 2020 OA Diamond Journals survey were posted. Some of the respondents made cost calculations, calculated monetary equivalents in terms of support or consolidated budgets, for example, but this did not necessarily represent the a dissemination of money required for the functioning of the journal in its current organisation. The concept of a monetary transaction dispenses with these issues, since it refers to the effective dissemination of sums of money, regardless of where they come from.

4.1 Publishing acts and financial transactions

The prevalence of work without any financial transaction.

The analysis of the monetary transactions is primarily based on the responses to our question Q3.2. The number of responses regarding the completion of each act varies in the same manner as it does for Q3.1 (between 203 and 231), but remains high. For a given act, the responses are broadly split in binary fashion between “yes” for a act subject to payment and “no” for a act executed without explicit direct financial support. The third possible answer (“don’t know”) is found fairly rarely, up to 5% for the first 15 acts and between 2% and 7% for the following acts. As Figure 4 shows, an initial general result seems to emerge: in our sample of Diamond journals, the majority of publishing acts are carried out without any monetary transaction. Here we are in a situation which is typical of the general economic setup of scientific publishing where the work performed by the academics within the journals is an integral part of research work and is not directly monetised. Conversely, publishing work is indirectly remunerated via the salaries paid by institutions to researchers.

This is supported by the free responses given in relation to this question (Q.3.4.2) which particularly stress the importance of unpaid work. Thus, several respondents stress the fact that the work is done completely on a voluntary basis, and that there is no kind of monetisation at play in the production process.

> *ID 12744888020 : « All the activities are performed by volunteers All the activities are performed by volunteers », ou encore ID 12754720887 : « Editorial board members are acting as volunteers. All software used is free (or licenses are acquired for the entire research institute editing the journal) »*

Certain people questioned say that by definition, Diamond journals do not make any monetary transactions:

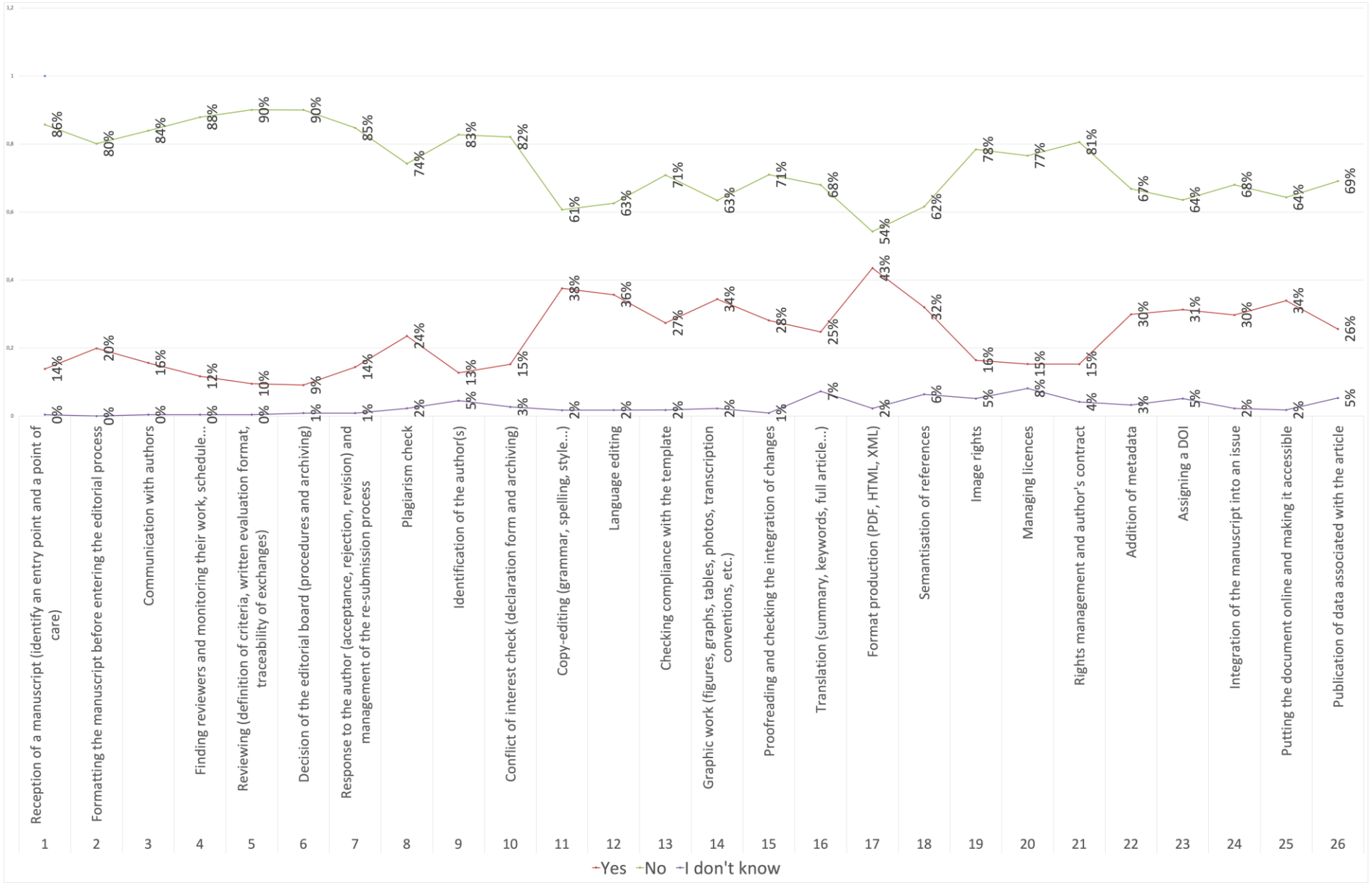
> *ID 12767648092 : « We do not charge any fee from authors or readers. It is an open-access journal without any fee ».*

Further to this position, the voluntary, non-monetised aspect of work in journals is presented in a particularly radical way by one respondent who says to be "philosophically opposed" to any kind of payment for scientific publishing.

> *ID 12781517408: "I am philosophically opposed to paying to publish and so would not be interested in externalising (for payment) any act of the process".*

Nonetheless, caution must be exercised here since even the use of the words "volunteering" or "volunteers" is not widely shared. In the OA Diamond Journals survey, only 60% of journals declare that they make use of volunteers, but it is likely that almost all of the people holding a position do not receive any money from the journal or its owner. Certain posts, particularly those held by academics with a permanent status, are part of the profession's "moral economy", hence the lack of a reference to "volunteering". By having our study focus on the opposite concept of monetisation, we are hoping to obtain responses from a similar perspective.

Figure 4. Existence of financial transactions by publishing act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Reception of a manuscript (identify an entry point and a point of care)
Formatting the manuscript before entering the editorial process
Communication with authors
Finding reviewers and monitoring their work, schedule...
Reviewing (definition of criteria, written evaluation format, traceability of exchanges)
Decision of the editorial board (procedures and archiving)
Response to the author (acceptance, rejection, revision) and management of the re-submission process
Plagiarism check
Identification of the author(s)
Conflict of interest check (declaration form and archiving)
Copy-editing (grammar, spelling, style...)
Language editing
Checking compliance with the template
Graphic work (figures, graphs, tables, photos, transcription conventions, etc.)
Proofreading and checking the integration of changes
Translation (summary, keywords, full article...)
Format production (PDF, HTML, XML)
Semantisation of references
Image rights
Managing licences
Rights management and author's contract
Addition of metadata
Assigning a DOI
Integration of the manuscript into an issue
Putting the document online and making it accessible
Publication of data associated with the article
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Yes
No
I don't know

Some acts are nevertheless subject to financial transactions.

Having said that, the publishing process does not just involve work where there is no monetary transaction. The production of published texts for each journal involves human and technical resources which are based *at a minimum* on some monetary exchanges. Moreover, the free responses (Q3.4.2) provide some details on the origins of funds in dissemination. The monetary resources often come from public institutions like universities, university libraries, laboratories, and other research institutions. Some responses make it possible to explicitly identify the organisation, such as the INSHS of the CNRS in France or the SSHRC in Canada. Furthermore, one of the respondents mentions OpenEdition as an indirect form of public funding, again not monetised:

ID 12790323835 : « Being accepted on the OpenEdition Journals platform is a kind of public funding ».

Scientific societies as well as publishers - some of which are university presses - are also mentioned. Two open responses stand out. One of the journals states that it makes authors pay for any translations required, even though the charge is optional:

ID 12799240359 : « Only translations are charged to authors, when needed (about 25 to 30% of accepted manuscripts), and the authors are not required to contract this service, they can arrange for translations on their own accord ».

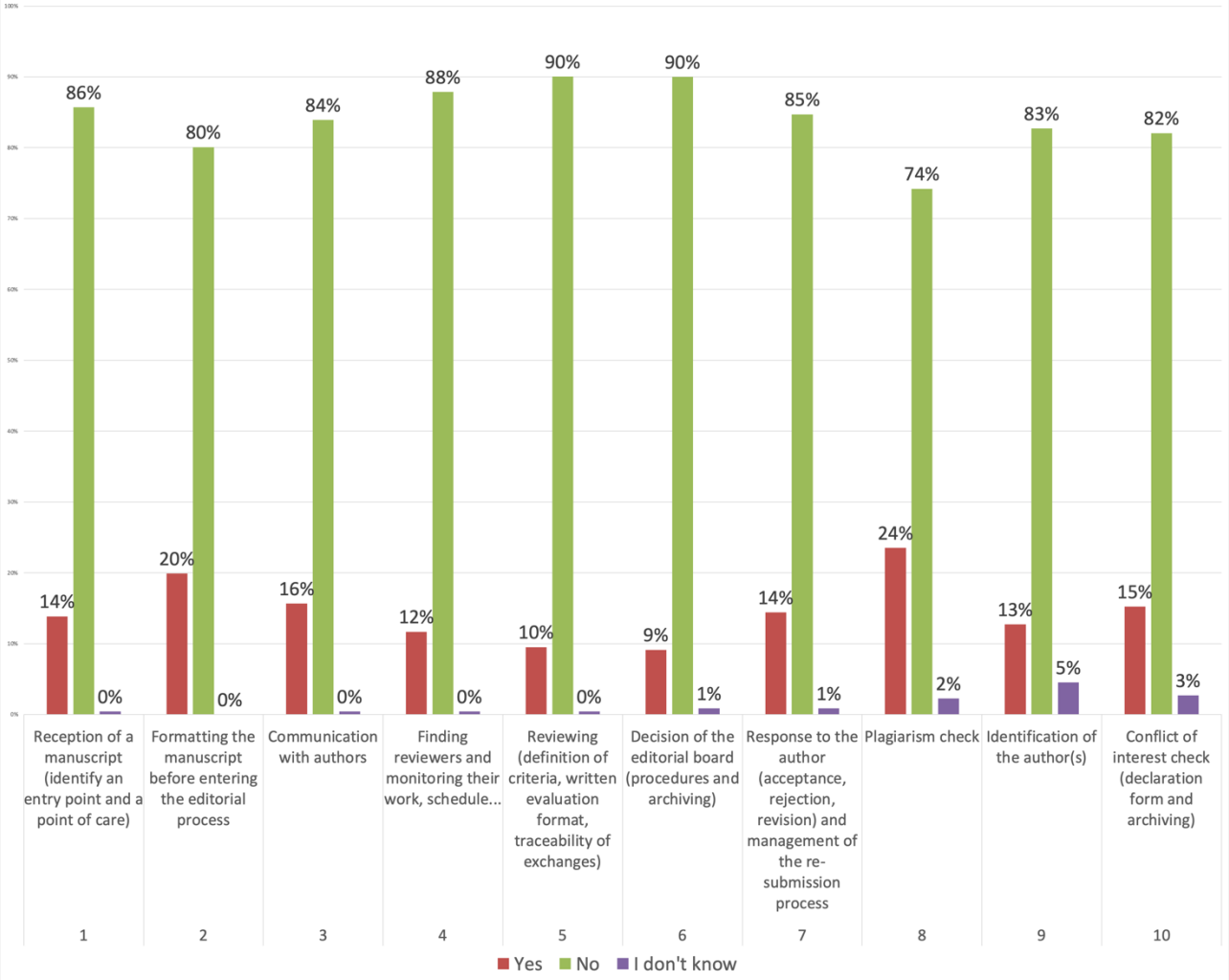
Another particular response concerns a journal that publishes conference papers. In this particular case, publishing is funded by the institutions organising the conference and they are responsible for publishing the issue.

ID 12753821473 : « Proceedings is funded by special issue organizers ».

How are the monetary transactions distributed between the different acts in the publication process. The breakdown of negative and positive responses shown in Figure 4 makes it possible to further explore the specific characteristics of our sample and to qualify the first overall impression. In order to clarify the terms used, we have organised the presentation around the three major categories previously identified.

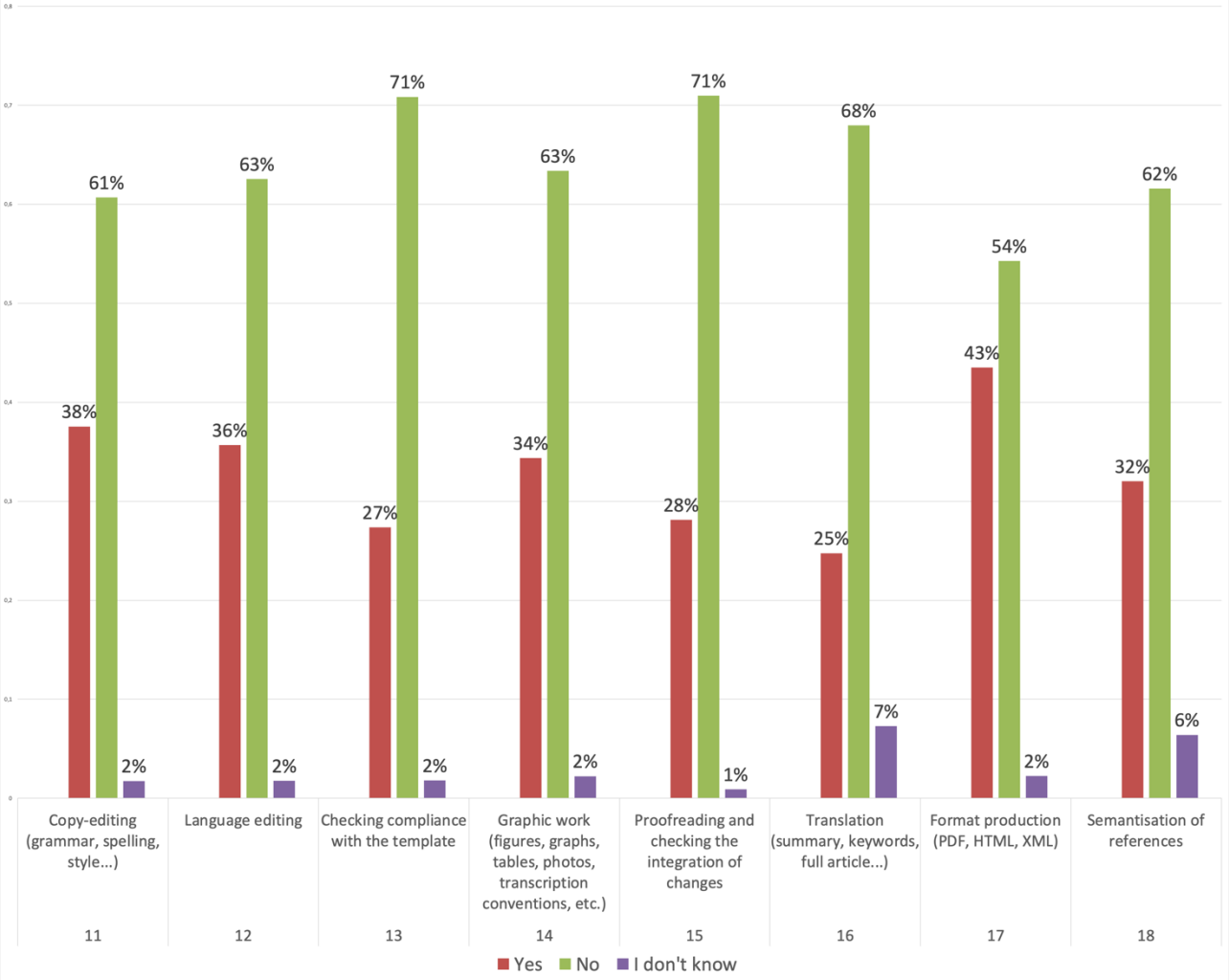
In the certification acts (acts 1 to 10), Figure 4a shows that the negative responses are particularly high (ranging from 74% to 90%). They peak at the *finding reviewers*, the review itself and the *response to author* (respectively 88%, 90% and 90%). Conversely, the positive responses range between 9% and 24%. The strongest trends are *plagiarism check* (24%), *preformatting* (20%), *author communication* (15%) and *checking conflicts of interest* (15%). The percentage of responses of the people questioned who are unaware of the existence of monetary transactions is minimal, not exceeding 5%.

Figure 4a. Monetisation of the certification acts



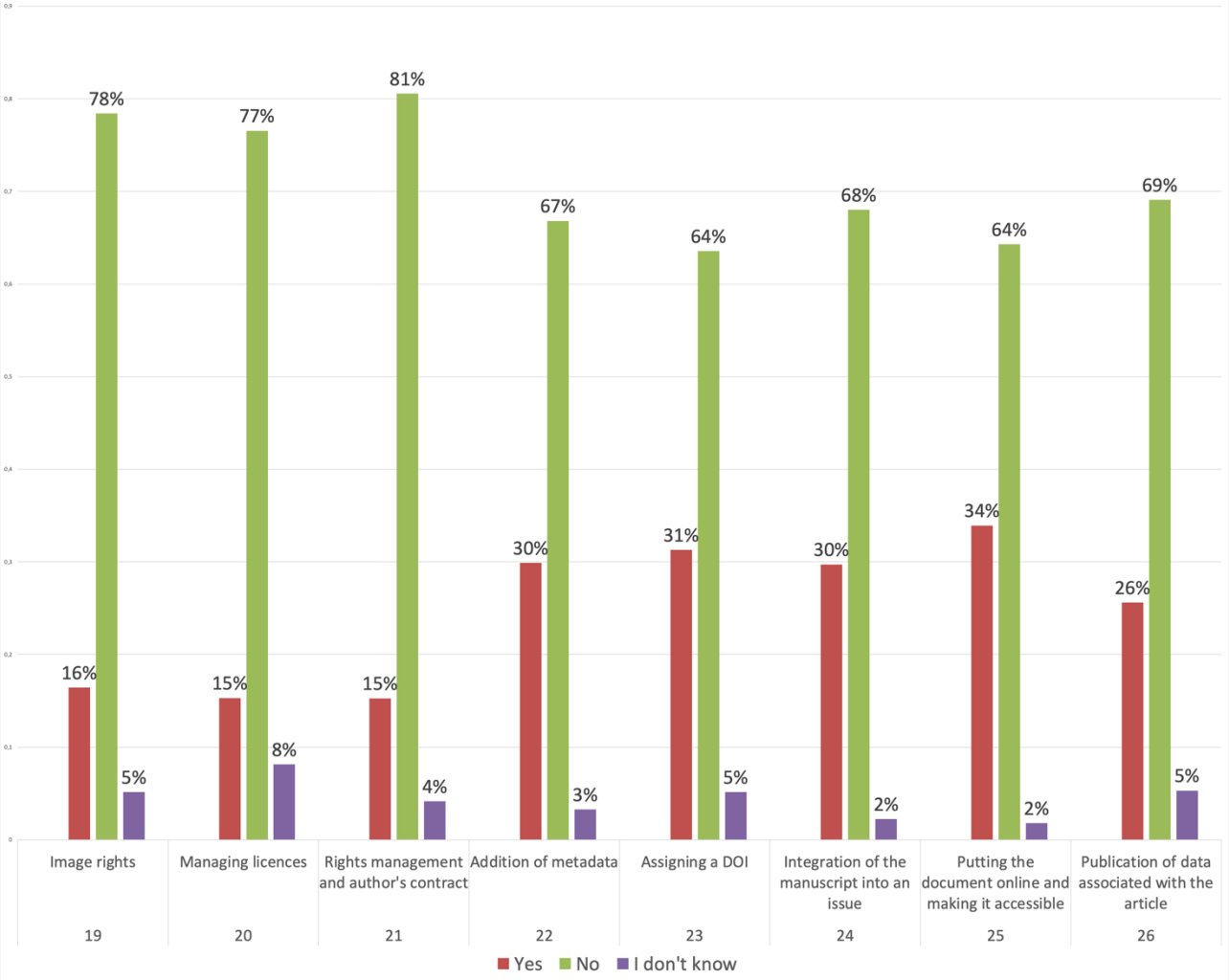
Acts in physical production of documents (acts 11 to 18) have the highest percentage of responses ranging between 25% and 43% (figure 4b). Acts declared as being the most monetised relate to *coding/conversion* at 43%, *copy editing* (38%), *language editing* (36%), as well as graphic work on the text (*graphics*) (34%). These results are consistent with the possible outsourcing of part of physical document production to service providers. Having said that, there is still a majority of negative responses ranging from 54% to 71%. The least monetised physical production acts are *template compliance* (27%), *proofreading* (28%) and *translation* (25%) There is also a low number of respondents declaring that they are unaware that financial transactions exist for this group of acts, ranging between 1% and 7%.

Figure 4b. Monetisation of the physical production acts



Finally, for acts 19 to 26 that cover dissemination (rights management, assignment of metadata, and dissemination), the percentage of negative responses is between 64% and 81% (figure 4c). Two sub-groups can be clearly distinguished here: on the one hand, rights management, which gets the highest negative responses (between 77% and 80%); on the other hand, all of the metadata and dissemination acts, where negative responses vary between 64% and 69%. Monetary transactions linked to publishing acts are therefore higher for this second sub-group, *assigning metadata* (30%), *assigning a DOI* (31%), *integration* (30%) and *posting online* (34%). Once again, a low number of respondents is unaware that a monetary transaction exists (between 2% and 8%).

Figure 4c. Monetisation of the dissemination acts

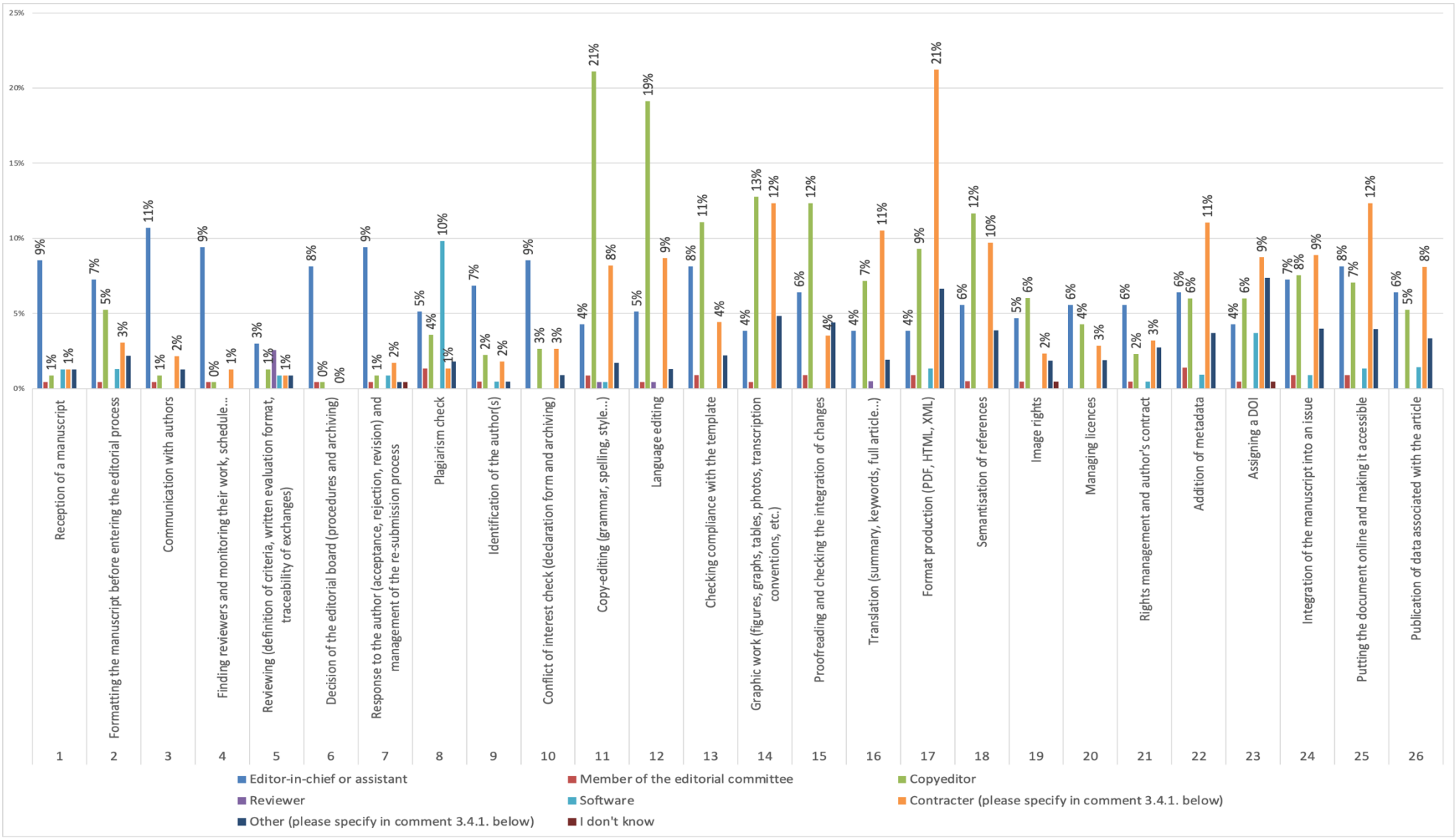


4.2 Which entities are remunerated for which publishing acts?

Gaining a clearer picture of the general breakdown of the monetisation of the acts makes it possible to identify which entities are involved when respondents say they pay for certain publishing acts. To do this, we have cross-referenced the answers to questions 3.1 (Who carries out the acts?) and 3.2 (Do these acts lead to a monetary transaction?)

A first possible way of visualising this cross-reference is to break down the percentages of "yes" in the total population by the entities carrying out the acts. (Figure 5). The benefit of this visualisation is that it serves as a reminder that the number of positive responses to the question "Do the publishing acts lead to monetary transactions?" remains low compared to work without any monetary transactions. We see in particular that the entities which are funded to carry out the acts never exceed 21% of the total population, whereas the majority of responses are between 0% and 10%.

Figure 5. The breakdown of monetisation of acts in relation to the total population



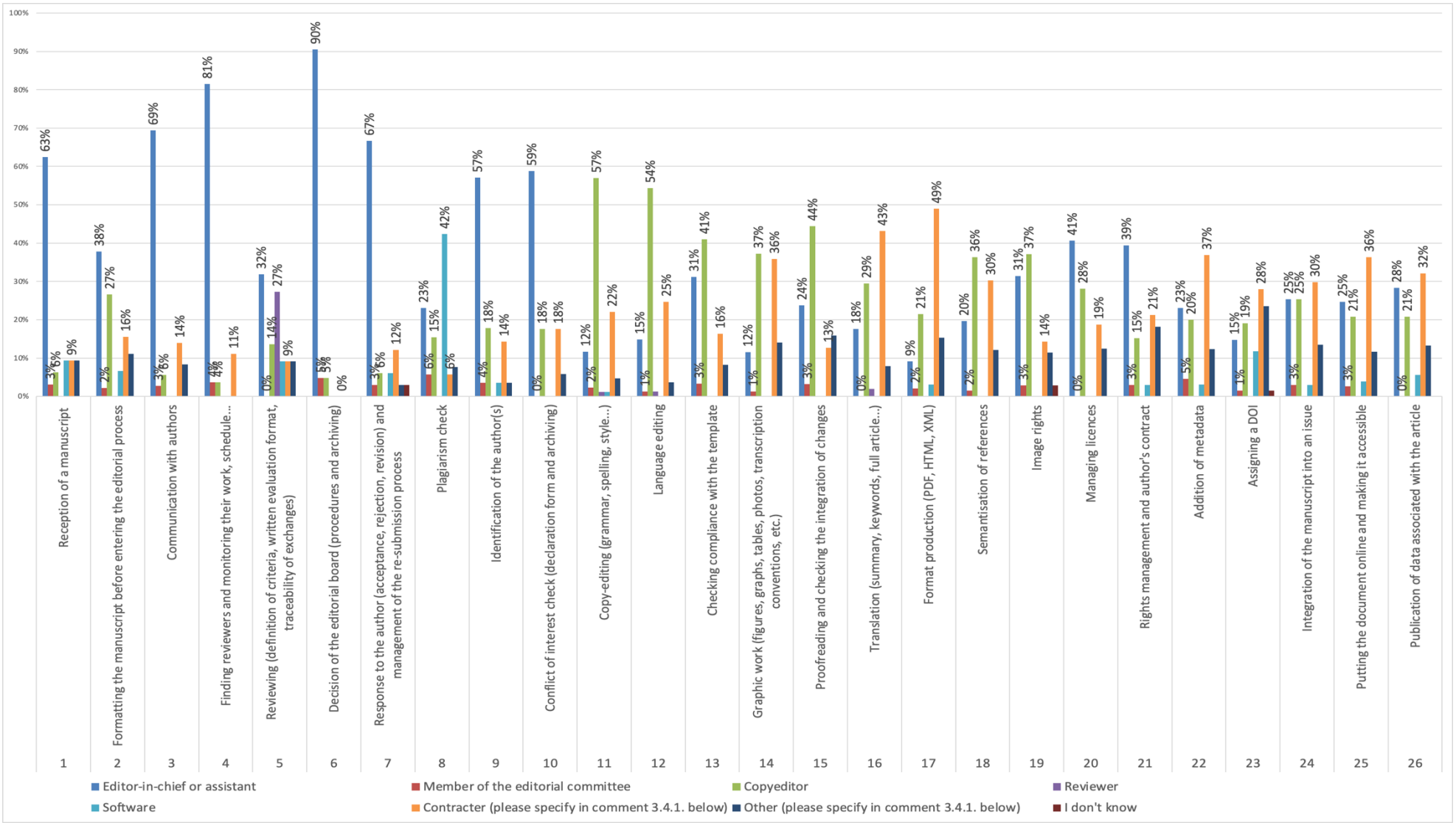
A second possible way of visualising this is to focus on the breakdown of monetary payments by entity within the more limited population of "yes" responses, i.e. the population of paid entities (Figure 6). Obviously, this kind of presentation distorts the graph compared to the previous one, as the relative weightings of the responses in relation to the total population are abandoned. Let us take an example. In the previous graph, the editor-in-chief is paid in 8% of cases for act 6 *(board decision*). Furthermore, the sub-editor is paid for graphical work in 13% of cases (14. *Graphical work*). However, editors-in-chief alone dominate act 6, whereas act 14 also gives prominence to the contractor (also 12%). Thus, in relation to the "yes" population, the editor-in-chief, who is almost alone in act 6, is paid in 90% of the paid population cases. *Conversely*, the sub-editors and external service providers are neck and neck when it comes to graphical work: in relation to the size of the "yes" population, each of them is paid in 36% and 35% of cases.

Despite the magnifying glass effect, some significant trends emerge. Let's start with the certification acts category. This is dominated by editors-in-chief. The highest remuneration percentages occur for *author communication* (69%), *finding reviewers* (81%) and the *response to author* (90%). In contrast, remuneration of editors-in-chief is lower for *preformatting* (38%) a major part of which is delegated to the sub-editor (27%), *reviewing* (32%) shared with external reviewers (27%), and *plagiarism check* (23%); for this act, "software" constitutes the biggest number of responses (42%).

Physical production acts (11 to 18) are marked by the significant presence of sub-editors who are paid for *copy editing* (57%) and *language editing* (54%), and that of the service providers who are instead paid for *translating* (43%) and *formatting* documents (49%).

Finally, acts relating to distribution (acts 19 to 26) show an even more diversified breakdown. While rights management is dominated by the sub-editor for *image rights* (37%), both the editors-in-chief (who perform the *licence management* and *rights/contracts* acts respectively in 41% and 39% of cases) and the service providers dominate in the remuneration for acts relating to metadata (*assigning metadata*) and dissemination (between 28% and 37%).

Figure 6. The breakdown of the monetisation of acts between stakeholders



Section 5

Funding publishing acts in an ideal world

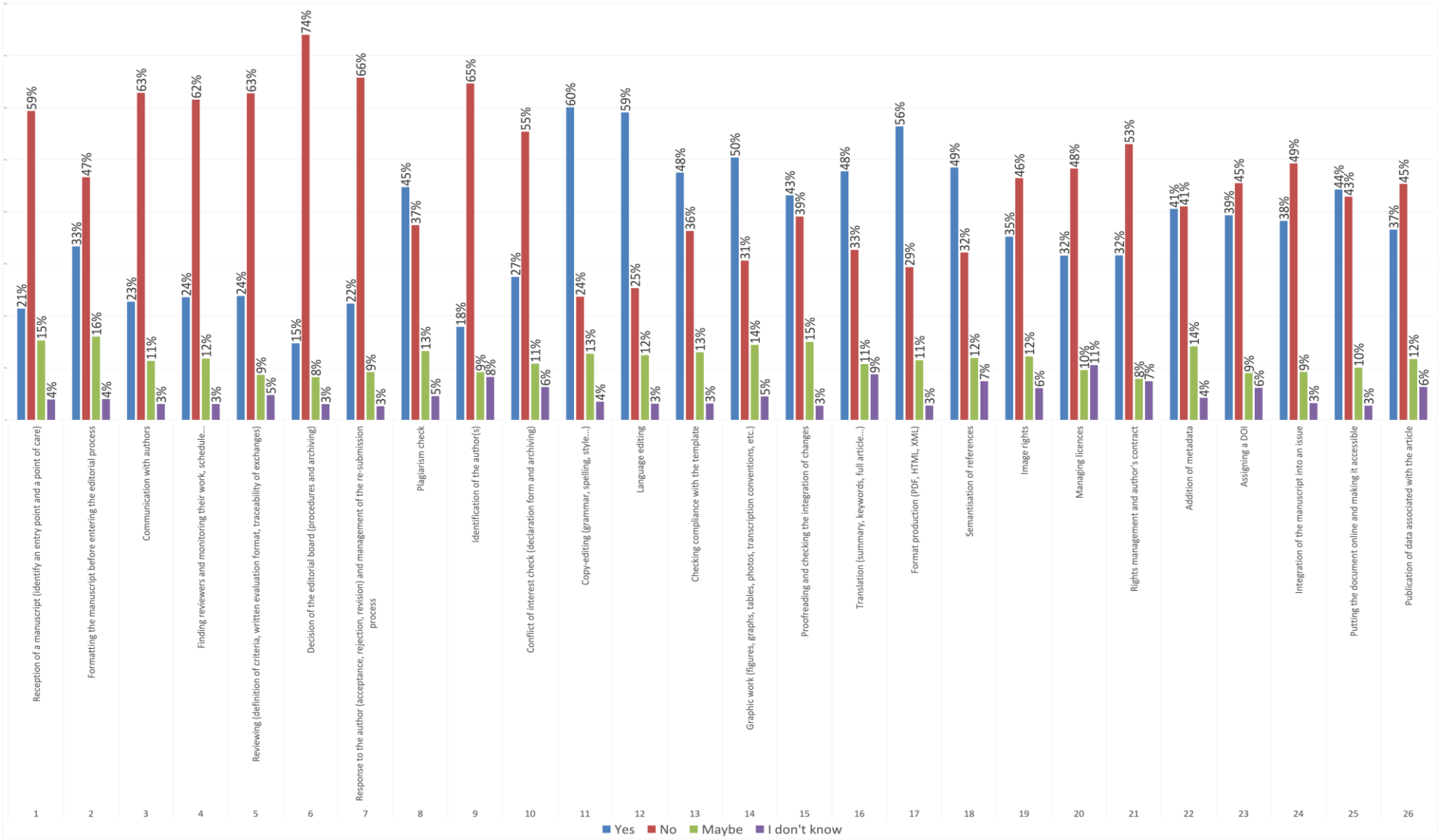
This study's aim is to explore possible means of funding for Diamond journals, following on from the recommendation of the first OA Diamond Journals survey carried out in 2020 within the OPERAS consortium. In this light, we would like to clarify the funding needs of Diamond journals. We are going one act further compared to the previous section. As well as looking at those acts which currently involve a monetary transaction, the aim is now to look at what could be funded, if funding were available. It is not immediately apparent what the funding needs of the journals' publishing acts actually are. To achieve our aim, we turned to the concept of the "ideal world" which is defined as a situation without financial constraints where unlimited funds would be available to journals. On the basis of this hypothetical situation, we questioned the Diamond journals about the likelihood of them paying for a given act in the publishing process. Of course, an ideal world where there are no financial constraints should not be viewed as a realistic possibility for the scientific publishing economic setup. Instead, it serves as a useful fiction for drawing attention to the precise acts for which the journals would like to have additional funding. In short, the ideal world is a proxy to help us grasp Diamond journals' needs.

The first part presents the results regarding the needs expressed by the journals in an ideal world (5.1). The second part of this chapter focuses on the expenses being kept on paid for certain publishing acts in an ideal world (5.2).

5.1 Financial requirements of journals

We asked the journals to indicate which acts they would be prepared to pay for if there were no financial constraints at all (Q3.3). This question gives them the opportunity to reveal Diamond journals' actual funding needs, noting specifically where the funding is needed. As for the previous questions 3.1 (Who carries out this act?) and 3.2 (Do you pay for this act?), the total number of responses ranges between 202 and 231. As Figure 7 shows, the responses show marked trends between the 26 acts, which again break down into three major categories as described above: certification (acts 1 to 10), physical production of the document (11 to 18), and dissemination (19 to 26).

Figure 7. Funding publication acts in a world where there are no financial constraints

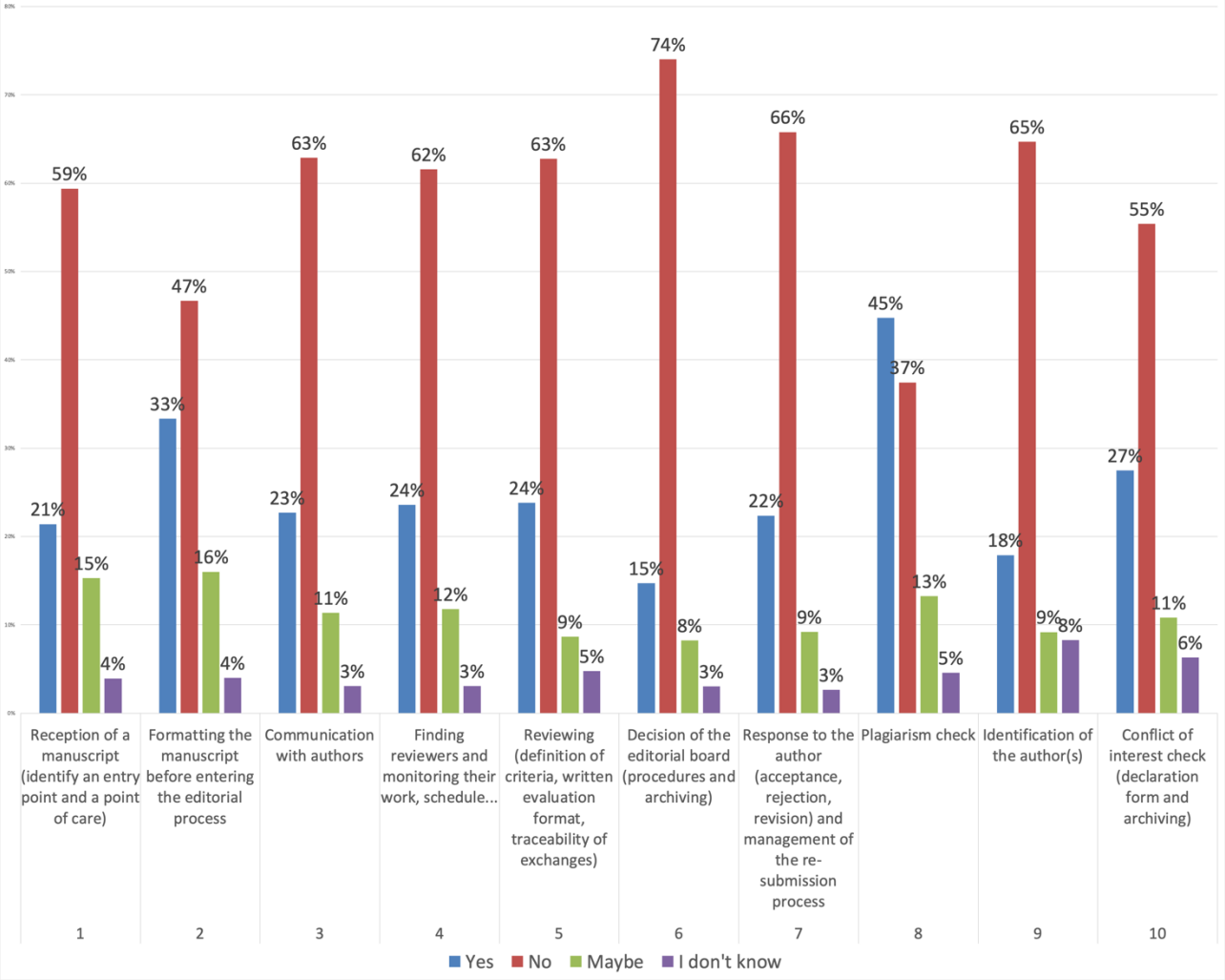


Certification

The majority of journals declare that they would not be inclined to pay for the certification acts, even in a world where there were no funding constraints (Figure 7a). In this respect, the decision to accept or reject (6. *board decision*) reaches the highest level with 74% saying "no". Then there is the *author communication*, *finding reviewers* and *reviewing*, as well as *responding to author* and *author identification*, with negative response percentages ranging between 59% and 65%. While less marked, *conflict of interests check* (55%) and *preformatting* (47%) are considered to be acts that do not require funding. One notable result, the checking of plagiarism (8. *Plagiarism check*) is the only where the negative responses are lower than the positive responses (37% "no" compared to 45% "yes"). This result is unsurprising, given that in 22% of cases 8 is performed by software (see section 2.1., Figure 3a).

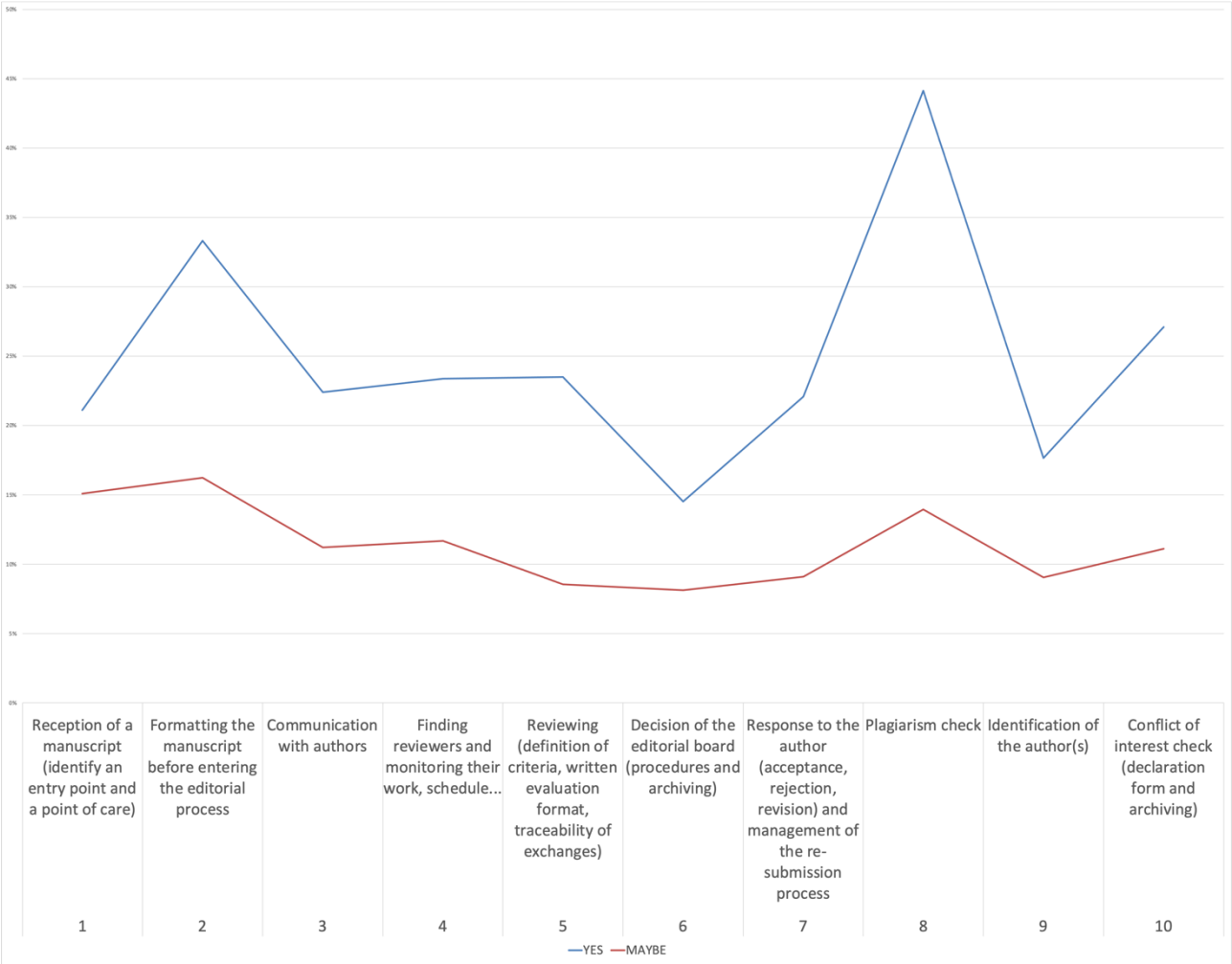
At the same time, several journals say that they are in favour of funding those publishing acts related to certification. These positive responses vary overall between 21% et 27% for *receiving manuscripts*, *author communication*, *finding reviewers*, *reviewing*, and *managing conflicts of interest*. The two highest scores are for *plagiarism check*, as has already been mentioned (45%), and *preformatting* (33%). In contrast, the two lowest scores are for *author identification* (18%) and the *response to author* (15%). The latter result is a good indicator of the issue of editorial independence claimed by journals and is reinforced in the free responses to question 3.3 which insist on the non-monetisation of the decision as a guarantee of independence. The proportion of respondents who are undecided is fairly low at under 5%, except for *author identification* and *conflict of interests check*, which are 8% and 6% respectively.

Figure 7a. Funding certification in an ideal world



If we look closely at the “maybe” responses which break down to 8% and 15%, we can see that the spread of potentially supported acts follows the same trend (with lower scores) as the acts already funded (Figure 7b).

Figure 7b. Breakdown of funding opportunities (“yes” or “maybe”)



When the results obtained from both responses are added together, we can see the potential funding score per certification publishing . Two examples of this are: *preformatting* which becomes a for which funding is more apparent (49%), while *plagiarism check* has increased (to 58%).

Physical document production

For the process of the physical production of texts, the trend is reversed compared to certification, with positive responses dominating. This result is consistent with the two previous results. On one hand, this part of the publishing process is where the majority of journals report paying for external service providers. On the other hand, the open responses linked to the ‘ideal world’ point in the same direction. For instance, respondents state that these are technical acts which are easy to outsource unlike the rest of the editorial work.

> *ID 12772112368 : « In an ideal world, we would delegate a lot of the jobs that are related to design, production and copy editing, in order to focus on the management of the editorial process and editorial selection / management ».*

Or even:

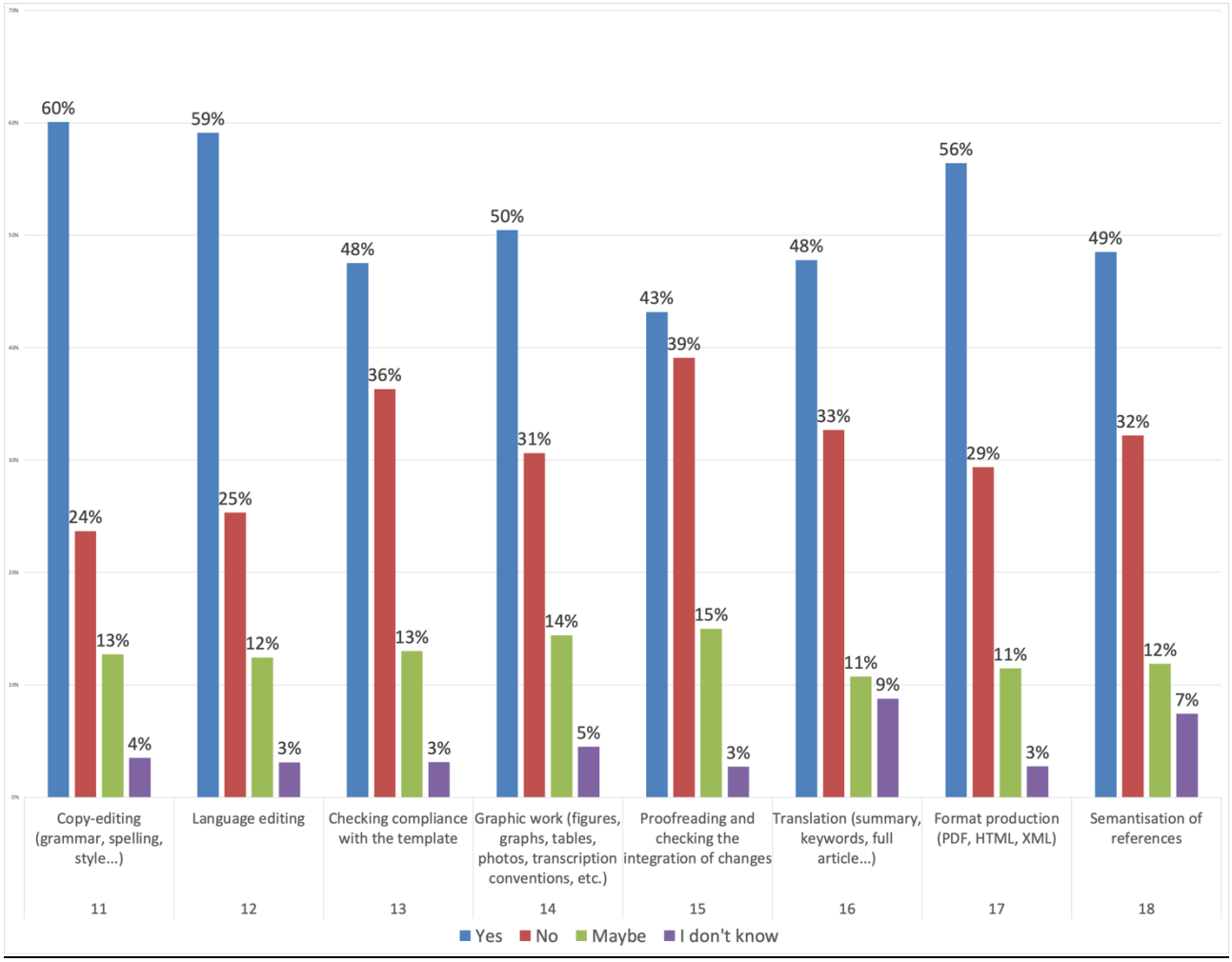
> *ID 12797718435 : « In an ideal situation, all formal and technical tasks related to the publishing processes would be out-sourced in oder to help the editors to focus on organizing peer review and communicating with authors ».*

There are also arguments in favour of professionalisation and therefore better quality of service when resorting to specialist service providers.

> *ID 12747407738 : « Externalization is unavoidable. At the present, we must teach people for these services, but in an ideal world we could ask for professional services already built for this purpose ».*

In an ideal world without any funding constraints (Figure 7c), the acts which the journals would be most willing to pay for are *copy editing* (60%), *language editing* (59%) and *coding/conversion* (56%). The rest of the responses range between 43% and 50% for *checking compliance*, *graphics*, *proofreading*, *translation* and *reference semantization*. Negative responses vary between 29% and 39% for acts 13 to 18 (*checking compliance*, *graphics*, *proofreading*, *translation*, *coding/conversion*, *reference semantization*). If the “yes” and “maybe” responses are added together; the majority of responses are positive, between 58% and 73%.

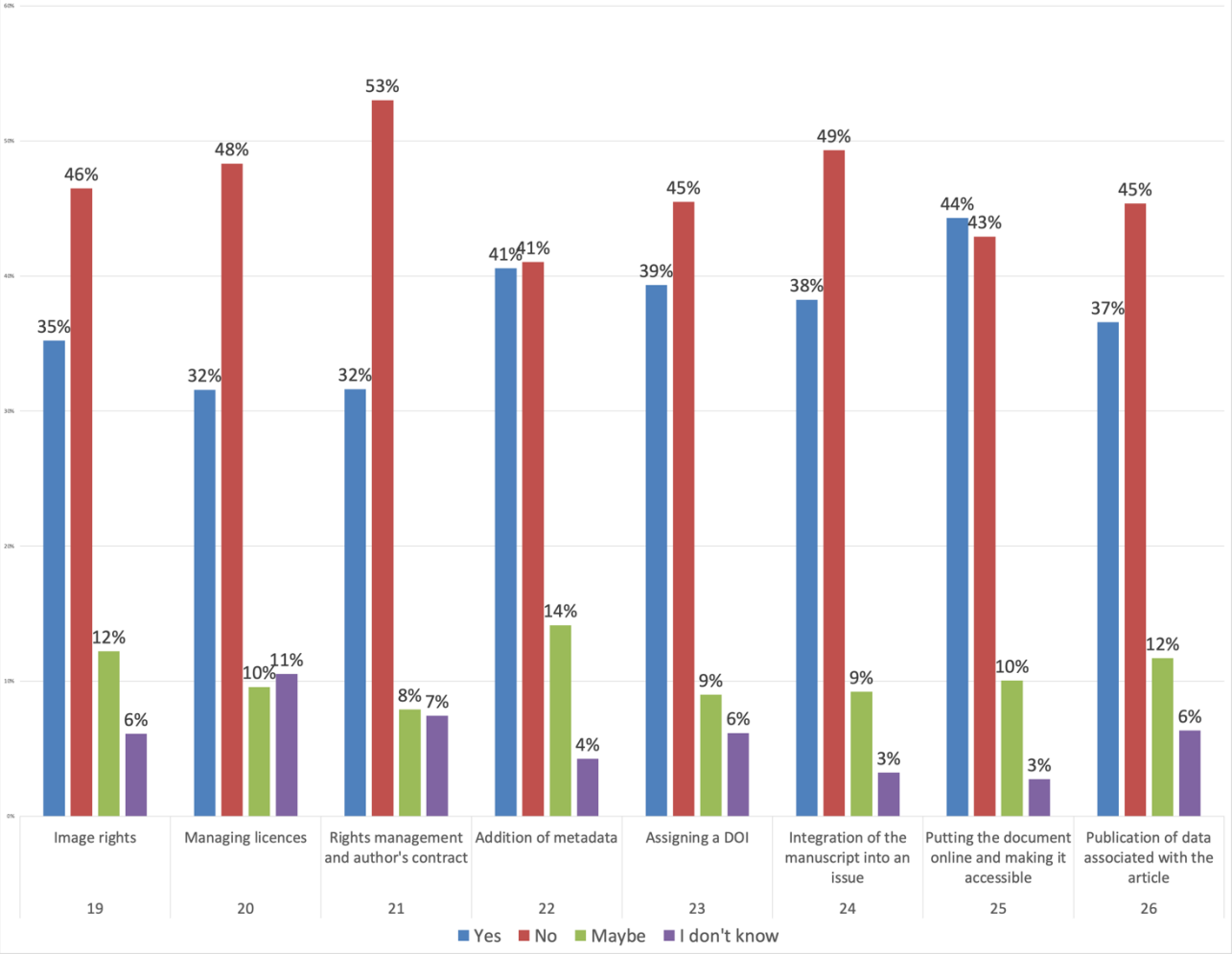
Figure 7c. Funding physical production in an ideal world



Dissemination

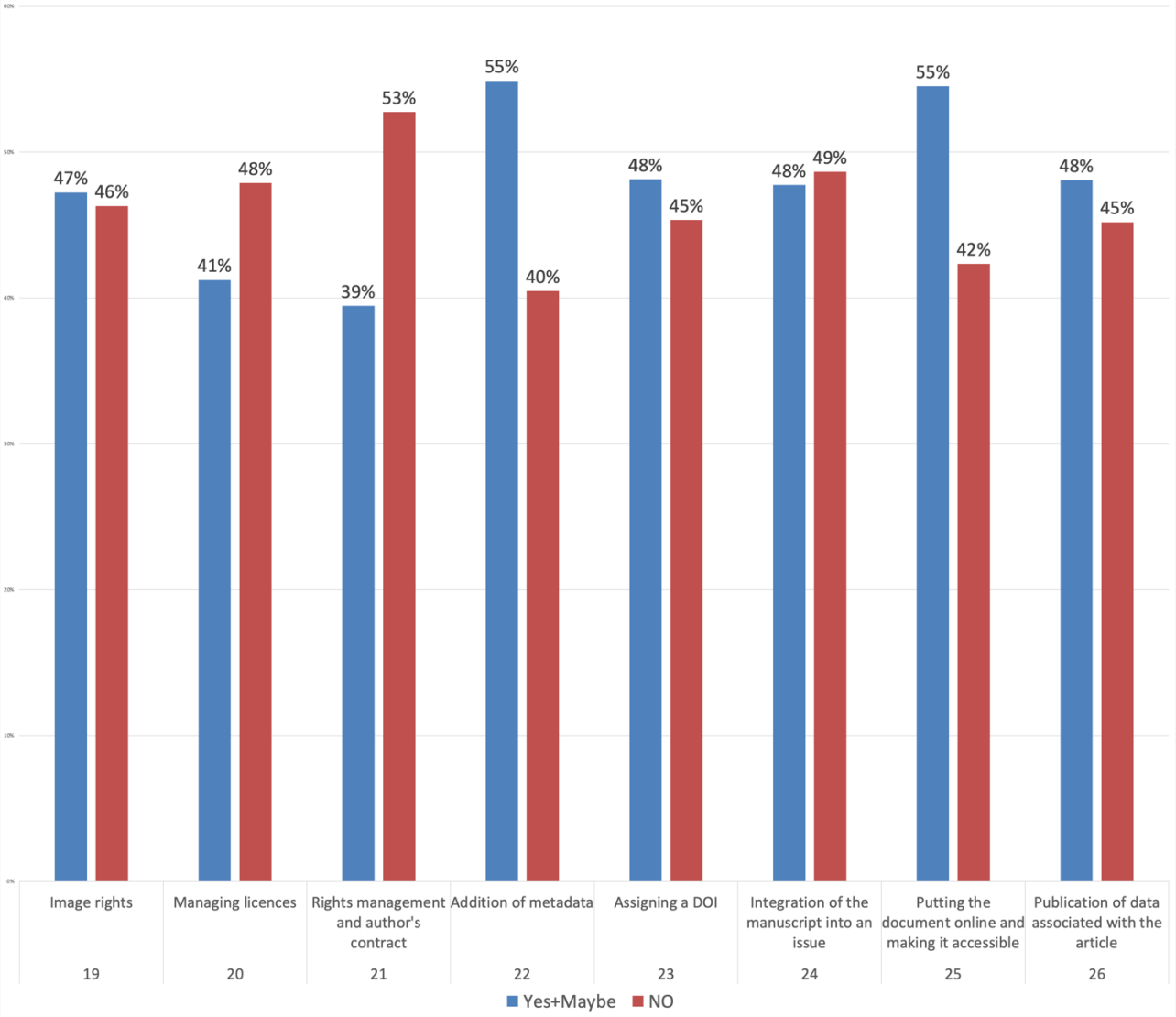
The dissemination acts (19 to 26) exhibit a more diversified breakdown (Figure 7d), although negative responses dominate. The highest level of negative responses is for rights management. Journals are more against the idea of a monetary transaction for *image rights* (46%), *licence management* (48%) and *rights/contracts* (53%). The trend for integrating metadata is even more nuanced, with 41% of both yes and no responses *Assigning a DOI* gets more negative responses (45%), as does *integration* (49%). The responses regarding article dissemination are also mixed, with journals stating that they are fairly willing to pay for this (43%). On the other hand, publishing metadata receives more negative responses (45% against 37%).

Figure 7d. Funding dissemination in an ideal world



The “Don’t know” response percentages vary between 3% and 11%. As with the two other major categories of publishing acts, the “maybe” responses are relatively stable, ranging between 9% and 14%. Adding the “yes” and “maybe” results together boosts the share of positive responses (Figure 7e).

Figure 7e - Funding dissemination in an ideal world, cumulative Yes and Maybe responses



Thus, *image rights*, *assigning a DOI*, *integration*, or *article data publication* all have more or less similar scores (48% against 45%; 48% against 49% and 48% against 45%). By contrast, *licence management* and *rights/contracts* always show a large majority of negative responses (48% and 53%). Conversely, *assigning metadata* is more dominated by positive responses (55%), as is *posting online* (55%).

5.2. Continuing payment in an ideal world

Having presented journals' willingness to pay for publication in an ideal world, we now turn our attention to the small sub-group that responded to question 3.2. Doing so enables us to look more closely at the conditions for continuing the current payment in a world without any budgetary constraints. To put it another way, it enables us to grasp the extent to which some current expenditure is incurred but not necessarily welcomed by the journals.

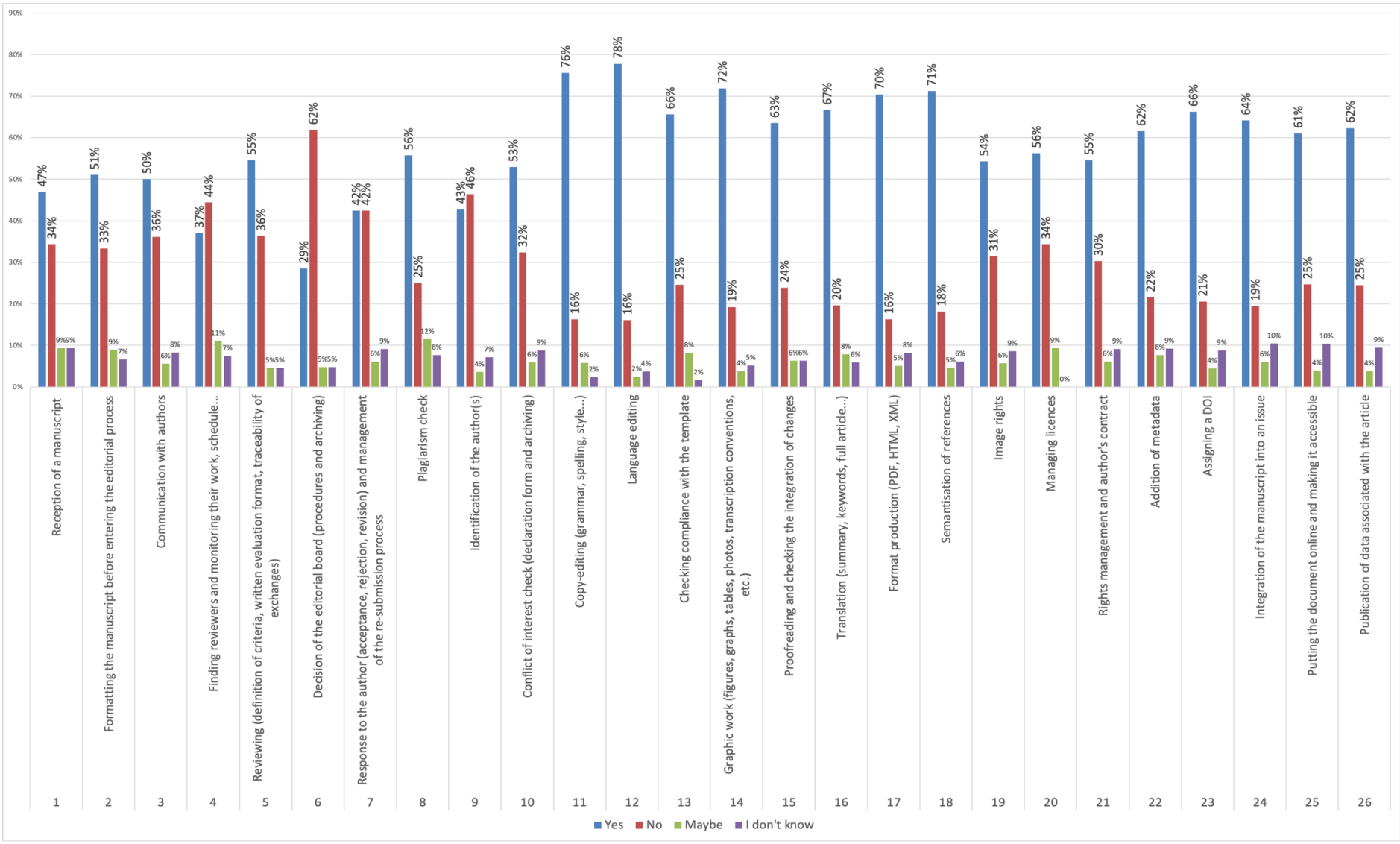
The visualisation below (Figure 8) shows the number of journals which, out of the group of current payers, would continue to pay for a given in an ideal world. By way of a methodological caveat, we would like to point out that this visualisation focuses on a small part of the overall population of respondents (solely the population of journals that pays for a given). One predominant result can be seen in the graph: for the great majority of the acts, the current payers would generally like to continue with this payment in an ideal world where there were no financial constraints. Let's look at this graph from the point of view of the 3 major categories of acts.

The first category on certification certainly has the least clear-cut responses. On the one hand, although there are more positive responses, the gap between the positive and negative responses is smaller than in the rest of the graph. Thus, *reception*, *preformatting*, *author communication*, *reviewing*, *plagiarism check* and *conflict of interest check* account for between 47 and 53% of positive responses. The range of negative responses for these same acts is between 32 and 37%. However, we should point out several specific cases: the editorial board's decision is always overwhelmingly associated with a lack of a monetary transaction (62% "no" responses against 29% "yes" responses), whereas *finding reviewers* and *author identification* get a small majority of "no" responses (44 and 46%). Finally, the journals are split as regards responding to authors: the number of journals that are in favour of continuing payment for this is, in an ideal world, the same as the number of journals that are against it (42%). The "don't know" responses still constitute a small share of all responses: between 5 and 10%. Finally, the percentage of those who are undecided ("maybe") varies between 5% and 12%.

The second major category of acts covers the production of the document content. This part of the graph shows an overwhelming majority in favour of continuing payments. The highest score is 78% for *language editing*, whereas the lowest score is 63% for *proofreading*. There is a relatively low level of negative responses, between 16% (*copy editing*, *language editing*) and 25% (*compliance*). "Don't know" answers remain low (between 2% and 8%). "Maybe" responses are between 6% and 8%. By adding them to the total number of Yes responses, this would only increase the prominence of Yes responses in this part of the graph.

The third and last category is dissemination. Here we can observe a similar trend to that seen in the previous category, i.e. a clear preponderance of journals in favour of continuing monetary transactions, albeit in a more measured way. Positive responses vary between 54% (*image rights*) and 66% (*DOI*), whereas negative responses range from 19% (*integration*) to 51% (*licence management*). The same percentage of responses as for production acts can be found for the "I don't know" responses (between 9 and 10%) as well as for the "maybe" responses (between 4% and 9%).

Figure 8. Pursuing payment in an ideal world



- Part III -

The technical conditions for implementing a direct funding model.

The first part of this report proposed direct funding models for the Diamond journals. In the second part, we were able to define the potential destination for this funding depending on the acts making up the journal's publishing process. In this third part, we will be looking at the technical conditions for implementing direct funding.

We explore three conditions which are fundamental for the implementation of direct funding. Once again, these conditions are required, regardless of which model is selected. Firstly, the journals' ability to handle monetary transactions (3.1), whether it be receiving or spending money. Next, the journals' ability to identify their funders in their publications through the use of a reporting system (3.2). Finally, for the research funders, the legal basis underlying the direct support for journals (3.3).

Section 6

The ability of journals to carry out monetary transactions.

This section is devoted to the Diamond journals' ability to transact - a crucial point when implementing direct funding mechanisms. In particular, we differentiate between the direct (6.1), indirect (6.2), overall (6.3), and potential ability to transact (6.4).

6.1 Capacity to carry out direct transactions

We asked the journals two separate questions regarding their ability to execute monetary transactions. Are they able to receive money? And are they capable of making expenses? As illustrated in Figures 9a and 9b, the response patterns to these two questions are extremely close, which would suggest that the answer to one of them generally implies the same answer for the other. Indeed, the large majority of the 254 respondents is capable of receiving money (70%), and a very similar result is found, albeit slightly higher, for the ability to spend (73%). The flip side of this is that a sizeable minority (21%) is not able to receive money, while 19% of journals state that they are unable to spend money. We should also point out the small proportion of journals which do not know what their journal's transactional capabilities are. 9% for receiving money, 8% for spending it.

Figure 9a. Direct funding capability - receiving money

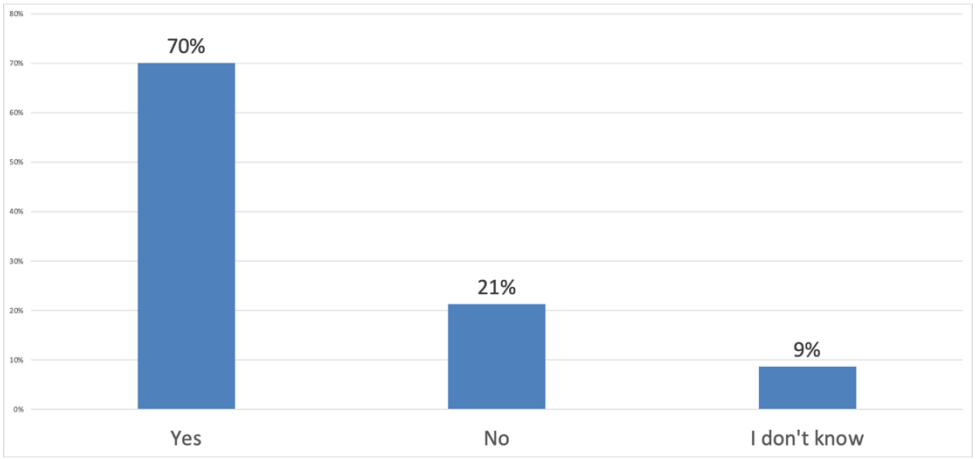
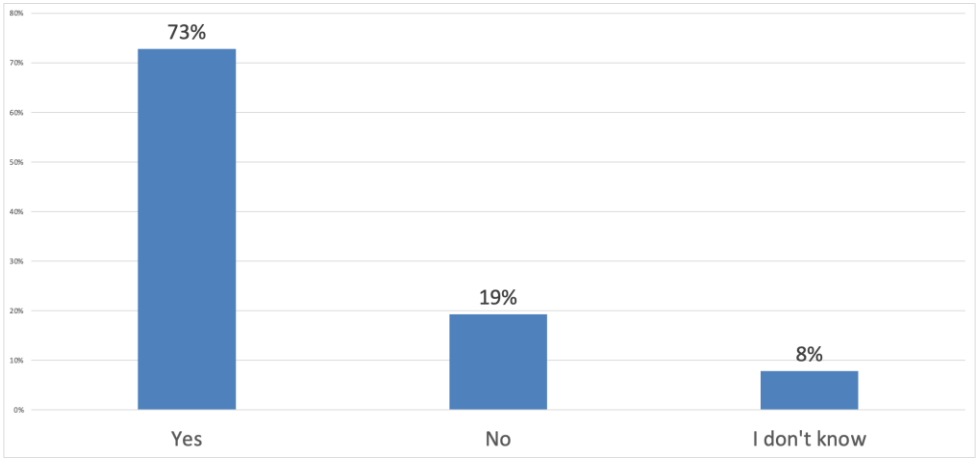


Figure 9b. Direct funding capability - spending money



6.2 Indirect transactional capability

The preceding figures regarding the monetary exchange capabilities of journals are important, but incomplete. In fact, although some journals are not capable of directly managing sums of money, they sometimes have the possibility of carrying out transactions indirectly via intermediaries. Therefore, we asked the journals that did not give a positive response to the two previous questions if 1) an intermediary was able to collect money on their behalf, and 2), if an intermediary could make expenses on their behalf. We received 72 responses to these two conditional questions. What we notice first of all in this subset is that the response patterns between the two conditional questions are not the same. The proportion of “yes” responses is higher for receiving money and, conversely, the proportion of “no” responses is higher for spending money. There is a majority of “no” responses for both questions (Figures 10a and 10b): a majority of these journals are unable to receive money via an intermediary (42%) nor are they able to spend it (50%). Slightly more than a third of respondents answered “yes” for the capability of receiving money (35%) and less than a quarter for spending it (22%). Finally, 24% of the respondents do not know if the journal can receive money via an intermediary, and 28% do not know if the journal can spend it.

Figure 10a. Indirect funding capacity - receiving money

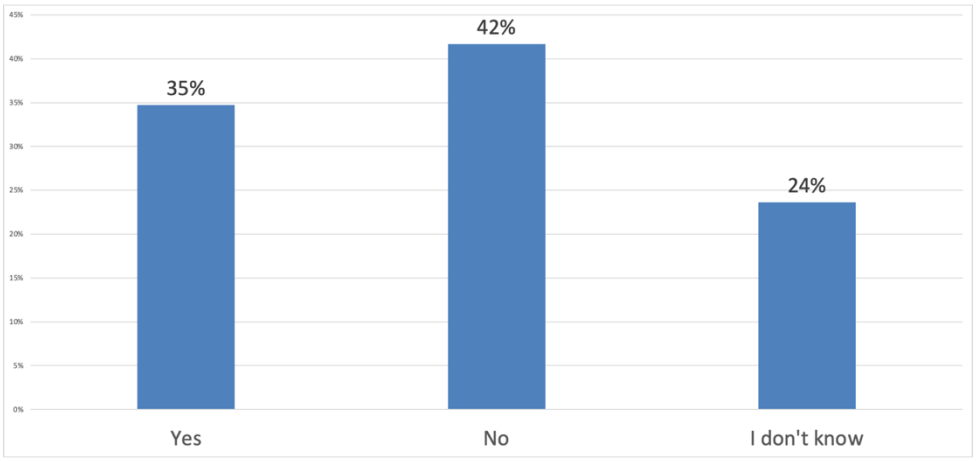
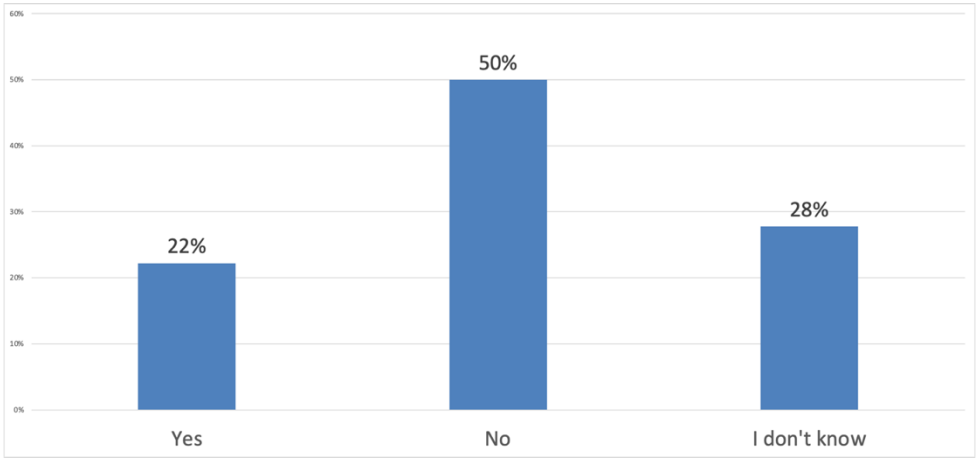


Figure 10b. Indirect funding capacity - spending money



6.3 Total transactional capability

Based on these initial results, it becomes possible to calculate the overall transactional capability (both direct and indirect). This information can be obtained by adding the positive responses on the direct and indirect exchange capacities. Let us look first at the ability to receive money. Out of a population of 254 individuals, 178 gave a positive response (Q2.3). Furthermore, 25 journals are able to receive money via an intermediary (Q2.5). Thus, a total of 203 journals are able to receive money. In relation to the overall population, we increase from 70% to 80% positive responses. Similarly, as regards the ability to spend money: Out of a population of 254 individuals, 185 responded positively (Q2.4). Furthermore, 16 journals are able to spend money via an intermediary (Q.6). Thus, a total of 201 journals are able to make expenses. In relation to the overall population, we increase from 73% to 79% positive responses. Table 3 presents these aggregated elements.

Table 3. The total ability of journals to carry out financial transactions

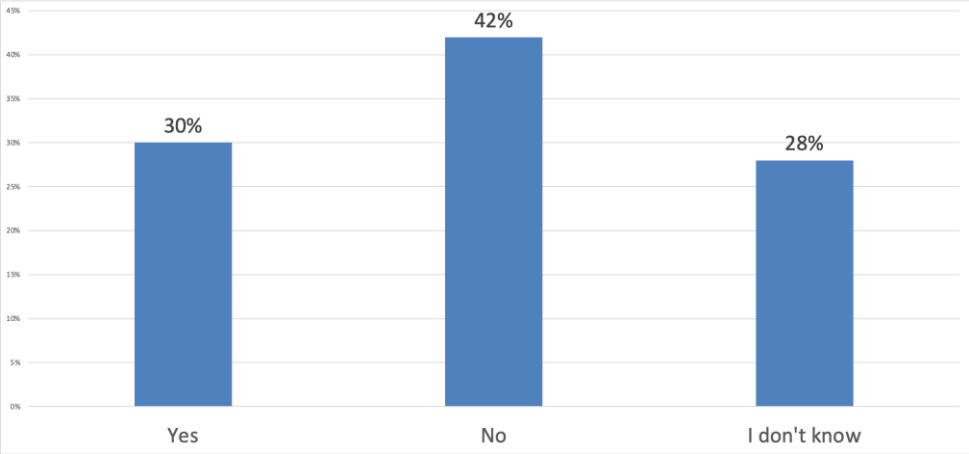
	Receipt	**Expenditure**
Direct transaction capability	178	185
Indirect transaction capability	25	16
Total	203	201
% out of 254 individuals	80 %	79 %

Therefore, about 80% of the Diamond journals surveyed state that they are capable of accepting money and of making expenses, either directly or indirectly.

6.4 Potential transactional capability

Of the 72 journals with no direct transaction capability, 50 of them have indicated they would be prepared to implement a transaction accounting system if the funding allocated to them was sufficient for the purpose. As shown in Figure 11, 30% of the journals would be ready to implement this kind of accounting system, 42% would refuse to so, and 28% say that they don't know.

Figure 11. Potential financial capabilities



As the population size here is fairly small, the results regarding the willingness of those journals without an accounting system to adopt one should be treated with some caution. However, the 30% of positive responses, or 15 journals, can be considered to be a conclusive result as to the ability of these journals to put in place accounting arrangements in order to receive money under certain conditions. Therefore, when this number (n=15) is added to the journals which have declared that they are able to receive money (n=203), the total number of journals with the potential ability to perform monetary transactions reaches 218, or 86% of the journals in the survey population (n=254). These elements, exhibited by a large majority of journals, are shown in table 4.

Table 4. The potential monetary trading capabilities of the journals.

	Receipt
Direct transaction capability	178
Indirect transaction capability	25
Potential transactional capability	15
Total	218
% out of 254 individuals	86 %

Section 7

What is the visibility of research funders?

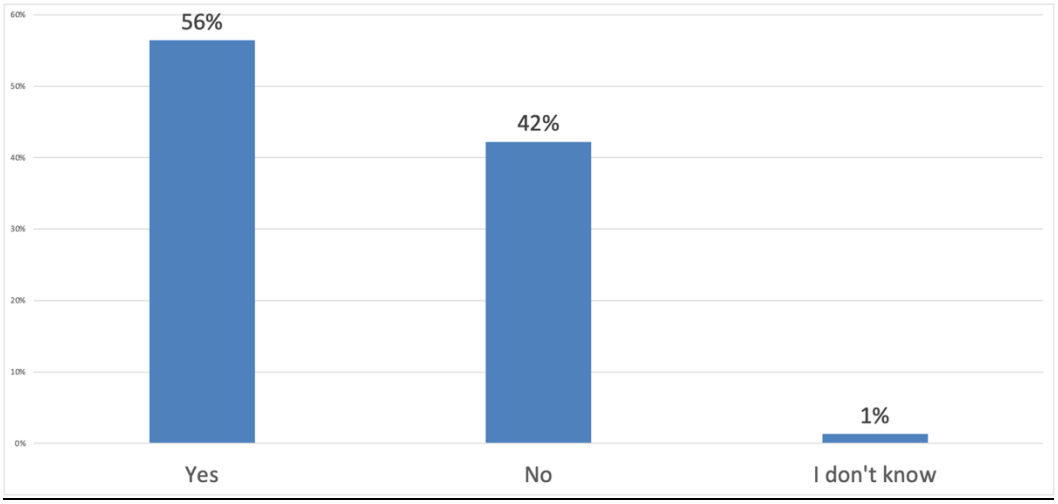
The development of funding channels in a world structured around the principles of transparency and openness goes hand in hand with the ability of journals to make their various funding sources visible. This section probes the readiness of journals to ensure this traceability of research funders.

The first part provides an overview of the current abilities of journals to provide guarantees of visibility to research funders, particularly through reporting practices (7.1). The second part focuses on the journals that lack a reporting capability, and reflects on the possible incentives for journals to do so (7.2).

7.1 Reporting capability of journals

The visibility of funders' contributions starts with individual articles. For a given article, the challenge is be able to track the funding base from which authors have carried out their research and produced their manuscript. Out of the 232 responses received for question Q4.1, 56% of the journals declare that they perform minimal tracking of research funding (figure 12). Similarly, a significant percentage of journals (42%) do not do any tracking of this kind, while 1% of respondents are unable to provide a response.

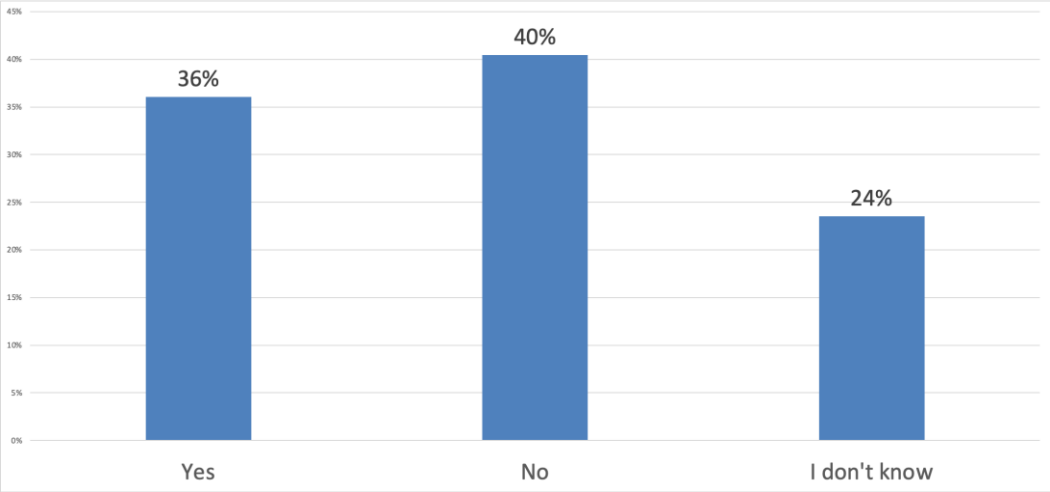
Figure 12. Tracking funding



While it is important to ensure the traceability of funding by article, it does not fully address the visibility of journal funders. To ensure this visibility, it is usually necessary to produce a funder

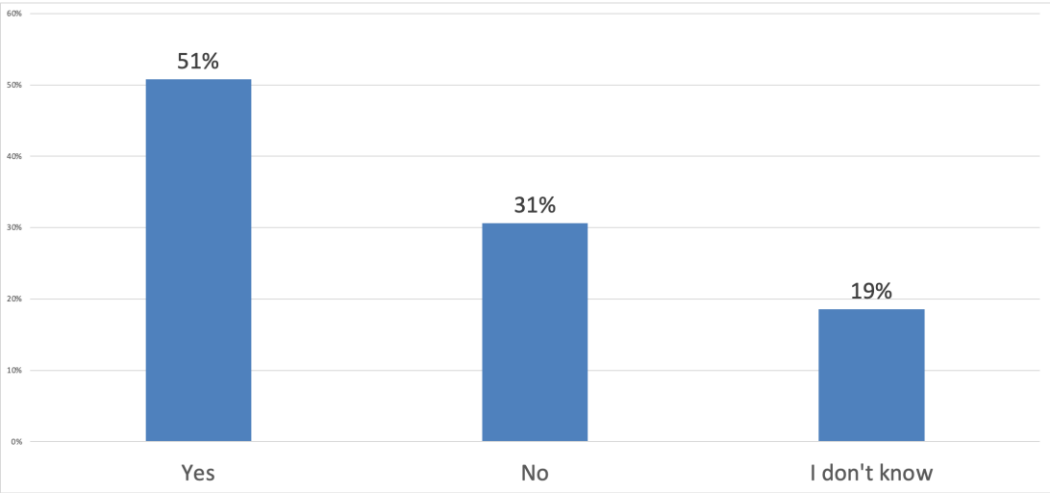
report that collects, per funder, the articles it helped produce. As shown in Figure 13, the trend is reversed here: out of the 136 responses to Q4.2, only 36% of journals state that they were able to produce a report of this kind, whereas 40% state that they are unable to do so. The large proportion of respondents who do not know whether it is possible to provide reports to funders is worthy of note here (24%).

Figure 13. Ability to produce effective reports



The outright inability of the majority of journals to provide reports is not necessarily a problem as regards the implementation of funding channels. Indeed, as the breakdown of the 183 responses in figure 14 shows, half of the journals questioned state that they would nonetheless have the technical ability to issue a report of this kind if it turned out to be required (Q.4.3). A little under a third (31%) would currently be unable to do it, while the remaining 19% say they don't know.

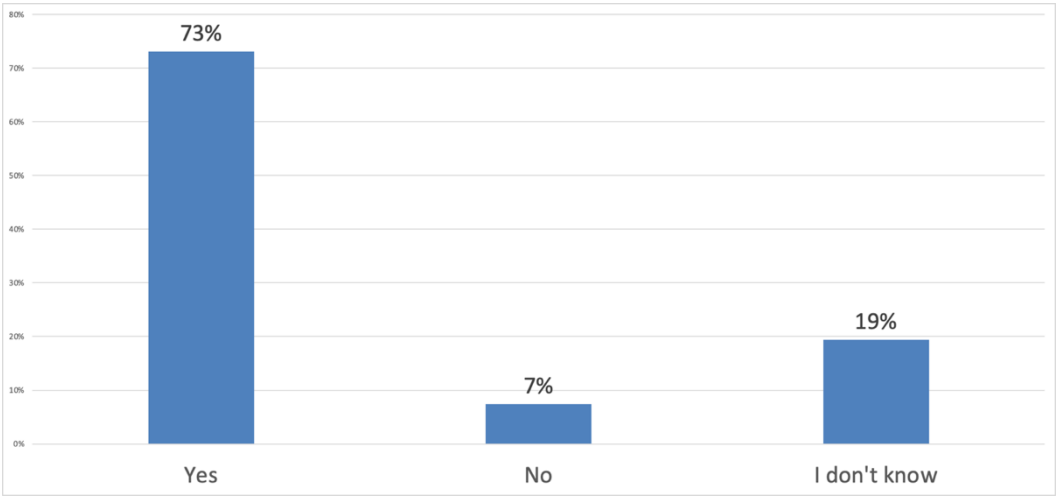
Figure 14. Technical reporting capability



7.2. What incentives are there to have a reporting system?

In order to widen the exploration of the conditions under which journals would be able to acquire technical reporting capabilities, we addressed the question of potential incentives. Here, we asked whether the prospect of a regular income provided by funders would be enough of an incentive for these journals (Q.4.4). In order to make the responses received to this question more meaningful, let us compare them with the responses to the previous question. Q4.3 asked what the current technical reporting capabilities are. Out of 183 responses, 51% of the journals or half of the surveyed population, gave a positive response. Q4.4, which uses the hypothesis of regular income from funders, considerably increases the positive responses, although the number of respondents is slightly lower (n=175). Under these conditions, 73% of journals would agree to adopt a reporting system (Figure 15). Negative responses are extremely low (7% of the population). Also to be noted is that the proportion of "don't know" responses remains unchanged, at a fifth of the journals (19%). Put otherwise, the increase in positive responses is overall due to the reversal of negative responses to question 4.3.

Figure 15. Generating reports in exchange for regular funding



If this incentive is present, what would be a sufficient level of income in order for journals to adopt a reporting system? Let's analyse some of the qualitative responses received to this question (a total of 8). We noted, foremost, a wide range of disciplines from mathematics to c*omputer sciences*, including biology, history, literature, law and linguistics, along with a range of different countries (France, South Africa, Italy, Australia, as well as other international journals). Of the responses which mention sums of money, the annual amounts vary enormously, starting from 2,000 dollars for the lowest threshold, to a range between 8,000 and 20,000 dollars for the majority of responses. These amounts of money are subject to several associated conditions: the importance of not foisting additional work and costs onto the publishing process. Some journals therefore advocate providing technical support in order to facilitate the generation of the report. The option

of employing a person who is capable of producing a report, for example a “copy editor”, is also a strongly preferred option.

Despite the opportunity to receive a regular income for the journal, a small minority refuses to consider any kind of reporting (a total of 13 journals or 7% of responses to Q18). 9 of these were willing to provide explanations by replying to the open question Q4.5. We mainly want to underscore the diversity of the disciplines (post-colonial studies, social sciences, geography, biology, material science, etc.) and the nationalities that make up this sub-sample group (France, Italy, the USA and several international journals, including a group of Middle Eastern countries). There are three main arguments put forward to explain the refusal to implement a reporting system. First, some journals consider that they do not need extra funding and that they only rarely deal with funders, or that the research underlying the article proposals is not very dependent on subsidies from research funders. Moreover, some respondents highlight the financially sustainable nature of the journal, such as a journal which is integrated into OLH. Second, the reporting prospect is not attractive for some journals because of the extra expected administrative burden, and the risk of losing the journal’s independence. Third, one respondent argues that the researchers rather than the journal should be funded.

Section 8

The ability of funders to provide direct support for journals

As was pointed out in the OA Diamond Journals report, there are many different stakeholders who all contribute to the Diamond ecosystem, and the funding mechanisms that we are proposing are generic and could be implemented by many of them. Nevertheless, as indicated above, we chose first to explore the contributions of research funding institutions, because a number of them (1) already fund open access with APC, and (2) imposed transparency requirements for publications funded by their fellowships. To do this, we have been in contact with Coalition S via Johan Rooryck and we have designed a two-stage approach.

We first provided a series of preliminary questions with a view to understanding the legal and regulatory constraints weighing on funders. These issues have been studied within Coalition S and have been added to other issues that relate in particular to books, and a survey should be prepared among the various partners on the current status of their funding for publication, and their regulatory constraints. Once this first stage will be completed, we should work together to build an information workshop and a survey for its members, which should be based on the following framework. First, we should present the empirical results of our research, as described in this report in summarised form. Next, we would present the proposed funding mechanisms, taking into account of course the results gathered from the funders, and in particular the need or not to go through third parties to finance publications. Finally, the second part of the workshop would be devoted to questions and answers from funders in order to assess the realistic and desirable nature of this direct funding, in addition to the funding of Diamond platforms which already exists today for a certain number of them.

Conclusion: advantages and challenges of the direct funding models

After we have presented the funding models - the specific destination of funding flows and the technical conditions of implementation - we will give a short conclusion on the advantages and limitations of direct funding support to journals. This conclusion will fully leave the floor to the journals. This has enabled us to identify many advantages but also several pitfalls to avoid regarding the implementation of direct funding.

The advantages of direct funding models for journals

One general notion that emerges is that this funding would provide support for journals and would ensure their continuity, whether carried out by funding software such as OJS, a "capacity centre" to access services, or by subcontracting certain acts such as *copy editing*, *proofreading*, etc.

> *ID 12778866676 : « It would be fantastic! It would give us (editor and scientific society responsible for the journal) the certain of continuity of the journal ».*

> *ID 12744892513 : « I think direct financial support by funders of OA diamond journals is an ideal mechanism. It would support OA diamond journals to provide open access publishing without charging fees to authors or readers. Direct funding of OA diamond journals would allow funders to directly control the systemic costs of OA diamond publishing and incentivise OA diamond journals in ways that align with a funder's objectives - i.e. to support the publication of high quality research ».*

> *ID 12744971226 : « That would be excellent. Our journal has been a OA diamond journal from the start. We have had to change hosting universities three times because of funding shortages. Meanwhile our only funding needs have been from the technical publishing process (copy-edit, proof reading, typesetting, drawing figures etc., DOIs, printing & e-hosting on PKP) ».*

This notion of complementary support is consistent with what many of the journals say, stating that they are not in need of a great deal of money to operate, even if there is a wide difference in the sums of money mentioned (between 750 and 20,000 dollars a year).

> *ID 12796318042 : « Find me $500-$750 per annum to distribute as I see fit to reviewers who are willing to turn substantive revision reports around in four weeks ».*

> *ID 12749362499 : « Annual funding of US$20,000 ».*

Beyond this general notion, five more specific benefits can be identified. First, the valuation of currently voluntary work, assuming that all or part of it could be remunerated.

> *ID 12797906214 : « It would be a good opportunity to value the work of the people involved in the journal's activities ».*

Second, the outsourcing of physical production acts, thereby allowing editorial teams to refocus on the scientific content, which would improve content quality.

> *ID 12744911757 : « I think it would be a great thing so that we could really concentrate on the content, and leave the formatting / editing job to professionals ».*

Third, compliance with a number of technical standards to ensure greater visibility of the journal.

> *ID 12745091845 : « I think it would be an important initiative, especially to fund the part of converting articles to xml and all the programming languages that most indexers charge publishers especially Scielo, I believe that indexers would improve the interface of their systems for the entry of preprints, and final articles in their respective systems therefore, without funding, it is increasingly difficult to maintain the regularity of publications and maintain the requirements of indexers as we advance in the qualification of the journal, more difficulties are encountered in maintaining the work pace required by the main indexers. in our case, Scielo and Redalyc that most need actions for the inclusion of articles in their marking systems ».*

Fourth, the redirection of financial flows away from major commercial publishers

> *ID 12797921501 : « it would be a great way to support independent and scholar-led journals. That is, spending money where it does not profit big publishers in a disproportionate way ».*

Fifth, an increase in the number of Diamond journals as a result of the publishing model becoming more sustainable.

> *ID 12789684920 : « I think it would remarkably increase the quality and quantity of Diamond OA journals, which support the main idea of OA ».*

Potential pitfalls associated with direct funding models

Despite these benefits, respondents also identify a certain number of disadvantages that would make the implementation of potential direct funding more complex. These are expressed in two different ways: either as a condition to be fulfilled in order for the funding to be genuinely beneficial to journals, or as an impediment that it is difficult to circumvent - this is the position in which we find the 7 journals that are opposed to direct funding, one of which is deeply pessimistic about implementing a project of this kind.

The first aspect mentioned by the journals is that of scientific independence: the risk that the funder may influence the editorial group's scientific policy.

> *ID 12748576478 : « Any financial support coming from research organizations to help the survival of academic journals is welcome, particularly if those organizations are not making their funds a tool to alter the contents or the academic bias of the journal ».*

> *ID 12748525054 : « I do not agree very much, perhaps freedom to investigate is lost, just thinking about money ».*

> *ID 12798245985 : « If it were funded externally in any way, the funding would have to be offered with few (or no) strings attached. The journal needs to be independent to ensure academic freedom ».*

Here, several respondents insist on the need for a funding channel maintained by public institutions.

> *ID 12798351507 : « I think it is extremely important to have state funding or organizations interested in disseminating science and knowledge, without this support free open access journals are not viable over time ».*

> *ID 12765440532 : « It should be no conflict of interest, and financial support should not limit the action of Editorial board and editor in chief in selectecting the content of the journal; I prefer the support from University and University based diamond open access journals ».*

The second aspect concerns the fear of an additional administrative burden, which would extend the already limited time of researchers working in journals.

> *ID 12749362499 : « It would be brilliant. But it should not require massive bureaucracy and reporting requirements ».*

> *ID 12778009654 : « it would be a dream... but it is necessary that the process is simple, does not generate paerasse and bureaucracy as we have no staff and no means to pay a temporary worker… »*

> *ID 12777865895 : « Would be very helpful although I doubt we have the time to deal with admin involved ».*

Third, some respondents fear the rise of "*predatory journals*", that would unfairly capture funding.

> *ID 12790655591 : « I do not think individual articles should be supported, as this may lead to diamond predatory journals ».*

> *ID 12806809929 : « I think it would be a welcome support for many scientific journals. However, I think it should be carefully allocated, only to journals that are not predatory and that are not for-profit ».*

Fourth, seven respondents consider that public funding is not an option, since their national institutions are not able to directly fund journals.

ID 12785248384 : « I do not know if it is possible to be accepted by our institution ».

ID 12750244732 : « I would welcome it and it would make a lot of sense to me to support journals from the "science budget," yet I am skeptical. For instance, our journal is located in a country where national funding organizations seem to be particularly inflexible and their budget seems to be also unfortunately decreasing at the moment (not their fault, it is a consequence of national policy) ».

Fifth, universities' assessment criteria do not promote publishing in Diamond journals.

ID 12778082527 : « 1. Funding a network of young untenured scholars to allow them to cooperate with the Diamond OA journals they prefer 2. Funding universities, but provided that (a) they use the money only for Diamond OA journals; (b) they modify their research evaluation criteria ».

Sixth, investors may not be interested under any circumstances.

ID 12762191352 : « This is an interesting idea and a good counterpoint to the DEAL-contracts between universities and publishers. We currently see a couple of publications that cover publically funded projects. We are based in Switzerland and mostly cover Germany, Austria and Switzerland. Only few of the funders require to explicitly name the funding organisation. So the interest of funding Diamond OA journals by the funders might be very small. The second source of funding are Open Access Publication funds by universities ».

Finally, the fact that the majority of the work that is done for journal articles is not funded by research entities. They would then not be able to benefit from funding.

ID 12777951732 : « We think is a good idea. However, this would probably not be applicable to our journal as most articles we receive/publish are not externally funded ».

All of the advantages and pitfalls mentioned here are summarised in table 5 below.

Table 5. Benefits and pitfalls of direct funding of Diamond journals

Benefits	Pitfalls to be avoided
Continuity of the journal	Risking loss of the editorial board's scientific independence
Valuation of work that is often done voluntarily	New administrative burden associated with financial transactions and with providing funder visibility
Outsourcing and professionalising certain acts	Development of predatory Diamond journals
Refocusing the editorial board on certification work	Institutional or legal inability to attract direct funding of journals in certain countries
Compliance with various technical standards	University assessment criteria not in line with publication in Diamond journals
Redirection of financial flows away from major commercial publishers	Lack of interest on the part of the research funders in Diamond journals
Increase in the number of Diamond journals	Publications based on non-financed research do not draw money to the journal

Appendix: Methods of gathering and analysing data

This work is primarily based on a questionnaire survey of Diamond journals. This questionnaire was drafted between March and June 2021, and aims to record the current funding models of the relevant journals and to explore new ways of funding them. First, we present the way in which we have drafted the questionnaire (1.1). Next, we look at the way in which the questionnaire was circulated and the data was collected (1.2). Finally, we describe the methods of analysing the material gathered (1.3).

The questionnaire structure

In the first stage, we mapped the work operations that have to be performed by the journals, from receiving manuscripts to publishing the articles. The aim of this kind of mapping is to clarify which resources are used for each, and then to identify what kinds of support a funder would be likely to provide. The list of acts does not presuppose what kinds of resources are used. They could be inside or outside the journal, either monetary resources or not. In order to identify the operations involved in scientific publishing in journals, we have drawn on a body of literature which includes publishers' presentations[17], text from the blog entitled *The Scholarly Kitchen*[18] and several other academic works on publishing costs[19]. The final version of this survey lists 26 acts which we have arranged into 7 groups and 3 major categories. At the start of Chapter 3, we provide a detailed presentation of this list when introducing the issues relating to the publishing process. Here we also refer to the

[17] Copernicus, *APC Information*, https://publications.copernicus.org/apc_information.html, page consultée le 16/03/2021

[18] Anderson, 2018, "Focusing on Value – 102 Things Journal Publishers Do (2018 Update)", *Scholarly Kitchen,* Feb 6, 2018, , page consultée le 16/03/2021.

[19] Brown, 2012, "Open access: why academic publishers still add value", *The Guardian*, https://www.theguardian.com/higher-education-network/blog/2012/nov/22/open-access-research-publishing-academics, page consultée le 16/03/2021 ; Contat**,** Gremillet, 2015, « Publier : à quel prix ? Étude sur la structuration des coûts de publication pour les revues françaises en SHS », *Revue française des sciences de l'information et de la communication* [En ligne], 7 | 2015, mis en ligne le 13 octobre 2015, consulté le 16 mars 2021. URL : http://journals.openedition.org/rfsic/1716 ; DOI : https://doi.org/10.4000/rfsic.1716 ; Grossman, Brembs, 2021, "Current market rates for scholarly publishing services", *Copyright, Fair Use, Scholarly Communication, etc.,*183, https://digitalcommons.unl.edu/scholcom/183 ; Waidlein, Wrzesinski, Dubois, et Katzenbach, 2021, "Working with budget and funding options to make open access journals sustainable", *HIIG Discussion Paper Series*, No. 2021-1, Alexander von Humboldt Institut für Internet und Gesellschaft (HIIG), Berlin, http://dx.doi.org/10.5281/zenodo.4558790

theoretical and methodological challenges inherent in compiling this kind of list, along with its limitations.

In the second, we finalised a version of the questionnaire on funding methods for Diamond journals. The questionnaire begins in a traditional manner by presenting the study. It was then structured into five sections covering the following areas: basic information about the journal, the financial position, the acts involved in the publishing process, the relationship with research funders, and options for a direct funding mechanism (Table 6).

Table 6. The five main themes of the questionnaire

Section title	**Content**
1. Your journal identification	Basic information about the journal (title, ISSN number)
2. Your journal economic configuration	Position of the journal within an a wider economic entity, its ability to receive/spend money
3. Tasks on a given manuscript	Who carries out the publishing acts? Which acts are paid for? Which acts would be paid for in an “ideal world” without any financial constraints?
4. Funding and grant report	Ability to identify the research funders by article and to provide reporting
5. Opinion on funding mechanisms	Opinion of journals on the principle of direct funding, and on the forms that such funding would take.

Out of the five different sections, the third one is devoted to mapping work. Based on the table of acts referred to above, we asked the journals in the survey to define the actors that carry out each , where the resources used come from and what the journal would do if it could access new funding. The first draft of the questionnaire was produced as a text file. Once the questions were finalised, we imported the questionnaire into an Excel file in order to facilitate the future testing stage.

The third stage involved a collective discussion of the questionnaire’s content. We tested the questionnaire twice in order to ensure that the questions were relevant. First, we undertook a number of discussions with members of the OPERAS consortium. They gave us some feedback and recommendations via a shared document. Second, we had the questionnaire tested by a “testing journal” who agreed to fill in the Excel version. These two tests enabled us to identify elements related to a proper understanding of the questions and to the choice of vocabulary used.

The fourth involves transcribing the questionnaire into Survey Monkey, an online software for creating questionnaires, sending them out to respondents, collecting the data, and analysing the data generated. This change in format enabled us to improve the questionnaire technically by

introducing conditional questions. The transition to Survey Monkey also provided an opportunity to rethink the graphic and ergonomic presentation for the respondents.

Dissemination and the collection of data.

The OA Diamond Journals survey which was carried out in 2020 enabled us to identify a sample of 1,252 journals which agreed to being contacted again for subsequent surveys. This sample group has one major advantage. Since we already had information about the specifics of these journals (such as the discipline involved, the country and how long the journal has been in existence - all of which was gathered in the course of the OA Diamond Journals survey), we were able to focus our survey on the specific questions related to our research subject. The questionnaire was made available on 16 June 2021 via an e-mail sent out to the journals in the sample. After two email reminders, the questionnaire was closed on 12 July 2021.

296 individuals opened and began filling in the questionnaire. After we extracted the data using Excel spreadsheets, we then cleaned it by deleting those participants who ultimately failed to provide responses and by deleting some duplicates. *In the end*, we gathered a total of 260 journals whose responses could be used for analysis. There number of responses to the different questions varied between 200 and 260 for general questions, then went down to less than 70 for conditional questions, and further down to only several respondents in the case of subsidiary questions.

We were able to match data from the previous survey by the title of the journal and the ISSN provided by our respondents. This way, we were able to identify 252 journals, enabling us to have specific data for the journals (disciplines, localisation, size), as well as operational data which was gathered beforehand (consolidated budget, annual number of articles, etc.). The 8 remaining journals could not be matched. They probably responded to our questionnaire due to our correspondence being forwarded to them. We conclude this section on questionnaire dissemination and data gathering by reiterating a warning mentioned in the introduction. When we state that we were able to analyse 260 responses, the range of different people potentially responding on behalf of their journal needs to be borne in mind. There may be a variation from one individual to another, from one respondent to another among the different job titles within a journal (editor-in-chief, member of the editorial board, sub-editor), leading to a variation in the level of knowledge of the publishing process and the types of funding. The responses to the open questions are a testimony to this diversity, as this is where extremely detailed comments as well as brief, vague, or even non-existent remarks can be found. If the respondents are the same as for the OA Diamond Journals survey (we contacted the journals using the email addresses that were provided in that survey), then 80% of respondents are editors-in-chief or members of the editorial board, and this may influence the responses provided.

Data analysis

In this last section, we describe in detail how we processed the data we gathered. We begin by explaining our methods regarding quantitative processing, before developing the qualitative aspect.

Quantitative treatment

Most of the questionnaire is structured around closed questions which impose a limited number of predefined responses. In this way, much data easily lends itself to a simple quantitative analysis that can de graphically portrayed. The online Survey Monkey software provides graphical formatting of responses to closed questions from the start. That said, we preferred to work with the raw data by exporting it directly into Excel. There were two reasons for this: the first was in order to do data cleansing (as mentioned earlier), and the second was to ensure a uniform graphical presentation. Some visualisations in Survey Monkey were unusable since the large amount of information generated dense, unreadable images.

In most cases during quantitative processing, we retrieved the dataset relating to a question, generated a table compiling the information and produced a graphical representation of that. We note that the graphs are usually histograms. The number of responses may vary from one question to another, particularly in part 3 of the questionnaire involving the list of publishing acts, so we systematically chose to display percentage levels rather than absolute values. For each histogram found in the report, the number of respondents is given in the body of the text.

We have also done some cross-referencing of datasets generated by the responses to several questions. Let us take an example Question 3.1 looks at which entities carry out the acts in the production process. Question 3.2 asks whether or not funding exists for each act. Therefore it is possible to know, for each respondent and for a given act, who performs it and if the involves a monetary transaction. For example, for the first acts (1. *reception*), out of the population of paid actors, 20 of them are editors-in-chief, only one of them is a member of the editorial board, 2 are sub-editors, and so on - as can be seen in Table 6, which presents the information on the entities paid for the different publishing acts.

Table 7. Payment to entities for publishing acts

CROISEMENT ACCOMPLISSEMENT DE LA TACHE (3.1.)/FINANCEMENT DE LA TACHE (3.2.)													
N° de tâche	Tâches (ordre	Editor-in-chie	Member of th	Copyeditor	Reviewer	Software	Contracter (p	Other (please	I don't know	TOTAL EMPIR	TOTAL THEOR	CONTROL	TOTAL de répondants
1	Reception of a	20	1	2	0	3	3	3	0	32	32	0	234
2	Formatting th	17	1	12	0	3	7	5	0	45	45	0	229
3	Communicati	25	1	2	0	0	5	3	0	36	36	0	233
4	Finding reviev	22	1	1	0	0	3	0	0	27	27	0	233
5	Reviewing (de	7	0	3	6	2	2	2	0	22	22	0	234
6	Decision of th	19	1	1	0	0	0	0	0	21	21	0	233
7	Response to t	22	1	2	0	2	4	1	1	33	33	0	232
9	Plagiarism ch	12	3	8	0	22	3	4	0	52	52	0	224
8	Identification	16	1	5	0	1	4	1	0	28	28	0	223
10	Conflict of int	20	0	6	0	0	6	2	0	34	34	0	226
11	Copy-editing (	10	2	49	1	1	19	4	0	86	86	0	232
12	Language edit	12	1	44	1	0	20	3	0	81	81	0	230
13	Checking com	19	2	25	0	0	10	5	0	61	61	0	226
14	Graphic work	9	1	29	0	0	28	11	0	78	78	0	227
15	Proofreading	15	2	28	0	0	8	10	0	63	63	0	227
19	Translation (s	9	0	15	1	0	22	4	0	51	51	0	209
20	Format produ	9	2	21	0	3	48	15	0	98	98	0	226
21	Semantisation	13	1	24	0	0	20	8	0	66	66	0	206
16	Image rights	11	1	13	0	0	5	4	1	35	35	0	216
17	Managing lice	13	0	9	0	0	6	4	0	32	32	0	211
18	Rights manag	13	1	5	0	1	7	6	0	33	33	0	219
22	Addition of m	15	3	13	0	2	24	8	0	65	65	0	217
23	Assigning a DO	10	1	13	0	8	19	16	1	68	68	0	217
24	Integration of	17	2	17	0	2	20	9	0	67	67	0	225
25	Putting the do	19	2	16	0	3	28	9	0	77	77	0	227
26	Publication o	15	0	11	0	3	17	7	0	53	53	0	210

Once cross-referenced, there are two options specifying how these results are expressed. For all cross-referencing, it is possible to consider an overall population (in our example these are the entities that complete the different acts), a smaller population which is governed by stricter criteria (in our example, entities who carry out the acts AND who are paid for doing them). Under these conditions, expressing these results in percentage terms means they can be compared to data from the overall population or to data from a more restricted population. When presenting cross-referencing of this kind in the remainder of the report, we specify what methodological precautions need to be taken when interpreting the results in percentage terms.

Qualitative processing

There were several open questions within the questionnaire which required free answers and which cannot be compiled and tallied. We have differentiated between two kinds of open questions which we have processed in different ways.

The first kind involves questions with a large number of answers (at least 200). This is the case for the last two questions (5.1 and 5.2) which probe the respondents' opinion on ways of directly funding Diamond journals, as well as for the free questions associated with publishing acts (3.4.1, 3.4.2, 3.4.3). In order process this data, we exported the responses to a text file and used qualitative data analysis software called ATLAS.ti. ATLAS.ti makes it possible to perform inductive coding while reading, and *ultimately* organise the material into several different categories and sub-categories. For example, question 5.2 examines the Diamond funding models that journals were considering. The coding within this software enabled us to identify several general categories (a model for a funding infrastructure, a model for service provision, a direct funding model, implementation conditions for a model, origins of funds, desired funding). These categories are then

broken down into several sub-categories (for example, a direct funding model with advertising, fundraising, voluntary contributions, fixed allocations, yield-based funding of publications. Once the categories are established and the coding has been done for all of the text, it is possible to retrieve all the sections of text associated with a particular code and thus rapidly gather examples which empirically support certain elements of the report's analysis.

The second kind of open question are those that elicited few responses, generally less than 10. These are ancillary questions which we sometimes ask about sums of money that the respondents are considering (to finance some activity). For example, conditional question 2.7 asks the journals lacking transactional capability (receiving money/undertaking expenditure) if the existence of sufficient funding would make them willing to set up an accounting system. The possible answers are "yes", "no", "don't know", and by responding by "yes", they would then be asked to enter in a free text field the amount of money they think would be sufficient for the purpose. We received four relatively short responses, so we processed these manually, reading the responses directly on the Excel spreadsheet and interpreting them. The value of this kind of response varies hugely, so they are not all mentioned in this report.