

# Response to Issues on Scholarly Communication in Japan (Summary of deliberations)

12 February 2021

Subcommittee on Journal Issues, Committee on Information  
Science and Technology, Council for Science and Technology  
(CST)

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## 1. Introduction

With the rapid spread of open access in recent years, journal issues have increased and become more complex, such as the increased burden of article processing charges (APCs) that render articles open to access and the normalisation of conventional subscription price increases. In Europe, two different guidelines have been actively promoted: OA2020, which promotes open access with a focus on gold open access<sup>1</sup> and Plan S, which mandates that the results of research funded by research funding agencies be opened immediately after publication. In response to these developments, universities and other research institutions, researchers, and library staffs in Japan have become increasingly concerned that the dissemination of their research results and access to academic information might be left behind other countries.

Under such situations, the Science Council of Japan and the Japan Association of National Universities have established a forum for these issues. However, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) has recognised that there are many stakeholders and therefore wide-ranging discussion from more diverse perspectives is needed. Therefore, MEXT established a subcommittee on journal issues under the Committee on Information Science and Technology of the Council for Science and Technology (CST) to look into comprehensive measures for cost burden of journals and open access journals.

Needless to say, it is an important purpose for the establishment of this subcommittee to consider the ideal form of dissemination of research results and access to academic information in Japan. The subcommittee understood that many universities, research institutions, and researchers were more concerned about "losing access to articles that are currently accessible" and "not being able to submit articles due to the increased cost burden of submitting articles" rather than discussing the current complexity of journal issues. It means that it is mainly a concern about the cost burden that lies ahead of them. Hence, the urgent issue for this subcommittee was to devise a way to respond to the continuous rise in subscription prices and the increase in APC burden, both issues related to the cost burden. These issues could then be placed in a wider context by considering what to aim for in terms of dissemination of research results and access to academic information in Japan.

Since its inception in January 2020, the subcommittee has discussed various issues relating to academic journals. This paper summarises the contents discussed so far.

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<sup>1</sup> Gold open access: a method of selecting open access for open access journals and subscription-based journals, mainly by an author bearing the APC and other charges

## 2. Circumstances Surrounding the Scholarly Communication

The circumstances surrounding the scholarly communication has significantly changed in the past. Under a situation centred on subscription-based journals by major international commercial publishers, the open access to articles has come to be recognised as a major challenge. In response to this rising challenge the G8 Science Ministers and Academy Presidents Meeting in June 2013 (Joint Statement) and other events prompted several countries to adopt strategic promotion of open access to research data through public funding based on the premise that the articles should be allowed to be open access. In particular, with the rise of data-driven science, research data itself, not just articles, is of great value and has become the next element of competition among countries, companies, publishers as well as research institutions.

Recent open access policies include, for example, the Horizon 2020 in Europe, which requires funded researches to accept open access and helps to achieve linkage of science and technology policy with open-access articles, wherein a grants program makes funding available for researchers to pay for the APC required for gold open access.

Policy movements such as OA2020, Plan S, and Horizon 2020, have increased the inclination to use the gold open access such that major international commercial publishers then introduced a publish–subscribe pattern (such as Read & Publish<sup>2</sup> contract) which integrates APCs into the subscription prices. Consequently, many countries have shifted away from traditional big-deal contracts<sup>3</sup>. In addition, there is another move of green open access<sup>4</sup> that has been promoted by voluntary efforts of researchers through archiving of their institutional repositories and posting on their preprint servers: Publishers have also started purchasing the preprint servers. More recently, open access systems have entered a new phase where publishers have launched a service to make authors' final manuscripts available on their own websites.

Meanwhile, 'Predatory Journals' have come to the fore as one of challenges involved with the development of gold open access. Through such journals, these malicious publishers target the income from APCs to exploit human networks and research funds for researchers, academic societies, and international conferences.

In light of such international situations regarding the scholarly communication, China has taken some actions on journal issues, from a standpoint of international scientific and technological competition, by aiming to launch top journals,

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<sup>2</sup> Read & Publish: One of contract patterns that transfer journal subscription costs to open access publication costs. A publisher receives the costs of subscription and publication in a single contract.

<sup>3</sup> Big deal: A large package deal in which all or part of a publisher's offering of titles is sold in one package.

<sup>4</sup> Green open access: A method whereby articles and other materials are published in institutional repositories and similar system established and operated by universities and other institutions.

reforming its policy on the evaluation of researchers' performance, and adopting a policy to enclose the research results of its own researchers in its own journals.

The current situation in Japan shows lack of understanding of the philosophy, background, means and rules of scholarly communication in response to the movement surrounding scholarly communication as described above. Hence, the scholarly communication by means of open access and other issues has not been fully established. In addition, the management and operation of research data that could be used as a resource for the future promotion of science and technology, or even the results of research funded by public competitive grants are currently only managed on an ad hoc and case-by-case basis. However, it is apparent that making research results and research data open allows these resources to be more readily available for subsequent research. Nevertheless, the situation in Japan is not such that a cross-disciplinary system through opened research results and data is yet available.

### 3. Direction of Discussions

The subcommittee, based on the current situations described above, has decided to classify and concentrate on the following challenges: addressing the normalisation of increase in journal subscription prices and burden on APCs without loss of time, taking actions to promote open access of journal articles, deliberating on how to present and publish research results, how to strengthen the dissemination of these results, and how to evaluate researchers without relying solely on the number of their articles and citations.

First of all, the issue of journal subscription prices, to be addressed as one of the key challenges, indicates on the surface that the continued rise in journal subscription prices strains the expenses of universities and other research institutions. However, another essential problem spawns from this one. With the spread of the 'big deal contract' type, which allows access to journals that were not part of the contract at the time of respective subscriptions (i.e., non-subscribed journals or nulls), access to nulls has become deeply rooted in researchers' activities, resulting in an essential part of their academic information infrastructure. Therefore, the cancellation of this contract evokes a potential crisis involving obstructed access to the infrastructure among researchers; that is, the access to future issues shall be lost and access even to the past ones shall not be maintained any more. Although academic information infrastructure has been seemingly popular as a result of the spread of such big deal contracts, this perceived crisis makes researchers feel that their big deal contracts should be maintained to ensure full access to non-subscribed journals, rather than examining the selection of journals truly needed and the burden of costs based on an analysis of usage.

Behind such a situation lies a lack of explanation from libraries and other scholarly communication departments about their own systems and attempts to share information such as contracts and usage across institutions. There is lack of understanding of this issue among researchers and awareness on the part of

researchers to regard this as their own problem. Consequently, cooperation among universities and other research institutions, libraries and researchers has not progressed at all, and the gap in bargaining power with publishers, who have a monopoly on information, is very large.

On the other hand, when discussing the journal issue, there are calls for creation of a top journal as a national policy here in Japan, which has been repeatedly on the table for discussion for more than a decade. However, even if this activity is initiated, the enormous amount of work and time it would take to gain recognition as an international top journal make it unlikely that it would instigate a rapidly-changing publishing pattern. Moreover, strategic discussions based on the importance of Japan's leading academic information platforms such as J-STAGE have not yet transpired.

#### 4. Corresponding Problem Analysis and Response

##### (1) Positioning journal issues in research activities

With regard to open access to articles, Japan has no major international academic publishers and has so far mainly focused on green open access while adopting gold open access as appropriate. However, the journal issues have tended to be trivialised as one of reducing library subscription costs in the absence of adequate discussion on how the publication of research results and their evaluation should be conducted on the principle of open access to articles.

As the digitisation of the entire research activity advances, research fields such as physics, mathematics, computer science, and informatics are diversifying their venues for publishing research results and posting on preprint servers is becoming more common. In many fields the disclosure of research data as evidence for articles is a prerequisite for submission. The handling of such data is rapidly becoming more important. In response to this, the activities of major international commercial publishers are expanding beyond the publication of articles to provide their own platform, which supports a cycle of exchange, sharing, storing, and provision of every piece of information including data obtained from research activities. This situation is all very well but it tends to give every research activity little choice than to rely on the publisher's platform.

As mentioned above, the trend toward open access of articles and their research data has begun and is progressing to the substantive stage of managing, sharing, and publishing research data as a more readily available source for subsequent research. Such an advancement is becoming a global trend although there are some differences among fields. In response to this trend, Japan must decide on a policy for managing, sharing, and publishing of research data as well as publishing research results, and take the lead in the world. Otherwise, it shall not only fall behind again, but also risk having its research activities themselves shrouded in platforms provided by publishers. The trend towards open access of

research data not only creates an environment for the emergence of the next generation of research through the rise of data-driven science, but also guarantees researchers the preeminence of their data and the fairness of their research activities. The issue associated with the scholarly communication, which started with journal issues, is no longer simply a matter of taking measures to reduce the cost of journal subscription, but is also an issue bound to our country's research promotion strategy itself.

## (2) Current challenges to be addressed urgently

The most pressing issues deduced by the subcommittee are largely related to the expenditure of universities and other research institutions as an organisation and of individual researchers. Formerly, the principal expenditure, as discussed previously, for infrastructure development for such institutions as a whole, mainly for libraries, entailed a continuous increase in subscription prices in 'big deal' and other contracts. Meanwhile, the APC, which is the substance of the latter expenditure, is left to individual researchers, as it is customary for it to be spent mainly from their individual research funds and so on. It is difficult for universities and other research institutions to discuss these issues centrally, and the current situation where they are not able to grasp the amount of their own APC makes the discussion even more difficult.

Furthermore, in Japan, where the place of publication of research results is left to the free will of the researchers, and where research funders and institutions are not involved in setting the directions of researches, the movement differs from that of other countries that adopt more strategic research plans. It is also difficult to discuss the background to the promotion of gold open access in other countries by shifting to a 'Read & Publish' model, as the same strategy cannot be applied to Japan in different circumstances where there are no major international academic publishers.

However, based on the discussions held so far, and the current environment of scholarly communication, the most important challenge to address in Japan is the optimisation of subscription costs and APCs, such as big deal contracts. In other words, it is necessary to link journal subscription costs, which have been handled mainly by libraries, with the APC of each researcher, and negotiate with publishers from the perspective of whether this is the optimum allocation. In addition to this cost negotiation, it is also necessary to negotiate among universities and other research institutions with similar research strategies and contracting situations, based on a study of how the research strategies of the universities and other research institutions can be optimised. Japan Alliance of University Library Consortia for E-Resources (JUSTICE), which is currently negotiating with publishers, has been criticised for not being able to respond to the diversification of publishing patterns in some areas. The participating universities are diverse in size and characteristics and the contracting parties are not JUSTICE but the individual university libraries, and also because publishers have expressed the opinion that the proposed products cannot be assembled as a whole. Considering these situations, the universities and other research institutions are required to get together, adjust the contracting parties, and enter

into substantive contract negotiations as soon as possible. Furthermore, JUSTICE is needed to provide such university and other research institutions with various information it has gathered to provide support for them.

In the above process, universities and other research institutions should reorganise their contracts and cost allocations after determining the most appropriate form of contract for each of these institutions, and build an organic network where not only research institutions but also the National Diet Library can share information on journals, they have under contract with each other and compensate each other for any shortcomings. It is desirable that the Japanese government should follow up on such initiatives and provide the necessary support.

The subcommittee has judged that the understanding of the problems with currents (volumes published in the contract year) and back files (volumes published before the contract) of big deal contracts in journals is insufficient, and has collected information to be reviewed for the judgement through interviews with universities and other institutions that are practising the review of big deal contracts and making decisions on whether or not to continue them. This information should be used as a reference guide for not only libraries but also the executive board of respective universities and other research institutions to make a comprehensive decision based on their research strategies (see Reference Data 1 and 2). Respective universities and other research institutions need to determine which contract type is the most appropriate and rational based on their own specialities, research strategies, and policies for the development of the academic information infrastructure through collection of data for reference. This is also a prerequisite when universities and other research institutions come together based on the same research strategies and contracting situations mentioned above as a means to discuss how to group the contracting entities and related issues. At the same time, from the perspective of building a safety net, it is necessary to maintain access to back files and share the information, as well as to build a mechanism to compensate for the matters which cannot be fully handled, including the use of Inter Library Loan (ILL) services.

<Specific actions requested by the subcommittee>

[Universities and other research institutions (executive board)]

- Collect the relevant data (see References Data 1 and 2), determine the most appropriate type of contract based on the respective research strategies, and reorganise the contents of the contract and the allocation of costs.
- Determine the best type of contract respectively, group together universities and other institutions of similar size, contracting status, and other factors as a contracting entity, discuss what is the negotiating entity for each group, and clarify it.



- Consider building an organic network by which representatives of each field can share knowledge through journal subscriptions or other means to fill knowledge gaps from outside their areas of expertise.

[Universities and other research institution (libraries and other scholarly communication departments)]

- Collect and analyse relevant data (see References Data 1 and 2) and share the results with the executive board.
- Collect and analyse data which is difficult for libraries to collect on their own such as the amount of APC expenditures in cooperation with the relevant departments.
- Provide information and explanations proactively and carefully on the current situation concerning respective institutions, not only for the executive board of the institution itself, but also for the researchers belonging to the institution.

[Japan Alliance of University Library Consortia for E-Resources (JUSTICE)]

- Clarify the research strategy including the division of roles among universities and other research institutions to be grouped together by contracting entity, drawing on experiences of negotiating with publishers accumulated to date.
- Share information collected by JUSTICE among participating institutions more than ever before.
- Define the future position of JUSTICE and examine what is needed to strengthen its functions.
- Make efforts to disclose the contents of negotiations and contracts with publishers as clear as possible.

[Research funding agencies]

- Clarify that the results of a funded research should be made open access in principle.
- Discuss the establishment of a framework to provide necessary supports for researchers in making their results open access.

[MEXT]

- Conduct a fact-finding survey on APC expenditures at respective universities and other research institutions to ascertain the situations and share the results.
- Grasp the involvements in open access and situations of universities and other institutions and provide them with appropriate supports including the way of continued access to back files and establishment of safety nets.

### (3) Other current challenges to be addressed

At present, neither articles in open access alone nor ones in paid journals alone are enough to garner the necessary articles for conducting research. It will take some commitment of time to correct both measures, with increase in expenses that universities and other research institutions must bear for the distribution of research results. Measures to deal with this situation are urgently needed, as discussed in the previous section, and must be geared towards what should be aimed for.

If the measures to be taken for urgent challenges are included in emergency measures to maintain a current open access status for the time being, what should be initiated now is the construction of a mechanism for the decentralised arrangement of and access to academic information resources, including articles to be published in the future. To accomplish this, open access must be made mandatory for articles published in the future which are the fruits of publicly-funded research and the research data. The data that provides important evidence needs to be readily available to share and disclosure as raw material for subsequent research.

Outside Japan, open access to articles resulting from publicly funded research is already a prerequisite, and the promotion of open access to research data is also being strategically promoted. If Japan does not make open access to such articles mandatory in practice, it shall not only be left behind in the global arena, but inevitably lose its presence and new research areas leading advanced research in many fields.

Specifically, research funding agencies should make open access mandatory for articles resulting from researches they funded. In doing so, taking into account that green open access has been a mainstay in Japan, researchers should be allowed to make strategic choices without relying on the business model of the publishers. This comes with the recognition that open access methods can be diverse, for example, posting on preprint servers in research fields where distribution of research results has been established, or posting in bulletins and institutional repositories of authors' final manuscripts. At this time, appropriate arrangements and measures should be taken so that researchers can contribute to research activities without burden.

In addition, when selecting a platform to be used for sharing and publishing research data, researchers should be encouraged to fully examine the conditions of use, terms and conditions of the platform, and related matters to avoid disadvantageous situations for them, such as sudden shutdown of the platform's functions. At the same time, the environments for the construction and implementation of an internationally certified platform should be steadily promoted.

### (4) Future challenges to be considered

The goal to reach for scholarly communication is to widely distribute research results not only to the research community but also to society, leading to the

further development of science, technology, and other academic fields. Traditionally, research results have been compiled in the form of an article, peer-reviewed by researchers in the same field, and published in journals after careful examination of the content. This was then evaluated by the research community. Based on this system, evaluation systems for researchers, research projects, universities, and other research institutions have been established. However, the means by which research information and data are conveyed is being diversified: The form of publication of research results is no longer limited to articles published in journals, but preprinted ones. In addition, the value of the research data itself has been treated as important. Under these circumstances, the current evaluation system is still based on the old system, but the way in which research results are published (i.e., the way of scholarly communication) is changing. Hence, the evaluation system should be reviewed in keeping with these changes.

It should be noted that the quantitative indicators for articles that have been frequently used in evaluations do not necessarily accurately describe the quality of the research outputs; nor, alone, do they express the overall quality of research outputs directly. Nevertheless, it is undeniable that the number of articles produced and the number of citations of individual articles constitute a part of the indicators of research evaluation. They gauge an aspect of researchers' results dissemination activities and an indication of the level of attention and impact of published articles, respectively. However, it has also been pointed out that the quality of research results cannot be evaluated only by some of these visualised and quantified quantitative indicators.

The impact factor is sometimes used as if it were an indicator of the quality of individual articles published in a journal although it is a measure of the journal and does not directly guarantee their quality in that journal. This is clearly a misuse of the indicator.

The Previous report by the Council for Science and Technology (CST)<sup>5</sup> and the Policy of Assessment of Research and Development in MEXT<sup>6</sup> have pointed out that impact factor must be used with caution recognising that it is not an indicator of the quality of individual articles in journals. The use of quantitative indicators in the evaluation of researchers at universities and other research institutions in particular requires renewed attention.

Overdependence on and misuse of quantitative indicators lead to a distortion of researchers' research activities as well as their submission behaviours because these indicators give individuals or institutions a high evaluation, for example by seeking publication in journals with high impact factors or by seeking to increase citations by paying APCs to make their work open access. Publishers have taken advantage of this along with various measures to attract more submissions, creating a cycle in which commercial competition intensifies, and

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<sup>5</sup> Future of Academic Information Infrastructures (Report) (23 March 2006, Working Group on Academic Information Infrastructures, Subdivision on Science Research Environment Infrastructure Group, Council for Science and Technology).

<sup>6</sup> Policy of Assessment of Research and Development in MEXT (final revised 1 April 2017)

the publishers surviving this cycle have established a strong position. Such a situation continues to worsen. To break this cycle, relevant ministries, research funding agencies, evaluation bodies, and research institutions such as universities should clarify their evaluation policies when conducting research evaluation so that the diversity of research activities is evaluated without being overly biased towards specific indicators. Their evaluation indicators should be clearly shown in advance. At the same time, the nature of the various indicators used should be correctly identified, and rules and guidelines should be established for the operation of evaluation using the indicators. Care should always be taken to prevent misuse of the indicators. In the evaluation of research activities such as the creation of new fields and efforts to contribute to the local community, which cannot necessarily be measured only by the results of articles and other publications, it is necessary to evaluate them from a new perspective. For example, an ideal form of indicators should be pursued for researchers carrying out academic research, such as adding a viewpoint that emphasises initiatives that point towards open access.

## 5. Conclusion

The trends surrounding journals continue to change from moment to moment, providing an opportunity for global research communities to review the state of scholarly communication. Global research communities are now in pursuit of an ideal form of scholarly communication, sometimes in concert with, and sometimes in conflict with, the academic publishing community, under the philosophy of open science.

Traditionally, peer reviews in research communities have been conducted by researchers in the same field. Peer reviews in journals published by academic associations were the archetypal standard. Taking into account that commercial publishers, in their journals, have appropriated a peer review mechanism which has been contributed and maintained on the basis of a mutually beneficial relationship between researchers in the first place, each research community needs to take a stance that demands fairness among commercial publishers in building mutually beneficial relationships with them. Based on this, if the reduction of purported services offered by commercial publishers is deemed to be unfair, researchers themselves need to communicate this fact and make a strong statement in negotiations, for example, by making it an option to refuse their peer reviews under research strategies of an institution.

In addition, it is important for readers to develop a discerning eye for the contents of articles in response to new means of scholarly communication, such as forms of publication without peer reviews.

Currently, Japan is also required to improve its international competitiveness and international presence in the world in the fields of science, technology, and other academic fields. Furthermore, the recent novel coronavirus (COVID-19) infection has led to the need for digital transformation in all aspects of daily life,

and from this perspective, the open access of research results and research data must be accelerated.

In order to maintain the environments of scholarly communication that are optimal for researchers to carry out their research, we cannot get passively tossed about by international trends. Rather, we must promote the efforts of those institutions that are leading by example in implementing exemplary measures, so that they can continue to engage in concrete activities that seek to realize the principles of science and technology and academia. We also hope that all concerned institutions and personnel will take immediate action based on the direction presented in this summary, and proceed without hesitation to do what is feasible and proactively work to solve the problems.

## Accounts of the collection of data for rational contractual decision-making

Below are examples of data which should be collected in order to determine whether or not each institution's contract is the most reasonable, as interviewed by the present subcommittee. These are examples for reference. Respective universities and other research institutions should collect really required data in accordance with their characteristics and other factors.

Examples of data to grasp what journals are needed:

- Grasp of journal usage and article submission status
  - Number of titles (subscribed and non-subscribed journals)
  - Number of downloads
  - Percentage of subscribed and non-subscribed journals in the number of downloads
  - Well-cited titles (based on the number of citations)
  - Number of articles made open access (by green open access and gold open access)
- Grasp of the costs associated with use
  - Subscription price
  - Unit price per download
  - Price increase rate for big deal versus individual title contracts

Examples of data collection methods:

- Extraction from available databases
- Acquisition of necessary data from publishers
- Installation of software for collection and analysis

Respective universities and other research institutions are required to urgently collect the data needed for the above-mentioned analysis and establish an organisational structure to determine the most rational contract type.

Some universities and other research institutions have already collected and analysed such data, and as a result of their review, some have chosen to dismantle the big deal. Dismantling is not the end of the process; after that, the following efforts need to be pursued.

Example of efforts after unbundling:

- Monitoring of journal use status after unbundling
  - Number of accesses
  - Number of access denials
  - Number of interlibrary loans (ILLs)
- Examining and securing of alternatives
  - Examining safety net
  - Reviewing and selecting of necessary titles through monitoring
  - Purchasing of coupons to purchase the pay-per-view of articles

In the case of unbundling the big deal journal packages, it is important for libraries to take initiatives such as introducing access to alternative materials and specifying the scope of back files held, for the purpose of reducing anxiety and inconvenience of researchers and others who may not be able to access their articles as a result of the unbundling.

### Case study on the introduction of the 'Read & Publish' model

Below are examples of introduction of the 'Read & Publish' model that was interviewed by the present subcommittee. These are examples for reference. Universities and other institutions must determine which publishing pattern should be introduced in light of their own policies, respectively.

Examples of data to examine introduction of the 'Read & Publish' model:

- Grasp of the actual status of article submissions to relevant journal publishers
  - Number of articles submitted
  - APC spending
  - APC price list
  - Number of downloads
  - Number of articles made open access (by green open access and gold open access)
- Grasp of the costs of introducing the 'Read & Publish' model
  - Calculation of the difference in the percentage increase in price between the subscription model and the 'Read & Publish' model
  - Percentage of the cost of the 'Read & Publish' model to overall information material expenses
- Grasp of the status within the institution
  - Open access status  
(e.g., percentages of open access, green open access, gold open access in all articles)
  - Amount of APC and type of expenditure (financial resources)
  - Conducting an internal questionnaire (survey of intentions) on current contracts

When introducing the 'Read & Publish' model, it is necessary to grasp the data as described above and determine whether it is a pattern that can be introduced without significant burden for the institution, in light of the full cost of information materials and the status of open access.

As the work relates to the publication of articles, it is essential that the library does not tackle this alone, but works with the departments related to research promotion, discussing the actual operational structure and deciding on a policy for the institution as a whole.



When informing the results within the institution, attention should be taken not to induce researchers to submit their articles to a particular journal, as this is not an invitation to submit to a particular journal.

The 'Read & Publish' model does not end with its introduction. After that, it is also necessary to study evaluation indicators to be applied to evaluation of the contract.

# Response to Issues on Scholarly Communication in Japan [Summary]

(Subcommittee on Journal Issues, Committee on Information Science and Technology, Council for Science and Technology, 12 Feb 2021)

## 1 Introduction

- Issues surrounding journals go beyond the traditional normalisation of subscription price rises. With the rapid spread of open access in recent years, journal issues have increased and become more complex, such as the increased burden of article processing charges (APCs) that render articles open to access.
- In Europe, the OA2020, Plan S and other open access initiatives are gaining momentum, leading to a sense of unease that Japan might be left behind in the dissemination of research results and access to academic information.
- The study group examined the pressing challenge of dealing with the continuous rise in subscription prices and the added burden of estimating APCs toward a better way of disseminating research results and accessing academic information.

## 2 Circumstances Surrounding the Scholarly Communication

- The circumstances surrounding the scholarly communication have changed significantly, and in other countries, open access to articles is a major premise along with strategic promotion of open access to research data through public funding. Especially with the rise of the data-driven science, research data itself, notwithstanding the articles, is of great value so as to become an element of competition among countries, companies, publishers and research institutions.
- In response to the growing trend towards gold open access, major international commercial publishers have proposed a 'Read & Publish' model where the APC is integrated in the subscription price. A shift away from traditional big deal contracts is underway in other countries, and even a move to acquire pre-printed servers for green open access. In addition, some publishers have launched a new service that allows researchers to make authors' final manuscripts available on their own websites.
- Meanwhile, malicious publishers use their predatory journals to exploit human networks and research funds of researchers, academic societies, and international conferences. Such a case has come to the fore as one of challenges involved with the development of gold open access.
- The direction of open access in Japan is currently undecided. In addition, dissemination of research results and research data has not defined a cross-disciplinary system that could be used as a resource for open communication of research.

## 3 Direction of Discussion

- Current challenges to be addressed urgently: Normalisation of the increase in journal subscription prices and burden of determining APCs.  
Other current challenges to be addressed: Responding to the move toward open-access, and how research results should be presented and published.  
Future challenges to be considered: How to enhance the ability to disseminate research results, and how to evaluate researchers without intensive scrutiny of the number of papers and citations.

## 4 Corresponding Problem Analysis and Response

(1) Positioning journal issues in research activities

- Activities of major international commercial publishers are expanding beyond the publication of articles to serve as a platform to support the cycle of exchange, sharing, storing and provision of information including data obtained from research activities. By this means, all research activities have little choice than to rely on the publisher's platform.
- Japan must decide on a policy for publishing research results but also the management, sharing, and disclosure of research data with the view of taking a leading role in this respect worldwide. Otherwise they risk not only falling behind again, but also having research activities restricted to the platforms provided by publishers.
- The scholarly communication in journals as well as journal issues are not just a matter of taking measures to reduce journal subscription costs but rather a matter of promoting Japan's research strategies themselves.

(2) Current challenges to be addressed urgently

- Under the current environment of scholarly communication, Japan should respond to the optimisation of subscription expenses associated with 'big deals' and APC.

<Specific actions requested by the subcommittee>

[Universities and other research institutions (executive board)]

- Determine the most appropriate type of contract based on each research strategy, rearranging contract details and cost allocation.
- Consider grouping research institutions, such as universities and those with similar size and contract status, as contracting entities to clarify negotiating entities.
- Construct organic networks that enable information sharing and complementation.

[Universities and other research institutions (libraries and other scholarly communication sections)]

- Collect and analyse related data (see References Data1 and 2 on the reverse side) and share the results with the executive board.
- Collect data including APC expenditures in cooperation with the relevant departments.
- Provide information and explanations proactively and carefully on the current situation concerning respective institutions to the executive board and affiliated researchers.

[Japan Alliance of University Library Consortia for E-Resources (JUSTICE)]

- Clarify the research strategy including the division of roles among universities and other research institutions to be grouped together by contracting entities.
- Share further information among participating institutions.
- Consider enhancement of JUSTICE functions.
- Make efforts to disclose the contents of negotiations and contract details with publishers.

[Research funding agencies]

- Clarify that the results of a funded research should be made open access in principle.
- Establish a supporting framework as a service to researchers for open access of research results.

[Ministry of Education, Culture, Sports, Science and Technology]

- Conduct a fact-finding survey on APC expenditures at universities and other research institutions and share the results.
- Provide appropriate supports that maintain continued access to back files and establish safety nets.

- (3) Other current challenges to be addressed
- What should be initiated now is the construction of a mechanism for the decentralised arrangement of and access to academic information resources, including articles to be published in the future.
  - For this reason, research funding agencies should mandate open access to research papers obtained from funded research. This allows researchers to make various strategic choices such as posting articles on preprint servers and posting bulletins/authors' final manuscripts in-institutional repositories. Appropriate arrangements and measures should be taken so that researchers can contribute to research activities without burden.
  - When selecting a platform to be used for sharing and publishing research data, researchers should be encouraged to fully examine the conditions of use, terms and conditions, and related matters to avoid disadvantageous situations for them, such as sudden shutdown of the platform's functions. At the same time, the environments for the construction and implementation of an internationally certified platform should be steadily promoted.
- (4) Future challenges to be considered
- The publication format of research results now goes beyond articles published in journals to include preprints published before peer review, and the value of the research data itself, an important feature evolving as evaluation systems change. Evaluation systems also need to be reviewed in line with these changes.
  - Overemphasis on or misuse of quantitative indicators related to papers is a way for individuals or institutions to receive high evaluation but which can lead to distortion of researchers' research activities as well as their submission behaviours.
  - Relevant ministries, research funding agencies, evaluation bodies, and research institutions such as universities should clarify their evaluation policies when conducting research evaluation so that the diversity of research activities is evaluated without being overly biased towards specific indicators. Their evaluation indicators should be clearly shown in advance.

## 5 Conclusion

- The trends surrounding journals continue to change from moment to moment, providing an opportunity for global research communities to review the state of scholarly communication.
- Taking into account that commercial publishers have appropriated a peer review mechanism which has been maintained based on the mutually beneficial relationship among researchers, research communities need to take a stance that requires publishers to provide a fair response and to build mutually beneficial relationships. In addition, it is important for readers to develop a discerning eye for the contents of articles.
- Currently, Japan is striving to improve its international competitiveness and presence in the world in the fields of science and technology. Digital transformation is required in all aspects of daily life and, from this perspective, the open access of research results and research data must be accelerated.
- In order to maintain an optimal environment for scholarly communication and for researchers to carry out their research, it is hoped that all concerned institutions and personnel will take appropriate action based on the direction presented in this summary, and proceed to tackle the problem proactively.

### Reference Data 1 : Accounts of the collection of data for rational contractual decision-making

※ These are only examples, and may differ depending on the characteristics of the university or other research institution.

Examples of data to grasp what journals are needed:

- Grasp of journal usage and article submission status
  - Number of titles (subscribed/non-subscribed journals)
  - Number of downloads
  - Percentage of subscribed/unsubscribed journals in the number of downloads
  - Well-cited titles (based on the number of citations)
  - Number of articles made open access (by green open access and gold open access)
- Grasp of the costs associated with use
  - Subscription price
  - Unit price per download
  - Price increase rate for big deal versus individual title contracts

Examples of data collection methods:

- Extraction from available databases
- Acquisition of necessary data from publishers
- Installation of software for collection and analysis

Some universities and other research institutions have already collected and analysed data, and as a result of their review, some have chosen to unbundle the big deal. After unbundling, the following efforts need to be pursued.

Example of efforts after unbundling:

- Monitoring of journal use status after unbundling
  - Number of accesses
  - Number of access
- Number of Inter Library Loans (ILLs)
- Examining and securing of alternatives
  - Examining safety nets
  - Reviewing and selecting of necessary titles through monitoring
  - Purchasing of coupons to purchase the pay-per-view of articles

### Reference Data 2 : Case study on the introduction of 'Read & Publish' model

※ These are only examples, and may differ depending on the characteristics of the university or other research institution.

Examples of data to examine introduction of the 'Read & Publish' model:

- Grasp of the actual status of article submissions to relevant journal publishers
  - Number of articles submitted
  - APC spending
  - APC price list
  - Number of downloads
  - Number of articles made open access (by green open access and gold open access)
- Grasp of the costs of introducing 'Read & Publish' model
  - Calculation of the difference in the percentage increase in price between the subscription model and the 'Read & Publish' model
  - Percentage of the cost of the 'Read & Publish' model to overall information material expenses
- Grasp of the status within the institution
  - Open access status (e.g., percentages of open access, green open access, gold open access in all articles)
  - Amount of APC and type of expenditure (financial resources)
  - Conducting an internal questionnaire (survey of intentions) on current contracts