This roadmap outlines the joint commitments and efforts towards open access to research results by fifty-one leading doctorate-granting universities of science and technology from twenty-six countries united within the Conference of European Schools for Advanced Engineering Education and Research (CESAER). It thus describes our contribution to the multi-actor approach to reach the important pan-European goal of full (100%) open access to all research results funded by public money - such as peer-reviewed articles, monographs, reports, conference proceedings, books, chapters, data and databases - by 2020.

The extremely quick developments in Information and Communication Technology (ICT) empower accessibility and tremendous efforts worldwide dynamically promote open access to research results. Dedicated and strong leadership and new publishing and access models are key to success. CESAER’s Task Force Open Science (TFOS) promotes open access to research results by supporting our Members in open access publishing and archiving and working with initiatives and organisations that have this objective. The TFOS actively supports initiatives to use transparent business models that are based on covering the true cost of publishing and remain focused on avoiding an increase of the total cost of publication and that provide open access to the final version of research results. The President represents the universities of science and technology united within CESAER in the Open Science Policy Platform (OSPP).

The TFOS offers this roadmap for feedback and adoption to all Members by 10th March 2017 also mandating our President in his work in the OSPP.

Context

The May 2016 Council Conclusions on open science call for open access to scientific peer reviewed publications as the default by 2020. The Amsterdam Call for Action and the European Open Science Agenda set out a number of actions - either for specific stakeholders or as joint actions.

In order to make open access a reality the European Commission (EC) and Member States need commitments from all stakeholders on concrete actions to make rapid and substantial progress in order to realise that open access to research results becomes the default for the results of publicly funded research. Therefore, the EC wants to:

1. receive advice how to encourage the stakeholders to really follow up on the actions that are mentioned in the Council Conclusions, Amsterdam Call for Action and the European Open Science Agenda;
2. receive feedback on the uptake of actions by the stakeholders;
3. know how to organise this and what the role of the OSPP could be on this;
4. receive advice how the EC could follow up.
Description current routes to open access

The various routes to open access are summarised in this paragraph:

- Several European countries have formulated and are implementing **national open access strategies**. They focus on increasing the share of open access publications in the total number of publications, but differ in the preferred routes to achieve this. Some concentrate on gold open access (open access publishing), others focus on green open access (open access repositories), yet others endorse green as well as gold as long as the total costs do not increase. The national strategies mostly have set a goal of open access being the standard around 2020. Libraries, universities and other players negotiate big deals with the large publishers. Some countries have attempted to integrate open access agreements into these deals, whether by the green or gold route. There are a few examples of success with this, but the publishers largely try to resist this linking (or propose an unacceptable price increase in relation with this).

- **Open access mandates** demand open access of researchers in cases where those requirements can be made. This includes research funders (see e.g. the Wellcome Trust, the Austrian Science Fund, or the Dutch Science Fund), academic employers and maybe even national law.

- Employers set **open access incentives** through adjusting their reward systems with connections to internal funding and in the form of extended criteria for new scholarly positions. Open access can be highlighted in evaluations of researchers and institutions. High standards can be rewarded, e.g. the use of open licenses for scholarly content.

- **Open access awareness** can be raised to address the commitment of researchers, departments and rectorates to open access. By educating researchers about their rights, they can be supported to manage their copyrights prudently and to make informed decisions about their publishing strategies. Sharing best practices and offering multiple ways of support helps with the orientation in the often unfamiliar field of copyright in relation to open access.

- Exploring different and new ways of **open access publishing** will allow for better and cheaper alternatives to the current expensive open access models. Models that are more transparent are important to realise and will make the benefits of openness even more obvious. While new open access journals have a chance of implementing everything right from the start, they often lack reputation in the first years of existence. Flipping established journals to open access models allows for the preservation of reputation, editorial structures, etc. Funders and universities can support both strategies by offering financial and operational support for open access journals.

- **Open access infrastructure** allows for the production, dissemination and aggregation of open access publications run by research libraries or institutes. It includes open access repositories (institutional or subject-based), journal platforms, monograph platforms and preprint platforms (see e.g. ArXiv). Meta-systems like harvesters, search engines (see e.g. BASE), and meta-repositories (see e.g. OpenAIRE and PubMed Central) aggregate content from a large number of systems.
Requirements, aims and activities

Any joint efforts by the universities of science and technology united within CESAER should comply with the following requirements:

1. They should complement the national activities through a pan-European approach.
2. They should be within the remits of university leadership.
3. We seek to reinforce and complement the work of other organisations represented in OSPP such as the European University Association (EUA) and the League of European Research Universities (LERU).

Aim 1: raise awareness, understanding and commitment within Members

CESAER aims at raising awareness, understanding and commitment for open access to research results among university leaders and researchers on the following topics:

- routes to and monitoring of open access;
- optimal use of copyright and ownership, including deposit of researcher’s publications in trusted repositories;
- repositories and discovery services working across repositories;
- flipping journals, in collaboration with societies (as journal owners and as organisations that can talk to their members about editorships etc.).

Activities:

1. identify journal editors and explore new ways of supporting open access publishing;
2. reach agreement on cooperation with other organisations represented in OSPP;
3. finalise information (papers and presentation) describing best practices at institutional level and containing key message and providing concrete guidance to university leaders and researchers;
4. disseminate information – such as open access and open science guidelines and best practices to create institutional open access policies;
5. organise one or two open workshops.

Aim 2: co-shape future of scholarly publishing

CESAER seeks to shape the future in scholarly publishing by also contributing to the work of an European Commission High-Level Expert Group on the future of scholarly publishing.

Activities:

1. develop positions on the future of scholarly publishing and seek coalitions to implement them;
2. test alternative business models and provide feedback;
3. optimise open access infrastructures.
**Aim 3: change quality assessment and reward and incentive systems**

CESAER wants to contribute to changing current perceptions on scientific quality, assessment and rewarding of science aimed at developing clear guidance to university leaders on how reward systems can work better for the benefit of open access within the broader context, including open education, science and innovation and more open to society. The ultimate goals are to:

- promote open access practices to research results;
- minimise the influence of the journal impact factor on the perception of scientific excellence;
- boost alternative metrics;
- provide concrete principles and guidelines for better assessment and rewarding of and providing incentives for scientific excellence, including for open access to research results.

**Activities:**
1. sign the San Francisco Declaration on Research Assessment (DORA) and draft joint Principles & Guidelines to enact it;
2. develop positions and principles & guidelines for to university leaders on how reward systems can work better for the benefit of open access within the broader context, including open education, science and innovation and more open to society.
3. organise a conference to and present disseminate them.

**Aim 4: make open access strategies work**

CESAER will contribute to making open access strategies work.

1. share best practices and experiences with relevant negotiators;
2. undertake possible follow up activities assuring implementation and compliance.

For more information and enquiries, please contact the Co-Chairs of our TFOS Torbjørn Digernes at torbjom.digernes@ntnu.no and Wilma van Wezenbeek at W.J.S.M.vanWezenbeek@tudelft.nl or our open access expert and the Lead of the Subgroup Open Access Marco Tullney at Marco.Tullney@tib.eu.