

# Open Access Resources: E-Resource Development and Management (2016-2020)

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## Abstract

This paper examines the development and management of Open Access (OA) e-resources from 2016 to 2020, a period marked by significant transformation in scholarly communication. Open Access is defined as providing unrestricted access to scholarly publications, and during this period, it gained traction due to changing policies, technological advancements, and shifts in academic publishing. This research investigates the evolution of Open Access resources, their management challenges, the role of libraries, and the impact of institutional policies. It also highlights key trends in e-resource development and provides insight into the future of Open Access.

## 1. Introduction

The concept of Open Access (OA) has become a fundamental paradigm in academic publishing. OA enables researchers, students, and the public to access scholarly materials without the traditional paywalls that limit access to valuable knowledge. Between 2016 and 2020, there was a marked increase in the adoption and implementation of Open Access resources, including academic journals, repositories, and educational platforms. This period was characterized by significant policy reforms, technological advances, and the rise of digital infrastructures aimed at improving the management and dissemination of research. This paper explores these developments, highlighting the efforts and challenges in the creation, management, and sustainability of OA resources during this transformative period.

## 2. Open Access Resources: Definition and Categories

Open Access refers to the practice of making research outputs freely available to the public. The primary goal is to overcome the barriers imposed by traditional subscription-based publishing models and foster the free exchange of scholarly work. Open Access resources encompass:

- **Journal articles:** Scholarly articles made freely available through OA journals.
- **Books:** Research books, monographs, and reports published under OA conditions.
- **Conference proceedings:** Proceedings from academic conferences that are freely accessible.
- **Multimedia content:** Research-related multimedia, including datasets, videos, and audio materials.

Open Access is divided into three primary models:

- **Gold Open Access:** Research published immediately in an OA journal or platform, usually accompanied by article processing charges (APCs) for authors.
- **Green Open Access:** Authors deposit preprints or postprints of their work in institutional or subject repositories after an embargo period.
- **Diamond/Platinum Open Access:** Publications that do not charge authors APCs, often funded by institutions, governments, or other entities.

### 3. Key Developments in Open Access (2016-2020)

Between 2016 and 2020, the Open Access movement made significant strides, with notable developments in policies, publishing models, and infrastructure.

#### 3.1. Policy Changes and Government Mandates

Several national and international policy changes drove the momentum of Open Access during this period:

- **Plan S (2018):** A landmark initiative spearheaded by the European Commission and major research funders, Plan S mandated that publicly funded research must be published in open-access journals or platforms by 2021. This marked a decisive shift towards Open Access as the default model for scholarly publishing.
- **Open Access 2020 (2016):** A global initiative focused on transforming scholarly publishing by making research accessible to all, supported by major academic institutions, publishers, and funding organizations.
- **Open Science Movement:** Governments and research bodies increasingly recognized the importance of Open Access in advancing Open Science, which emphasizes transparency, collaboration, and open sharing of research data and results.

#### 3.2. Emergence of Hybrid and Open Access Journals

In response to the demand for Open Access, many established publishers introduced hybrid journals. These journals allow authors to choose between traditional subscription-based publishing or OA publication, often for an additional APC. Publishers such as Elsevier, Springer, and Wiley, which once predominantly operated under subscription models, shifted toward offering hybrid and fully Open Access journals.

Several new Open Access publishers emerged during this period, including:

- **MDPI:** Known for publishing a large number of Open Access journals.
- **PLOS (Public Library of Science):** PLOS continued to grow and expand its portfolio of open-access journals, covering a wide array of disciplines.

- **Frontiers:** An Open Access publisher that gained recognition for its high-quality content across various scientific fields.

### 3.3. Advancements in Digital Infrastructure and Platforms

Digital platforms and infrastructures crucially supported the Open Access movement. These platforms provided tools for managing, disseminating, and accessing OA materials:

- **arXiv, PubMed Central, and SSRN** became major repositories for preprints and postprints in the scientific and social sciences fields.
- **DOAJ (Directory of Open Access Journals):** An important platform for cataloging high-quality Open Access journals.
- **OAIster:** A digital repository that aggregates Open Access content across disciplines.

Cloud computing, distributed networks, and improved data storage solutions made the management of OA resources more feasible, reducing barriers to accessibility.

## 4. E-Resource Development in Open Access

During the period 2016-2020, significant developments were made in creating and refining Open Access e-resources.

### 4.1. Institutional Repositories and Mandates

Many universities and research institutions began establishing their own Open Access repositories to host research publications and other scholarly content. These institutional repositories allowed for compliance with Open Access mandates, offering a centralized location for researchers to deposit their work. The development of such repositories was particularly important in the context of growing governmental and institutional mandates that required Open Access to publicly funded research.

### 4.2. Open Access Publishing Platforms

Several platforms emerged during this period that provided infrastructure for both Green and Gold Open Access publications:

- **Open Library of Humanities:** An academic publisher that advocates for sustainable Open Access publishing without APCs.
- **Public Knowledge Project (PKP):** Known for developing the **Open Journal Systems (OJS)**, a platform for managing Open Access journals, providing a user-friendly interface for both publishers and authors.

#### 4.3. Collaborative Initiatives and Partnerships

Several collaborative initiatives between libraries, universities, governments, and publishers contributed to the development of Open Access e-resources. These partnerships aimed to enhance global access to scholarly information:

- **OpenAIRE:** A European initiative that provides tools and services to support Open Access research across Europe.
- **Global Open Access Portal (GOAP):** A UNESCO-supported project aimed at promoting Open Access in developing countries.

### 5. Management of Open Access E-Resources

The management of Open Access e-resources presents several challenges that must be addressed to ensure long-term sustainability and effective distribution of content.

#### 5.1. Funding Models and Sustainability

The sustainability of Open Access publishing has been a critical challenge, especially given the reliance on article processing charges (APCs) in the Gold model. APCs, while providing funding for publishers, pose financial barriers to researchers from low-income countries or institutions with limited funding. To address this issue:

- **Institutional funding models** were developed where universities and research institutions provided financial support to authors.
- **Government and foundation grants** were implemented to fund Open Access publishing, ensuring that authors could publish without facing financial burdens.

#### 5.2. Ensuring Quality Control and Peer Review

As Open Access publications proliferated, ensuring the quality of published content became a concern. This led to the rise of:

- **Certification bodies** like the **DOAJ** that ensure journals adhere to ethical publishing standards.
- The promotion of transparent and rigorous **peer-review processes** to ensure the credibility and academic integrity of Open Access publications.

#### 5.3. Addressing Intellectual Property and Licensing

Open Access also raised questions regarding intellectual property rights. Creative Commons licenses became the standard for Open Access materials, allowing authors to retain control over their works while providing guidelines for reuse and distribution.

## 6. Role of Libraries in Open Access Management

Academic libraries played an essential role in promoting and managing Open Access e-resources:

- **Open Access Advocacy:** Libraries played a pivotal role in raising awareness about Open Access, educating faculty and researchers about the benefits and opportunities of OA publishing.
- **Repository Development:** Libraries led the charge in developing institutional repositories for hosting Open Access materials.
- **Training and Support:** Libraries provided training and guidance on Open Access publishing policies, copyright issues, and open science practices.

## 7. Impact on Global Access to Information

Open Access significantly improved access to scholarly research, particularly in developing regions where access to paid journal subscriptions was limited. The increase in Open Access publications during this period facilitated the sharing of knowledge, bridging the information gap and promoting innovation across disciplines. Platforms like **Sci-Hub**, although controversial, demonstrated the demand for unrestricted access to scholarly materials.

## 8. Challenges and Future Directions

Despite the progress made between 2016 and 2020, several challenges persist:

- **Sustainability:** Finding a long-term funding model that supports Open Access without charging authors is essential.
- **Equity:** Ensuring that all researchers, regardless of institutional or financial background, have equal access to Open Access publishing opportunities.
- **Quality and Standards:** Maintaining the quality of Open Access publications while preventing the rise of predatory journals.

Future efforts will likely focus on the development of new funding mechanisms, further collaboration between stakeholders, and the integration of emerging technologies like blockchain for improving transparency and access control in Open Access publishing.

## 9. Conclusion

The period between 2016 and 2020 witnessed significant growth in Open Access resources and the development of e-resource infrastructures. Open Access not only democratized access to scholarly content but also reshaped the academic publishing landscape. The continued evolution of Open Access will rely on addressing sustainability issues, ensuring equitable access for all researchers, and maintaining high standards for publication quality.



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