

## **Institutional Repository: A 21<sup>st</sup> Century tool for Scholarly Communication**

**<sup>1</sup>Alice A. Bamigbola, <sup>2</sup>Josephine Kele Oloyede**

*<sup>1,2</sup>Department of School Library and Media Technology, University of Ibadan.  
[fifemidapo@yahoo.com](mailto:fifemidapo@yahoo.com); [aabam12@gmail.com](mailto:aabam12@gmail.com), [josephineoloyede@gmail.com](mailto:josephineoloyede@gmail.com)*

### **Abstract**

*Knowledge generated through research in universities and other research institutions is only significant when it is shared, disseminated, easily findable, and accessible to a wider audience for the benefit of the academic populace. Scholarly publications such as journals and conference proceedings, dissertations, and theses are pivotal channels of sharing such knowledge; however, the costs of these have been progressively increasing, making it ever more unbearable for many institutions to provide access to most or even all of them. This gave rise to the institutional repository. An institutional repository (IR) is a digital archive of the intellectual products created by the faculty, research staff, and students of an institution and accessible to end users both within and outside the institution with few if any barriers to access. This paper, therefore, examines historical overview of scholarly communication, 21st-century scholarly communication, the concept of IR, IR characteristics, IR policy, benefits to various stakeholders, and its implications for scholarly communication.*

**Keywords:** *Scholarly communication, Institutional repository, Institutional repository policy, Research output*

### **Introduction**

Generating new knowledge through research activities is the fundamental business of universities and research institutions. Products of such research activities are called scholarly work. Scholarly works are only significant when it is shared, disseminated, easily findable, and accessible to a wider audience for the benefit of the academic populace and society at large. The process of sharing scholarly work is known as scholarly communication, which comprises the evaluation of the scholarly works for quality assurance, dissemination to the scholarly community and preservation for future use (Bamigbola & Adetimirin, 2020). These intellectual products are disseminated through journals, conference proceedings, technical reports, books, theses and dissertations. Journals became the main medium of formal scholarly communication in 1665 and have continued for about three hundred years.

However, the costs of journals have been progressively increasing, making it ever more unbearable for many institutions to provide access to most or even all of them. This situation made the traditional scholarly communication model failed. Therefore, the scientific community derived some initiatives to transmute the scholarly communication process to free “scientific literature from the chains” of lucrative commercial publishers (Bamigbola & Adetimirin, 2020). One such initiative is the open access movement which comprises two primary options; gold and green. The Gold open access is where the author pays for the article processing fee to publish in an open access journal and such paper is freely accessible to the public, while green open access is where the author can self-archive a copy of a paper in any other archive apart from the original publisher’s web system (Myers, 2016). An institutional repository is a type of green open

access. This chapter attempts to discuss institutional repositories as a tool for scholarly communication. The rest of the chapter is structured as follows; historical overview of scholarly communication, 21st Century scholarly communication, the concept of an institutional repository, IR characteristics, IR policy, benefits to various stakeholders, and implications of institutional repository in scholarly communication.

### **Historical Overview of Scholarly Communication**

The Association of College and Research Libraries (ACRL) defines scholarly communication as: the system through which research and other scholarly writings are created, evaluated for quality, disseminated to the scholarly community, and preserved for future use. The system includes both formal means of communication, such as publication in peer-reviewed journals and informal channels, such as electronic listservs (Association of College and Research Libraries, 2006).

A recent definition of scholarly communication by Mulligan (2015) is the system through which research and other scholarly writings are created, evaluated for quality, disseminated to the scholarly community and preserved for future use. The Association of College and Research Libraries (2006) and Mulligan (2015) definitions of scholarly communication highlighted four key issues in the process of communicating scholarly works: creation, evaluation, dissemination and preservation. These four key functions of scholarly communication are referred to as, registration, certification, awareness and archiving (Prosser, 2003; Crow, 2002). ‘Registration’: is the process of establishing the ownership of the intellectual property. The second phase, ‘certification’: is a process of confirming the quality or validity of the intellectual property through peer review. The third function is ‘awareness’: is the process of ensuring dissemination and making the researchers to be aware. The fourth function is ‘archiving’: the preservation of intellectual property for future use (Prosser, 2003; Crow, 2002). Therefore, scholarly communication is a process where scholarly writings are generated, assessed, disseminated to the scholarly community and preserved for future use.

This process originated by learned societies, for instance, the Royal Society of London, 1660 which was chartered in 1662 (Willinsky, 2006) and *Academie des Sciences* founded in Paris in 1666 were communicating on personal contact and organised meetings up till the 17th Century (Fjallbrant, 2009). However, when membership of the societies grew, many of their members could not attend their meetings. Therefore, proceedings were circulated as records of their previous meetings, and later they devised a method of publishing papers that they were not present at the meetings. This later metamorphosed into scientific journals (Bamigbola, 2018).

The first scientific journal, the *Journal des Savants*, was published in Paris on Monday, January 5, 1665. It was a private venture of *Denis de Sallo*, which repressed in 1792 during the French Revolution. It later continued as the *Journal des Savants*, Paris, 1797 and became a model for other journals. The Royal Society built upon *Journal des Savants* and published a more philosophical serial, the *Philosophical Transactions of the Royal Society*, in London on March, 6th, 1665. It was the first serial publication of a learned society edited by Henry Oldenburg. It is important to note that these two journals published by non-profit

making organizations (Walker, 1998). However, other scientific journals published by commercial groups, such as, the *Giornale de' Letterati* published in Rome in 1668, and *Acta Eruditorum* published in Leipzig in 1682. Other forms of scholarly communication were the scientific book, the newspaper and scientific cypher or anagram systems (Fjallbrant, 2009).

In the 17th and 18th Centuries, scholarly communication involved varied stakeholders such as the authors (primary producers), the readers (academic, students and the general public) and the publishers (Learned Societies and Commercial Publishers – secondary producers). Others were libraries and booksellers (facilitators of reading), academic institutions (consumers and facilitators of production), legal organizations (to settle claims of priority of discovery and authorship), industrial organizations (consumers) and religious organizations (influencing the practice and development of science). During the period, authors, readers and publishers had serious concerns and needs in the scholarly communication system. The authors' needs were to; establish ownership, guard against “philosophical robbery”, establish priority and obtain recognition, spread scientific knowledge to colleagues, and thus, derive personal satisfaction. Readers' needs were; to get new information as soon as possible and unhindered access to quality and affordable scientific information. Besides, readers wanted the issue of language resolved because each country used her native language for her scholarly communication, thereby limiting the readership. The interests of the publishers were quality control, cheap means of printing, development of much faster and cheaper printing methods (Bamigbola, 2018).

The Royal Society and other learned societies played an important role in addressing some of these concerns by setting up permanent records of publications in their archives, and authority constituted to evaluate and validate scholarly works. It marked the beginning of the peer review in scholarly communication. Furthermore, the new technology facilitated rapid communication of scholarly works, and there was an increase in the number of journals towards the end of the eighteenth-Century (Fjallbrant, 2009).

In the second half of the 20th Century, the scholarly communication system had a crisis, as a result, of two divergent but related problems of ‘affordability’ and ‘accessibility’ (Chan, 2004). The problem of ‘affordability’ as explained by the Association of Research Libraries, included (1) control of the scholarly journals market by few commercial publishing firms, especially in the fields of scientific, technical and medical (STM) which resulted in high cost; (2) economic meltdown that cut the library budgets and made libraries unable to afford the high cost of serials, and, therefore, unable to subscribe to the needed journals. The ‘accessibility’ problems, on the other hand: (1) libraries faced increased restrictive licensing terms because most electronic journals distributed in bundled databases controlled by few large commercial publishers, and (2) the attendant loss of access to back-files of journals that led to gaps in serial holdings and resulted in both short and long term accessibility (Association of College and Research Libraries, 2006). Therefore, both the ‘affordability’ and ‘accessibility’ problems of the traditional scholarly communication model resulted in limiting access to research findings which led to lower visibility and finally loss of research impact, which defeats the purpose of scholarly communication (Bamigbola, 2018).

## **21<sup>st</sup> Century Scholarly Communication**

The affordability and accessibility problems made the traditional scholarly communication model deficient. On the other hand, the advances in technology dropped the cost of online storage, and the creation of new standards for open archives metadata harvesting which makes it easier to efficiently upload content to the web provided new platforms for disseminating scholarly works. For instance, new digital means of collaboration and dissemination of research output such as email and departmental websites emerged (Chadwell & Sutton, 2014). The facilitating technology and availability of open access software made open access initiatives possible.

The Budapest Open Access Initiative (BOAI, 2002) defined open access as:

*“literature that provides free availability on the public internet, permitting any users to read, download, copy, distribute, print, search or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical challenges other than those inseparable from gaining access to the internet itself”.*

The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited (BOAI, 2002). This definition accentuates the importance of making research findings open through the Internet, and when such scholarly works used, the authors must be credited.

There are two strategies recommended by BOAI for authors to partake in open access, publishing in open-access journals, that is open access publishing (OAP), which is popularly known as ‘Gold’. The second strategy is self-archiving, that is, method of depositing one’s digital copy of an intellectual product into open electronic archives/repositories known as ‘Green’. It might be a centralised discipline-based or subject-based repository like Cornell’s ArXiv (Chadwell, & Sutton, 2014). It could also be an institutional-based repository such as MIT DSpace institutional repository (Chan, 2004). Consequently, implementation of IR as a new model of scholarly communication places responsibilities on the host institution and the authors/lecturers instead of the publishers in the traditional scholarly communication model, hence, a paradigm shift. Comparing the traditional publishing model with IR, (Johnson, 2002), in his opinion, submits that the former model limits readership, obscures institutional origin, and costs much, while the new model implies no monopoly, increases output, and awareness, which is the essence of scholarly communication.

## **Concept of Institutional Repository**

The beginning of the 1980s witnessed free movements such as the open-access movement, open learning and the open-source movement. The concept of Institutional Repository emerged with the philosophy of sharing information at easy access, free and avoiding duplication. Several authors have defined institutional repository, but the most cited one is (Lynch, 2003). Lynch defines IR as:

*“ a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members. It is most essentially an organizational commitment to the stewardship of these digital materials including long-term preservation where appropriate, as well as organization and access or distribution ” (p.3).*

With Lynch’s definition, IR places active responsibility on the host universities in managing its scholarship, which is a departure from what it used to be with the old scholarly communication model. In essence, IR is a means through which institutions (universities, polytechnics, and research organizations) capture, preserve and disseminate the intellectual output of their staff and students (Bamigbola, 2018). Bamigbola (2021) defined institutional repositories as digital platforms created by institutions, to archive, manage, disseminate, and showcase their intellectual works.

Since institutional repositories are attached to the institutions housing them, it makes sense that it is mainly concerned with internally generated research publications such as thesis and dissertations, journal articles, conference proceedings, books, lecture notes, and administrative documents of the host institution. This is supported by Saini (2018) who opines that an institutional repository is an online archive of the intellectual output created by the faculty and researchers of an institution to enhance the visibility and promote free access to the research at a single interface. Institutional repositories are part of an emergent struggle to restructure scholarly communication and break the monopoly of journal publishers by reasserting institutional control over the results of scholarship. An institutional repository can be any collection of digital material hosted, owned or controlled and disseminated by any institution irrespective of purpose of origin.

An institutional repository (IR) is a set of services offered by a university or group of universities to members of its community for the management and dissemination of scholarly materials in a digital format created by the institution and its community members, such as e-prints, technical reports, theses and dissertations, data sets, and teaching materials. The stewardship of such materials entails their organization in a cumulative, openly accessible database and a commitment to long-term preservation when appropriate. Some institutional repositories are used as electronic presses to publish e-journals and e-books. A repository supports mechanisms to import, export, identify, store, preserve and retrieve digital assets. An institutional repository makes the intellectual output freely and openly available to general public. It might contain the documents published or unpublished by the institution, faculty, research scholars, and students of an institution.

Institutional repository is set up to serve three basic purposes; an electronic scholarly communication medium, a digital library, and a knowledge management system (Kim, 2011). Crow (2002) and Lynch (2003) described an institutional repository as having four distinctive features; institutionally defined (it captures only scholarly works of the host institution); contains scholarly content;

cumulative and perpetual and lastly it is open and inter-operable (openly accessible and interoperable with other repositories) In essence, IR is a mechanism for open access; it provides the suitable platform where the author can self-archive peer-reviewed publication, and a reader can freely access it as information source from any location. It is a strategy that higher education can employ to accelerate changes in scholarship and scholarly communication and support transformative new uses of digital media for scholarship (Bamigbola, 2018).

### **Characteristics of Institutional Repository**

Institutional repositories are digital platforms designed to store, preserve, and provide open access to scholarly output and research materials produced by an institution or organization. These repositories play a crucial role in promoting knowledge sharing, collaboration, and long-term preservation of intellectual assets. Here are some key characteristics of institutional repositories:

1. **Open Access:** Institutional repositories prioritize open access to scholarly content, making research outputs freely available to the public. By removing barriers such as paywalls, institutional repositories enhance the visibility and impact of research, enabling wider dissemination and potential for collaboration.
2. **Content Diversity:** Institutional repositories house a wide range of research materials, including articles, preprints, theses, dissertations, conference papers, technical reports, datasets, multimedia content, and more. These repositories aim to capture the breadth and depth of an institution's intellectual output, showcasing the diverse research conducted within its community.
3. **Digital Preservation:** Institutional repositories emphasize the long-term preservation of digital content. They employ robust preservation strategies, including metadata management, file format migration, and backup systems, to ensure the accessibility and integrity of stored materials over time. This commitment to preservation safeguards valuable research for future generations.
4. **Local Control and Curation:** Institutions have control over the management and curation of their institutional repositories. They define the policies, workflows, and submission guidelines, ensuring the quality and relevance of the deposited content. Repository managers often work closely with researchers and other stakeholders to curate and organize the repository's collections effectively.
5. **Metadata and Searchability:** Institutional repositories employ metadata standards to describe and index the deposited content, enhancing discoverability and searchability. Rich metadata, including author names, affiliations, keywords, abstracts, and publication details, enable users to locate specific resources and browse related materials efficiently.
6. **Metrics and Analytics:** Institutional repositories often provide usage statistics and analytics, offering insights into the impact and reach of deposited materials. These metrics can include download counts, citation tracking, and altimetric, helping researchers and institutions gauge the visibility and influence of their research outputs.
7. **Interoperability and Integration:** Institutional repositories strive to be interoperable with other systems and platforms, allowing seamless integration and exchange of metadata and content. They often support standards such as

OAI-PMH (Open Archives Initiative Protocol for Metadata Harvesting) to enable data sharing and interoperability between repositories (Lynch, 2003; Crow & Boock, 2013; Pinfield, Cox, Smith & Blake, 2014).

### **Institutional Repository Policy**

The policy issue is an important aspect of the management of institutional repositories. Institutional repository policy includes defining IR content, model of submission into the IR, that is, either self-archiving or mediated archiving, file formats, metadata formats, mandatory submission, quality control and copyright issues. In the opinion of Armstrong (2012), the mediated deposit approach “do it for them” seems to be suitable for some authors. The library staff are saddled with publishers’ copyright policy, metadata creation and depositing of scholarly works. At Boise State University, in the United States, library staff were in charge of publishers’ copyright policy review, getting the correct version of the publication, requesting author’s permissions and uploading the publication into the institutional repository (Armstrong, 2012).

### **Publishers’ Policies**

As regards publishers’ policies and open access institutional repositories, Right Metadata for Open Archiving (RoMEO) project one of Securing a Hybrid Environment for Research Access and Preservation (SHERPA) services of the University of Nottingham had analysed different archiving rights. It is a database of publisher’s policies regarding the self-archiving of journal articles in open access institutional repository. RoMEO classified the archiving rights into four; ‘no restrictions’, ‘embargo required’, ‘permission required’ and ‘paid option’ (RoMEO website).

According to RoMEO, publishers with ‘no restrictions’ category will publish scholarly works free of charge and also allow authors to deposit the publisher’s version of their articles in an institutional repository without an embargo. Lecturers who have published their scholarly works with this category of the publisher are allowed to submit them to their university institutional repository. The second category of archiving rights is ‘embargo required’. Publishers in this category allow authors to deposit the publisher’s version of their article in an institutional repository after a while. The embargo period differs from one publisher to another. RoMEO website indicates that there were varied periods of embargo starting from one month to five years period of embargo.

The third category of archiving rights is ‘permission required’ and there are two classes in this category. First, the publishers in this category allow authors to deposit their articles in an institutional repository after permission has been obtained from them. The other class under the ‘permission required’ category allows authors to deposit their article in an institutional repository after an embargo period and payment of a fee. Finally, the fourth category is publishers with ‘paid option’. They allow authors to deposit their articles in an institutional repository after payment of a fee (Bamigbola, 2018). Armstrong (2012) believed that the responsibility of checking publishers’ policies and copyrights clearance should be placed on libraries’ shoulders.

## **Benefits of Institutional Repository**

Institutional repository offers numerous benefits for authors/researchers, academic institutions, users, libraries, and society at large. Here are some key benefits:

### ***Authors/Researchers Benefits***

Institutional repository benefits authors in various ways. Some of the benefits are listed below.

- i. An institutional repository increases the visibility of the intellectual output and acts as a marketing tool to reflect the research results of the researcher, along with the department and the institution.
- ii. The contents of the institutional repository are openly available on the web. As a result, others can use the scholarly works without any fees which will raise the impact factor of the cited works. Therefore, it helps to identify the use of metrics in particular papers.
- iii. The institutional repository provides specific links to navigate access to content in other archives by following the citation analysis mentioned in the contents.
- iv. Institutional repository provides comments and feedback options where authors can give their opinions to the readers. This option facilitates communication between the author and the user which gives pathways to improve knowledge and the quality of work on the concerned subject.
- v. The institutional repository maintains the researcher's profile, compiling a comprehensive list of institutional research results conducted over the years.
- vi. Institutional repository gives benefits to the researchers by providing prestige, status, and prizes to them for their rewarding research work and attract different funding agencies for the support of acquiring funds for their research projects
- vii. Institutional repository helps researchers comply with many funding agencies and institutions' requirements to make their research outputs openly available by providing a platform for depositing and sharing their work
- viii. Open access has been shown to correlate with higher citation rates and increased public engagement with research
- ix. By providing a central hub for research outputs, repositories facilitate collaboration and interdisciplinary interactions among researchers.
- x. Additionally, repositories enable the integration of research outputs with other scholarly services, fostering new avenues for discovery and analysis (Bamigbola, 2021; Hajjem, Harnad & Gingras, 2005; Swan, 2010; Piwowar, Priem, Larivière, Alperin, Matthias, Norlander, Farley, West & Haustein, 2018).

### ***Institution's Benefits***

The underlisted are some of the benefits of institutional repository of the host institutions: Institutional repository:

- i. serves as an archiving centre for institutional research work, it collects, stores, and preserves all institutions' research output including both published and unpublished works
- ii. boosts the global visibility and impact of research output, thus changing the scholarly communication paradigm and improving internal communication within the institution.
- iii. a novel research culture focused on meeting international standards and values.

iv. enhances the reputation of the institution through its scholarly research works. The Institutional repository can also be useful in commercial activities to attract highly qualified students, teachers or staff to join the institution and generate grants from funding agencies.

v. provides collaborative sharing of experiences between institutions.

vi. Maintains a rating of institutional records by compiling an Institutional curriculum vitae and provides navigation links to access the full text of the articles.

vii. provides usage statistics and analytics, allowing researchers and institutions to track the impact and reach of their research outputs. These metrics can provide valuable insights for assessing research impact and informing strategic decisions (Hajjem, Harnad, & Gingras, 2005; Swan, 2010; Knoth, Anastasiou, Pearce, Pontika, & Bayer, 2014).

### ***Libraries Benefits***

The institutional libraries are free from the monopoly power of the publishers' cost and access restrictions.

i. No need for a server or backup. Thus, cost-effective for libraries to give a value-added service without hampering the limited budget.

### ***Users' Benefits***

Individuals can access institutional repository and enjoy the following benefits:

i. The information materials on grey literature, such as pre-prints, patents, white papers, technical reports, project reports, documentation, manuals, working papers and discussion papers, and others are not easily found in conventional means. But with the establishment of institutional repositories, users can access these valuable resources anywhere.

ii. Repository facilitates open-access publishing by providing free access to scholarly content, removing barriers to knowledge dissemination. Users are not required to pay any fees for using the digital content of an institutional repository, and there are no subscription fees for the materials (Suber, 2012).

### ***Society Benefits***

i. Provides open access to institutional intellectual output in the global context, thus facilitate research on different subject topics.

ii. An institutional repository accommodates research outputs of large-volume and large-scale data sets.

iii. Institutional repositories improve institutional content to reach the world's population at no cost.

iv. Institutional repositories ensure the long-term preservation and archiving of research outputs, safeguarding them against loss, degradation, or format obsolescence. Digital preservation practices employed by repositories ensure continued access to research materials (Committee on Ensuring the Utility and Integrity of Research Data in a Digital Age, 2009; Pinfield., Cox, Smith & Blake, 2014).

### **Implications of Institutional Repository in Scholarly Communication**

The emergence and proliferation of institutional repositories have had significant implications for scholarly communication. As the implementation of IRs in ivory towers continues to grow, these repositories have transformed the way scholarly information is disseminated, accessed, and shared within the academic

community and beyond. In this response, some of the key implications of institutional repositories on scholarly communication will be explored.

- i. **Increased Visibility and Accessibility:** Institutional repositories enhance the visibility and accessibility of scholarly research. By providing open access to research outputs, repositories remove barriers imposed by traditional publishing models, making research available to a global audience. A study by Xia, Gilchrist, Smith, Kingery, Radecki, Wilhelm, Harrison, Ashby & Mahn (2012) found that open-access articles deposited in institutional repositories received significantly higher citation rates compared to non-open-access articles.
- ii. **Preservation and Long-Term Access:** Institutional repositories play a crucial role in preserving scholarly outputs for the long term. Traditional publishing models often rely on commercial publishers and their proprietary platforms, which may be subject to changes, mergers, or even discontinuation. In contrast, institutional repositories offer a stable and sustainable infrastructure for long-term preservation and access. Digital preservation strategies employed by repositories ensure that scholarly materials remain accessible even if the original sources become obsolete or inaccessible (Kenna, Delgado López-Cózar & Ruiz-Pérez, 2018).
- iii. **Facilitating Interdisciplinary Research:** Institutional repositories promote interdisciplinary research by providing a centralized platform for scholars from various disciplines to discover and access research outputs beyond their fields. This can lead to increased collaboration, knowledge exchange, and the emergence of new research directions. A study by Antelman (2004) found that articles deposited in institutional repositories were more likely to be cited across disciplinary boundaries compared to those published in traditional subscription-based journals.
- iv. **Open Science and Public Engagement:** Institutional repositories contribute to the principles of open science by making research outputs openly available to the public. Open access to scholarly information fosters public engagement, facilitates citizen science initiatives, and allows policymakers, practitioners, and the general public to benefit from academic research. Studies have shown that open-access articles deposited in institutional repositories are more likely to be downloaded and read compared to articles behind paywalls (Kenna, Delgado López-Cózar & Ruiz-Pérez, 2018).
- v. **Data Sharing and Reproducibility:** Institutional repositories provide a platform for sharing research data alongside publications, enabling transparency, reproducibility, and the validation of scientific findings. Researchers can deposit datasets, codes, and supplementary materials, making their research more transparent and facilitating future collaborations. The availability of research data in institutional repositories can help address issues related to the reproducibility crisis in science (Pampel, Dallmeier-Tiessen, Oßwald, Orth & Stocker, 2013)

In conclusion, comparing the traditional publishing model with the institutional repository, Johnson (2002) submits that the former model limits readership, obscures institutional origin, and costs much but the new model implies no monopoly, increases output, and awareness, which is the essence of scholarly communication. Institutional repositories have had significant implications for scholarly communication, offering increased visibility, accessibility, preservation, interdisciplinary collaboration, public engagement, and data sharing. As the

landscape of scholarly communication continues to evolve, institutional repositories play a vital role in advancing open access, open science, and the democratization of knowledge.

### **Conclusion**

Scholarly publications are an essential part of any academic community and such works should be shared with the general public. The institutional repository has proven to be one of the tools for effective scholarly communication in the 21<sup>st</sup> century. This chapter has discussed the history of scholarly communication, overview of institutional repository, characteristics of institutional repository, policies guiding submission into institutional repository, the benefits of institutional repository, importance of institutional repository in scholarly communication cannot be overemphasized. It is evident that institutional repository is germane to the development of scholarly communications and by extension, research development around the globe and it will continue to evolve.

### **Implications for Practice**

1. Institutional repository is a platform to disseminate and access scholarly works without necessarily paying high charges of subscription, thus, researchers should be duly informed to use this channel.
2. To ensure functional and sustainable institutional repository, submission of scholarly works must be encouraged, archiving policies and guidelines must be built into its development.
3. Ensuring continuous submission of scholarly works requires awareness and training; educating researchers/authors, institutional managers, and IR managers is an important part of sustaining institutional repository as 21<sup>st</sup> Century tool of scholarly communication.

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