MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION Federal State Autonomous Educational Institution of Higher Education
“South Ural State University (National Research University)”
School of Electrical Engineering and Computer Science
Department of Electronic Computing Machines

DEVELOPMENT OF A SMART SYSTEM FOR PRESERVATION OF GOVERNMENT RECORDS IN DIGITAL FORM

of the master graduate qualification work for the student of the group KE-228

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Introduction

This research is concentrated on the development of a smart system for the preservation of digital records in smart OAIS-based repository using python to preserve archived paper-based records.

relevance and novelty

we will work with deep learning and artificial intelligence for get good accuracy and less in loss data.

Problem Statement

There are many related issues of record form recognition. The most widely recognized ones are:

- **Record Localization**
- **Record Identification**
- **Record Recognizable Proof**
- **Record Verification Issue**
- **Record Gauge Issue**
- **Record Form Articulation Acknowledgment**

Aim and Contributions

Our system is designed to maximize user experience. Moreover, our system differs from existing systems in the following ways.

- **Just records**
- **Real-time**
- **No calibration**
- **Robust and accurate**
- **Arbitrary forms**

DESCRIPTION OF DATA

The dataset has been acquired from an open-source repository known as the OAIS digital records dataset. The physical appearance of records in records can vary depending on many physical and human geographical factors, both from the ground perspective as well as in digital recorder.

Architecture

In this architecture, the CNN are responsible for feature extraction, where the features to which they will respond are determined through a learning process of the variable input connections.

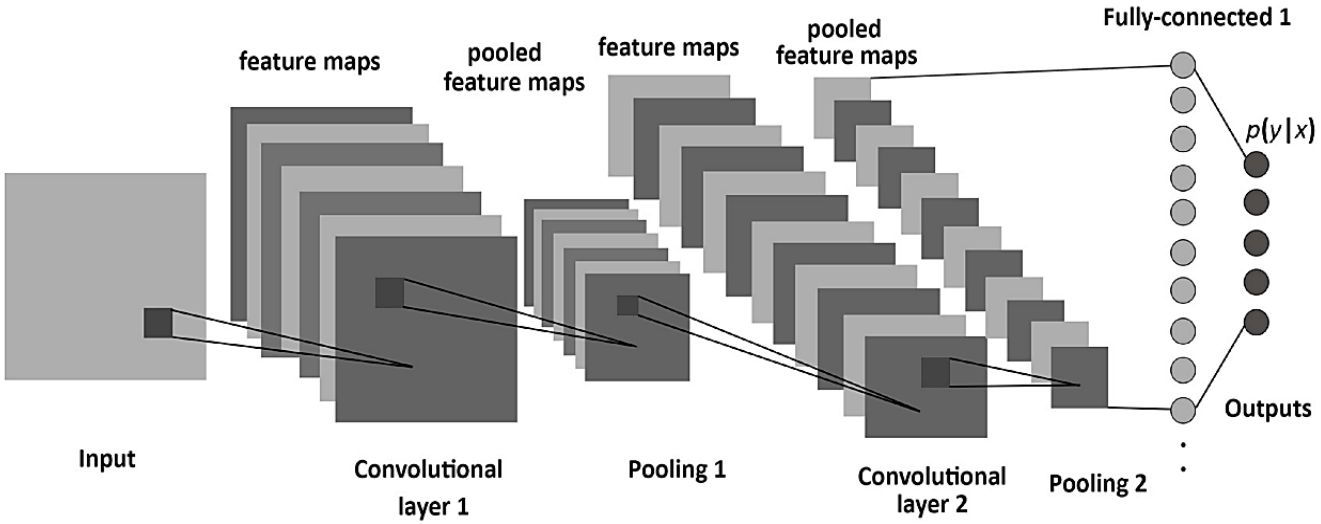
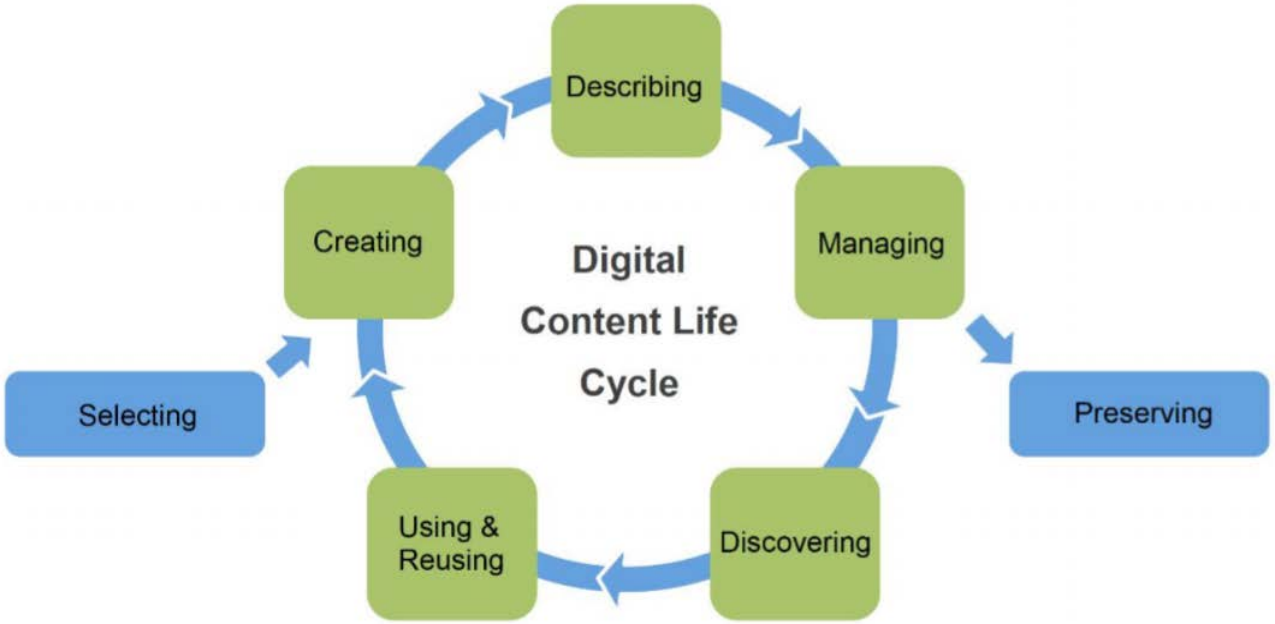


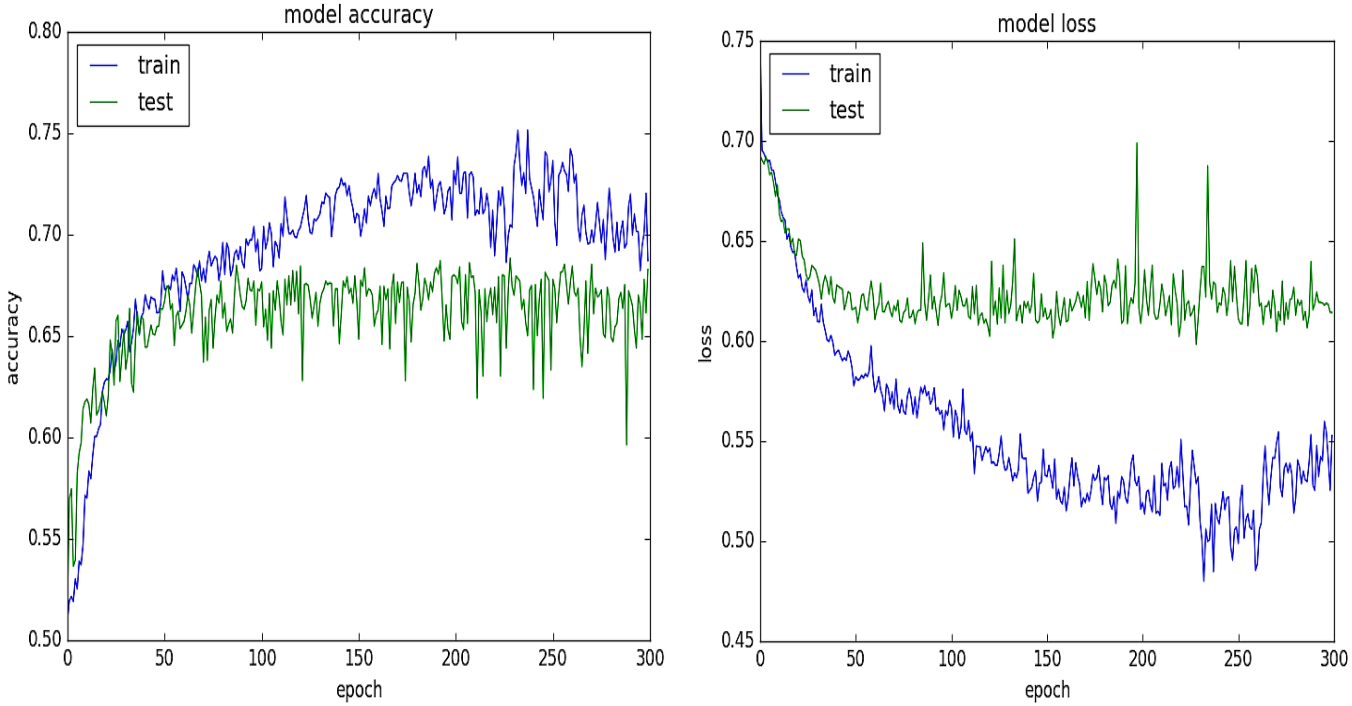
Illustration of a deep convolutional neural network architecture.

ALGORITHM FOR SOLVING THE PROBLEM



Convolutional neural network flowchart that is being followed in this work for OAIS database for digital records

Training and Testing Developed Model

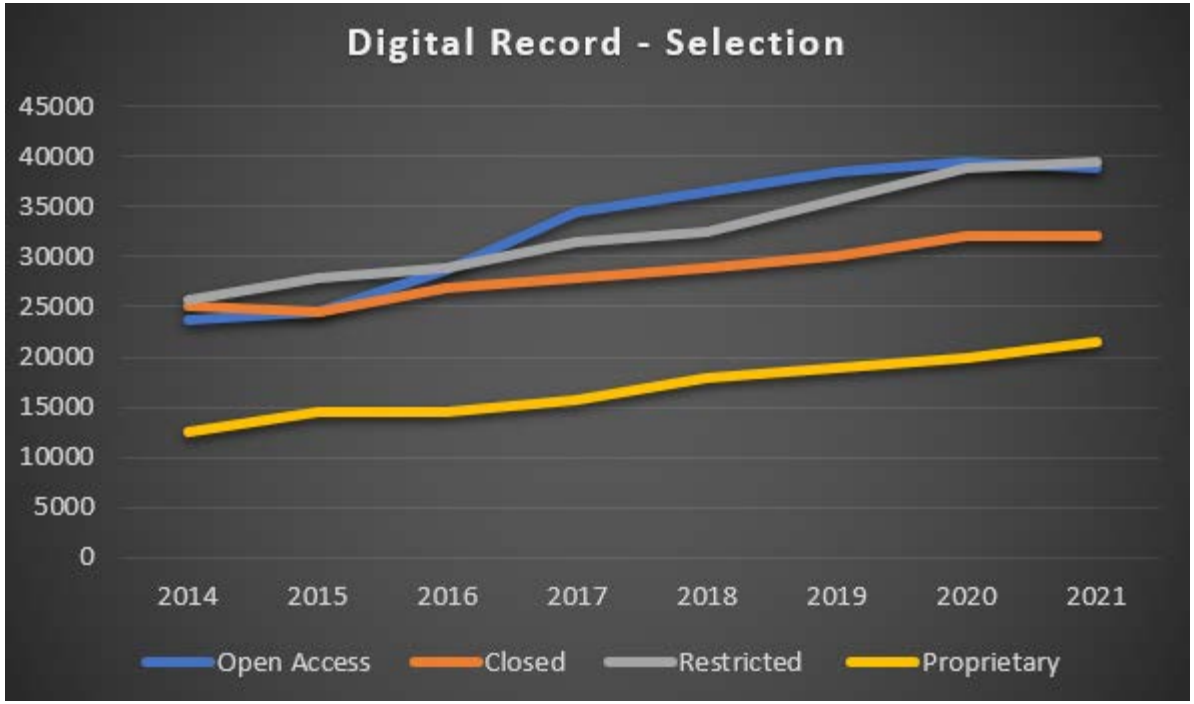


The CNN Model Accuracy (accuracy vs epochs) Model Loss (loss vs epochs)

Results

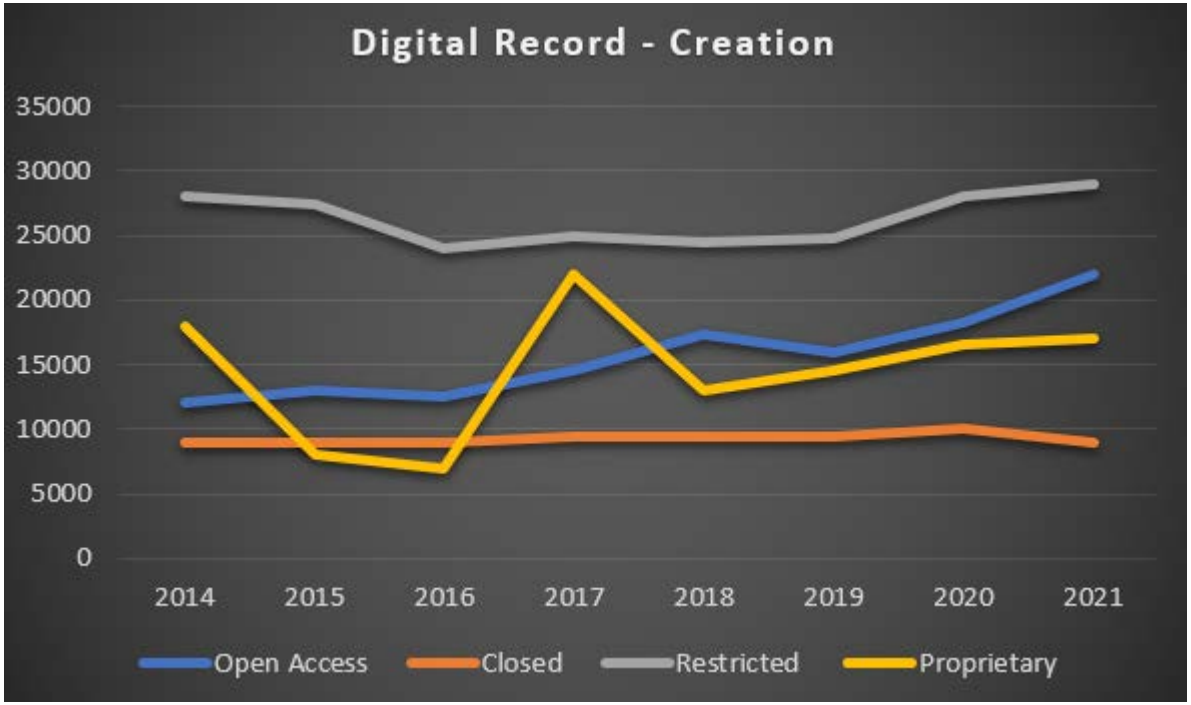
The research used paper-based information packages as input to the open archive information system (OAIS) model and through in-depth analysis got the following results

RESULTS



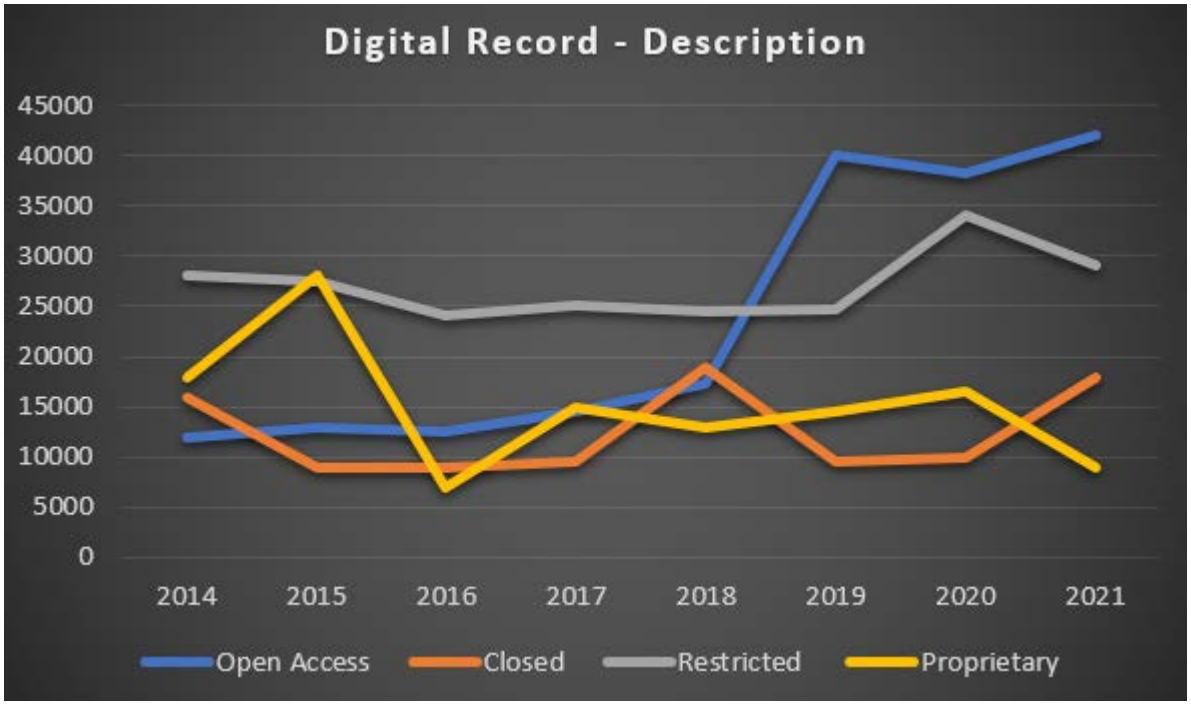
The selection of digital records repository in terms of open access, closed access, restricted and proprietary documents from OAIS database from year 2014 until 2021 on x-axis with number of articles on the y-axis.

RESULTS



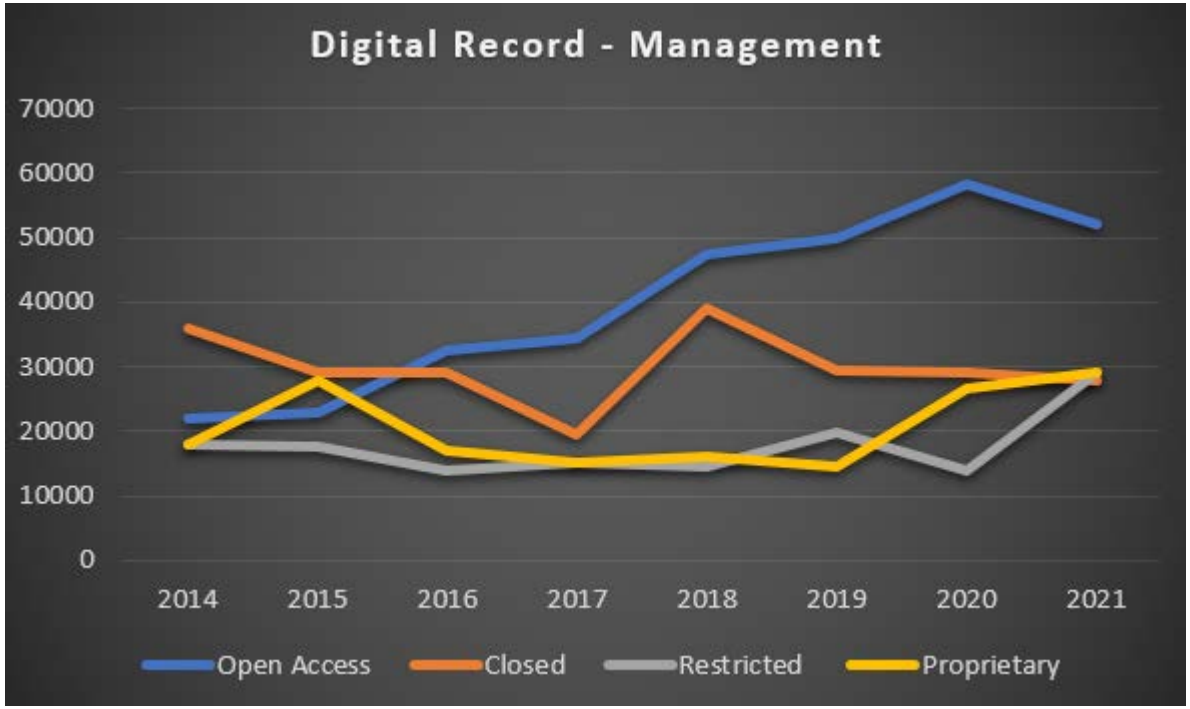
The creation of digital records repository in terms of open access, closed access, restricted and proprietary documents from OAIS database from year 2014 until 2021 on x-axis with number of articles on the y-axis

RESULTS



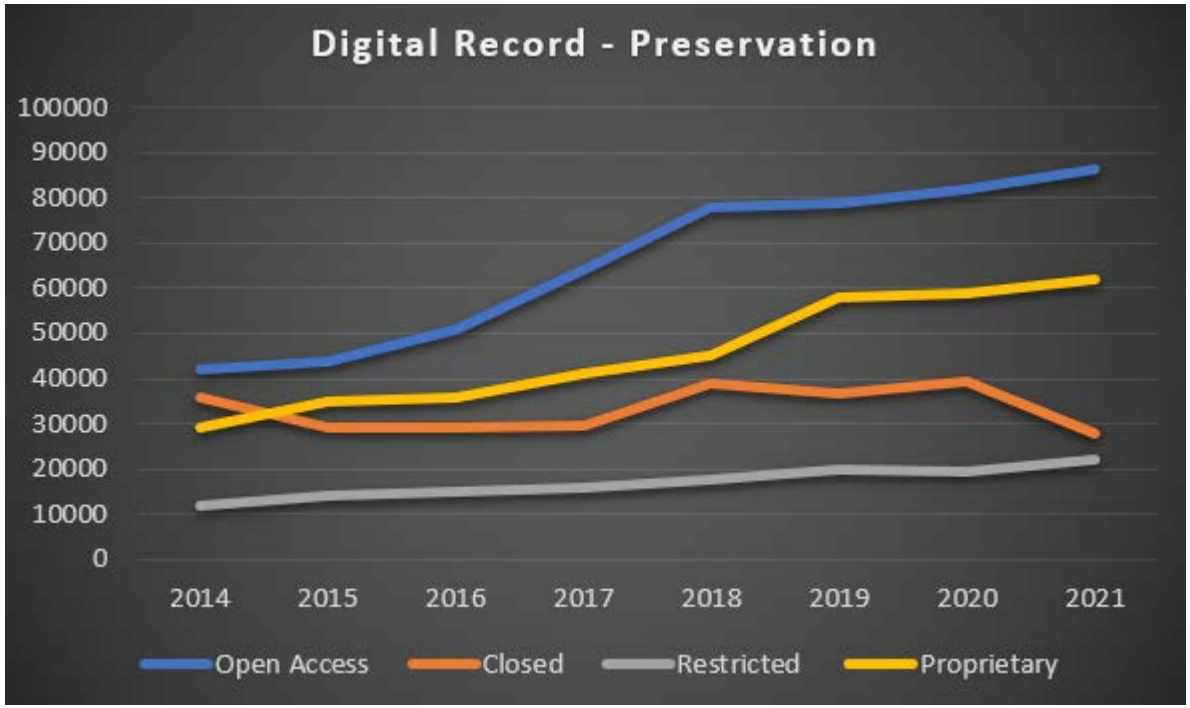
The description of digital records repository in terms of open access, closed access, restricted and proprietary documents from OAIS database from year 2014 until 2021 on x-axis with number of articles on the y-axis

RESULTS



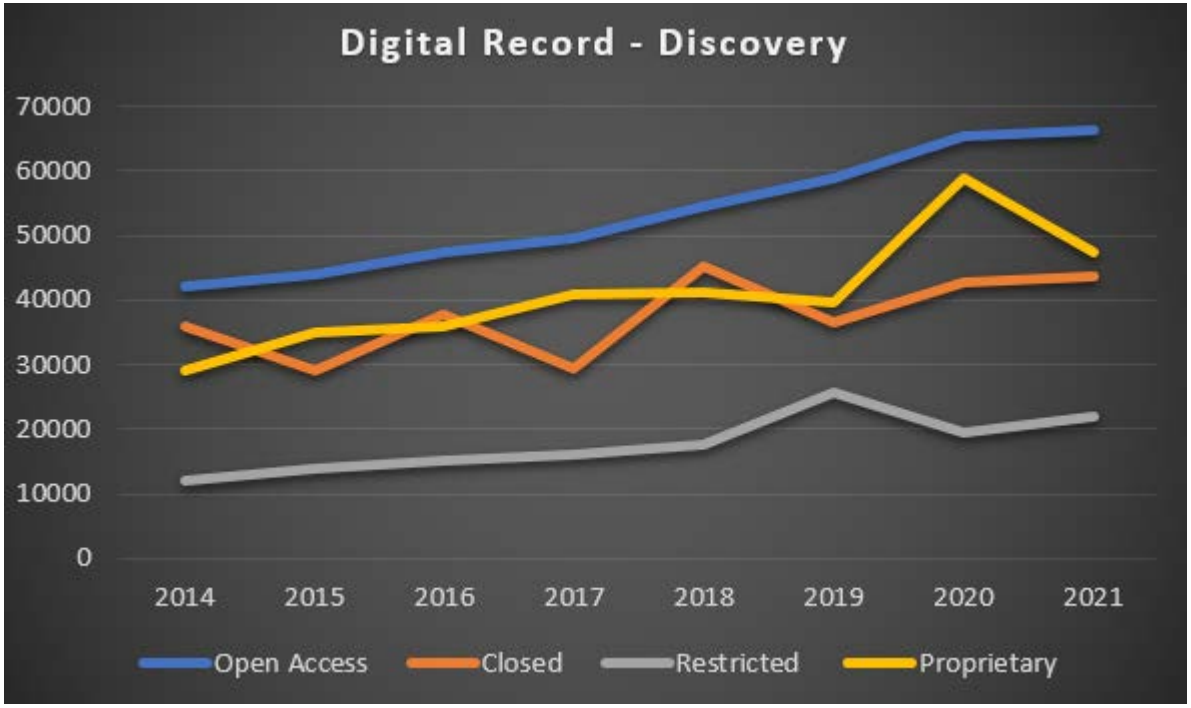
The management of digital records repository in terms of open access, closed access, restricted and proprietary documents from OAIS database from year 2014 until 2021 on x-axis with number of articles on the y-axis

RESULTS



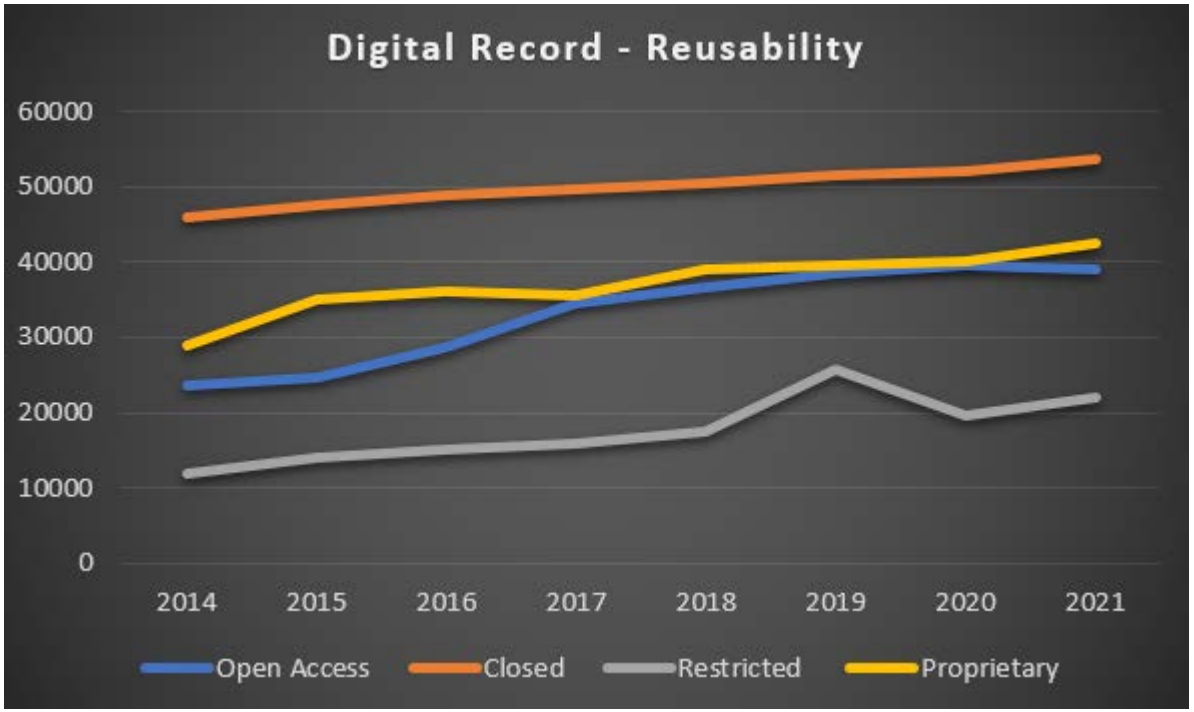
The preservation of digital records repository in terms of open access, closed access, restricted and proprietary documents from OAIS database from year 2014 until 2021 on x-axis with number of articles on the y-axis

RESULTS



The discovery of digital records repository in terms of open access, closed access, restricted and proprietary documents from OAIS database from year 2014 until 2021 on x-axis with number of articles on the y-axis

RESULTS



The reusability of digital records repository in terms of open access, closed access, restricted and proprietary documents from OAIS database from year 2014 until 2021 on x-axis with number of articles on the y-axis

Conclusion

In this work, digital preservation is being performed for the three major digital libraries at governmental level, the scope transcends the technology that we use to navigate it between the gap of preservation from paper-based to digital format. This gap leads to the preservation of the digital data. These gaps can create a nearly impossible task of recovering paper-based data but using this smart system, the records can be recovered from any digital repository where it is stored. In results, we achieved good preservation of most of the records from 2014 to 2021, the goal is to preserve which most of the records it belongs to digital format.

THANK YOU