

The Shifting Role of Archives and Archivists in the Digital Era

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Being the local general archives of the Macao Special Administrative Region, the Archives of Macao (MSAR) collects, processes, preserves and protects archival resources of historical value and makes them accessible to the public. At present, the records in the custody of the Archives of Macao are mainly paper-based. However, despite that most of the documents being created, used, kept and recognized by the government of the MSAR are still paper-based or backed up on paper, with the gradual realization of e-governance in the MSAR, large quantities of digital records will be generated in public offices across the government. Long-term preservation and management of massive digital records will be a big challenge for all public offices of the MSAR government as well as the Archives of Macao. In view of the situation, the Cultural Affairs Bureau, under which the Archives of Macao operates, commissioned the People's University of China to conduct a study on the strategy for long-term preservation and protection of digital records in Macao and propose measures deemed appropriate to adopt. The research found that five measures could be adopted for long-term digital preservation: Improvement of laws and regulations, stepping up of technical support, refinement of standards of practice, development of collaborative network and building of a Trusted Digital Repository (TDR).

Improvement of laws and regulations

Improvement of laws and regulations helps to ensure the smooth roll-out of long-term digital preservation. E-signature technology and legislation are effective solutions to the issues of authenticity, integrity and reliability of digital records. Macao has stipulations on the legal effect and evidential value of digital records, but the evidential value of digital replicas, the digital records sent from governmental departments and the delivery of digital records are yet to be regulated. The research points out that it is important to define data right of digital records so as to avoid copyright issues; and specify requirements that need to be met for the collection of digital evidence, for purposes of its admissibility in judicial proceedings.

Stepping up of technical support

Long term preservation of digital records would not be possible without technical support, with technical strategy, technical framework, technical process and system platform as essential components. In terms of selection of technical strategy for digital preservation, the mature options available include technology preservation, technology emulation, information migration and encapsulation. The formulation of technical framework for digital preservation can be based on existing mature models, such as OAIS (Open Archival Information System) or NDIIPP (National Digital Information Infrastructure and

Preservation Program). In setting out the technical process for digital preservation, it is important to specify process and procedures for effective life cycle management of digital objects; while in the setting up of system platform for digital preservation, a good combination of software, servers and storages should be made on the basis of OAIS reference model to realize different functions.

Refinement of standards of practice

To meet the operational needs in the future, the research suggests that the Archives should define the chain of responsibility for digital records and clarify the scope of accession; provide more guidance to the standards of practice in archiving and record transfer; emphasize front control and exercise strict control over the quality of digital records. On the other hand, it should also provide guidance to public offices in the formulation of digital records retention schedule and implementation of records disposal; draw on international experiences and take local conditions into account so as to establish a regulating system for long-term digital preservation that is practical and feasible in Macao.

Development of collaborative network

The research points out that long-term preservation of digital records is a multifaceted process that cannot be achieved by one single department. Cooperation is a way to ensure timely, systematic and complete preservation of digital records and higher effectiveness of preservation. Collaboration can encourage the active participation of all parties in digital preservation, with defined responsibilities and enhanced communication. It suggests that vertical collaboration between and among the stakeholders of long-term digital preservation, namely the record creator, the system developer, the storage manager and the user, should be strengthened; and a horizontal collaboration with important partners, including the government, libraries, museums and other cultural heritage institutions, should be facilitated. On the other hand, it is important to support to market development, as well as the growth and collaboration of third party preservation institutions, so as to generate a healthy and effective preservation system.

Building of a Trusted Digital Repository (TDR)

The research recommends that the Archives should speed up the building of a TDR which is a key resource for long-term digital preservation. A TDR is a system responsible for the permanent and reliable management and maintenance of digital resources, with a mission to provide trusted access to digital resources in the long term. It should be designed and operated in accordance with commonly accepted conventions and standards, with feasible policy and implementation plan, sustainable and stable financial support, so as to ensure the continuity of technology and application, as well as the safety of the system. A TDR should meet the requirements of long term digital preservation in the aspects of organization, management, digital object and technology and safety. Upon completion of its building, the TDR should pass a validation of its trustworthiness and be evaluated to assess its maturity.

Conclusion

The digital era has come with an ever-increasing volume of digital resources. It widens the scope of archival management and diversifies the role of archivists. In addition to providing cultural services through collecting, processing, preserving, protecting archival resources and making them accessible to the public, the archives shall also possess planning skills. In light of the changing nature, volume and velocity of records/information, the archives shall strengthen its communications with parties involved. It has to understand how digital records are created, used and preserved in public offices, specify requirements that need to be met to avoid loss or damage of data, or files rendered inaccessible by technical obsolescence. The situation also requires modern archivists to use multiple skills to provide conditions for the improvement of laws and regulations, provision of technical support, refinement of standards of practice, development of collaborative network and building of a Trusted Digital Repository (TDR), through which to ensure that archival management keeps up with the pace of the times.