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STANDARDIZATION SECTOR
OF ITU

F.740.1

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SERIES F: NON-TELEPHONE TELECOMMUNICATION SERVICES

Multimedia services

Requirements for an information service of objects in museums

Recommendation ITU-T F.740.1

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Recommendation ITU-T F.740.1

Requirements for an information service of objects in museums

Summary

Recommendation ITU-T F.740.1 describes the requirements for an information service of objects in museums (ISOM). It also describes the scenarios for ISOM and the capabilities of key components of this information service, i.e., information collection unit, information storage unit, customized information presentation unit and information analysis unit. This information service can improve museum users' experience by collecting information about the exhibits and other related information from different parties and showing all the information in appropriate ways.

History

Edition	Recommendation	Approval	Study Group	Unique ID*
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Keywords

Information consumer, information provider, objects in museum.

* To access the Recommendation, type the URL http://handle.itu.int/ in the address field of your web browser, followed by the Recommendation's unique ID. For example, http://handle.itu.int/11.1002/1000/11830-en.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure, e.g., interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at http://www.itu.int/ITU-T/ipr/.

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Requirements for an information service of objects in museums

1 Scope

This Recommendation describes requirements for an information service of objects in museums (ISOM). This Recommendation covers the following:

– scenarios for ISOM

– requirements of ISOM

– key components and their functionalities.

2 References

None.

3 Definitions

3.1 Terms defined elsewhere

None.

3.2 Terms defined in this Recommendation

None.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

ISOM Information Service of Objects in Museums

5 Conventions

In this Recommendation:

– The keywords "is required to" indicate a requirement which must be strictly followed and from which no deviation is permitted if conformance to this document is to be claimed.

– The keywords "is recommended" indicate a requirement which is recommended but which is not absolutely required. Thus, this requirement need not be present to claim conformance.

– The keywords "can optionally" indicate an optional requirement which is permissible, without implying any sense of being recommended. This term is not intended to imply that the vendor's implementation must provide the option and the feature can be optionally enabled by the network operator/service provider. Rather, it means the vendor may optionally provide the feature and still claim conformance with the specification.

6 Overview

Traditionally, visiting a museum involves simply acquiring official information about the exhibited objects which is provided by the exhibitor using displayed text, graphics, animation, photos, sound and video. In fact, as shown in Figure 6-1, there might also exists other information generated and/or provided by other information providers. For example, researchers may discover some new findings related to the exhibited object. If the exhibited object is donated, the donator may have

some stories about the object, such as, how he/she got it and why he/she decided to donate it. Even the visitors may have their own feelings and stories about the object, e.g., they may have seen another similar object in another place, to share with others [b-Nancy] [b-Angelina]. By gathering and presenting all these materials as a whole [b-Reinhard] [b-Chiayen] [b-Cesare], it is possible to form a museum community which breaks down the barriers between the museum's curators, researchers and visitors.

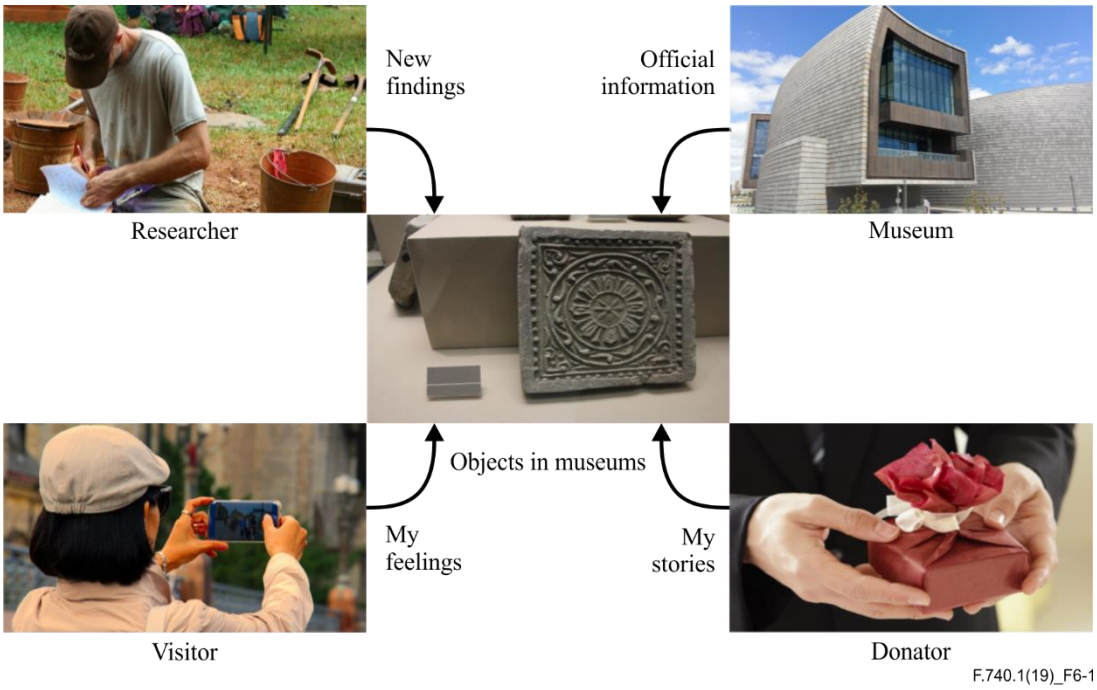

Figure 6-1 – Various sources of information about an exhibited object

In addition to the information about exhibits, there is also a lot of guidance information that can help information consumers, such as, visitors and researchers. For example, visitors should book the tickets and check transportation information before they go to the museum. When they arrive at the museum, they may have a better experience by following the recommended visiting route. It is also very useful to get information about the alarms, escape routes and emergency exits in case of emergencies such as fires or earthquakes. On the other hand, visitors may also like to provide feedback impressions about the exhibitions and the museum tour.

For the visitors, it is useful to access all the information related to the exhibited objects and their visit to the museum. Visitors can use both their own multimedia devices and the public multimedia devices provided by the museum to access all this information. Considering there are many physically disabled visitors, the provided information should be adapted for ease of use. For example, the audio materials provided by the museum should be converted to text for hearing-impaired visitors. The video, text and graphics should also be converted to a form which is convenient for visually impaired visitors. Assistance information, such as barrier-free itineraries, should also be provided to impaired visitors.

Above all, to improve their experiences, visitors need an information service of objects in museums (ISOM) which collects information about the exhibits and other related information from different parties and displays all this information in appropriate ways. The ISOM allows all related parties to contribute their knowledge, including adding, modifying and deleting related information. The ISOM provides an easier way to find information and exchange ideas among various parties. It can also be helpful before and after visiting the museum. This Recommendation presents the requirements of an information service of objects in museums as well as the key components and their functionalities.

7 Scenarios for ISOM

7.1 Scenario 1: Visitors using multimedia devices

Visitors can use both their own multimedia devices and public multimedia devices provided by the museum to access the ISOM. The ISOM can be personalized to present a visitor with an experience customized to his/her specific interests, such as showing the information users are interested in based on users' locations. Before the visitors go to the museum, they can book the tickets, check travel routes and learn information about the exhibition provided by various entities through ISOM. When they arrive at the museum, in addition to information about the exhibited objects, visitors can also get information about the museum facilities, the itineraries which are recommended based on the visitors' interests, alarm information and escape routes and emergency exits in case of an emergency. They can also upload materials about the exhibition to ISOM (such as pictures, stories, impressions and reflections) and give feedback to the museum as well as to other visitors.

7.2 Scenario 2: Hearing impaired visitors with graphics/video devices

The ISOM collects information from different parties. When hearing impaired visitors access the ISOM using their own devices or the public devices provided by the museum, the ISOM convert the audio part of the information to text and present it to them.

7.3 Scenario 3: Visually impaired visitors with assistive devices

The ISOM collects information from different parties. When visually impaired visitors use their own devices or the public devices provided by the museum to access the ISOM, the ISOM converts the video, text and graphic materials to forms which can be displayed by the assistive devices such as refreshable braille displays and screen readers. The ISOM also provides visitors with information about barrier-free facilities and guides them on routes based on their location information.

8 Requirements for ISOM

This clause presents the requirements for ISOM.

8.1 General requirements

GEN-01: An ISOM is required to collect information about the exhibited objects.

GEN-02: An ISOM is recommended to collect other related information, such as traffic, touring and weather information.

GEN-03: An ISOM is required to store information collected from different parties.

GEN-04: An ISOM is required to support customized information presentation.

GEN-05: An ISOM is required to support information analysis.

8.2 Requirements for information collection

IC-01: An ISOM is required to collect information about the objects-in-display in various formats, such as text, picture, audio and video.

IC-02: An ISOM is required to provide methods to collect official information about exhibits from the museum.

IC-03: An ISOM is required to support collecting information about visiting in the museum including barrier-free facilities, safety protection system, location system and monitoring system of the museum.

IC-04: An ISOM is recommended to provide a method to collect information about other assistance information from third parties, such as the transportation suggestions for getting to the museum.

IC-05: An ISOM is recommended to provide methods for visitors to contribute their own feedbacks about the exhibits, such as the photos taken by them, their stories about exhibits.

IC-06: An ISOM is recommended to support collecting information about exhibited objects from third parties, such as archaeologists, artists and other researchers.

8.3 Requirements for information storage

IS-01: An ISOM is required to store information about exhibited objects offered by different parties, such as the museum, visitors and researchers.

IS-02: An ISOM is required to store other related information, such as facilities information provided by the museum and transportation information provided by the public transportation companies.

IS-03: An ISOM is required to provide methods to manage information storage, such as creating, deleting and updating.

8.4 Requirements for customized information presentation

IP-01: An ISOM is required to provide an interface for unified information accessing by visitors.

IP-02: An ISOM is required to present information about exhibited objects and other related information requested by visitors.

IP-03: An ISOM is required to provide information in the formats specified by visitors.

IP-04: An ISOM is recommended to provide synthesized assistance information to visitors, such as visiting suggestions based on visitors' interests and their locations, and escape routes based on visitors' locations in case of an emergency.

IP-05: An ISOM is required to provide an interface for visitors to access the services provided by the museum, such as booking tickets.

IP-06: An ISOM is recommended to provide an interface to visitors to access the services provided by third parties, such as search engines.

8.5 Requirements for information analysis

IA-01: An ISOM is required to analyse the feedbacks from visitors and provide the reports to the museum.

IA-02: An ISOM can optionally provide the reports to third parties.

9 Key components of ISOM

This clause describes the key components of ISOM. Figure 9-1 shows an example of the functional framework of an ISOM. An ISOM consists of five functional components: an information collection unit, an information storage unit, a customized information presentation unit and an information analysis unit. The ISOM collects information about exhibited objects and other related information from different parties, such as the museum, visitors and third parties, which is stored for further processing. The ISOM presents the information requested by the visitor and presents it in the format specified by the visitor. It can also provide analysis reports to the museum and third parties if applicable.

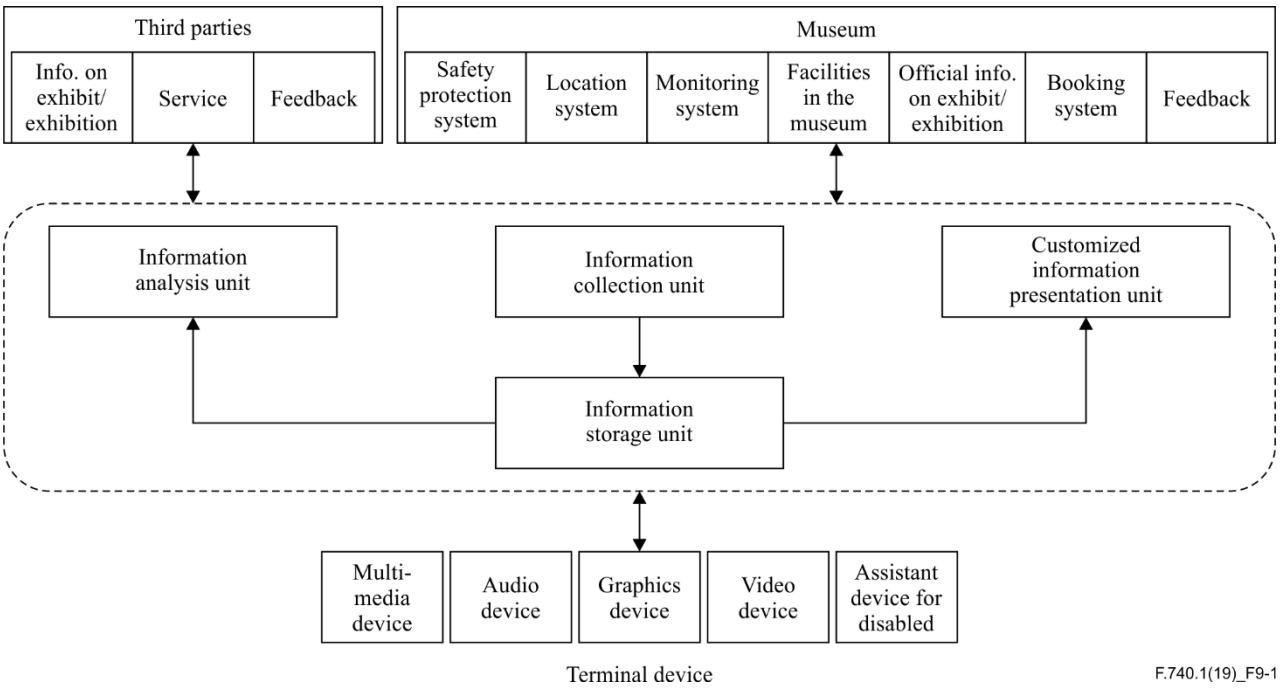

Figure 9-1 – Example functional framework of ISOM

9.1 Information collection unit

The information collection unit is responsible for collecting information from museums, museum visitors as well as third parties. It collects official information about the exhibited objects from the museum, supplementary information about the objects from third parties such archaeologists, and user generated contents, including photos taken by visitors, their stories and feedbacks. It can also collect information about the facilities such barrier-free facilities of the museum and other assistance information from third parties, such as transportation suggestions to get to the museum.

9.2 Information storage unit

The information storage unit is responsible for storing the information gathered by the information collection unit, including information about exhibited objects offered by different parties, such as the museum, museum visitors and researchers, as well as other related information, such as facilities information provided by the museum and transportation information provided by the public transportation companies. It also provides methods to manage information storage, such as creating, deleting and updating.

9.3 Customized information presentation unit

The information presentation unit is responsible for providing an interface for unified information accessing by visitors. It presents the information requested by the visitor and presents it in the format specified by the visitor. It should convert the formats of data stored to the format appropriate for the visitors. For example, audio information should be converted to text for hearing impaired visitors. It can also provide synthesized assistance information to visitors, such as visit suggestions based on visitors' interests and their locations and escape route information based on visitors' locations in case of an emergency. It also provides interfaces to visitors to access the services provided by the museum such as booking tickets, and other services provided by third parties, such as search engine services.

9.4 Information analysis unit

The information analysis unit is responsible for analysing the feedbacks from visitors and other contents generated by visitors. Analysis reports will be generated according to the requirements of

the museum. Such analysis reports can also be provided to the third parties wholly or partially as appropriate.

10 Security considerations

It is recommended that ITU-T X-series, ITU-T Y-series and ITU-T M-series security Recommendations be taken into consideration. These include access control, authentication, data confidentiality, communications security, data integrity, availability and privacy.

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