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Edition 2.0 2015-11

TECHNICAL REPORT

Model and framework for standardization in multimedia equipment and systems

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MODEL AND FRAMEWORK FOR STANDARDIZATION IN MULTIMEDIA EQUIPMENT AND SYSTEMS

FOREWORD

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IEC TR 61998, which is a technical report, has been prepared by IEC technical committee 100: Audio, video and multimedia systems and equipment.

This second edition cancels and replaces the first edition published in 1999 and constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) the annexes describing various technologies have been deleted because their roles have ceased over the past two decades;

b) TC 100 frameworks are described in more general form and from the viewpoint of the model of data usage and communication including the possible future technologies of TC 100.

The text of this technical report is based on the following documents:

Enquiry draft	Report on voting
100/2528/DTR	100/2576/RVC

Full information on the voting for the approval of this technical report can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

Multimedia technology covers a wide range of technical areas and involves a number of technical elements. Most of the technical elements for multimedia are now being developed and updated. IEC standardization activities on the multimedia technology, therefore, should be carried out with enough discussions and clarifications on

- position and relationship of the technology to be standardized among the collection of related technologies,
- scope and framework/guideline of the standardization,
- appropriate standardization organisation having the responsibility,
- schedule of the standardization,
- relationship between new work items and the existing standards on multimedia or single medium technology.

These discussions should be based on appropriate multimedia technology models to create a framework for multimedia standardization.

The first edition of this Technical Report was a snapshot of these discussions in IEC/TC 100 with consideration of the draft IEC PACT (President's Advisory Committee on Future Technology) report which was a study and foreseer on future technology. After that, TC 100 had been engaged in standardization of audio, video and multimedia equipment and systems for over ten years.

In 2010, TC 100/AGS (Advisory Group on Strategy) started to study future technology again because some of ten years of progress of technology had reached beyond the IEC PACT foreseer. The study was FT-TG (Future Technology Task Force) that studied the technology forecast in the near future and resulted to raise Study Sessions in AGS to initiate the new technology areas in TC 100. At the same time, the need to revise IEC TR 61998 was recognized.

This new edition of this Technical Report is based on the IEC PACT report and redefines the TC 100 system model to initiate the future TC 100 standardization work. This Technical Report is expected to contribute as a guideline for IEC standardization experts and National Committees interested in multimedia equipment and systems.

MODEL AND FRAMEWORK FOR STANDARDIZATION IN MULTIMEDIA EQUIPMENT AND SYSTEMS

1 Scope

This Technical Report provides models and frameworks for the standardization of multimedia technology, being undertaken or to be undertaken by IEC as the result of the IEC PACT report.

2 Normative references

Void.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
originator
entity, system or device that provides information or service, or container which includes information or service

3.2
recipient
entity, system, operator or device that receives information or service, or container which includes information or service

3.3
multimedia technology
systematic co-ordination of different single medium technologies

4 Generic model

4.1 General

The generic model clarifies AV and IT multimedia technology and its boundaries.

Standardization is in general required to obtain the following:

- physical and logical connectivity;
- usability and accessibility;
- identification;
- quality;
- safety and security;
- easy implementation;
- ecological considerations;
- energy efficiency;
- environmental safeguards.

The major purposes of multimedia standardization are:

- physical and logical connectivity

  Multimedia data interchange and distribution are based on communication media and interchangeable storage media. Protocols, formats, interfaces, and other data structures of the media are required to be standardized. The features of multimedia data, in particular, make those standards more complicated than in the case of a single medium.

- usability and accessibility

  Multimedia systems contain a number of basic single medium parts, each of which requires appropriate interaction with any users or other systems. In order to realise feasible and human-recognisable operation for the multimedia systems, simplified and standardized user-system interfaces are essential.

- safety and security

  Multimedia equipment and systems form or will form a basic and important infrastructure of national and international activity. Some multimedia data are required to be highly secured. Some systems are required to be strongly protected and besides their operation should be comfortable and safe for operators whose sense organs need to access concurrently to their corresponding media; visible, audible, and other sensible media. Safe and secured environments should be implemented by being based on some guideline and standards.

All the subjects to be standardized for this purpose can be modelled by the relationship between an originator and a recipient as shown in Figure 1.

Figure 1 – Generic model

Each multimedia technology for the relationship should be discussed along with appropriate axes defined to describe corresponding features of the relationship.

4.2 Physical and logical connectivity

4.2.1 General

When considering physical and logical connectivity, as presented in Figure 2, an originator is positioned to be an entity, system or device which provides information. A recipient should be an entity, system or device which receives the information. They are reconnected with each other by a relationship: information transfer. The information transfer can be carried out by different types of information transfer media. Another aspect of the information transfer is a structure of data to be transferred by the medium.

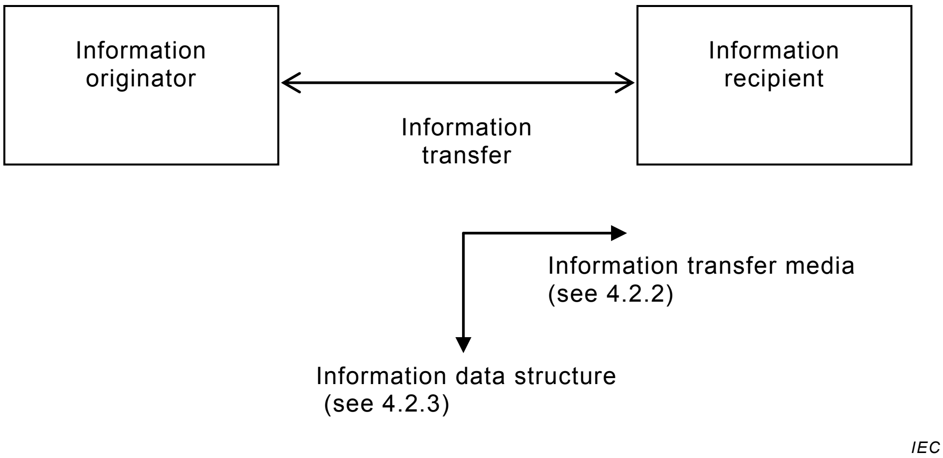

Figure 2 – Model of physical and logical connectivity

4.2.2 Information transfer media

4.2.2.1 Intersystem model

The physical media for information transfer between systems are classified into:

- Broadcasting media

  Broadcasting media support simultaneous information transfer to a number of recipients. Examples of the wireless broadcasting media are BS, CS and terrestrial.

- Intercommunication media

  Intercommunication media support information transfer between two or more systems at a time. Examples of intercommunication media are Internet, WAN, LAN and any area network.

- Interchangeable storage media

  Interchangeable storage media (ISM), e.g., optical disks facilitate data transfer by allowing the physical movement of the ISM from system to system. Large amounts of data transfer can inexpensively and quickly be realised by using interchangeable storage media. Flash memory, hard disk drive are classified as ISM.

They associate open systems as described in Figure 3.

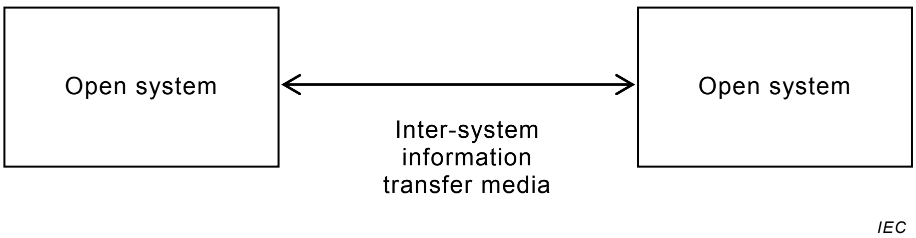

Figure 3 – Intersystem model