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PROMOTION OF NORMS AND STANDARDS FOR THE EXCHANGE OF DEVELOPMENT INFORMATION IN AFRICA

Introduction

1.   The ever increasing role of information and documentation services in the field of development creates a continuous need for the exchange of information between such systems at national, regional and international levels. However, compatibility problems are a major setback for information systems and networks, while exchange of information within a network requires a minimum set of common standards and methodologies. To facilitate the interchange of information and help in reducing or even eliminating technical barriers and compatibility problems, standards need to be developed and adopted. The PADIS Standing Committee on the Harmonization and Standardization of Information Systems in Africa was set up in 1989 to deal with these matters on a continuous basis. PADIS in cooperation with member States and African subregional and regional institutions have developed and adopted a series of standards including guidelines, manuals and computerized programs for textual data base development and on-line authority file preparation. In this regard, standardization activities are carried out in subcommittees chaired by experts from member States which report to the Standing Committee on the Harmonization and Standardization of Information Systems in Africa. Seven such subcommittees have been created to tackle standardization problems in Africa.

Definition of standard and its use

2.   Standards are specifications, models, measures, patterns or types developed with consensus by contributions from various partners. One of the specificities of standards and standards-like documents is that they are normative documents because they have a binding force either by law, contract, or convention. Also, they cover specific technologies, products, and procedures; they make effective human communication possible. Since there are many examples of human communication which create problems both of understanding and of technology, standards will apply in regulating specific actions and codes of practices in society. Examples are as follows:

-       Varying railway gauges in the same country;

-       Cars having their steering wheel in left or right position depending on the manufacturer and having to change the driving side of the road from Senegal to Gambia and back when going from Dakar to Ziguinchor thus making travelling between the two countries not easy; and

-       Varying film colour specifications (NTSC and SECAM) or conflicting video specifications (VHS and BETAMAX).

3.   Most of these problems could be solved by applying standardization - at national or international levels. This was the case with the video industry using the MULTICOLOUR specification which encompasses NTSC, PAL, SECAM and MESECAM.

Standards and global exchange

4.   Considering the transborder flow of industry and trade with railways systems covering a continent, and the supply of electricity from one country to another, it has become a necessity to have international standards covering countries of the same region and countries from various continents. Indeed, international networking and exchange would be impossible if products, tools, technologies and procedures were based on narrow national standards which would contradict each other. The ideal is standardization on an international scale to achieve international compatibility for smooth exchange of information, products and services at a global scale. In the area of technologies and tools standardization applies, for example, to packaging and containers, steel manufacture, and magnetic tapes.

5.   Standards and related documents (specifications, technical regulations, packaging requirements, sampling and testing procedures, metrology and certification activities) are an essential information source which cannot be overlooked by economic operators, since their use and application stimulate progress in bringing about technical improvements and innovations, thus paving the way for wider markets. Standards allow economic operators to seek markets, find products and assess such products. This is true both in regard to conversion, diversification, development of product ranges and for setting up a company or conquering a national or foreign market.

6.   Compliance of products with specified standards and other requirements is an essential element of successful and smooth international trade (exports and imports).

7.   The standards should refer to product characteristics whose presence is a necessary factor of product "fitness for use" or "fitness of purpose" or "customer satisfaction", in terms of adequate functioning and respect for health, safety and environmental factors, as quality depends heavily on those aspects and also on "product conformance with the requirements".

8.   As defined by ISO 8402 (Quality vocabulary), product quality is the totality of characteristics of a product that bear on its ability to satisfy stated or implied needs. This also means that product quality should be appropriately defined, as a requisite for successful export and import trade since the consequences of quality achievement is the satisfaction of the buyer, user or consumer.

9.   The information needed to define product quality in a proper way falls mainly into the following categories:

-     Standards;

-     Specifications; and

-     Technical regulations.

They should relate, among others, to:

-     Products, parts, components, materials, etc.;

-     Packs, packages and packaging materials;

-     Labels;

-     Inspection, sampling and test methods; and

-     Certification requirements.

10.   The requirements included in the above mentioned information should be as established by the buyers, importers, users or the national authorities of the target markets.   In addition to the above, standards are also needed on the taste and preferences of the potential users/ consumers of the product in the intended market. Furthermore, standards are also needed in developing countries on inspection, testing and quality control instruments and materials, and on their suppliers. Standards are also critical to bibliographic control, bibliographic description, production and reproduction of documents as well as organization of information systems and services.

11.   It is necessary that all the information referred to above be from up-to-date standards in order to avoid the problems and failures concomitant with obsolete information.

Updating of standards

12.   Because standards are intended to guide the development of a society, they need regular updating to be able to set the path for new technological developments. However, if electronic means are not used and because of the time it takes to approve and publish standards on a paper form, they often lag behind current best practice. This is because new developments may have taken place in the technology since the standard was drafted.

13. In the field of information, standards that influence everyday practice - for example, cataloguing rules, classification systems, guidelines for bibliographic data base, etc. - may quickly become out of date as new technology and methods are introduced. Therefore standards have to be periodically reviewed and modified where necessary.

Standardization and work sharing

14. Standards enable human work to be more effective and productive. Increasingly people have to specialize and learn to share the workload with each other. This is the case of managers and their assistants, doctors and nurses, administrators and labourers. Specialization means that people concentrate on acquiring knowledge in one particular area. This may lead to increased skills and improvements in working practices and would prevent conflicting assignments. Standardizaton facilitates dialogue and work sharing between different actors which may be working together but with different levels of knowledge and experience. Each of them would have its own responsibilities, but there must be an agreement of practice and language - and a level of understanding to enable them to work together effectively. Indeed methods of working and wok sharing are already embroided in standards like documents such as codes of practices and manuals because standardization does not limit itself in technical specifications for products and technologies but also encompasses procedures, guidelines, methods, systems and terminologies, thus facilitating transfer of knowledge and uniformity of practices.

Developing standards

15. The establishment and widespread adoption of standards will only occur when a substantial number of key institutions and individuals participate in this process and have a vested interest in promoting and using standards being developed. That is why standardization activities are always carried out in working groups, subcommittees, committees and technical committees where experts will share their experience and will develop specifications, guidelines, codes of practices and other standards type documents for the interest of the companies and the lobbying groups or consumers they represent.

16. Regardless of whatever type of institution is creating the standard, the normal developmental process of a standard will be as follows:

> - PLANNING. It will normally be carried out by specialists in the process or technology in question. They will work with a steering, co-ordination or controlling committee made up of the specialists themselves, and representatives from the standardizing institutions and the Standards Body.

- ANALYSIS. Analysis of the process or of the technical elements of the product will be carried out by specialists using the best tools for evaluation.

- DEFINING OF PRINCIPLES. This will be the responsibility of the standardization committees.

- DRAFT PROPOSALS. Preparation of drafts proposals will be done by one or several specialists who have agreed to make submissions to the standardization committees through working groups, technical committees or subcommittees.

- DISCUSSION OF THE DRAFT PROPOSAL. This will be undertaken by a working group composed of experts in the subject field. This will be set up by the Standards Body to examine the draft proposals. This should lead to a set of amended proposals.

- AMENDED PROPOSALS. This is the result of the Draft Proposal discussed by a working group and will form the basis for a Draft Standard.

- DRAFT STANDARD. It is a project drawn up from the amended proposals.

- CIRCULATION AND VOTING. The Draft Standard may be circulated for voting by member bodies and interested institutions. COMMENTS will be incorporated where appropriate. Voting does not take place in the case of a company standard; the latter is approved by the company's executive direction.

- The draft Standard with any amendments will be APPROVED AND PUBLISHED by the Standards Body as a **STANDARD**. In some countries, the standard will enter into force by publication of an Act by the Parliament or the parent institution of the Standard Body.

- PROMOTION AND CONTROL. They will be undertaken by the Standards Body, and the committee, as well as by co-ordinating and supervising bodies in the field.

- IMPLEMENTATION. It is carried out by any institution or individual interested in it. They can be a government department, an industry, an administration, an association, an international organization, or any institution or individual interested in the application of a specific standard.

Applying standards in information handling

17.   Standards and standardization are critical to the effective management of information services, to co-operation with other services and to the international availability of information. To enable information services and co-operative systems to work together effectively at local, national and international levels - a high level of standardization between them is of the greatest importance.

18.   Areas in information handling which require standardization are mainly:

-     Bibliographic control to enable library catalogues, national bibliographies and other bibliographic records to be understood and used widely.

-     Bibliographic descriptions to be able to have an harmonized way of describing and organizing records of a data base.

-     Subject analysis and retrieval. Standardization is also highly desirable in classification schemes - subject headings - thesauri- indexing and abstracting, among others, to enable common language for retrieving information.

-     Machine readable bibliographic information.   Standardization is essential when publishing bibliographic information in machine readable form. This should cover the use of equipment - networking the interconnection of systems - as well as the style of bibliographic formats used.

-     Management of document collections. Standardized practices will also be applied to the acquisition, storage, safety and repair of documents - space requirements, buildings and fittings - lighting, heating and ventilation - and levels of service.

-     Preparation of a document or information.   Punctuation, use of abbreviations and the inclusion of references need a standardized approach when presenting or publishing information.

-     Presentation and layout. Standardization is required in the way the text is organized and arranged - in the use of citations and notes in indexing and in proof reading.

-     Production and reproduction of documents. Whatever format the information is to be presented in, for example in a book, a magnetic tape or a CD-ROM, a standardized approach to its production is required. Examples: how to arrange information into a CD ROM and

which information to put in, selecting the fields in a CD ROM data base.

- Organization of information systems and services. The management and administration of information services are areas which can benefit from standardized practices. These should be applied to information policies - the planning and organization of services and networks and staff education, training and performance.

ECA Activities on Standardization

The Standing Committee on Harmonization and Standardization of Documentation and Information Systems in Africa

19. PADIS has been working to promote the use of compatible standards through the Standing Committee on Harmonization and Standardization of Information and Documentation Systems in Africa established in Tripoli in 1987 by the seventh meeting of Chief Executives of ECA-sponsored Regional and Subregional institutions. PADIS has convened the Standing Committee annually since from 1987 through 1992. In 1992 the meeting of ECA-sponsored institutions adopted a resolution changing the periodicity of meetings of the Standing Committee to every even year, along with other ECA legislative meeting and organs, with the understanding that the Subcommittees of the Standing Committee would meet in the alternate years. The Standing Committee thus held its last meeting at ECA in Addis Ababa in 1994.

20. Originally membership on the Standing Committee was limited to the 30-odd ECA sponsored institutions. However, in 1989 the membership was enlarged at the request of a number of African organizations to include any subregional or regional institution in Africa with an interest in standardizing its documentation and information activities. In 1993, out of concern for the importance of the issues that the Standing Committee deals with, the Regional Technical Committee for PADIS further enlarged the membership basis of the Standing Committee to include any institution, - whether operating at national, subregional or regional level, - with an interest in normalization of its information system. Hence, in addition to member States the Standing Committee is composed of 50 PADIS subregional and regional participating centres. The list of subregional and regional institutional participating c e n t r e s   i s   a t t a c h e d   i n   a n n e x .

21. The Standing Committee is a forum for information professionals to discuss common problems, exchange experiences and ideas, harmonize activities and standardize working procedures and methods between information and documentation systems. At its meetings they look for appropriate and realistic strategies which will enable them to develop and promote information exchange mechanisms capable of contributing to the dissemination of science and technology, the development of African countries and African economic integration. One particularly important aspect

of its work has been in the area of development of conversion programmes to handle different data structures and facilitate transportability of data.

22. The following standardization subcommittees have been established to carry out standardization work in the framework of the Standing Committee on Harmonization and Standardization of Documentation and Information Systems in Africa:

Subcommittee 1: PADIS Manual for document analysis
Subcommittee 2: Selection and evaluation of criteria of textual database programs
Subcommittee 3: Evaluation of textual database formats and structures
Subcommittee 4: Selection and acquisition of microcomputer hardware configurations
Subcommittee 5: Computer networking e-mail and on-line access
Subcommittee 6: Authority files
Subcommittee 7: CD ROM

23. Work of the Standing Committee has been enhanced by support from the Carnegie Corporation of New York which since 1994 has been allocating funds for the activities of the subcommittees. Hence, most of the substantive standards from the Standing Committee were developed through two Carnegie grants entitled: "Promoting information exchange and compatibility in Africa".

Review of outputs of the Carnegie Grant "Promoting information exchange and compatibility in Africa (Grant B 5965)"

24. PADIS benefited in 1994 from a grant from the Carnegie Corporation of New York. The project which was developed concentrated on five pressing issues which posed severe constraints to information exchange both within the Africa region and beyond. Three of those issues related to the creation and utilization of databases while two fell within the area of microcomputer hardware configurations and electronic information exchange. Those issues were studied and yielded results through the work of the respective subcommittees. The project had the following outputs:

- Output 1: Guidelines on textual database management software for use by African institutions

- Output 2: Conversion programmes between varieties of textual database management software

- Output 3: Report on standardization of worksheets and manuals

- Output 4: Authority file of African institutions

- Output 5: Guidelines on communication software for use in Africa

- Output 6: Guidelines on selection and acquisition of microcomputer hardware configuration

25.   Following the success of the activities of the above project and the need to continue standardization activities in the region, the Carnegie Corporation awarded a new grant to the Economic Commission for Africa to finalize work undertaken under Grant B5965; it was Grant B6198.

Review of outputs of the Carnegie Grant "Promoting information exchange and compatibility in Africa (Grant B 6198)"

26.   The above grant was awarded to PADIS in 1995 for a duration of one year. In the framework of the grant, subcommittees 1, 3 and 6 met in Cairo, Egypt, from 13-16 November 1995 with a view to reviewing:

- the manual for document analysis together with the PADDEV automated computer program;

- the authority file program for data entry; and

- the common format for the African Development CD-ROM.

27.   The following outputs were achieved by the subcommittees 1, 3 and 6:

- the PADDEV program which enables automatic installation of the structure of the PADIS main bibliographic data base under any other name without having to go through the whole process of data base definition, thus facilitating data base design activities in African information centres.   The program is specifically developed for:

  a.   data entry using customized worksheets;

  b.   automated selection of authority lists by adapting the ODIN program;

  c.   index generation for purpose codes, sectoral codes, geographic codes, author index, shelf indexes; and

  d.   data export using comma delimiters by Fangorn facilities; and

- the adoption of a common format for the preparation of the African Development CD ROM and an on-line regional data base to be fed with data from member States and African institutions.

28.   Work of Subcommittee 3 was further enhanced by activities carried out in the CD ROM Subcommittee which met from 6-8 March 1996.

Standardization of PADDEV worksheet and manual

29.   The subcommittee has developed a manual for document analysis (CDS/ISIS version) which incorporates a model customized bibliographic database for use by African countries and institutions. The manual includes new customized printing facilities in the customized bibliographic database using sort and print worksheets for descriptors, sectoral codes and purpose codes is done.

Authority file of African institutions

30.   Subcommittee 6 on Authority file produced a List of Institutions Authority file and a Report on the Authority file. The computerized validation program of the Authority file (ODIN) was tested, reviewed and distributed. Guidelines for the use of the Authority file have been developed and are being reviewed. They will be fully implemented once the Authority file program will be ready for full implementation.

Data base searching via e-mail

31.   The following standard was developed and reviewed by the Subcommittee from 6-8 March 1996: **Computer Program for data base searching via e-mail.**

Development of an African CD ROM on scientific, technical and development literature and on experts

32.   To be able to effectively share their information resources, with minimum cost and appropriate technology, African countries and institutions are putting together their databases onto a CD ROM. The subcommittee on CD ROM met from 6-8 March 1996, and adopted the format for the CD ROM as well as conditions for participation in the first African development information CD ROM.

LIST OF OFFICIAL INSTITUTIONAL PARTICIPATING CENTRES
IN THE PADIS NETWORK

30 January 1996

1. African Accountancy Council/AAC
   C/O UNDP Kinshasa
   Kinshasa, Zaire

2. African Development Bank/ADB
   BP 1387
   Abidjan 01, Côte d'Ivoire

3. African Institute for Economic Development and Planning/IDEP
   P. O. Box 3186
   Dakar, Senegal

4. African Regional Centre for Engineering Design and Manufacturing/ARCEDEM
   P. O. Box 19, U.I. Post Office
   Ibadan, Nigeria

5. African Regional Centre for Technology/ARCT
   P. O. Box 2435
   Dakar, Senegal

6. African Regional Industrial Property Organization/ARIPO
   P. O. Box 4228
   Harare, Zimbabwe

7. African Regional Organization for Standardization/ARSO
   P. O. Box 54363
   Nairobi, Kenya

8. African Regional Remote Sensing Centre/ARRSC
   P. O. Box 240
   Bamako, Mali

9. African Training and Research Centre in Administration for Development/CAFRAD
BP 310
Pavillon International
Tanger, Maroc

10. Arab Organization for Agricultural Development/AOD
Khartoum
Sudan

11. Arab League Documentation Centre
ALDOC
Tahrir Square
P. O. Box 11642
Cairo, Egypt

12. Association of African Trade Promotion Organizations/AATPO
P. O. Box 23
Tanger, Morocco

13. Association of African Universities/AAU
P. O. Box 5744
Accra North, Ghana

14. Centre International des Civilisations Bantu/CICIBA
BP 770
Libreville, Gabon

15. Centre on Integrated Rural Development for Africa/CIRDAFRICA
P. O. Box 6115
Arusha, Tanzania

16. Centre régional d'énergie solaire/CRES
BP 1872
Bamako, Mali

17. Centre Régional d'Information et de Documentation Commerciales/CRIC
20 BP 1246
Abidjan, Côte d'Ivoire

18.   Commission du Bassin du Lac Tchad/CBLT
        BP 727
        N'Djaména, Tchad

19.   Communauté Economique des Pays des Grands Lacs/CEPGL
        BP 58
        Gisenyi, Rwanda

20.   Council for the Development of Economic and
        Social Research in Africa/CODESRIA
        BP 3304
        Dakar, Sénégal

21.   Eastern and Southern African Mineral Resources Development
        Centre/ESAMRDC
        P. O. Box 1250
        Dodoma, Tanzania

22.   Eastern and Southern African Management Institute/ESAMI
        P. O. Box 3030
        Arusha, Tanzania

23.   Eastern and Southern African Universities
        Research Programme/ESAURP
        P. O. Box 35048
        Dar es Salaam, Tanzania

24.   Economic Community of Central African States/ECCAS
        P. O. Box 2112
        Libreville, Gabon

25.   Federation of African Chambers of Commerce
        P. O. Box 3001
        Addis Ababa, Ethiopia

26.   International Government Authority on Drought and Development/IGADD
        P. O. Box 2653
        Djibouti

27.   International Centre for Insect Physiology/ICIPE
      P. O. Box 30772
      Nairobi, Kenya

28.   International Energy Foundation/IEF
      P. O. Box 83617 Main Post Office
      Tripoli, Libya

29.   International Livestock Centre for Africa/ILCA
      P. O. Box 5689
      Addis Ababa, Ethiopia

30.   Institut sous-régional multisectoriel de technologie appliquée de planification
      et d'évaluation de projets/ISTA
      BP 3910
      Libreville, Gabon

31.   Institut de Formation et de Recherches Démographiques/IFORD
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33.   Organisation Africaine de la Propriété Intellectuelle/OAPI
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32.   Organisation du Bassin de la Kagera/OBK
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34.   Pan African Institute for Development/PAID
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35.   Pan African News Agency/PANA
      BP 4056
      Dakar, Sénégal
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36. Pan-African Postal Union/PAPU
  P. O. Box 6026
  Arusha, Tanzania

37. Pan African Union for Science and Technology/PUST
  BP 2339
  Brazzaville, Congo

38. Preferential Trade Area for Eastern and Southern African States/PTA
  P. O. Box 30051
  Lusaka, Zambia

39. Regional Centre for Training in Aerospace Surveys/RECTAS
  P. O. Box 5545
  Ile-Ife, Nigeria

41. Regional Centre for Services in Surveying Mapping and Remote Sensing/RCSSMRS
  P. O. Box 18118
  Nairobi, Kenya

40. Regional Institue for Population Studies/RIPS
  P. O. Box 96
  Acrra, Ghana

42. Southern African Institute for Political and Economic Studies/SAPES
  P. O. Box MP 111, Mount Pleasant
  Harare, Zimbabwe

43. Union Douanière et Economique des Etats de l'Afrique Centrale/UDEAC
  BP 872
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48   Service d'Appui aux Initiatives Locales de Développement
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