ANSI/NISO Z39.18-1995
(Revision of ANSI Z39.18-1987)

ISSN: 1041-5653

Scientific and Technical Reports — Elements, Organization, and Design

Abstract: To facilitate information retrieval, the elements, organization, and design of scientific and technical reports are outlined. Guidance in organizing the required and optional elements of the three major sections (front matter, text, and back matter) is provided. The standard establishes guidelines for the uniform presentation of visual and tabular matter, formatting, and pagination. Additional suggestions for presenting numbers, formulas, equations, symbols, abbreviations, and acronyms are included.

An American National Standard
Developed by the
National Information Standards Organization
Approved March 21, 1995 by the
American National Standards Institute

NISO PRESS

Bethesda, Maryland, U.S.A.

Published by
NISO Press
P.O. Box 1056
Bethesda, Maryland 20827

Printed in the United States of America

ISSN: 1041-5653 National Information Standards series
ISBN: 1-880124-24-6

This paper meets the requirements of ANSI/NISO Z39.48-1992 (Permanence of Paper).

Library of Congress Cataloging-in-Publication Data
National Information Standards Organization (U.S.)
Scientific and technical reports : elements, organization, and design
p. cm. -- (National information standards series, ISSN 1041-5653 ; ANSI/NISO Z39.18-1995)
"Developed by the National Information Standards Organization, approved March 21, 1995 by the American National Standards Institute"
Includes index.
ISBN 1-880124-24-6
1. Technical writing--Standards--United States. I. American National Standards Institute. II. Title. III. Series.
T11.N354 1995 95-22240
808'.0665--dc20 CIP

Contents

(continued)

(Contents continued)

Foreword

(This Foreword is not a part of the American National Standard for Scientific and Technical Reports — Elements, Organization, and Design, ANSI/NISO Z39.18-1995. It is included for information only.)

This standard presents guidelines about the elements, organization, and design of scientific and technical reports. Its purpose is to foster uniformity in such reports for ease of information retrieval while permitting diversity of purpose, scope, and subject matter. The standard does not provide guidance on other typical technical information products such as journal articles, proposals, technical specifications, or technical and consumer manuals. This publication is a standard rather than a report and, therefore, does not follow in every particular the report format prescribed. Moreover, the language of the standard is couched in the indicative rather than the subjunctive mood ("is," not "shall" or "must") which is typically used in standards.

In the development of this standard, Committee AH examined existing practices and conventions from a wide variety of organizations, institutions, and associations, as reflected in the annotated bibliography (Appendix A). These sources were chosen because they represent a variety of report producers and are available to the report-producing public. Where practices varied, committee members resolved the differences based on their collective experiences. Where appropriate, they have recommended options to accommodate the widely varied needs of report producers. Because of this variety, not all the elements described are mandatory for a report although the placement and sequence of report elements should be consistent. For example, federal agencies use a report documentation page, but many academic and industrial report producers do not. The use and placement of report documentation pages are considered optional by the standard to accommodate local practices, therefore instructions for preparing them are given in Appendix B.

The standard provides explicit guidance about the bibliographic data elements that appear on the covers and title pages (and, if they are used, report documentation pages) of reports if the reports are printed or presented in image form. Compliance with these guidelines ensures thorough, consistent, and uniform bibliographic description, and control of data essential to libraries, abstracting services, and other technical information organizations that acquire, store, and provide access to information resources.

The standard also describes the scope of each section of a report and offers principles for the effective communication of textual, visual, and tabular material. The establishment of technical writing standards is beyond the scope of this standard; however, the standard does provide an extensive annotated bibliography of books about technical writing and language usage and style (Appendix A).

The standard includes basic requirements for publication formats; the use of figures and tables; and the presentation of numbers and units, formulas and equations, and symbols, abbreviations, and acronyms. It does not, however, offer specific advice about electronic publishing systems that enable users to design and produce reports using a computer, appropriate software, and a laser or laser-quality printer. Because report production and reproduction techniques use rapidly changing software products that are beyond the scope of this standard, they are not specified. Most software packages for page and report production do provide instruction manuals for users, however. The author(s) or other individuals charged with preparing a report should plan to deliver both a paper copy and an electronic version available on diskette, CD-ROM, or network services.

The standard supports the electronic publication of hard (paper) copy while acknowledging that reports are also produced, stored, and retrieved in electronic formats. Paper and electronic documents have different design constraints, however, that are not easily reconciled in a single standard. Insofar as it is possible to do so, this standard establishes a *de facto* document-type definition (DTD), a set of rules for establishing the structure of reports, that may be electronically processed through systems that include document imaging, optical character recognition, compression/decompression, and optical media storage of full text.

Suggestions for improving this standard are welcome. They should be sent to the National Information Standards Organization, P.O. Box 1056, Bethesda, MD 20827, telephone (301) 654-2512.

This standard was processed and approved for submittal to ANSI by the National Information Standards Organization. NISO approval of this standard does not necessarily imply that all Voting Members voted for its approval. As the time it approved this standard, NISO had the following members:

(continued)

NISO Voting Members

American Association of Law Libraries
Andrew Laurence

American Chemical Society
Robert S. Tannehill, Jr.
Leon R. Blauvelt (Alt)

American Library Association
Myron B. Chace
Glenn Patton (Alt)

American Society for Information Science
Mark H. Needleman

American Society of Indexers
Patricia S. Kuhr
Marie Kascus (Alt)

American Theological Library Association
Myron B. Chace

Apple Computer, Inc.
Janet Vratny
Rita Brennan (Alt)

Art Libraries Society of North America
Julie Mellby
Penney DePas (Alt)

Association for Information and Dissemination Centers
Bruce H. Kiesel

Association for Information and Image Management
Judy Kilpatrick

Association of Jewish Libraries
Bella Hass Weinberg
Pearl Berger (Alt)

Association of Recorded Sound Collections
Garrett Bowles

Association of Research Libraries
Duane E. Webster

AT&T Bell Labs
M.E. Brennan

Book Manufacturers' Institute
Stephen P. Snyder

CARL Corporation
Ward Shaw

Data Research Associates, Inc.
Michael J. Mellinger
James Michael (Alt)

Dialog Information Services
Richard Boulderstone
David Loy (Alt)

The Faxon Company
Fritz Schwartz

Gaylord Information Systems
Robert Riley
Bradley McLean (Alt)

Geac Computers, Inc.
Simon Kendall
B.J. Mitchell (Alt)

Indiana Cooperative Library Services Authority
Barbara Evans Markuson
Janice Cox (Alt)

Joint Medical Library, Department of Defense
Diane Zehnpfennig
Beth Knapke (Alt)

Lexis/Nexis
Peter Ryall

Library Binding Institute
Sally Grauer

Library of Congress
Sally H. McCallum
Winston Tabb (Alt)

Medical Library Association
Katherine Hughes
Carla J. Funk (Alt)

MINITEX
Anita Anker Branin
William DeJohn (Alt)

Music Library Association
Lenore Coral
Geraldine Ostrove (Alt)

National Agricultural Library
Pamela Q. J. Andre
Gary K. McCone (Alt)

National Archives and Records Administration
Alan Calmes

National Federation of Abstracting and Information Services
John Schnepp

National Library of Medicine
Lois Ann Colaianni

NOTIS Systems, Inc.
John Kolman

OCLC, Inc.
Don Muccino

OHIONET
Michael P. Butler
Greg Pronevitz (Alt)

PALINET
James E. Rush

P.S.S. Tapestry, Inc.
Mary Sue Iddings
Janet Pingitore (Alt)

Readmore Academic Services
Sandra J. Gurshman
Dan Tonkery (Alt)

The Research Libraries Group, Inc.
Wayne Davison
Kathy Bales (Alt)

R. R. Bowker - U.S. ISBN Maintenance Agency
Emery Koltay

Society of American Archivists
Lynn Lady Bellardo

Society for Technical Communication
Jeff Hibbard
Kevin Burns (Alt)

Special Libraries Association
Marjorie Hlava

SUNY/OCLC Network
Glyn T. Evans
David Forsythe (Alt)

U.S. Department of the Army, Headquarters
Louise Nyce

U.S. Department of Commerce, National Institute of Standards and Technology, Office of Information Services
Jeff Harrison
Marietta Nelson (Alt)

U.S. Department of Defense, Defense Technical Information Center
Gretchen A. Schlag
Claire Tozier (Alt)

U.S. Department of Energy, Office of Scientific and Technical Information
Mary Hall
Nancy Hardin (Alt)

U.S. National Commission on Libraries and Information Science
Peter R. Young

VTLS, Inc.
Vinod Chachra

West Publishing
Andy Desmond
Forrest Rhoads (Alt)

The H.W. Wilson Company
George I. Lewicky
Ann Case (Alt)

NISO Board of Directors

At the time NISO approved this standard, the following individuals served on its Board of Directors:

Michael J. Mellinger, Chairperson
Data Research Associates, Inc.

Michael J. McGill, Vice-Chair/Chair-Elect
University of Michigan

James E. Rush, Immediate Past Chairperson
PALINET

Joel Baron, Treasurer
The Faxon Company

Patricia R. Harris, Executive Director
NISO

Directors Representing Libraries

Nolan F. Pope
University of Wisconsin - Madison

Clifford Lynch
University of California

Lennie Stovel
Research Libraries Group, Inc.

Directors Representing Information Services

Rebecca Lenzini
CARL Corporation

John Kolman
Ameritech Library Systems

Vinod Chachra
VTLS, Inc.

Directors Representing Publishing

Marjorie Hlava
Access Innovations, Inc

Robert C. Badger
Springer-Verlag, NY

Elizabeth Bole Eddison
Inmagic, Inc.

Standards Committee AH

Standards Committee AH on Scientific and Technical Reports — Elements, Organization, and Design had the following members at the time this standard was approved:

Thomas E. Pinelli, Chair
NASA Langley Research Center

Rebecca O. Barclay
Rensselaer Polytechnic Institute

Mary C. Hall
U.S. Department of Energy

Dorothy McGarry
University of California, Los Angeles

Gopalakrishnan Nair
Defense Technical Information Center

Walter E. Oliu
U.S. Nuclear Regulatory Commission

Walter Rice
Naval Surface Warfare Center

Roland Ridgeway
National Aeronautics and Space Administration

Annette D. Reilly
Martin Marietta Corporation

Gretchen Schlag
Defense Technical Information Center

Thomas L. Warren
Oklahoma State University

Acknowledgements

Standards Committee AH gratefully acknowledges the assistance of the following individuals: Leanna D. Bullock and Elizabeth G. Fedors of the NASA Langley Research Center, Philip C. Murray of Electronic Information Age, Inc., Joy Italiano, Eloise Johnson, and Lillian Werth.

Scientific and Technical Reports — Elements, Organization, and Design

1. General Information

1.1 Purpose and Scope of Standard

This standard establishes guidelines for the elements, organization, and design of scientific and technical reports. The standard fosters uniformity in such reports, while allowing for diversity of subject matter, purpose, and audience. Because this publication is a standard rather than a report, it follows the ANSI-approved format for published standards rather than the prescribed report format.

1.2 Definition of Scientific and Technical Reports

Scientific and technical reports (hereafter referred to as "reports") convey the results of basic or applied research and support decisions based on those results. A report includes the ancillary information necessary for interpreting, applying, and replicating the results or techniques of an investigation. The primary purposes of such a report are to disseminate the results of scientific and technical research and to recommend action.

A report has a unique, issuer-supplied report number and may have a contract or grant number and an accession or acquisition number. A report also exhibits some or all of the following characteristics:

1. Its readership may be limited, its distribution may be limited or restricted, and its contents may include classified, proprietary, or copyrighted information.

2. It may be written for an individual or organization as a contractual requirement to recount a total research story, including full discussions of unsuccessful approaches.

3. It is not usually published or made available through commercial publishing; it is often available through a non-profit governmental entity (for example, the National Technical Information Service or the Government Printing Office).

2. Referenced Standards

2.1 American National Standards

This standard is intended for use in conjunction with the following American National Standards. When these standards are superseded by a revision approved by the American National Standards Institute, consult the revision.

ANSI Z39.4-1984, *Basic Criteria for Indexes*

ANSI Z39.14-1979 (R1986), *Writing Abstracts*

ANSI/NISO Z39.23-1990, *Standard Technical Report Number (STRN) Format and Creation*

ANSI Z39.29-1977, *Bibliographic References*

ANSI/NISO Z39.48-1992, *Permanence of Paper for Printed Publications and Documents in Libraries and Archives*

ANSI/NISO Z39.72-199X, *Format for Submission of Data for Multimedia CD-ROM Mastering* (draft standard)

ANSI/IEEE 268-1982 (R1992), *Metric Practice*

NISO/ANSI/ISO 9660, *Volume and File Structure of CD-ROM for Information Exchange*

NISO/ANSI/ISO 12083, *Electronic Manuscript Preparation and Markup*

2.2 Other Standards

In addition to ANSI standards, the following standards provide useful information for preparing reports:

ASTM E 380-1991, *Standard Practice for Use of the International System of Units (SI) (The Modernized Metric System)*

Federal Information Processing Standards Publication 152, 1988, Standard Generalized Markup Language

Federal Information Processing Standards Publication 29-2, Interpretation Procedures for Federal Information Processing Standards for Software

ISO 8879:1986, *Information Processing—Text and Office Systems—Standard Generalized Markup Language*

ISO 9069:1987, *Information Processing—SGML Support Facilities—SGML Document Interchange Format (SDIF)*