Module IV

Standards Development and the Stages of Technical Work

United States National Committee of the IEC

ANSI

Module IV: Learning Objectives

- This module provides an overview of the IEC standards development process, including:
  - Project development principles
  - ISO/IEC Directives
  - Project stages of IEC standards development work, documents and time frames
  - Technical Specifications, Publicly Available Specifications and Technical Reports
  - Maintenance procedures
  - Amendments
  - Global relevance policy and procedures
  - “In Some Countries” Clauses
  - Normative references
  - Double-logo Standards
  - Fast-track processing

Module IV: Disclaimer

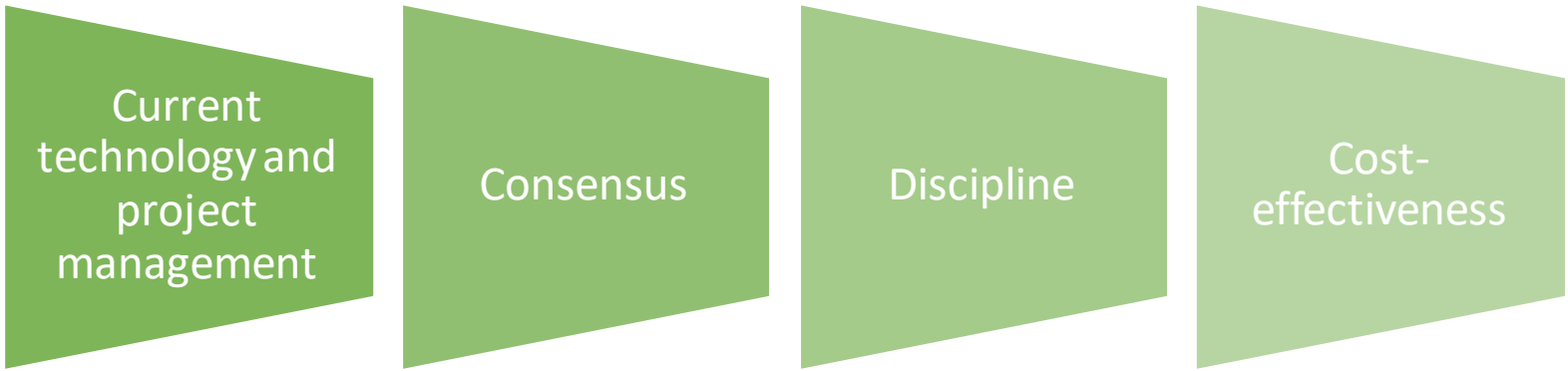
- The information contained in this self-taught learning module is intended as a summary of documents and procedures frequently used within the IEC and the USNC/IEC.
- For additional information about content addressed in this module, please contact the USNC staff (usnc@ansi.org).
- Additional information is also available via USNC/IEC Education & Training.

Reference Materials & Source Documents

- ISO/IEC Directives, Part 1: 2021
  Procedures for the technical work
- ISO/IEC Directives, Part 2: 2021
  Rules for the structure and drafting of International Standards
- ISO/IEC Directives, Part 1:2021 + IEC Supplement:2021
  Procedures specific to IEC
- IEC Statutes and Rules of Procedures
  IEC membership and participation procedures
- USNC Statutes: 2018
- USNC Rules of Procedure: 2005
- Model Operating Procedures for USNC/IEC TAGS: 2019
- Guide for U.S. Delegates to meetings of ISO and the IEC
- IEC Code of Conduct (Patent Policy included)
- IEC Diversity Statement

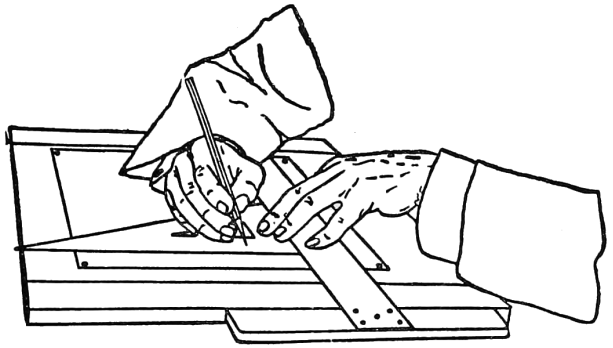
ISO/IEC Directives: Part 1
Procedures for the Technical Work

- Sets out the procedures to be followed within ISO and IEC in developing, approving and maintaining International Standards, and for the administration of TCs and subsidiary bodies
- The procedures are based on the following concepts:



ISO/IEC Directives: Part 2 Principles and rules for the structure and drafting of ISO and IEC documents

- Sets out the specific rules for the structure and drafting of documents so that International Standards, Technical Reports or Guides are drafted in as uniform a manner as possible, irrespective of technical content



IEC Supplement: *Procedures for the Technical Work – Procedures Specific to IEC*

- Complements the ISO/IEC Directives
- Contains those procedures which are specific to IEC
- Includes useful Annexes, as well as the IEC Forms

Guiding Principles

- International standards should meet societal and market needs and should not be developed to act as barriers to trade
- ISO and IEC follow globally accepted principles of standards development:
  - Consensus
  - Transparency
  - Openness
  - Impartiality
  - Effectiveness and relevance
  - Performance-Based
  - Coherence
  - Due Process
  - Technical Assistance
  - Flexible

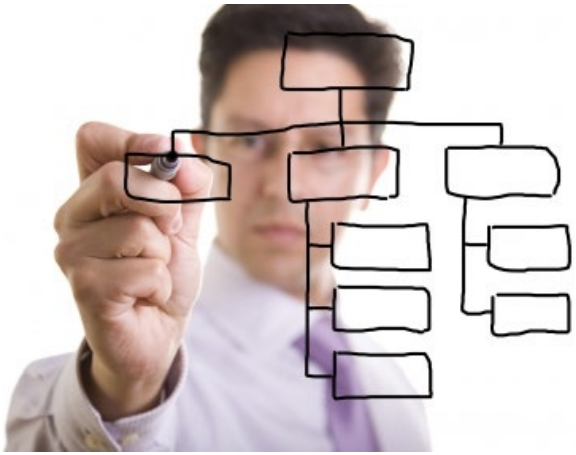
Definition – Consensus

- Consensus
  - General agreement, characterized by the absence of sustained opposition to substantial issues by any important part of the concerned interests and by a process that involves seeking to take into account the views of all parties concerned and to reconcile any conflicting arguments.

Source: ISO/IEC Guide 2

IMPORTANT NOTE: *Consensus does not imply unanimity*

Project Development



- The primary duty of a technical committee (TC), subcommittee (SC), and systems committees (SyC) is the **development and maintenance of International Standards and similar deliverables**.
- A project is any work intended to lead to the issue of a new, amended or revised International Standard.

Systems Committee Deliverables

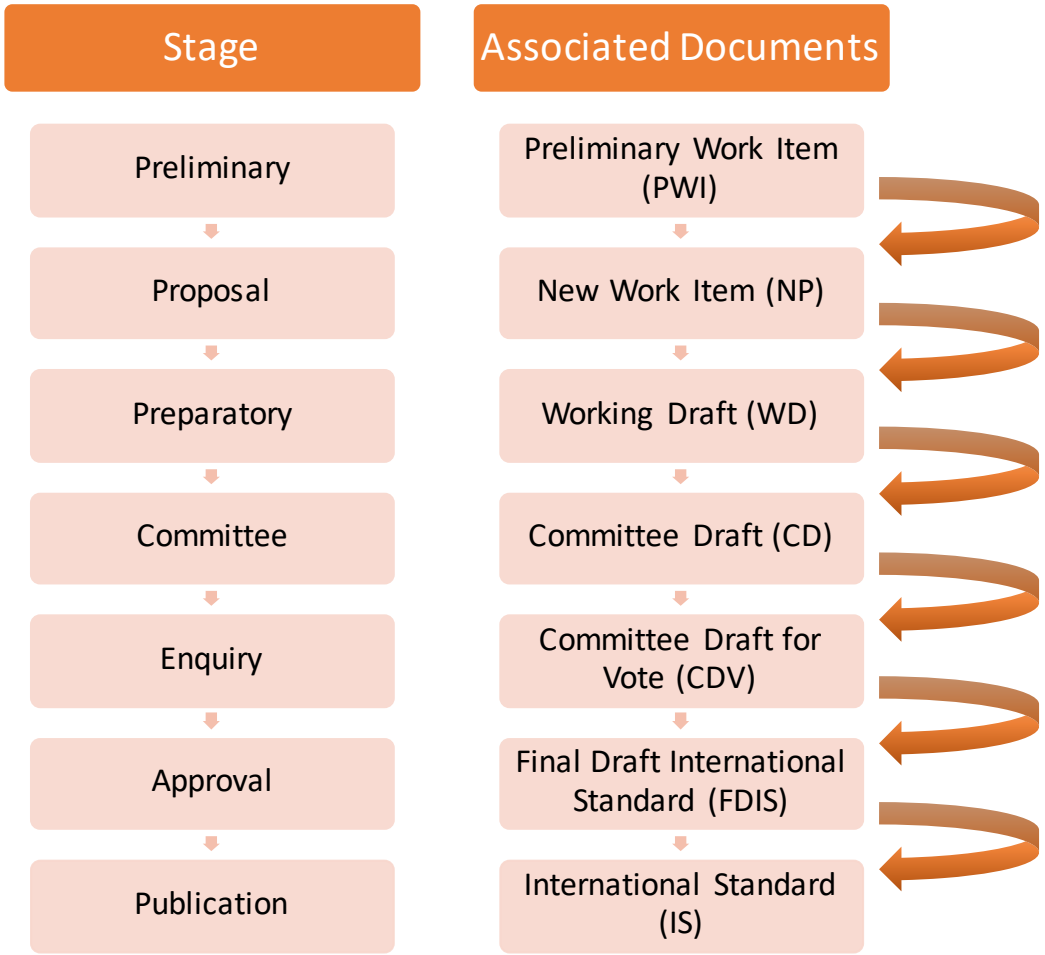
Systems Committee (SyC): a specialized type of committee working at the systems instead of the product level to develop reference architectures, use cases and appropriate standards and guidance on the interfaces, functionality and interaction of a system within its agreed terms of reference. A SyC can draft Systems Reference Deliverables (SRD), in exceptional cases it can draft International Standards.

Strategic Business Plan

- Each technical committee shall prepare a **strategic business plan** for its own specific field of activity,

  - taking into account the business environment in which it is developing its work program
  - indicating those areas of the work program which are expanding, those which have been completed, and those nearing completion or in steady progress, and those which have not progressed and should be deleted
  - evaluating revision work needed
  - giving a prospective view on emerging needs

Project Stages and Associated Documents for Standards



Target and Stability Dates

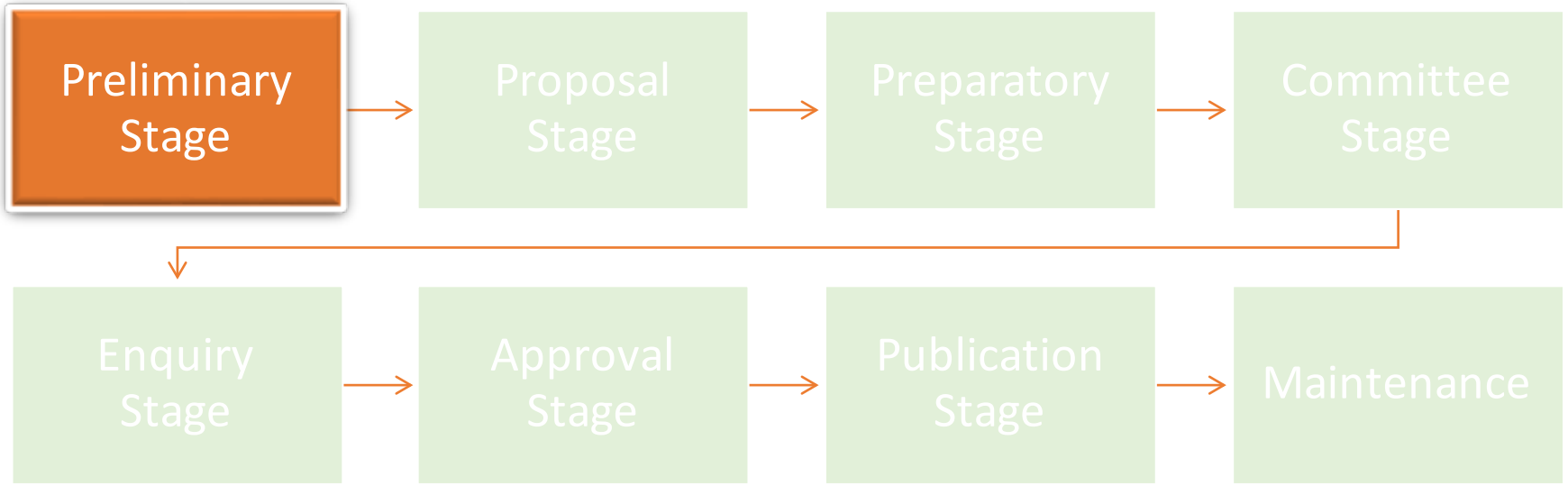
- The technical committee or subcommittee establishes target dates for the completion of each of the following steps:
  - completion of the first working draft
  - circulation of the first committee draft
  - circulation of the enquiry draft
  - circulation of the final draft International Standard
  - publication of the International Standard

- The technical committee or subcommittee establishes the stability date of a published document, which is the end of the period in which the publication will not change.

Project Management / Leader

- The secretariat of the TC, SC, or SyC is responsible for the management of all projects in the program of work of that TC/SC/SyC, including monitoring of their progress against the agreed target dates.
- The TC, SC, or SyC appoints a project leader for the development of each project, who will work in a purely international capacity.

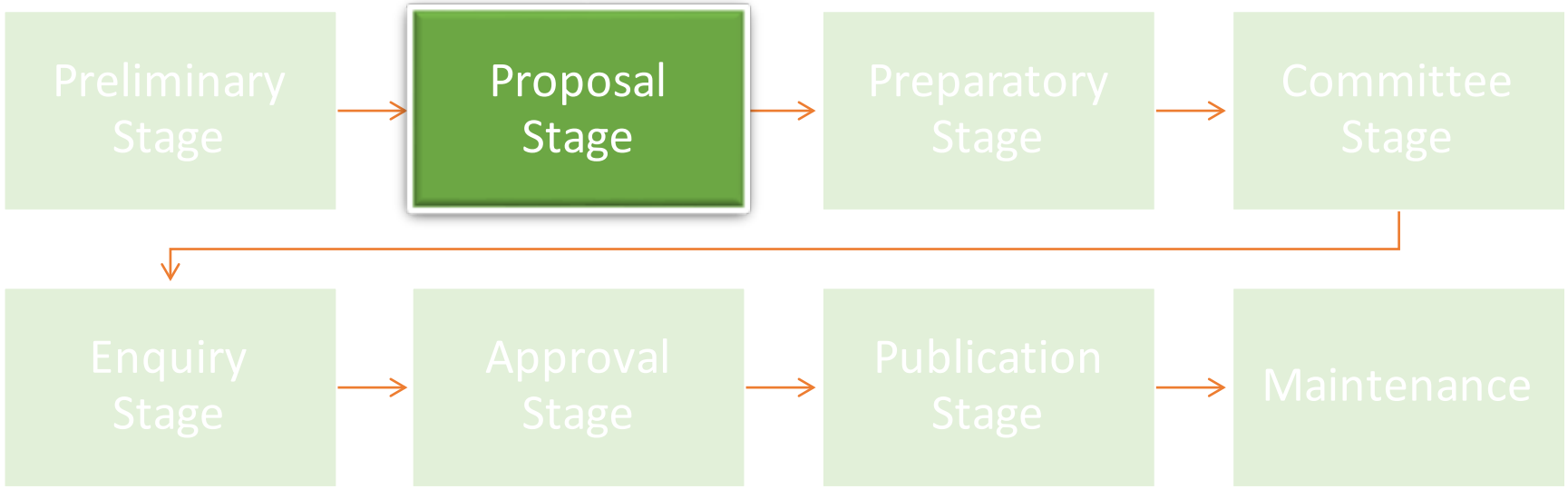
Preliminary Stage



Preliminary Stage

- TCs, SCs and SyCs may introduce (by a simple majority vote of their P-members) **preliminary work items** (PWI) which are not yet sufficiently mature for processing to further stages and for which no target dates can be established
- Such items may include those listed in the **strategic business plan**, particularly as given as a prospective view on emerging needs
- This stage can be used for the elaboration of a **new work item proposal** and the development of an **initial draft**.

Proposal Stage



Proposal Stage

- A new work item proposal (NP) is a proposal for:
  - a new standard
  - a new part of an existing standard
  - a Technical Specification or a Publicly Available Specification

Proposal Stage

- A new work item proposal (NP) may be made in the respective technical committee by:
  - a National Body
  - the secretariat of that committee
  - another technical committee or subcommittee
  - an organization in “category A” liaison
  - the technical management board or one of its advisory groups
  - the Chief Executive Officer

Proposal Stage

- Proposal Stage Steps:
  1. Submission of the proposal for a new project
  2. New project ballot circulated to P-members for vote and to O-members for information
  3. Voting summary circulated
     - Proposal returned for further definition
  4. New project accepted or rejected
  5. Project team set up based on the nominations of P-members
     - Project leader nominated by proposer
  6. Work plan with target dates

Proposal Stage

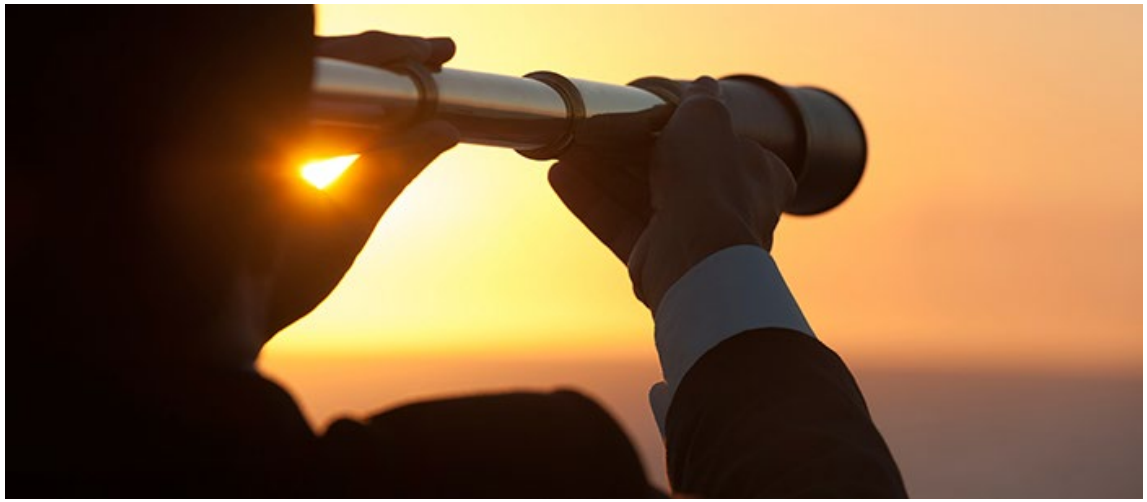
- Acceptance Criteria for NP:
  - Approval by a 2/3 majority of the P-members of the TC, SC, or SyC (abstentions excluded)

  AND

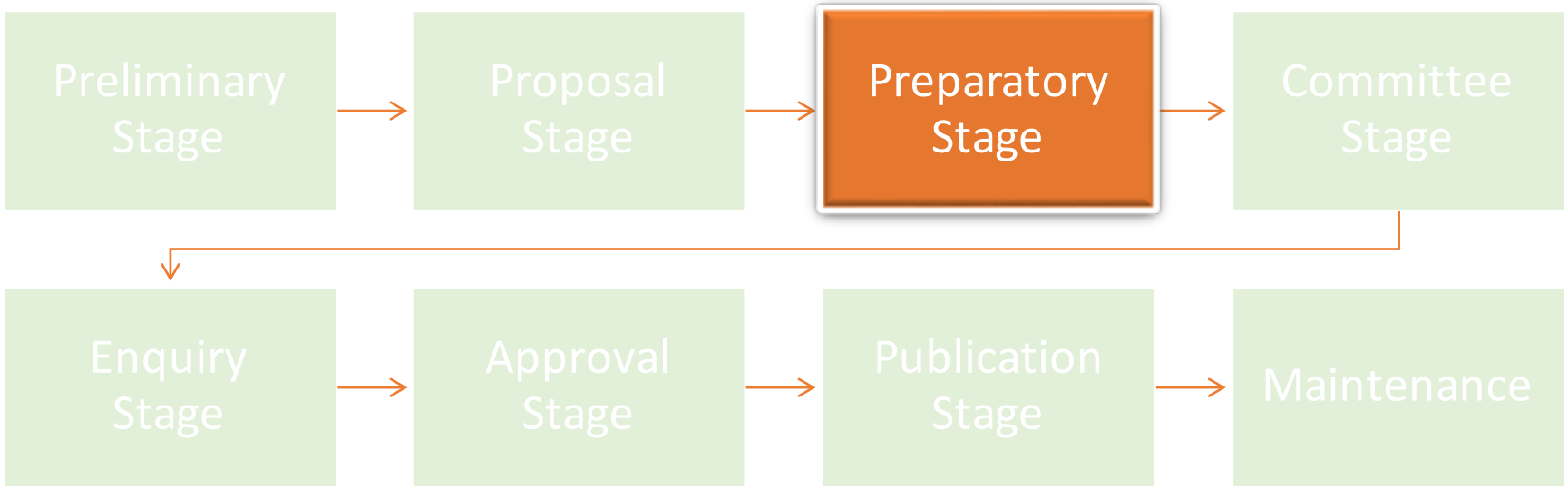
  - Commitment to participate actively in the development of the project by at least:
    - 4 P-members in committees with 16 or less P-members
    - 5 P-members in committees with 17 or more P-members

Proposal Stage

- The inclusion of the project in the program of work **concludes the proposal stage**



Preparatory Stage



Preparatory Stage

- The Preparatory Stage covers the preparation of a Working Draft (WD).
- Preparatory Stage Steps:
  1. Project registered in program of work
  2. Work Draft (WD) study initiated
  3. Comments summary circulated
  4. Agreement to register draft as a CD

Preparatory Stage

- Timeline:
  - A first working draft must be made available within six months of the date the project was added to the program of work.
    - (criteria met if a draft text is submitted with the NP ballot)

Preparatory Stage

- Work drafts are prepared by Working Groups (WG) or Project Teams (PT)
  - PT/WG members act as technical experts
  - IEC Collaboration tools utilized to facilitate the development of the draft

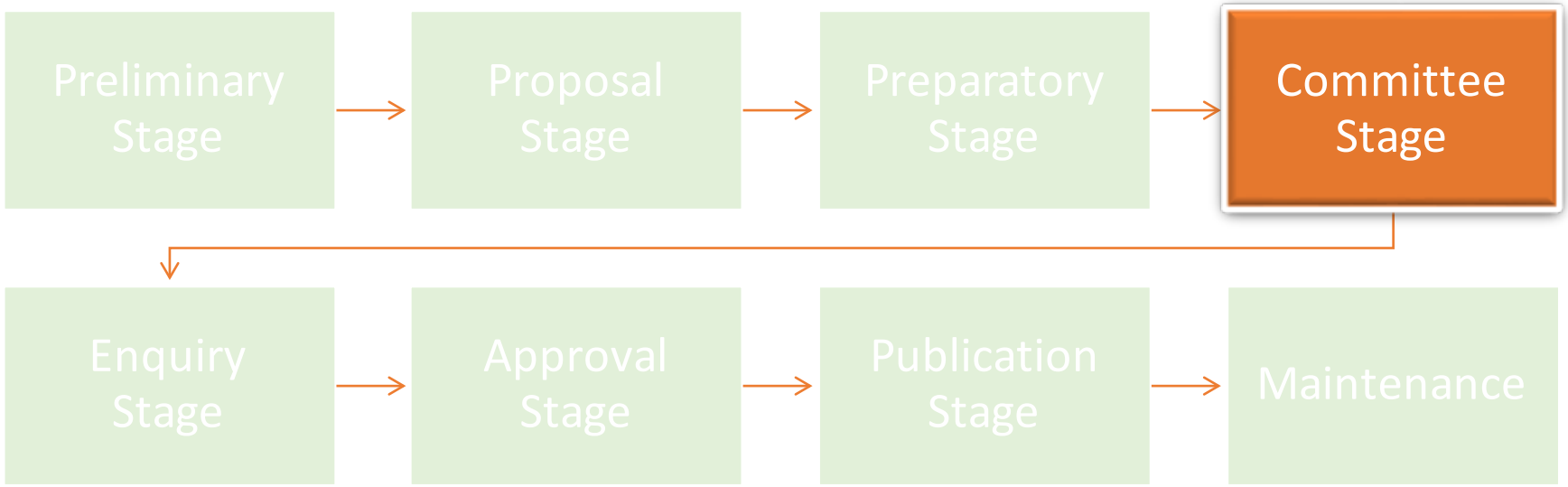
Preparatory Stage

- The **preparatory stage is complete** when:
  - a working draft is available for circulation to the members of the TC/SC/SyC as a first committee draft (CD),

    and

  - is registered by the office of the CEO.

Committee Stage



Committee Stage

- The committee stage is the **principal stage** at which comments from National Bodies are taken into consideration, with a view to **reaching consensus** on the technical content.
- National bodies therefore submit all **pertinent comments** at this stage.

Committee Stage

- From registration of first **Committee Draft** to **Committee Draft for Vote**
  - National Committee consensus on draft standard is established
- Main Steps
  1. Committee Draft developed (CD)
  2. CD study/ballot initiated
  3. Comments/voting summary circulated
     - CD referred back to TC or SC (or WG)
  4. CD approved as CDV

Committee Stage

- Timeline:
  - The committee draft must be made available within 12 months of the date that the project was added to the program of work
  - A period of 8, 12 or 16 weeks as agreed by the TC, SC or SyC shall be available for National Bodies to comment.

Committee Stage

- No more than 4 weeks after the closing date for comments, the secretariat prepares a compilation of comments and circulates to all P-members and O-members of the technical committee or subcommittee.
- In consultation with the TC/SC Chair and the Project Leader, the proposal recommends:
  a. to discuss the committee draft and comments at the next meeting, or
  b. to circulate a revised committee draft for consideration, or
  c. to register the committee draft for the enquiry stage (see 2.6).
- If two or more P-members disagree with the proposal (b) or (c), the CD will be discussed at a meeting (a).

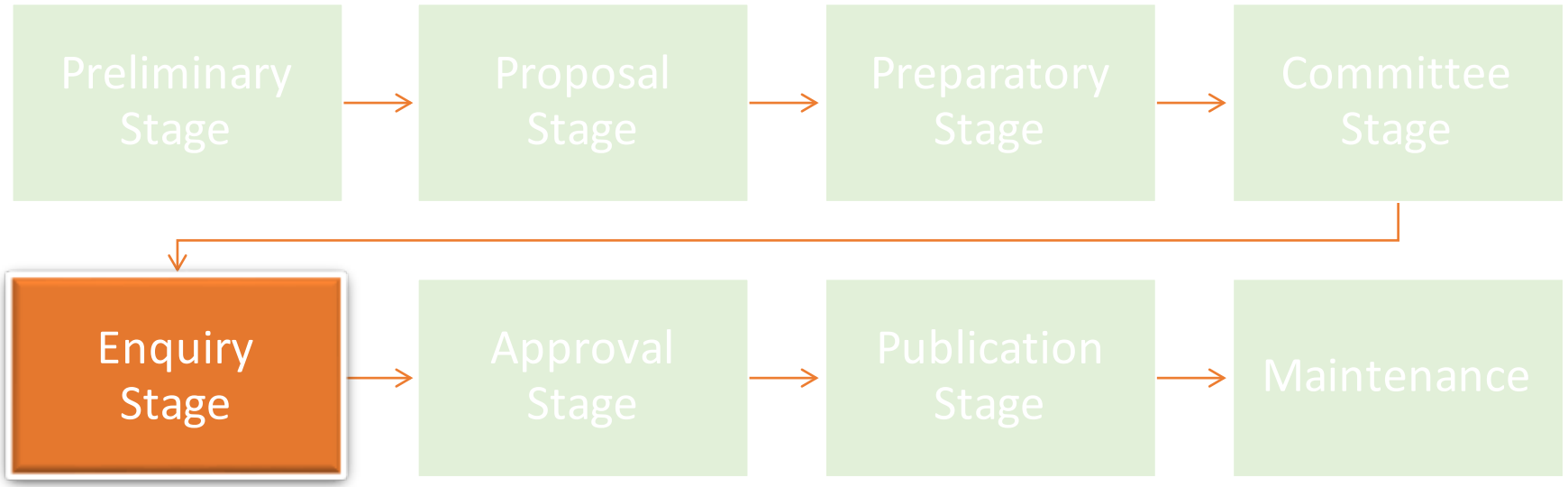
Committee Stage

- Consideration of successive drafts continues until consensus of P-members is obtained OR a decision is made to abandon or defer the project
  - Each successive CD is considered for a three month comment period.

Committee Stage

- Decision to circulate the Enquiry Draft is taken on the basis of the **consensus principle**
  - Consideration by the TC/SC/SyC Chair, in consultation with the Secretary and, if necessary, the Project Leader
    - When consensus is reached, the Secretary submits, within 16 weeks, a finalized version of text in electronic format for distribution of the Enquiry Draft
    - If consensus cannot be reached, the TC/SC/SyC should consider publishing a Technical Specification
  - Committee Stage ends when all technical issues have been resolved and a CD is accepted for circulation as an Enquiry Draft and is registered

Enquiry Stage



Enquiry Stage

- From Committee Draft for Vote (CDV) to approval as a Final Draft International Standard (FDIS)
  - Allows all IEC national committees to vote and comment on proposed International Standard
- Last opportunity for technical comments
- The enquiry draft is referred to as:
  - Committee Draft for Vote (CDV) within IEC
  - Draft International Standard (DIS) within ISO

Enquiry Stage

- Main Steps
  1. CDV registered
  2. CDV ballot initiated
  3. Committee draft for vote circulated to national committees for vote and comments
     - Full report circulated
     - Authorization for CDV processing
     - Decision for new CDV ballot
     - Referral back to TC, SC or SyC

Enquiry Stage

- Timeline:
  - Before passing to the approval stage, the Committee Draft for Vote (CDV) is submitted to all National Committees for a 12 weeks voting period. It is the last stage at which technical comments can be taken into consideration. The CDV is considered as approved if:
    - a majority of two thirds of the votes cast by P-members is in favor,

    AND

    - the number of negative votes cast by all National Committees does not exceed one quarter of all the votes cast.

Enquiry Stage

- Types of Votes:
  - **We approve the technical content of the draft**
    - as presented or with comments (editorial or other)
  - **We disapprove for the technical reasons stated**
    - Must include technical reasons for negative
    - May indicate that acceptance of specific technical modifications will change “No” vote to “Yes”
  - **We abstain**

Enquiry Stage

- The Chair, in cooperation with the Secretary and Project Leader and in consultation with the IEC Central Office, shall take one of the following actions
  - when approval criteria met, to register the CDV as a Final Draft International Standard (FDIS), or
  - in case of a CDV where no negative votes have been received, to proceed **directly to publication**, or
  - when approval criteria are not met
    - to circulate a revised CDV for voting
    - to circulate a revised CDV for comment
    - to circulate a revised CDV for discussion at the next meeting

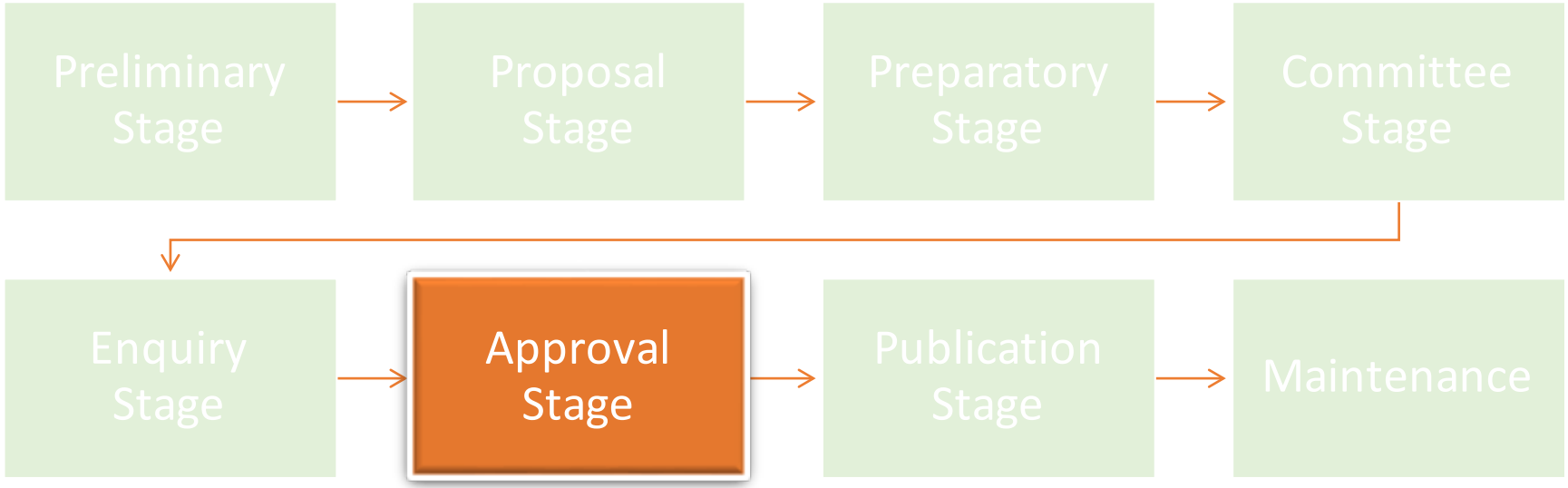
Enquiry Stage

- Following approval of the CDV, the Secretariat provides, within a maximum of four months, both paper and machine-readable text for FDIS ballot

- The **enquiry stage concludes** with the registration of the text for circulation as a Final Draft International Standard (FDIS)
  - Under certain circumstances, an enquiry draft may be approved for publication directly:
    - no other technical changes will be made to the draft,
    - a two-thirds majority of the votes cast by the P-members of the technical committee or subcommittee are in favor, and
    - not more than one-quarter of the total number of votes cast are negative.

Abstentions are excluded when the votes are counted, as well as negative votes not accompanied by technical reasons.

Approval Stage



Approval Stage

- From registration as an FDIS to approval for publication
  - Allows all IEC member bodies to review and vote on final version of proposed International Standard
- Main Steps
  1. FDIS registered
  2. FDIS ballot initiated
  3. Final Draft International Standards circulated for formal approval
     - FDIS referred back to TC, SC or SyC
  4. FDIS approved for publication

Approval Stage

- The FDIS is circulated to the National Committees for a 6 weeks voting period.
  Each National Committee's vote must be explicit: positive, negative or abstention.
  - If an NC votes affirmatively, it cannot submit any comments.
  - If an NC finds an FDIS unacceptable, it votes negative and states the technical reasons.
    - It cannot cast an affirmative vote conditional on modifications.

Approval Stage

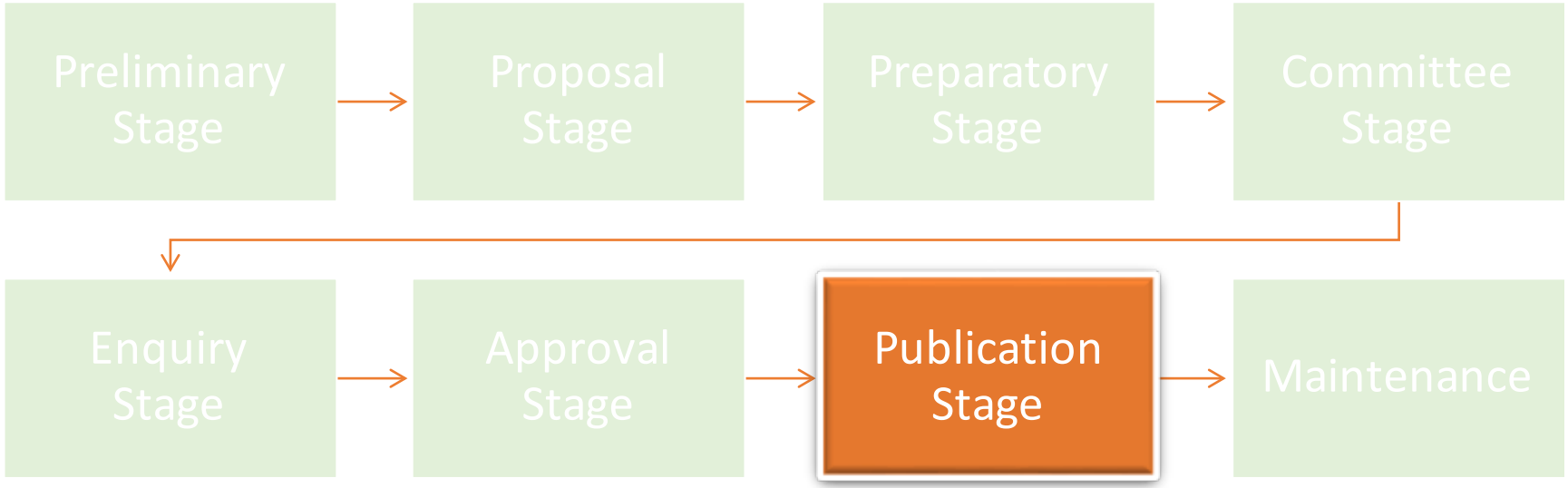
- Criteria for Approval
  - Acceptance by a 2/3 majority of P-members voting

    AND
  - Not more than 1/4 of the total votes cast are negative
    - Excluded from tally:
    - Abstentions
    - Negative votes not accompanied by technical reasons

Approval Stage

- Within 2 weeks after the end of the voting period, the office of the CEO circulates to all National Committees a result of voting report indicating either the formal approval or formal rejection of the FDIS
  - Technical reasons for negative votes are appended for information only.
- If the document is approved, **it progresses to the final publication stage**. If the document is not approved, it is referred back to the TC, SC or SyC to be reconsidered.

Publication Stage



Publication Stage

- From submission of final text for publication to publication of International Standard (IS)

- Main Step:
  - Document published as International Standard within 2 months after FDIS voting period

Publication Stage

- IEC's Publishing Requirements:
  - Complete text
  - Electronic text
  - Clean hard copy of text
  - All required language versions
  - Compliance with Directives Part 2

Publication Stage

- Within 6 weeks, the office of the CEO will correct errors indicated by the secretariat of the TC/SC/SyC, and print and distribute the International Standard

Publication Stage

- The **publication of the International Standard (IS)** concludes the Publication Stage

Other Deliverable: Technical Specification (TS)

- Subject still under development and insufficient consensus for development of an International Standard (IS)
  - Three month voting period
- Approval: 2/3 majority of voting P-members
- After publication: consideration of the possibility of transforming the TS into an IS
- TS are subject to the same maintenance procedures as IEC standards, but they are subjected to review by the responsible TC/SC/SyC not later than three (3) years following publication

Other Deliverable: Publicly Available Specification (PAS)

- Document not fulfilling the requirements of a standard
  - May be an intermediate specification, or a double-logo document published in collaboration with an external organization
- Proposal can be made by any P-member, A-liaison, or D-liaison
- Approval requires a simple majority of voting P-members
  - Three (3) month voting period
- After publication, consideration is given to transforming the PAS into an IS

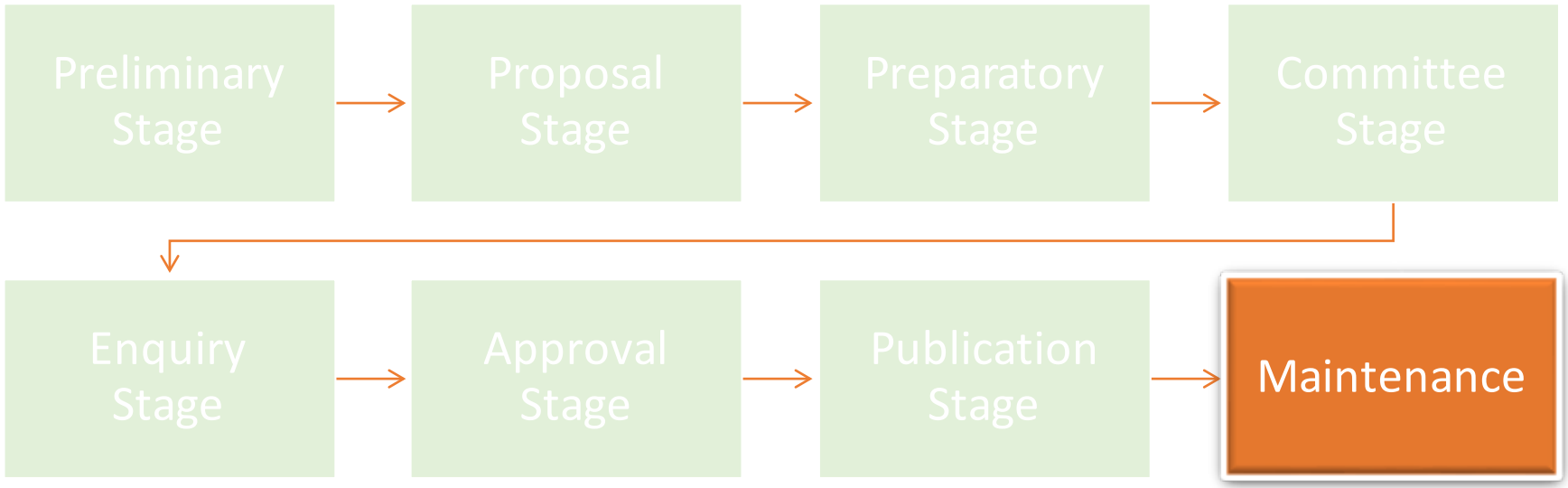
Other Deliverable: Technical Reports (TR)

- Document not fulfilling the requirements of a standard
  - Might include a collection of data, results obtained from a survey, state of the art information, supplementary information or explanation or guidance text
- Proposal can be made by any P-member, A-liaison, or D-liaison
- Approval requires a simple majority of voting P-members
  - Two (2) month voting period
- After publication, TRs are regularly reviewed to ensure that they remain valid

But wait!

(there's more)

Maintenance



Maintenance

- Maintenance Teams (MT) are responsible for keeping an existing IS, TS or Technical Report (TR) updated
  - Each committee sets up one or more maintenance teams
  - MT members may be the same or different from those who developed the original publication
    - The convenor shall be appointed by the TC/SC/SyC
    - Secretary sends the finalist list of experts to IEC Central Office for circulation

Maintenance

- Maintenance Cycle
  - Period over which the publication is stable
    - Typically between 2 and 12 years (maximum of three years for a technical specification)
  - Agreed by the committee before submission of the draft at the approval stage (FDIS)
    - Information shall be included in the foreword of the final publication
  - MT activated at the appropriate point to implement a project plan so that maintenance cycle dates can be met
    - Responsible for reviewing and recommending confirmation, withdrawal, amendment, or development of a new edition

Maintenance

- Revision work carried out by MT
  - Timeframe for review and submission of changes communicated to the committee
  - Individual proposals for changes catalogued by the Secretary until the review period begins
- Steps for revision or amendment of a publication are the same as those for preparation of a new publication or part
  - Target dates are required

Maintenance

- Amendments to or new editions of publications
- In IEC: maintenance procedures
  - In ISO: proposal stage, etc.
- Stability date available on IEC web site
- TC/SC agrees on confirmation, withdrawal, amendment, or new edition
- Decision made through Review Report (RR)
- Revision work carried out by Maintenance Team (MT)

Amendments

- Purpose
  - To alter or add to agreed technical provisions in an existing published International Standard
- Procedure
  - Development proceeds according to the IEC Maintenance Procedures

Amendments

- When approved for publication, decision by General Secretary (in consultation with Secretary) to publish as
  - a separate document or
  - incorporate into a new edition of the International Standard
    - Normally no more than two amendments are published separately

Corrigenda

- A technical corrigendum is issued to correct a technical error or ambiguity in an International Standard, a Technical Specification, a Publicly Available Specification or a Technical Report
  - The technical corrigenda is issued when it could lead to incorrect or unsafe application of the publication
  - No more than 2 technical corrigenda shall be published for a current International Standard
  - The development of a third document shall result in a new publication

Key Policies and Standards Development Alternatives

- The following topics are presented in summary format only:
  - Global Relevance Policy and Procedures
  - Fast-track processing
  - Normative references
  - “In Some Countries” Clauses
  - Fragments
  - Double-logo Standards

Global Relevance Policy and Procedures

- A formal IEC policy to provide for the implementation of essential differences in requirements in IEC standards
  - Normative requirements included in the main body or in a normative annex
  - Essential differences based on:
    - national (or regional) differences in technical infrastructures (frequencies, voltages, etc.)
    - climatic conditions
  - Submitted by National Committees to the relevant TCs/SCs/SyCs with technical and market justification

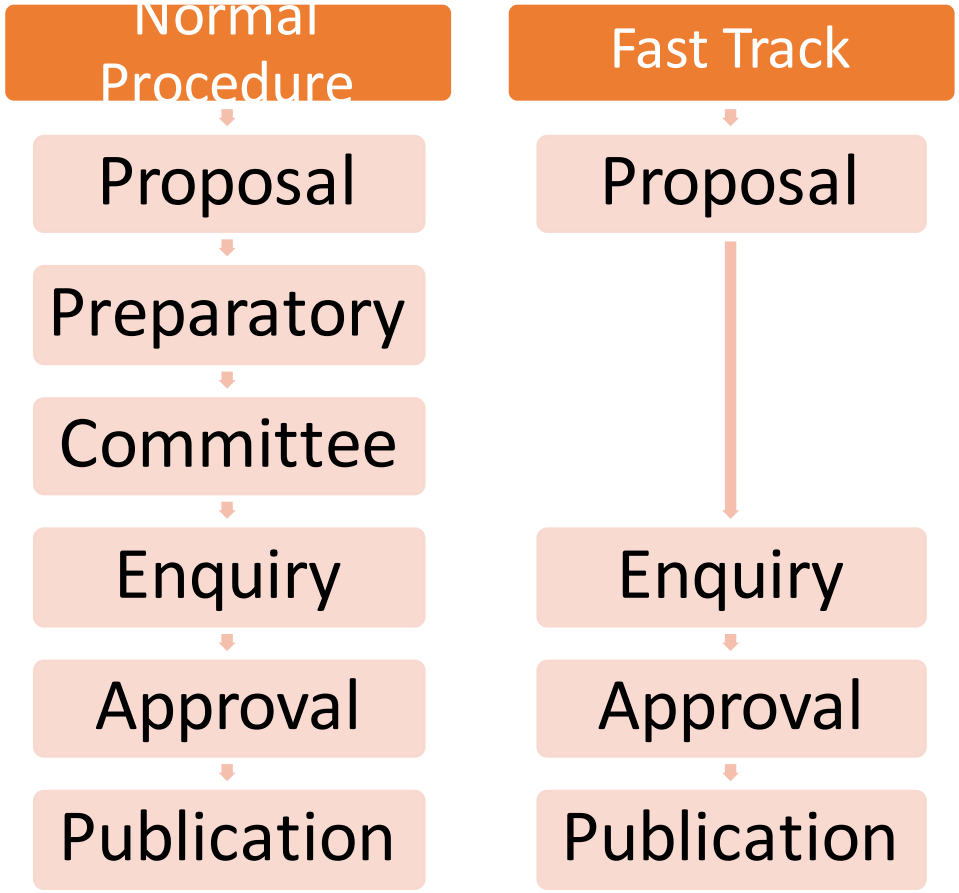
Fast Track Processing

- Purpose is to rapidly progress an existing standard from any source
- Proposed by
  - Any P-Member or Category A liaison organization
    - process begins at Enquiry Stage (CDV ballot)
  - Any organization having entered into a formal technical agreement with IEC may propose
    - process begins at Enquiry Stage (CDV ballot)
  - International Standardization Body recognized by IEC
    - process begins at Approval Stage (FDIS ballot)

Fast Track Processing (cont)

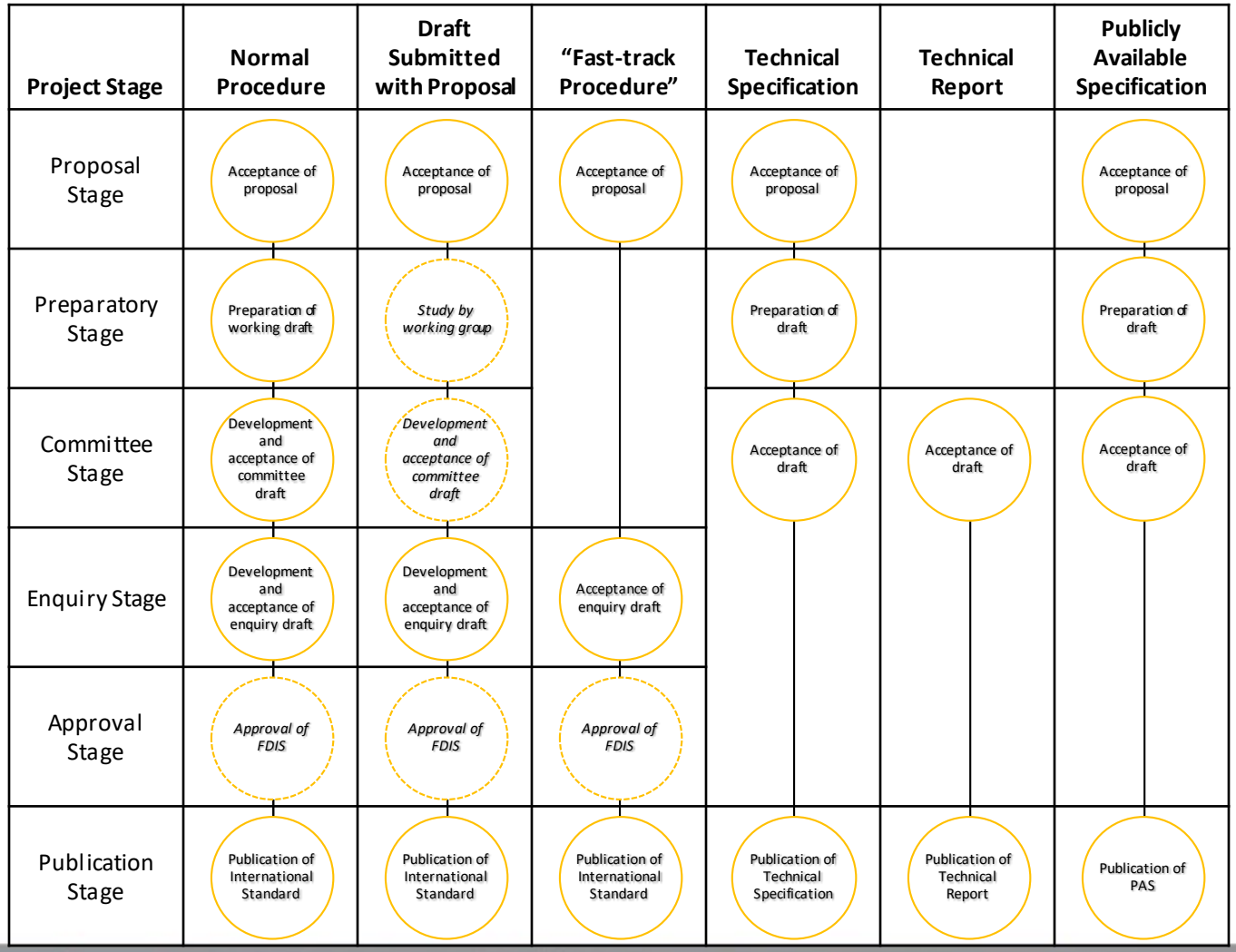
- Before initiating the ballot, the IEC Central Office must confirm copyright and/or trademark situation with the organization having originated the proposed document
- Conditions for approval are the same as for a normal CDV or FDIS ballot
  - If no TC is involved, condition for approval of a draft International Standard is no more than one-quarter of the total votes cast are negative

Fast Track Processing



*It is highly recommended that committees consider the fast track process when developing standards.

All Standards Development Options



References in IEC Standards

- Normative References
  - A list of related standards that are required for full implementation of the standard in hand
  - The normative referenced document list shall be introduced by the following wording:

"The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies."

- Informative References
  - For information only or background reading and listed in the Bibliography

Normative References in IEC Standards

- Normative references in IEC standards should be to other relevant IEC standards, where they exist
  - If a relevant IEC standard does exist, but the committee wishes normative reference to a non-IEC standard, a request for an exception with justification can be reviewed and approved by the SMB
- Where relevant IEC standards do not exist, normative reference to any publicly available non-IEC standard agreed to by the committee is acceptable

“In Some Countries” Clause

- Informative (not normative) text concerning particular conditions existing in certain countries (exceptions)
  - Any statement of compliance with a standard requires compliance with the *normative* elements of that standard, not the *informative* elements
- Statement is provided by an IEC National Committee to be included in an IS, informing the user of the standard of particular conditions existing in its country
  - Two cases are distinguished
    i. Conditions of a permanent nature, such as main voltages, mains frequencies or climates
    ii. Differing practices of a less permanent nature

“In Some Countries” Clause (cont)

- **Final point for submission of the text is on receipt of the voting report of the CDV**
  - Submission does not require approval of the relevant TC, SC or SyC, its chair or secretary
    - Submitting National Committee has the final say as to where to place the clause
  - Every effort shall be made to find solutions that would make statements regarding particular conditions unnecessary
    - Inclusion of the clause is *not* a reason for a negative vote by the other National Committees

Fragments

- Fragments is the term used when during the development of a project it is **split into two or more parallel developments which are later merged** before the final approval of the project.
- Whilst this is briefly defined in the IEC supplement of the ISO /IEC Directives Part 1: Subclause 2.9.3.2 Maintenance procedure and is supported by the IEC IT system it is **not widely used**.
- See SMB/7513/R for further information on fragments.

IEC Sustainable Development Goals (SDGs)

- The UN SDGs (https://sdgs.un.org/goals) are designed to help achieve a better and more sustainable future for all
- IEC contributes to all 17 SDGs and is committed to design, build and manufacture devices and systems (https://www.iec.ch/sdg).
- TCs indicate which of the SDGs applies to their TCs in their Strategic Business Plan (SBP) and report to the Standardization Management Board (RSMB).
- In the new proposal process, the TC must indicate which SDGs apply to the development of the new standard.

IEC/IEEE License Agreement

- The Institute of Electrical and Electronics Engineers (IEEE) is a professional standardization body publishing full consensus-based electrotechnical standards affecting a broad market base.
- IEC entered into a cooperation with IEEE to publish dual logo standards under certain conditions, including
  - Adherence to IEC requirements for consensus
  - Implementation Agreements (a code of practice)
  - Intellectual Property Rights (IPR)
  - Copyright arrangements (usually held by the originator of the text)
  - Procedures for maintenance (amendments, modifications, updates, etc.) and withdrawal

Further Training Activities

- The USNC holds Instructor-Led Training Courses throughout the year.

- Contact the USNC staff (usnc@ansi.org) to find out when and where the next one is taking place.

Get Involved!!!

- The USNC operates over 170 USNC Technical Advisory Groups (TAGs).
- Over 2,000 experts are currently involved in IEC TC, SC, and SyC activities.
- Every year hundreds of U.S. experts participate in international IEC Committee meetings, directly affecting the development of international standards.
- Contact the USNC staff (usnc@ansi.org) to learn how to join a TAG and *make a difference!*

Join Us.

USNC Constituent Training Program

Module IV

Complete

The USNC Team

Tony Zertuche
USNC General Secretary
Director, International Policy (ANSI)

Betty Barro
USNC Program Administrator

Adelana Gladstein
USNC Sr. Program Manager

Mackenzie Connors
USNC Program Administrator

Megan Pahl
USNC Sr. Program Administrator

Debbie Negron-Badillo
USNC Meetings Coordinator

USNC Staff Contact Information

Tony Zertuche
Director, International Policy
& USNC General Secretary
tzertuche@ansi.org
(212) 642-4892

Adelana Gladstein
Sr. Program Manager
agladstein@ansi.org
(212) 642-4965

Megan Pahl
Sr. Program Administrator
mpahl@ansi.org
(212) 642-8907

Betty Barro
Program Administrator
canuszewski@ansi.org
(212) 642-4963

Mackenzie Connors
Program Administrator
canuszewski@ansi.org
(212) 642-8927

Debra Negron-Badillo
USNC Meetings Coordinator
dnegron@ansi.org
(212) 642-4936

USNC of the IEC

American National Standards Institute

25 West 43rd Street

Fourth Floor

New York, NY 10036

usnc@ansi.org

www.ansi.org/unc | www.ansi.org | webstore.ansi.org

ANSI
American National Standards Institute

IEC
United States
National Committee
of the IEC