

# **IEEE 802 Orientation**

<http://ieee802.org>

**2020-01-31**

Orientation materials available at:  
<http://ieee802.org/orientation.shtml>

**After this presentation,  
but before you leave:  
please complete the survey**

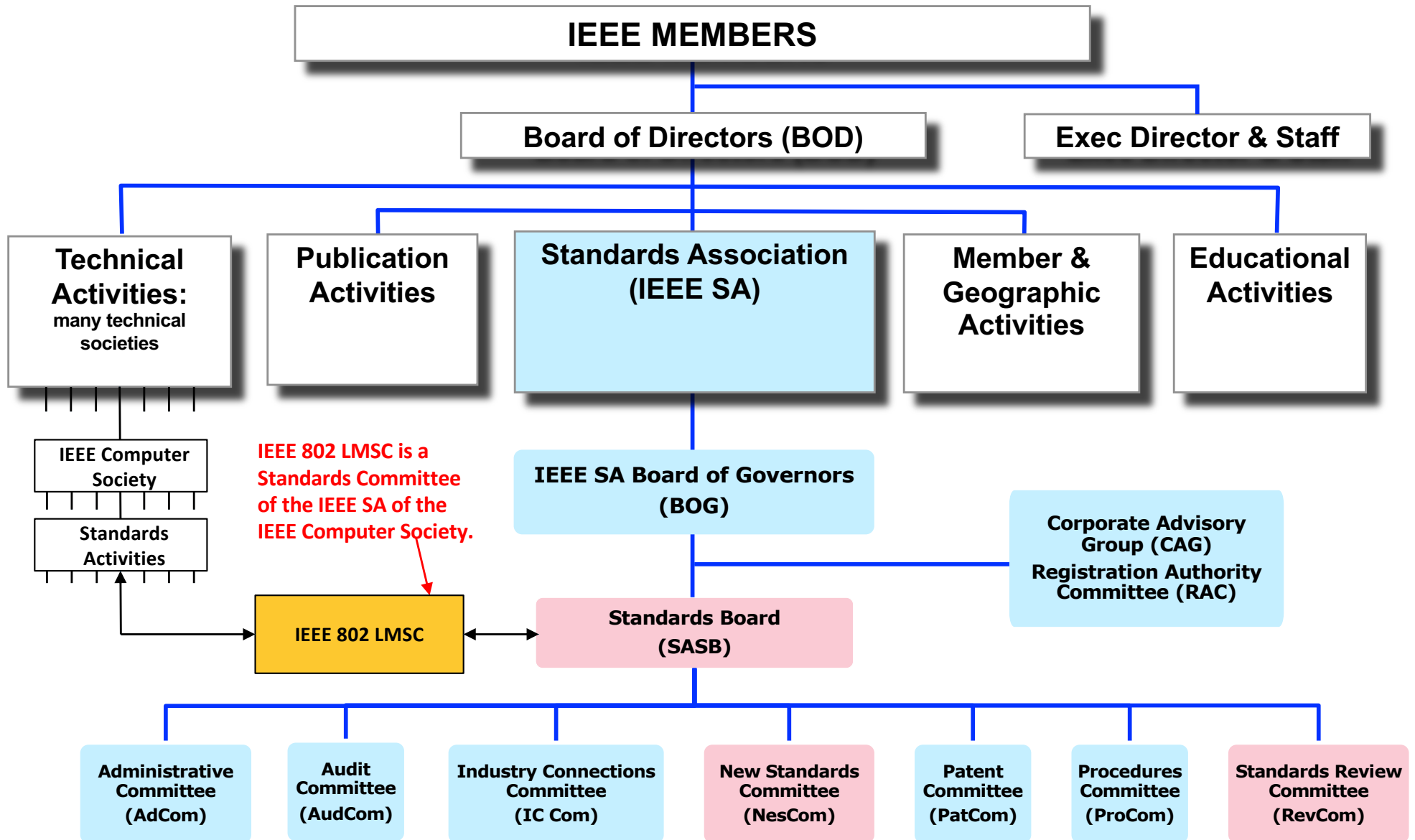
- Please help us to improve this presentation and show your appreciation for the presenter by participating in this brief on-line survey regarding the “Welcome to IEEE 802” Newcomer Orientation:
  - <https://www.surveymonkey.com/r/JJ3CK3L>

## Contents

- Introduction to IEEE 802
- IEEE 802 process
- IEEE 802 participation
- Getting more information



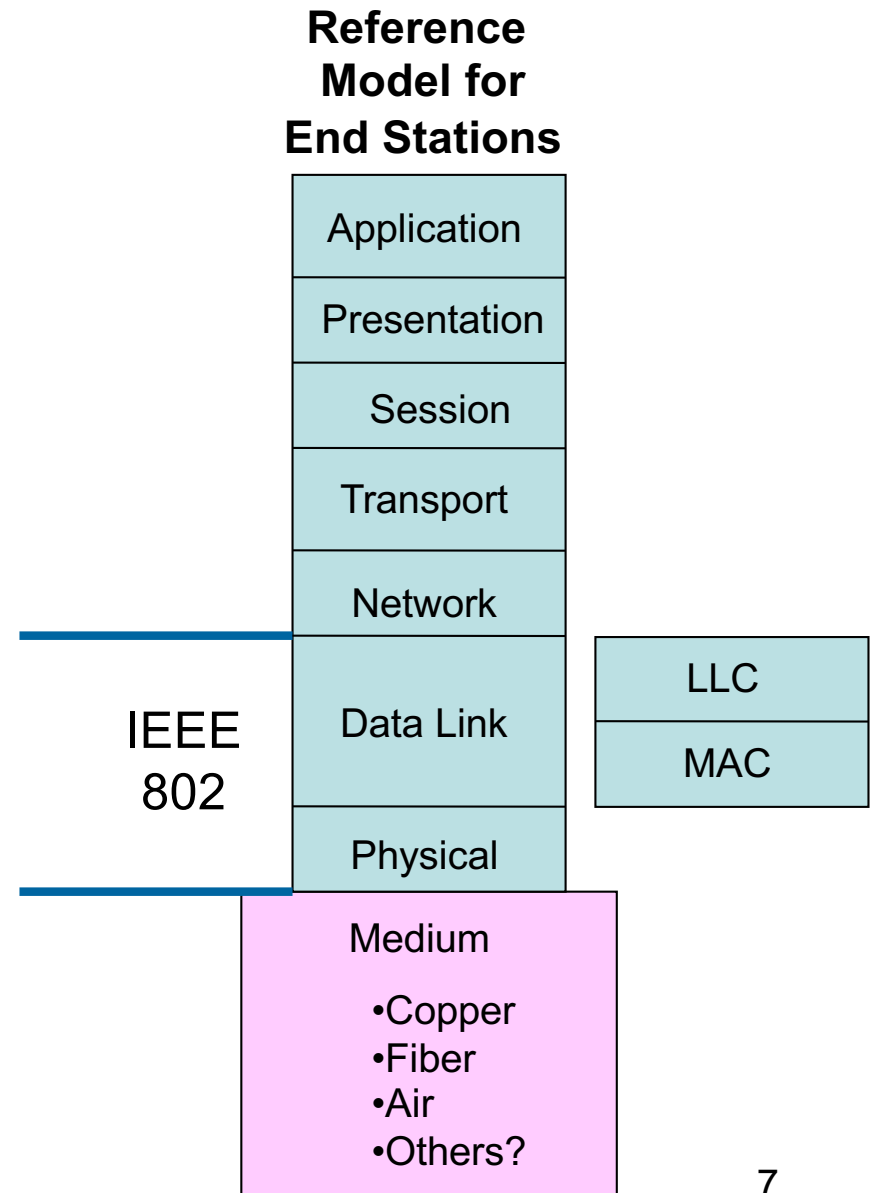
# Introduction to IEEE 802



- IEEE 802:
  - LAN/MAN Standards Committee (LMSC)
- Develops standards, for
  - Local Area Networks (LAN),
  - Metropolitan Area Networks (MAN),
  - Regional Area Networks (RAN),
  - Personal Area Networks (PAN),
  - Wireless Specialty Networks (WSN), etc.
- In operation since March 1980

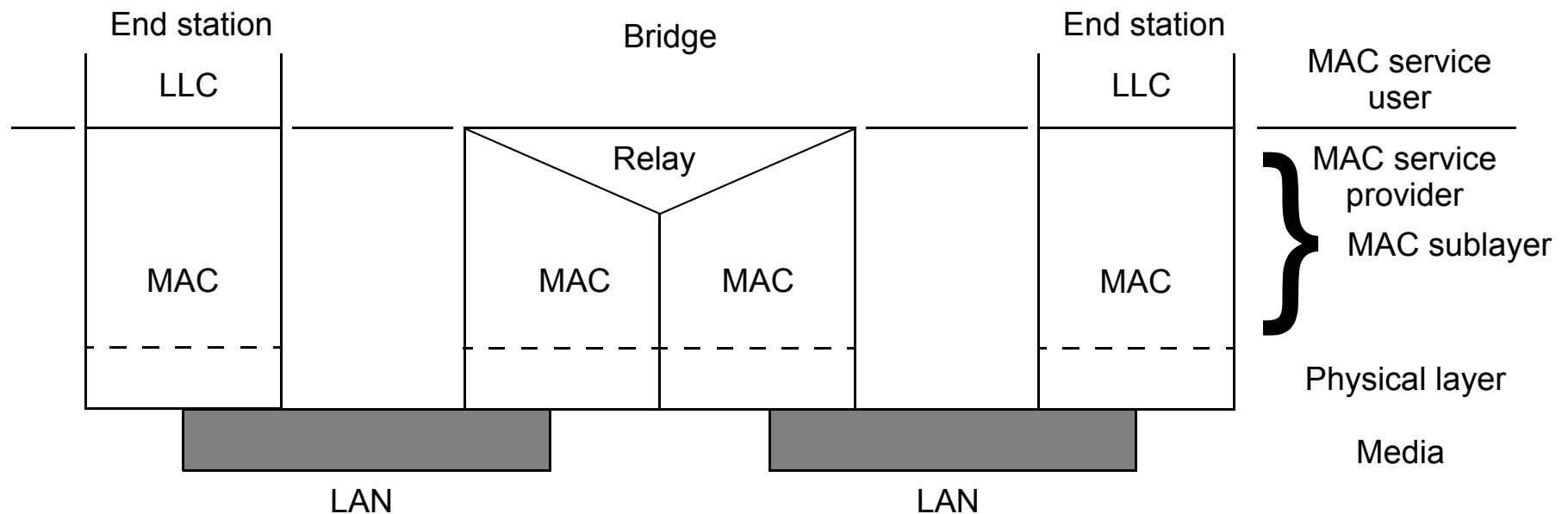
## Lower-Layer Focus

- IEEE 802 standards emphasize the functionality of the lowest two layers of the OSI reference model, and the higher layers as they relate to network management
  - physical layer (PHY, Layer 1)
  - data link layer (DLL, Layer 2)
- IEEE 802 divides DLL into:
  - Medium Access Control (MAC)
    - Multiple specifications
  - Common logical link control (LLC)
- See details in IEEE Std 802
  - “IEEE Standard for Local and Metropolitan Area Networks: Overview and Architecture”



## Bridging ties it together

- IEEE Std 802.1Q specifies interworking among IEEE 802 LANs by bridging at the MAC sublayer.
- Interworking can be heterogeneous (across different 802 technologies).
- MAC frames are forwarded (or filtered) based on address and Virtual LAN information in the MAC frame.
- Relaying and filtering belong entirely within the MAC sublayer.





# Key development concepts

- **Project Authorization Request (PAR)**
  - Requesting document that, once approved, authorizes work on a standardization Project
    - Developed as a Request, typically within a WG
    - Reviewed in formal LMSC procedure at a Plenary Session
    - Authorization of the Request is ultimately an SASB decision
    - Authorization assigns Project to a Standards Committee and a WG
- **Working Group (WG)**
  - Responsible for developing standards in an area
- **Task Group (TG) or Task Force (TF)**
  - Subset of WG assigned by WG to develop a project
- **Technical Advisory Group (TAG)**
  - Addresses cross-WG issues; does not develop standards

## More terms

- Industry Connections (IC) Activity
  - Activity authorized by IEEE SA ICCOM that may complement, supplement, or be a precursor to IEEE Standards projects, but does not develop IEEE Standards
- Call for Interest (CFI)
  - Meeting used by some WGs to outline a topic and gauge interest in investigating possible project
- Study Group (SG)
  - Group chartered to investigate the initiation of a potential project and draft a PAR if appropriate
- Criteria for Standards Development (CSD)
  - An 802-specific document required to accompany a PAR and more fully describe the project
  - Includes Five Criteria (5C)
    - Broad Market Potential, Compatibility, Distinct Identity, Technical Feasibility, Economic Feasibility



# IEEE 802 Organization

## EXECUTIVE COMMITTEE (EC)

Chair  
Paul Nikolich

### Working Group, with Chair

802.1 WG  
Higher Layer LAN  
Protocols  
Glenn Parsons

802.3 WG  
Ethernet  
David Law

802.11 WG  
Wireless LAN  
Dorothy Stanley

802.15 WG  
Wireless Specialty  
Networks  
Bob Heile

802.19 WG  
Coexistence  
Steve Shellhammer

### Technical Advisory Group, with Chair

802.18 TAG  
Radio Regulatory  
Jay Holcomb

802.24 TAG  
Vertical Applications  
Tim Godfrey

### Hibernating WGs (non-voting)

802.16  
WMAN  
Roger Marks

802.21 WG  
Media Access  
independent Services  
Subir Das

802.22 WG  
WRAN  
Apurva Mody

## Appointed Officers

1st Vice Chair

James P.K. Gilb

2nd Vice Chair

Roger Marks

Executive Secretary

Jon Rosdahl

Recording Secretary

John D'Ambrosia

Treasurer  
George Zimmerman

Member Emeritus  
Treasurer Advisor  
(non-voting)  
Clint Chaplin

Member Emeritus  
(non-voting)  
Geoff Thompson

### DISBANDED

802.2 LLC    802.4 Token Bus    802.5 Token Ring    802.23 Emergency Services  
802.6 DQDB    802.7 Broadband TAG    802.8 Fiber Optic TAG  
802.9 ISLAN    802.10 Security    802.12 Demand Priority  
802.14 CATV    802.17 Resilient Packet Ring    802.20 MBWA

# IEEE 802 Ombudsman

- Role
  - confidential and informal information resource, communications channel, complaint-handler and dispute-resolver, ...
  - More details in IEEE 802 Ombudsman slide set
    - <http://www.ieee802.org/IEEE%20802%20Ombudsman.ppt>
- Guido Hiertz serving since June 2019
  - See details at <http://ieee802.org/secmail/msg23485.html>
- Contact the Ombudsman
  - 802ombudsman@ieee.org

- Roughly, a “session” last a few days; a “meeting” lasts a few hours
- IEEE 802 Plenary session
  - All WGs and TAGs
  - Each March, July, November
    - <http://802world.org/plenary/schedule>
- Interim sessions
  - Typically held between Plenary sessions, at discretion of WGs
  - Could include entire WG
  - Could include a set of WGs
    - e.g. Wireless Interim each January, May, September
  - Could include a subset of a WG
- Teleconferences, at discretion of WGs
- IEEE 802 Executive Committee (non-members welcome to join)
  - Plenary week:
    - Monday 08:00-10:30
    - Friday 13:00-18:00
  - Teleconferences
    - February, June, October

# Overview of the Plenary week

	Sun	Mon	Tue	Wed	Thu	Fri
A M	Some TG/TF meetings  Some organizational meetings	Opening EC	TG/TF meetings	TG/TF meetings	TG/TF meetings  Some WG closing plenaries	Some WG closing plenaries
		Newcomer Orientation				
P M		WG opening plenaries (most)				Closing EC
		Remaining WG opening plenaries  TG/TF meetings				
E v e	IEEE 802 rules review	Tutorials	TG/TF meetings	802 Social reception	Some WG closing plenaries	

Check WG agendas for details



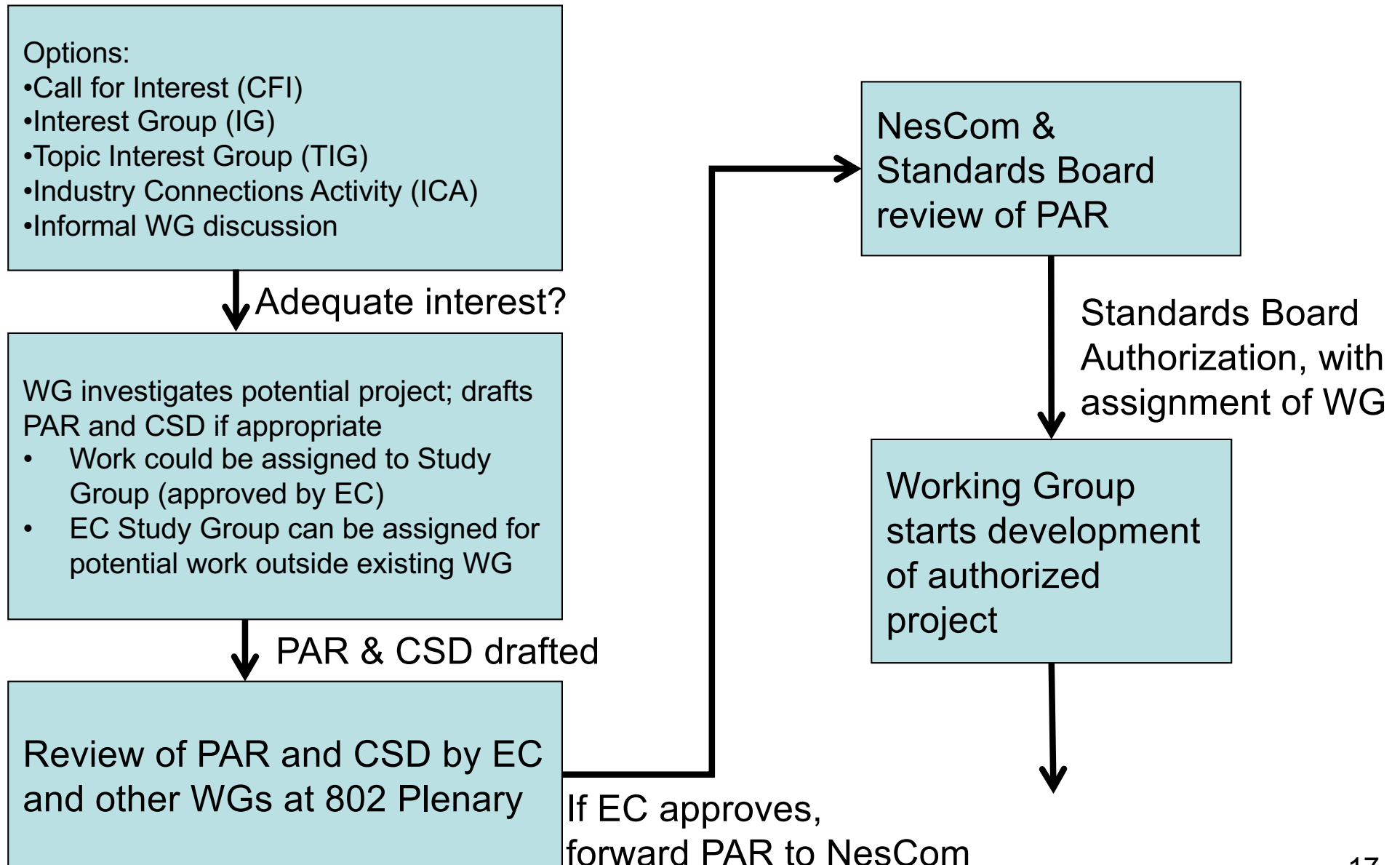
# IEEE 802 Process

## Five Basic Principles

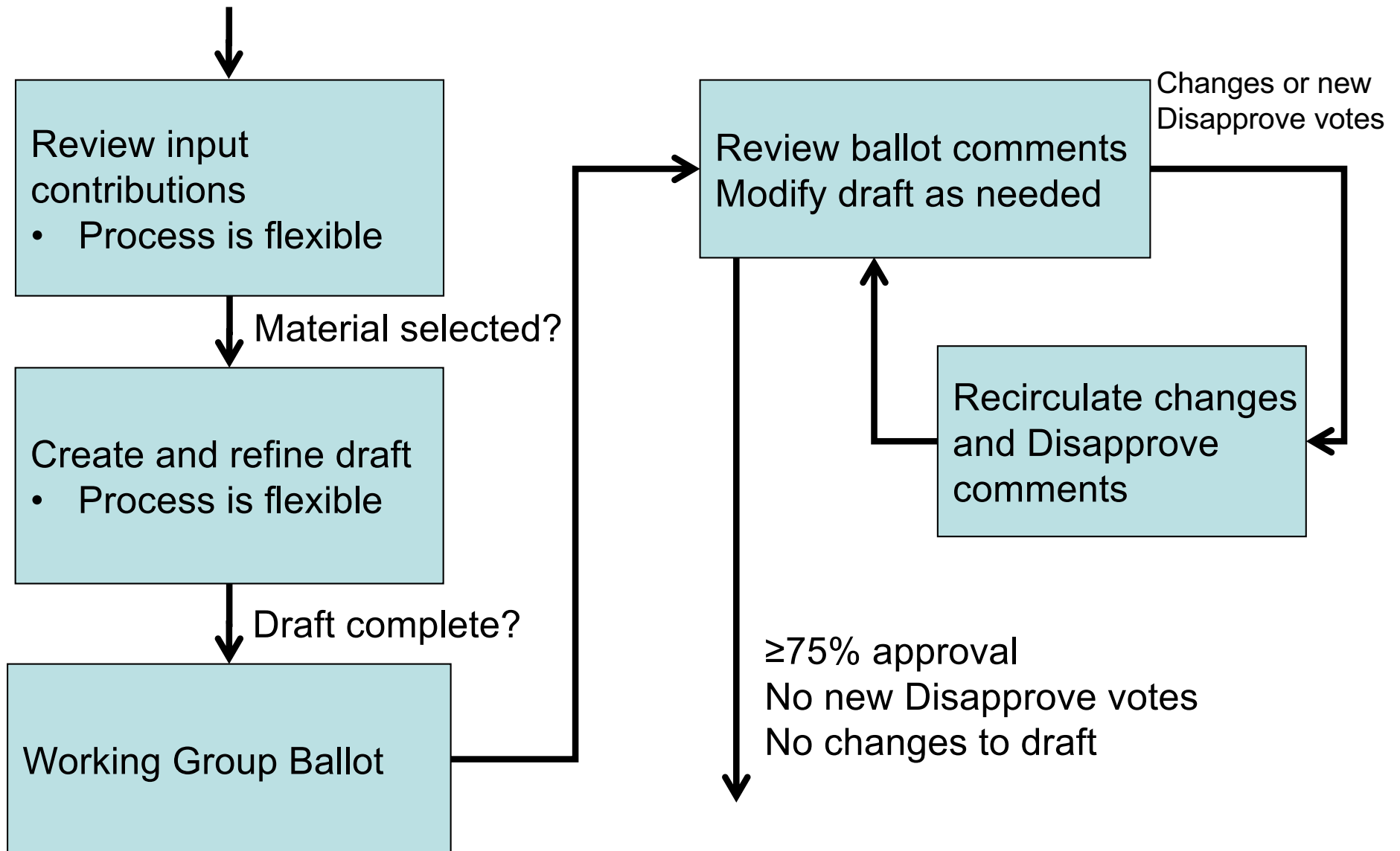
- IEEE standards follow a well-defined path from concept to completion, guided by a set of five basic principles:
  1. **Due process** - having highly visible procedures for standards creation and following them. Procedures are set by the IEEE SA Standards Board, the IEEE Societies that oversee standards development activities, and the working groups that actually formulate standards.
  2. **Openness** - ensures all interested parties can participate actively in the IEEE standards development process
  3. **Consensus** - holds that a clearly defined percentage of those in a balloting group vote to approve a draft of a standard (specified in IEEE 802 as 75%)
  4. **Balance** – ensures that balloting groups include all interested parties and avoid an overwhelming influence by any one party
  5. **Right of appeal** - allows anyone to appeal a standards development decision at any point, before or after a standard has been approved.
- **Per:** <http://standards.ieee.org/develop/govern.html>



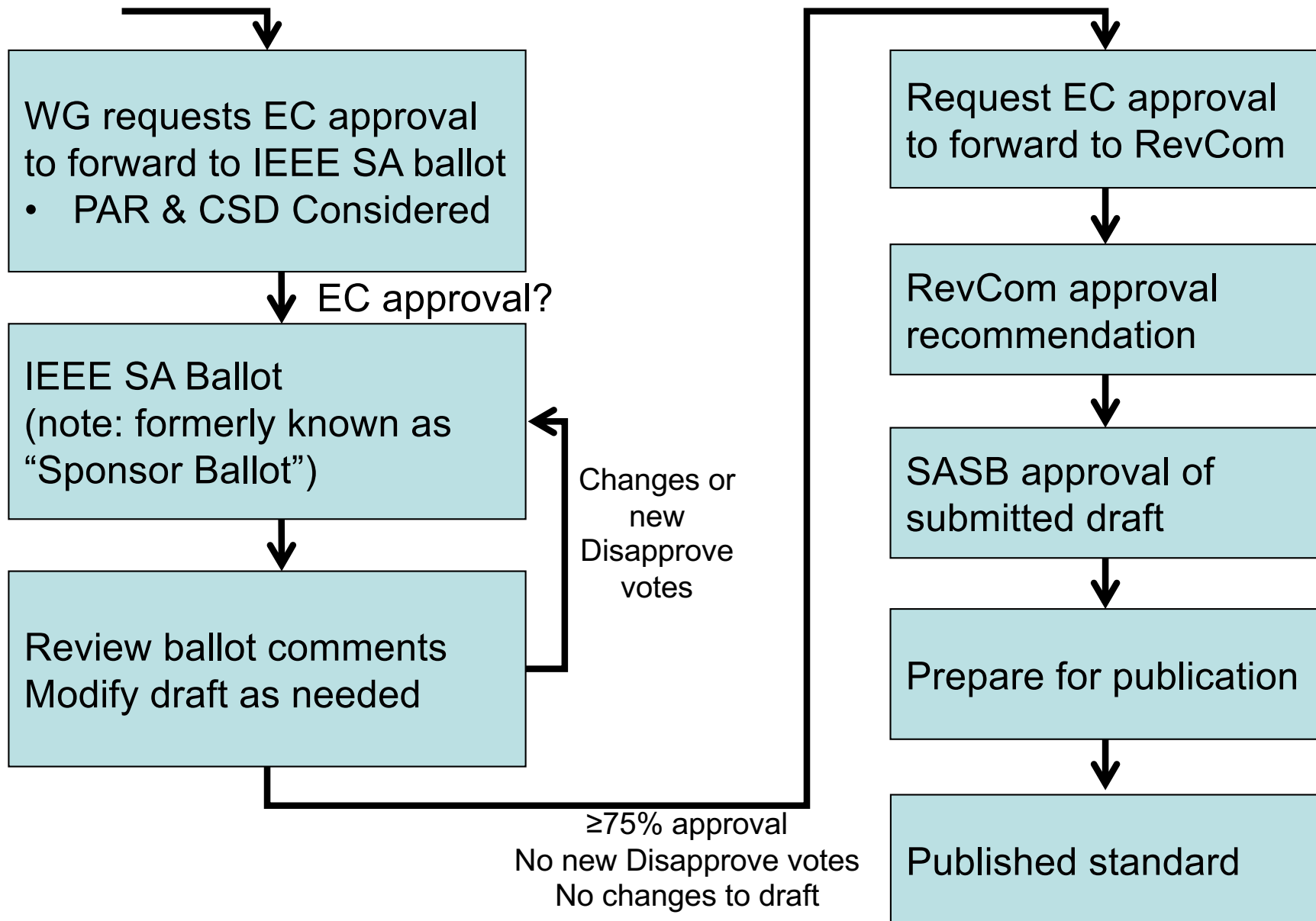
## IEEE 802 Standards Development Life Cycle – Part 1



## IEEE 802 Standards Development Life Cycle – Part 2



## IEEE 802 Standards Development Life Cycle – Part 3



# IEEE 802 Standards Development Life Cycle – Part 4

The current Standard is the original base standard or most recent revision, as modified by subsequent corrigenda (corrections) and amendments

Example base standards: 802.1Q, 802.1AE, 802.3, 802.15.4

Example amendments: 802.1Qbu, 802.1AEcg, 802.3bz, 802.15.4t

- Amendment identified by lower-case initials appended to base
- Project identifier is the prospective standard identifier, prepended with "P"

## **Maintaining the Standard**

- Keep the standard current by producing amendments and corrigenda
- Renew the standard by creating revisions
  - incorporating prior amendments and corrigenda
- When the standard is out of date, withdraw it.

# Balloting of Drafts

Three levels of review/voting occur in IEEE 802 standards development

- The intention is to improve the draft
- Task Group or Task Group review or ballot
  - Requirements vary; may be informal – consult Working Group.
- Working Group Ballot (“WG Letter Ballot”)
  - Formal requirements set by LMSC
  - 75% approval threshold
  - comment response and recirculation requirements
  - WG Members have a responsibility to participate
- IEEE SA Ballot (formerly known as “Sponsor Ballot”)
  - Formal requirements set by IEEE SA
  - 75% approval threshold
  - comment response and recirculation requirements
  - Open (no cost) to all interested parties, via IEEE SA-membership
    - IEEE SA balloting tool is “myBallot” <<https://development.standards.ieee.org>>
    - To be in the ballot pool and receive an invitation, must indicate interest
    - To participate in ballot group, must respond to invitation in advance
  - 60-day public review runs concurrently

# IEEE SA Policy: Patent, Copyright, etc.

- Presented in IEEE SA standards development meetings.
  - Not reviewed in detail in this orientation presentation.
- Familiarize yourself with the patent policy:
  - <https://standards.ieee.org/about/sasb/patcom/materials.html>
- Review particularly:
  - Patent Slides for Standards Development Meetings
    - <https://mentor.ieee.org/myproject/Public/mytools/mob/slideset.pdf>
      - includes Call for Potentially Essential Patents
  - Patent Slides for Pre-PAR Meetings
    - <https://mentor.ieee.org/myproject/Public/mytools/mob/preparslides.pdf>
- Familiarize yourself with the copyright policy
  - <https://standards.ieee.org/content/dam/ieee-standards/standards/web/documents/other/copyright-policy-WG-meetings.potx>
- Slides include coverage of some non-patent guidelines, including antitrust and competition issues.

## Individual Method

IEEE SA supports two types of standardization development

- Individual: participants are human beings
- Entity: participants are organizations, such as companies

### **IEEE 802 is entirely Individual-based**

- human beings participate as members and in other roles
- companies and other organizations do not participate directly

# Individual Participation Slides

- IEEE SA Participation Slides for Individual Method
  - <https://standards.ieee.org/content/dam/ieee-standards/standards/web/documents/other/Participant-Behavior-Individual-Method.pdf>
  
- IEEE 802 Participation Slide
  - <https://mentor.ieee.org/802-ec/dcn/17/ec-17-0093.ppt>
  - Explains that participation in any IEEE 802 meeting is on an individual basis
  - Copied to next slide:



# Participation in IEEE 802 Meetings

**Participation in any IEEE 802 meeting (Sponsor, Sponsor subgroup, Working Group, Working Group subgroup, etc.) is on an individual basis**

- **Participants in the IEEE standards development individual process shall act based on their qualifications and experience. ([https://standards.ieee.org/develop/policies/bylaws/sb\\_bylaws.pdf](https://standards.ieee.org/develop/policies/bylaws/sb_bylaws.pdf) section 5.2.1)**
- **IEEE 802 Working Group membership is by individual; “Working Group members shall participate in the consensus process in a manner consistent with their professional expert opinion as individuals, and not as organizational representatives”. (subclause 4.2.1 “Establishment”, of the IEEE 802 LMSC Working Group Policies and Procedures)**
- **Participants have an obligation to act and vote as an individual and not under the direction of any other individual or group. A Participant’s obligation to act and vote as an individual applies in all cases, regardless of any external commitments, agreements, contracts, or orders.**
- **Participants shall not direct the actions or votes of any other member of an IEEE 802 Working Group or retaliate against any other member for their actions or votes within IEEE 802 Working Group meetings, see [https://standards.ieee.org/develop/policies/bylaws/sb\\_bylaws.pdf](https://standards.ieee.org/develop/policies/bylaws/sb_bylaws.pdf) section 5.2.1.3 and the IEEE 802 LMSC Working Group Policies and Procedures, subclause 3.4.1 “Chair”, list item x.**

**By participating in IEEE 802 meetings, you accept these requirements. If you do not agree to these policies then you shall not participate.**

(Latest revision of IEEE 802 LMSC Working Group Policies and Procedures: <http://www.ieee802.org/devdocs.shtml>)

# Affiliation

- Disclosure of affiliation is required
  - An affiliation, as defined in the IEEE SA Standards Board Bylaws, 5.2.1.5, is an individual deemed "affiliated" with an individual or entity that has been, or will be, financially or materially supporting that individual's participation in a particular IEEE standards activity. This includes, but is not limited to, his or her employer and any individual or entity that has or will have, either directly or indirectly, requested, paid for, or otherwise sponsored his or her participation.
  - Disclosed as part of attendance process (inc. IEEE Attendance tool ["IMAT"])
  - Typically stated on written contributions, noted in meetings, and declared for office holders
- See IEEE SA FAQs: Disclosures of Affiliation (<https://standards.ieee.org/faqs/affiliation.html>)
- Register interest in IEEE SA Project and declare affiliation per project at IEEE SA "myProject":
  - <https://development.standards.ieee.org>
  - PS: also used for participating in IEEE SA Ballot on draft standards

# Behavioral guidelines

- Respect others
- NO product pitches
- NO corporate pitches
- NO prices
- Silence electronics
- NO restrictive notices
  - on presentations and communications (including email); material must be openly available and distributable
- NO photographs or recordings: strict prohibition
  - [IEEE SA Standards Board Operations Manual](#): “Restrictions include, but are not limited to, the usage of audio recording, video recording, and photography by participants or observers. Recording of the proceedings ..., in part or in whole, via any means, is prohibited.” [limited exceptions for recording of minutes]

# Acquiring WG membership

- WG members rights are itemized in IEEE 802 LMSC Working Group Policies and Procedures
  - includes right to vote
- “Participation” at a WG session means at least 75% presence.
  - Web-based IEEE Attendance Tool [“IMAT”] tool tracks attendance per meeting to calculate participation in a session.
    - ❖ See IMAT info under “More Resources” at end of this slide set.
    - ❖ Attendance in a meeting of one WG does not generally count toward participation in another WG, though it can in special cases.
- For a new Working Group, persons participating in the initial session become members.
- For an existing Working Group, membership starts when attending a Plenary Session having participated in that WG in 2 of the last 4 Plenary Sessions
  - Can substitute 1 intervening Interim Session for a Plenary Session.
  - Depending on Working Group, may require a declaration of intent.
  - Details in IEEE 802 LMSC Working Group Policies and Procedures.

# Logging Attendance and Affiliation per Meeting

- IEEE Attendance Tool (“IMAT”)
  - <https://imat.ieee.org>
  - See instructions:  
[https://mentor.ieee.org/etools\\_documentation/bp/Attendance\\_Tool](https://mentor.ieee.org/etools_documentation/bp/Attendance_Tool)
  - Gives you credit toward membership
  - Fulfills your obligation to identify your attendance and disclose your affiliation
  - Please log your attendance and affiliation for this orientation meeting
  - Presenter will demonstrate

## Retaining WG Membership

- Participate in 2 of the last 4 Plenary Sessions.
  - An interim may substitute for 1 of the 2.
- Participate in Working Group Letter Ballots
  - membership may be lost if two of the last three Working Group letter ballots are not returned, or are returned with an abstention for other than “lack of technical expertise”
- Details in IEEE 802 LMSC Working Group Policies and Procedures
- Membership notes:
  - Independent of IEEE SA membership.
  - Independent of affiliation or changes of affiliation.

# Document Resources

- “Mentor” document server
  - Main repository for input contributions and group documents for EC and most WGs and TAGs
  - Registration and acknowledgement required to upload
    - <https://mentor.ieee.org/802/bp/StartPage>
    - See help: [https://mentor.ieee.org/etools\\_documentation/bp/Mentor](https://mentor.ieee.org/etools_documentation/bp/Mentor)
- Published IEEE 802 standards
  - Download at no cost, starting 6 months past publication
    - <https://ieeexplore.ieee.org/browse/standards/get-program/page/series?id=68>
- IEEE 802 draft standards
  - These are copyrighted by IEEE and not publicly available for free
    - Shared to the WG members and participants at no cost
    - Consult WG for details
    - May be available for sale to the public

# IEEE 802 Procedural Documents

- "IEEE 802 Policies & Procedures and other documents related to standards development"
  - <http://ieee802.org/devdocs.shtml>
  - Key documents:
    - IEEE 802 Policies & Procedures (P&P)
    - IEEE 802 Operations Manual
    - IEEE 802 Working Group Policies and Procedures
    - IEEE 802 LMSC Chair's Guidelines



## Getting more information

- IEEE 802 home page: key starting point
  - <http://ieee802.org>
  
- Contact EC members for more information or help
  - In particular, IEEE 802 Second Vice Chair is responsible to lead mentoring and training
    - Roger Marks <roger@ethair.net>

# Email Reflectors

- Email lists, known in IEEE 802 as “reflectors,” are essentially venues for EC and Working Groups
- Many lists are open to subscription; others require WG membership or other WG status
- In most cases, archives are available
- See WG web pages
- IEEE 802 EC Reflector
  - See <http://ieee802.org>
- “IEEE 802 ALL” (mainly Plenary Session planning announcements)
  - See <https://listserv.ieee.org/cgi-bin/wa?SUBED1=STDS-802-ALL>
- Other advertised reflectors (search for 802)
  - See <https://listserv.ieee.org/cgi-bin/wa?REPORT&z=3&s=0&9=0>

## More Resources

- IEEE 802 orientation, including these slides
  - <http://ieee802.org/orientation.shtml>
- Session plans, including WG interims
  - <http://ieee802.org/meeting>
- Tutorials
  - <http://ieee802.org/Tutorials.shtml>
- EC Members
  - <http://ieee802.org/wgchairs.shtml>
- IEEE Attendance Tool (“IMAT”)
  - <https://imat.ieee.org/attendance>
  - See instructions:  
[https://mentor.ieee.org/etools\\_documentation/bp/Attendance\\_Tool](https://mentor.ieee.org/etools_documentation/bp/Attendance_Tool)
- IEEE SA Balloting
  - <http://standards.ieee.org/faqs/balloting.html>

# Abbreviations

- **IEEE SA: IEEE Standards Association**
  - **SASB: IEEE Standards Association Standards Board**
    - RevCom: Standards Review Committee
    - NesCom: New Standards Committee
    - IC Com: Industry Connections Committee
    - AudCom: Audit Committee
    - PatCom: Patent Committee
- **LMSC: LAN/MAN Standards Committee (i.e., IEEE 802)**
  - LAN: Local Area Networks
  - MAN: Metropolitan Area Networks
  - EC: Executive Committee
  - WG: Working Group
  - TAG: Technical Advisory Group
  - TG: Task Group or TF: Task Force (no difference)
  - SG: Study Group
  - TIG: Topic Interest Group [pre-PAR group used by some WGs]
  - ICA: Industry Connections Activity
  - CFI: Call for Interest
  - PAR: Project Authorization Request
  - CSD: Criteria for Standards Development (includes 5C: Five Criteria)
  - IMAT: IEEE Attendance and Affiliation logging tool
  - P&P: Policies & Procedures

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