

# Value and importance of IEEE standards

**Edward Au (Chair), Nehad El-Sherif (Member)**  
IEEE Technical Activities Board Committee on Standards (TAB CoS)  
3 April 2023 (online)

# Disclaimer

From IEEE SA Standards Association Standards Board Bylaws 5.2.1.6:

“At lectures, symposia, seminars, or educational courses, an individual presenting information on IEEE standards shall make it clear that his or her views should be considered the personal views of that individual rather than the formal position of IEEE.”

**Can you imagine a world  
without standards?**

**If no  
standardized  
traffic signs?**

**If no  
standardized  
traffic signs?**



**If power plugs  
aren't  
standardized?**

**If power plugs  
aren't  
standardized?**



# What is standards?



*“A document established by consensus and approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context.”*



---

GUIDE  
РУКОВОДСТВО

2

---

Standardization and related  
activities — General vocabulary

Normalisation et activités  
connexes — Vocabulaire général

Стандартизация и смежные  
виды деятельности. Общий  
словарь

*“A document established by **consensus** and approved by a **recognized body**, that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context.”*



---

GUIDE  
РУКОВОДСТВО

2

---

Standardization and related  
activities — General vocabulary

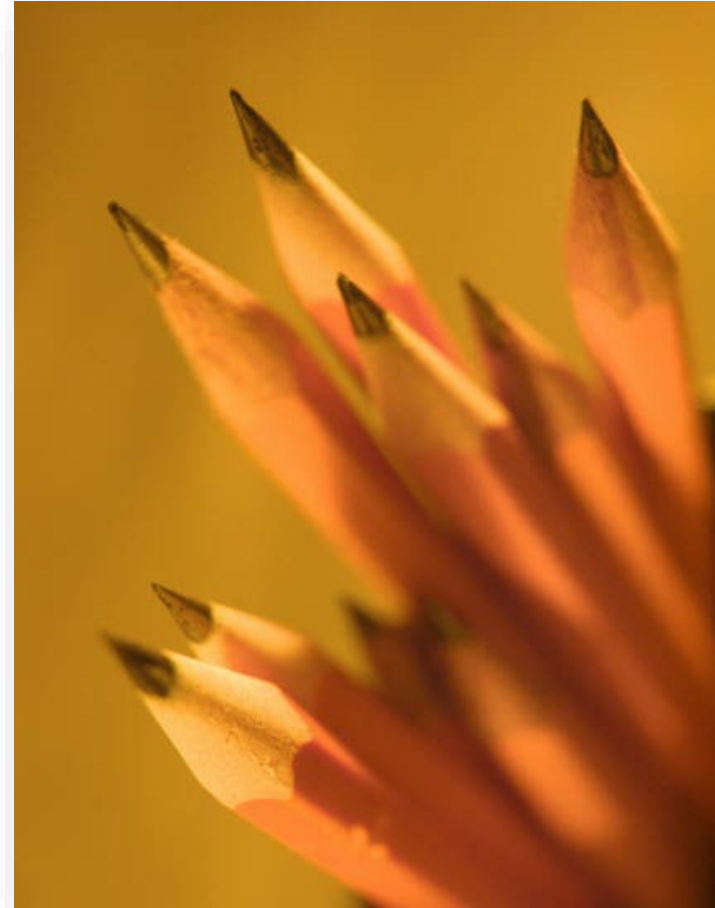
Normalisation et activités  
connexes — Vocabulaire général

Стандартизация и смежные  
виды деятельности. Общий  
словарь

# Standards: The World's most common language

***“A standard is a document that provides requirements, specifications, guidelines or characteristics that can be used consistently to ensure that materials, products, processes and services are fit for their purpose”***

***From ISO***



# Standards Benefits

- **Businesses**
- **Governments**
- **Users**



# Standards Benefits: Example 1

**IEEE 3000**  
STANDARDS COLLECTION®

**IEEE 3006 STANDARDS:**  
POWER SYSTEMS RELIABILITY

## IEEE Std 3006.8™ -2018

Recommended Practice for  
Analyzing Reliability Data  
for Equipment Used in  
Industrial and Commercial  
Power Systems

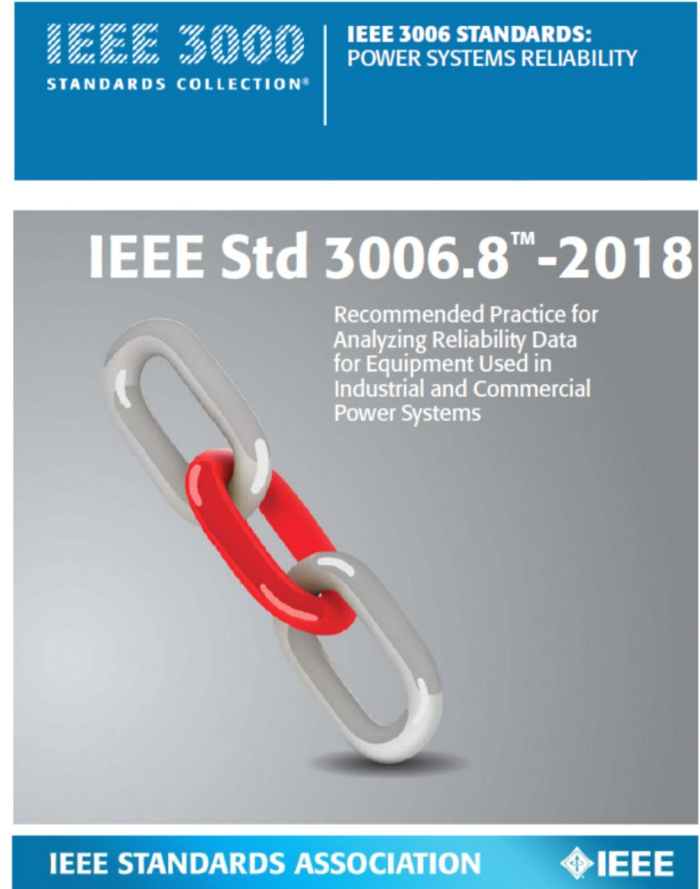


IEEE STANDARDS ASSOCIATION



# Standards Benefits: Example 1

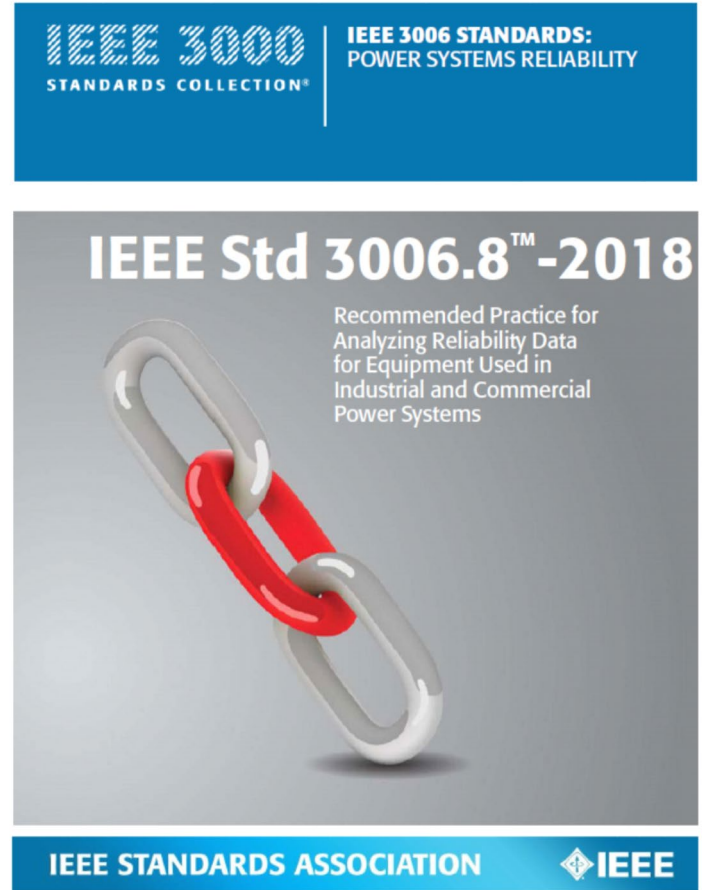
Specifications and procedures designed to improve **reliability** of the materials, products, methods, and/or services people use everyday



# Standards Benefits: Example 1

Specifications and procedures designed to improve **reliability** of the materials, products, methods, and/or services people use everyday

- ▶ **Eliminating cost** of developing in-house agency standards and, therefore, the associated administrative burden on government





# Standards Benefits: Example 2

IEEE STANDARDS ASSOCIATION



IEEE Standard for Information technology—  
Telecommunications and information exchange between systems  
Local and metropolitan area networks—  
Specific requirements

## Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications

IEEE Computer Society

Sponsored by the  
LAN/MAN Standards Committee

# Standards Benefits: Example 2

Establish compatibility, interoperability, simplify product development, and speed time-to-market

IEEE STANDARDS ASSOCIATION



IEEE Standard for Information technology—  
Telecommunications and information exchange between systems  
Local and metropolitan area networks—  
Specific requirements

## Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications

IEEE Computer Society

Sponsored by the  
LAN/MAN Standards Committee

# Standards Benefits: Example 2

Establish **compatibility, interconnectivity, interoperability**, simplify product development, and speed time-to-market

- ▶ **Minimizing market fragmentation** and the burden on industry of complying with agency-specific standards that may differ on a regional or country basis

IEEE STANDARDS ASSOCIATION



IEEE Standard for Information technology—  
Telecommunications and information exchange between systems  
Local and metropolitan area networks—  
Specific requirements

## Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications

IEEE Computer Society

Sponsored by the  
LAN/MAN Standards Committee

# Standards & Magnetics Society

## Field of interests

*"Treatment of all matters in which the dominant factors are the fundamental developments, design, and certain applications of magnetic devices. This includes consideration of materials and components as used therein, standardization of definitions, nomenclature, symbols, and operating characteristics; and exchange of information as by technical papers, conference sessions, and demonstrations."*

# Many MAGS technologies are important to the World!

- Magnetic sensors
- Quantum computing
- ...

**IEEE**   
**QUANTUM**



**IEEE**   
**MAGNETICS**  
**NEWSLETTER**

Volume 63 | Issue 1 | FEBRUARY 2023  
Editor : Jia Yan Law

**ABOUT THE COVER**  
Magnetic Sensor  
Challenge  
at MMM 2022 

**From the President**  
Atsufumi Hirohata 

**It's Time to Celebrate the Success of MMM 2022** 

**Meet a MagSoc AdCom Member** 

**2023 Awards & Fellows** 

**The Write Stuff** 

# What are the benefits of contributing to standards?

# Standards turn innovations into business & markets!



- **Developed most standards in IEEE SA**
- **Business effect of electrical standards to Germany industry is evaluated with EUR 16 billion per year (Germany National Committee DKE, 2020)**



# Standards turn innovations into business & markets!



- **Developed second most standards in IEEE SA**
- **Business related to IEEE 802 wireless standards has created a USD \$3.3 trillion market today and is still growing (RCR Wireless News, 2021)**

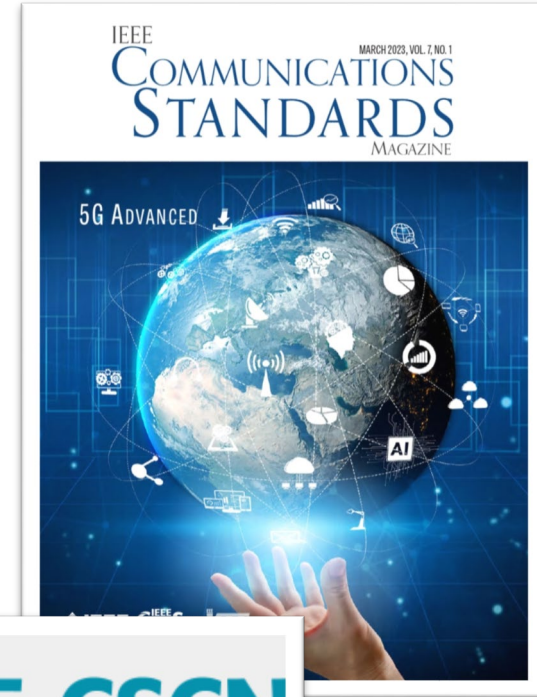
# Theoretical knowledge are important for standards!



- Academia are typically sponsored by their universities/institutes to be able to participate at meetings and contribute to the standards works.
- Sponsoring of academia from industry and from governmental support is often borne in such standardization working groups.

# Any personal benefits?

- **Expand your connection**
- **Improve your negotiation and management skills**
- **More opportunities to showcase your research/innovation**
- **More opportunities for publications and possibly citations**



# Any personal benefits?

- [Conformity Assessment Award](#)
- [Corporate Award](#)
- [Emerging Technology Award](#)
- [International Award](#)
- [Lifetime Achievement Award](#)
- [Standards Board Distinguished Service Award](#)
- [Standards Committee Award for Outstanding Contribution to Entity Standards](#)
- [Standards Medallion](#)



# IEEE Standards Association (SA) helps to initiate activities

## IEEE SA offers help to provide information and seed money to investigate in standardization in your society/council.

- IEEE SA provides the platform for volunteer experts to write standards, which has value.
- IEEE SA standardization processes are organized to lead the experts through the steps of creating a standards based on consensus which will be accepted worldwide.
- Time schedule and time to market of the innovation can be coordinated and a standards review system will provide updated standards following the technical development.
- Online work by the internet and in-person onsite meetings are used on the path through the standardization process.
- Find the right contacts and partners is the first step for market the product and standardization. IEEE SA will support you.
- The process of reaching consensus on the text of a standards involves many discussion, compromise, trade-off, and technical arguments.