ISA history, constant change, ISA 84 update, and more

Paul Gruhn, P.E., CFSE

2018 President-Elect Secretary

aeSolutions

Agenda

How ISA was formed

A bit of our history

Progress we've made

Challenges we face

Recent changes to our vision, mission and values statements
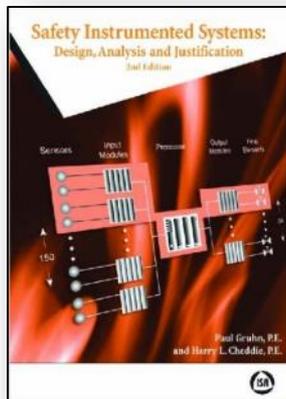
Updates on ISA84

Open Q&A (town hall session)

Introduction of speaker

Paul Gruhn, P.E., CFSE

- Global Functional Safety Consultant at aeSolutions
- Safety instrumented systems specialist for 30 years
- ISA Life Fellow
- Co-chair and 28 year member of ISA 84 (SIS) committee
- Developer & primary instructor for ISA's courses on Safety Instrumented Systems (8.5 days of material)
- Primary author of ISA book on SIS
- Developer of 1st commercial SIS modeling software
- Licensed Professional Engineer in Texas (and member of CSE exam team)
- CFSE & ISA 84 Expert
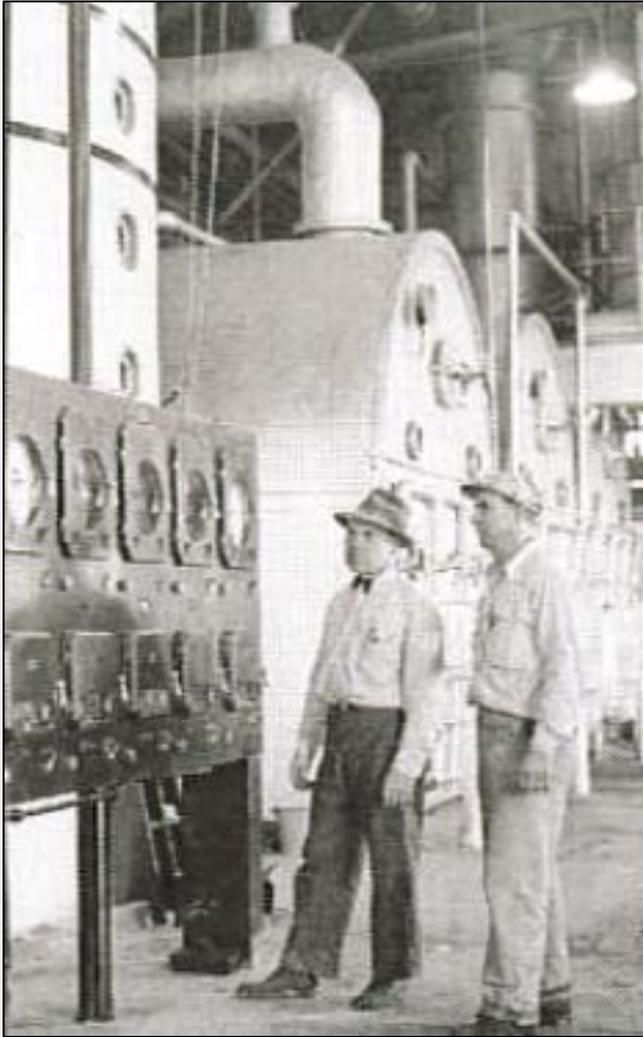- 2018 ISA President-Elect / Secretary

Founding

Over a dozen local instrument societies meet several times in 1944-45 (in New York, Chicago, and Pittsburgh) to form ISA

- Appalachian Instrument Society
- Baltimore Industrial Instrumentation Society
- California Instrument Society
- New York Society for Measurement and Control
- Cleveland Instrument Society, and many more

Goals

The first declaration of policy stated:

- "…to advance the arts and sciences related to the theory, design, manufacture, and use of instruments and controls…
- to encourage research…
- to foster education…
- to advance the standards of science and engineering…
- to promote intercourse among its members and with allied technological societies."

Structure

There was not complete agreement early on regarding composition, requirements for membership, or holding an annual exhibit

The following committees were formed at the beginning:

- Constitution
- Finance
- Membership
- Exhibit

- Nominating
- Publications
- Program
- Publicity

Firsts

BANQUET
SECOND ANNUAL CONFERENCE AND EXHIBIT
THE INSTRUMENT SOCIETY OF AMERICA
STEVENS HOTEL - CHICAGO - SEPTEMBER 10, 1947

First conference in 1946

First monthly journal appears in "Instruments" magazine in 1946 (ISA's own journal in 1954)

First division in 1948

First recommended practice in 1949

First standard in 1967

ISA begins publishing its own journals and books in 1970
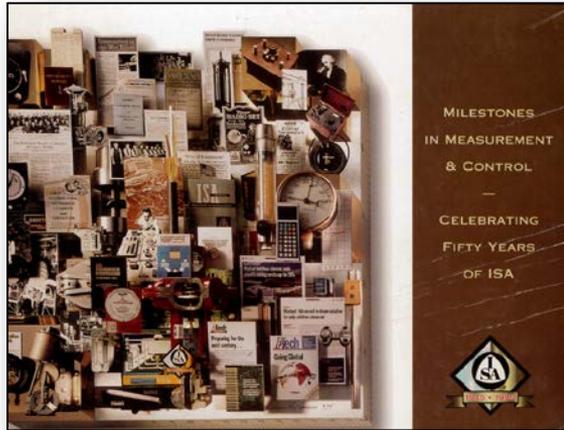
Growth

Membership
- 1946:   900
- 1953:   6,900
- 1985: 36,000 (with members in 97 countries)

Conference attendees
- 1946:   5,000
- 1968: 22,000
- 1993: 30,000

This was all back when ISA was "the only game in town"

Change

MILESTONES IN MEASUREMENT & CONTROL — CELEBRATING FIFTY YEARS OF ISA

Society Structure and Planning Committee formed in 1949 to:

- address corporate membership
- increase income
- evaluate ISA's organizational structure
- and study the nominating procedure

In 1969 six long range planning committees published a 300-page report with hundreds of recommendations on ISA's future direction

1970: Membership declines…
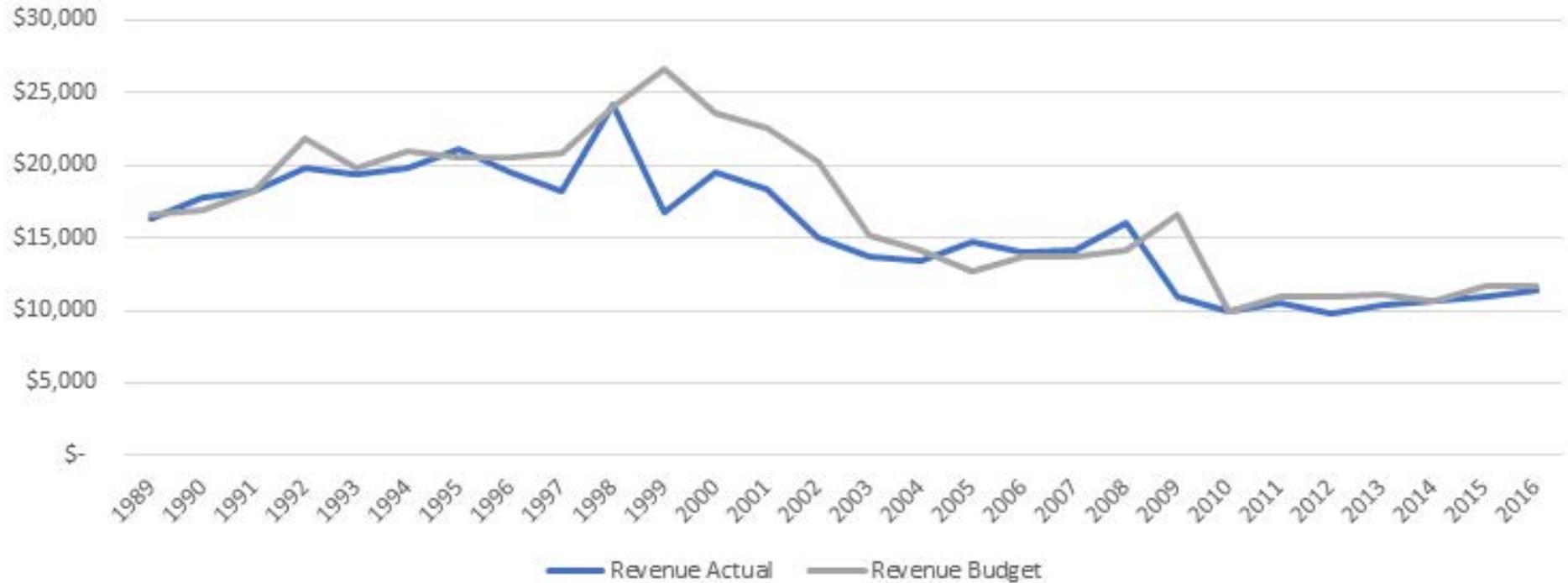deficit two years in a row…

ISA golden age vs. today

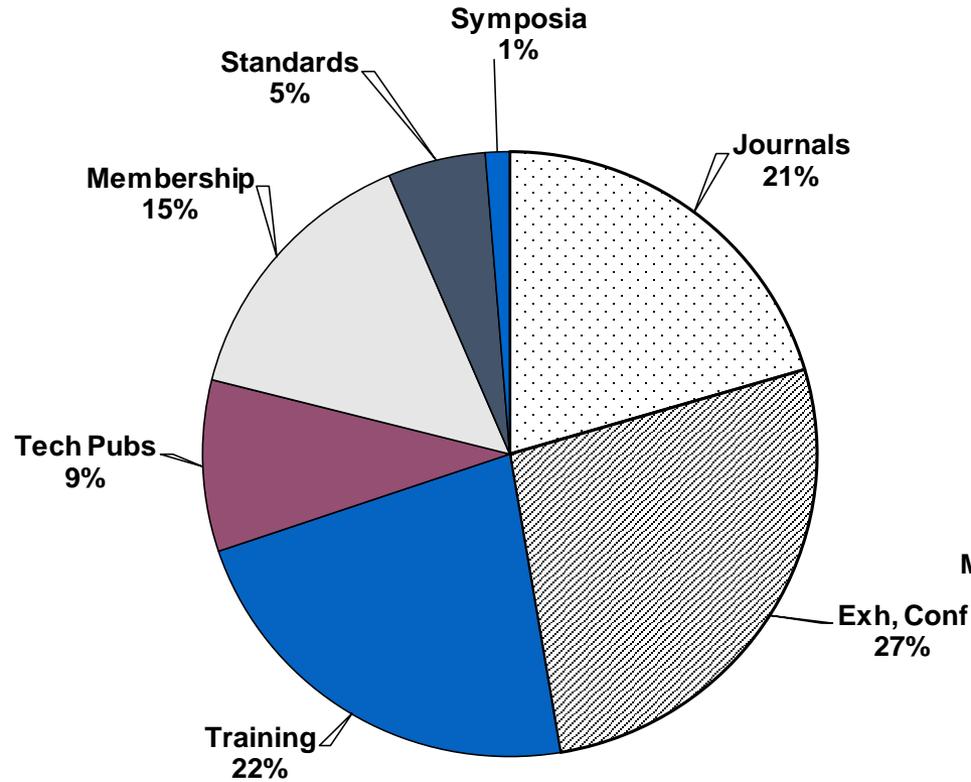|	Peak	Now
Staff	~130	~60
Budget	$26M	$12M
Members	~45K	~14K [1]
Governance Cost	~5%	~14% [2]

1) Not including ACSs

2) The norm for organization like ISA is 5%
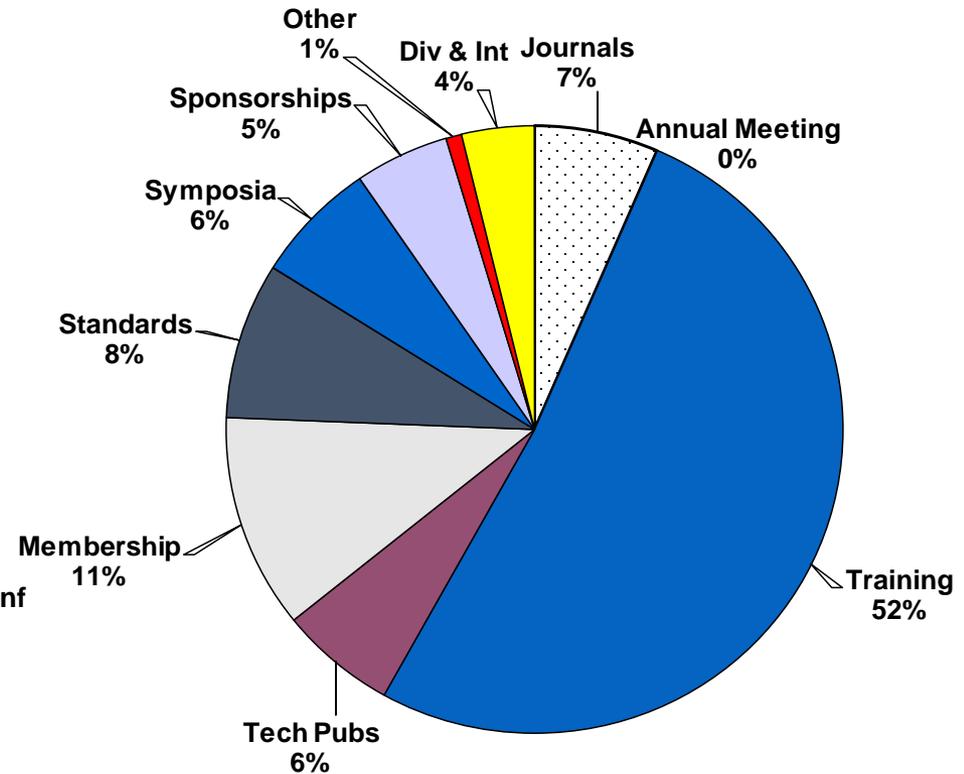
Budget vs actual history

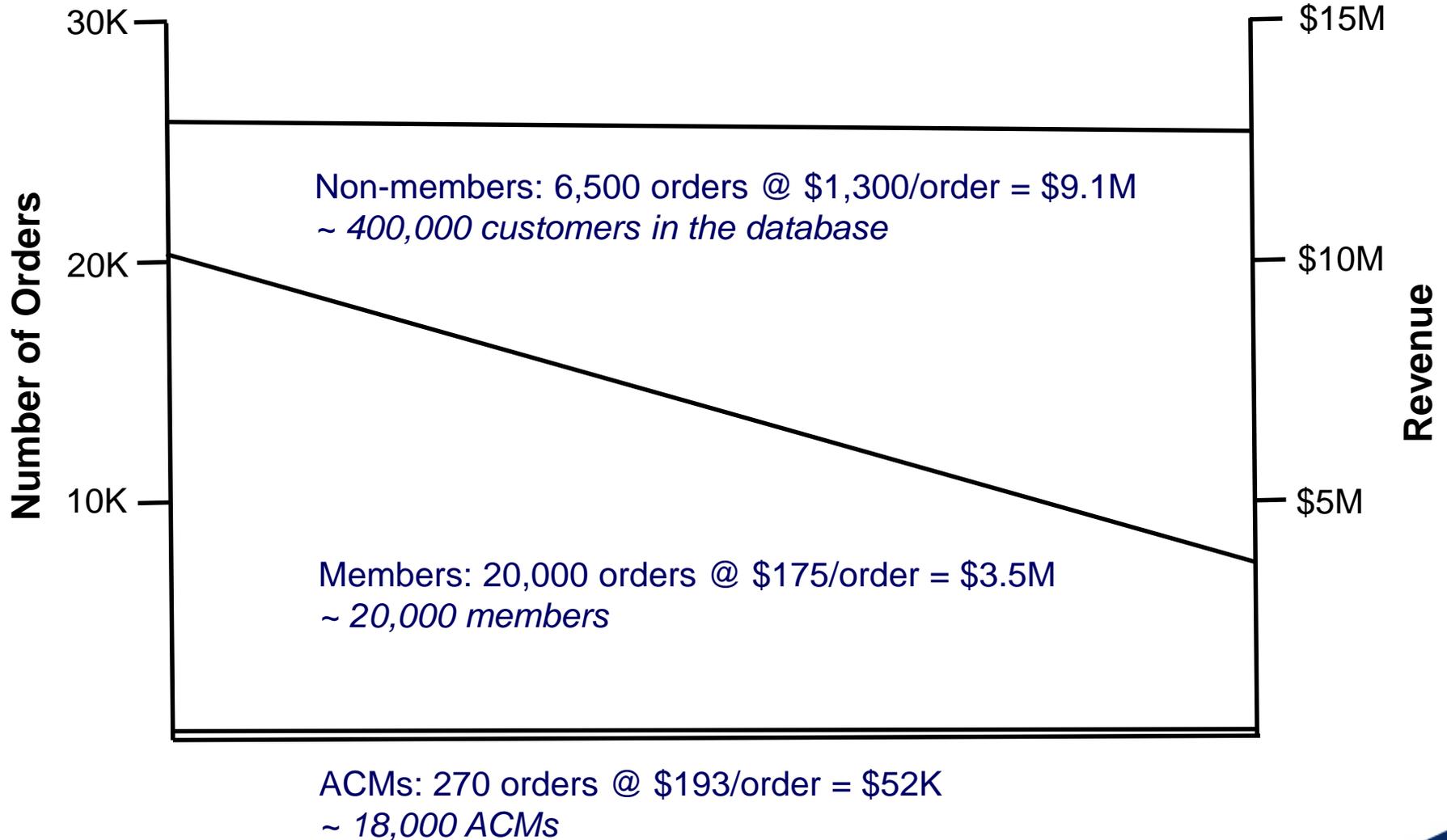Revenue Budget vs Actual

Sources of revenue – 2004 vs 2016

2004

2016

Who our revenue comes from

Number of Orders (left axis): 30K, 20K, 10K

Revenue (right axis): $15M, $10M, $5M

Non-members: 6,500 orders @ $1,300/order = $9.1M
~ 400,000 customers in the database

Members: 20,000 orders @ $175/order = $3.5M
~ 20,000 members

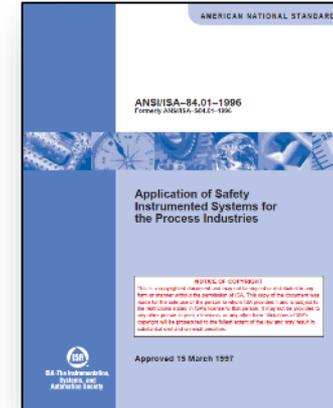ACMs: 270 orders @ $193/order = $52K
~ 18,000 ACMs

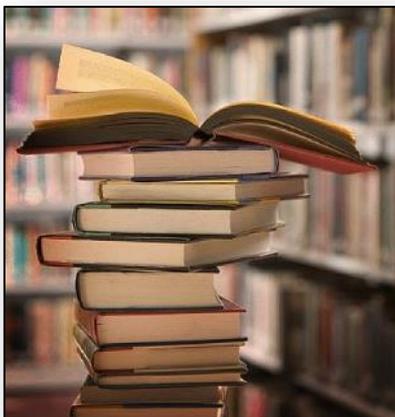# What we do well… our core competencies

Education & training

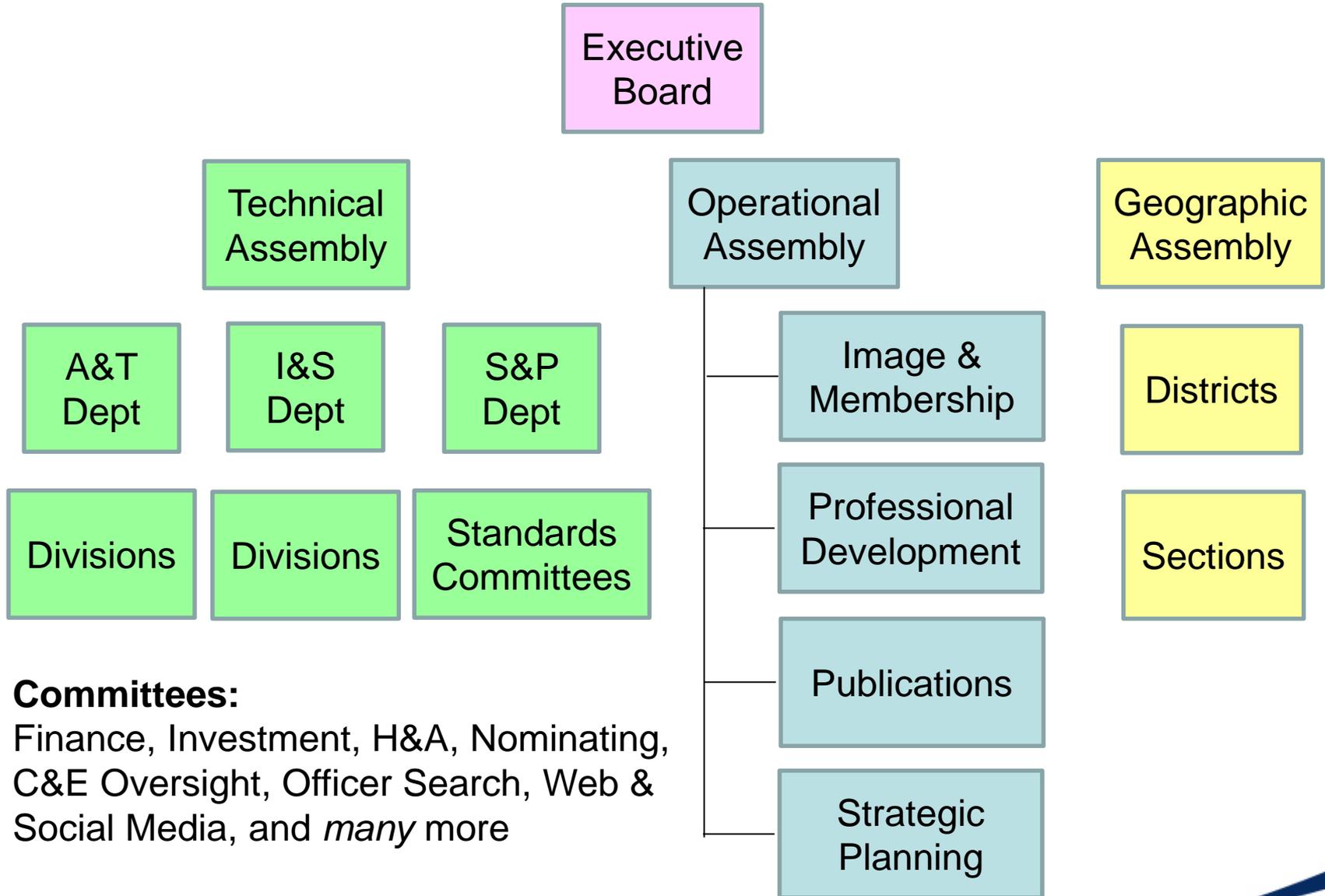Certification
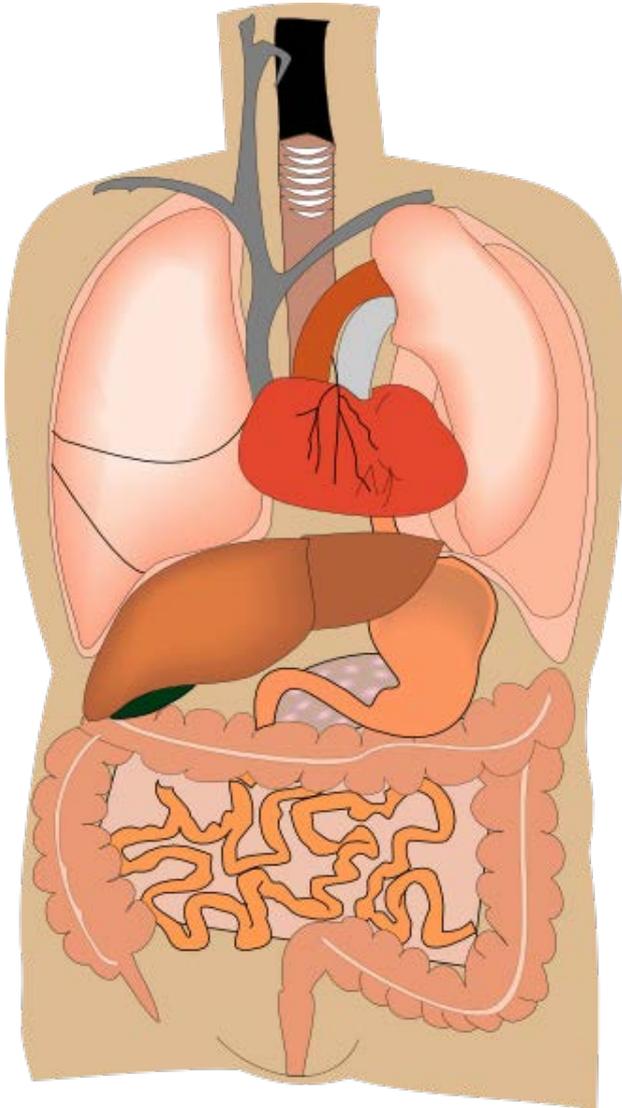

Standards

Publications

Conferences & exhibits

Sections:
- Monthly meetings
- Fundraising events for scholarships
- Training courses
- Table top shows
- Networking

We're a complex organization

Committees:
Finance, Investment, H&A, Nominating, C&E Oversight, Officer Search, Web & Social Media, and *many* more

Which organ is the most important?

The brain
- It controls everything

The blood
- It oxygenates everything

The stomach
- Process food and supplies energy

The legs
- Transportation

The eyes
- Allows the body to see where to go

The rectum
- Responsible for waste disposal

Vision statement

Vision statements
- Covers the "*why*" an organization exists
- Should be very short
  (e.g., < 15 words)
- Should *inspire* others to join and get involved (without using the word "inspire" in the message!)

Our prior statement:
  ISA sets the standard for automation by enabling automation professionals across the world to work together for the benefit of all

Our new statement:
  Create a better world through automation

Mission statement

Mission statements
- Covers the *what* an organization does, for *whom*, *how*, and *why*

Our prior statement:
Enable our members, including world-wide subject matter experts, automation suppliers, and end-users, to work together to develop and deliver the highest quality, unbiased automation information, including standards, training, publications, and certifications

Our new statement:
[Advance technical competence](#) by connecting the automation community to achieve operational excellence

Values (new)

Excellence: We strive to provide industry leading resources and unbiased content developed and vetted by our community of experts

Integrity: We act with honesty, integrity, and trust, treating others with respect in all that we do

Diversity and Inclusion: We strive to be a global, diverse and welcoming organization

Collaboration: We seek out opportunities to work together for the benefit of the Society, its members and our profession

Professionalism: We uphold the highest standards of competence and skill in everything we do

A brief history of ISA 84

ISA 84 1st ed published in 1996

IEC 61508 1st ed in 1998-2000

IEC 61511 1st ed in 2003

ISA 84 (IEC 61511 mod) in 2004

IEC 61508 2nd ed in 2010

IEC 61511 2nd ed in 2016

– More detail on next slide

ISA 61511 in 2018

Update on IEC 61511 ed 2

Released in early 2016

Yet Part 1 was the wrong version

Corrigendum release in Sept 2-16

- List of changes / critical errors that do not require a ballot
- https://webstore.iec.ch/publication/25880

Amendment released in Oct 2016

- More complex changes that require a vote
- Yet all edits were already previous approved

Think of it as a large manual where only *parts* need updating, not the whole

Amendment took 1 year to be approved

ISA 84 purpose & scope (old)

Purpose

– To develop standards and technical reports for use in applying Electrical/Electronic/Programmable Electronic Systems (E/E/PES) for use in process safety applications.

Scope

1. To define terminology that is particular to E/E/PES and high reliability.
2. Establish criteria for and means of assessing reliability and availability in practical applications.
3. Provide general specification guidelines that facilitate understanding.
4. Provide guidelines for process safety applications requiring high reliability.
5. Develop guidelines for specific hardware/software configurations that can meet varying levels of reliability/availability.
6. This work does not apply to nuclear power safety-related systems.

ISA 84 purpose & scope (new)

Purpose:

– To develop standards and technical reports for the use of instrumented systems to achieve functional safety in the process industries.

Scope:

– The documents developed by ISA84 will cover the activities involved in the design, operation and maintenance of instrumented systems, from sensor through final element, used to achieve functional safety in the process industries.