

# Singapore Standardisation Programme

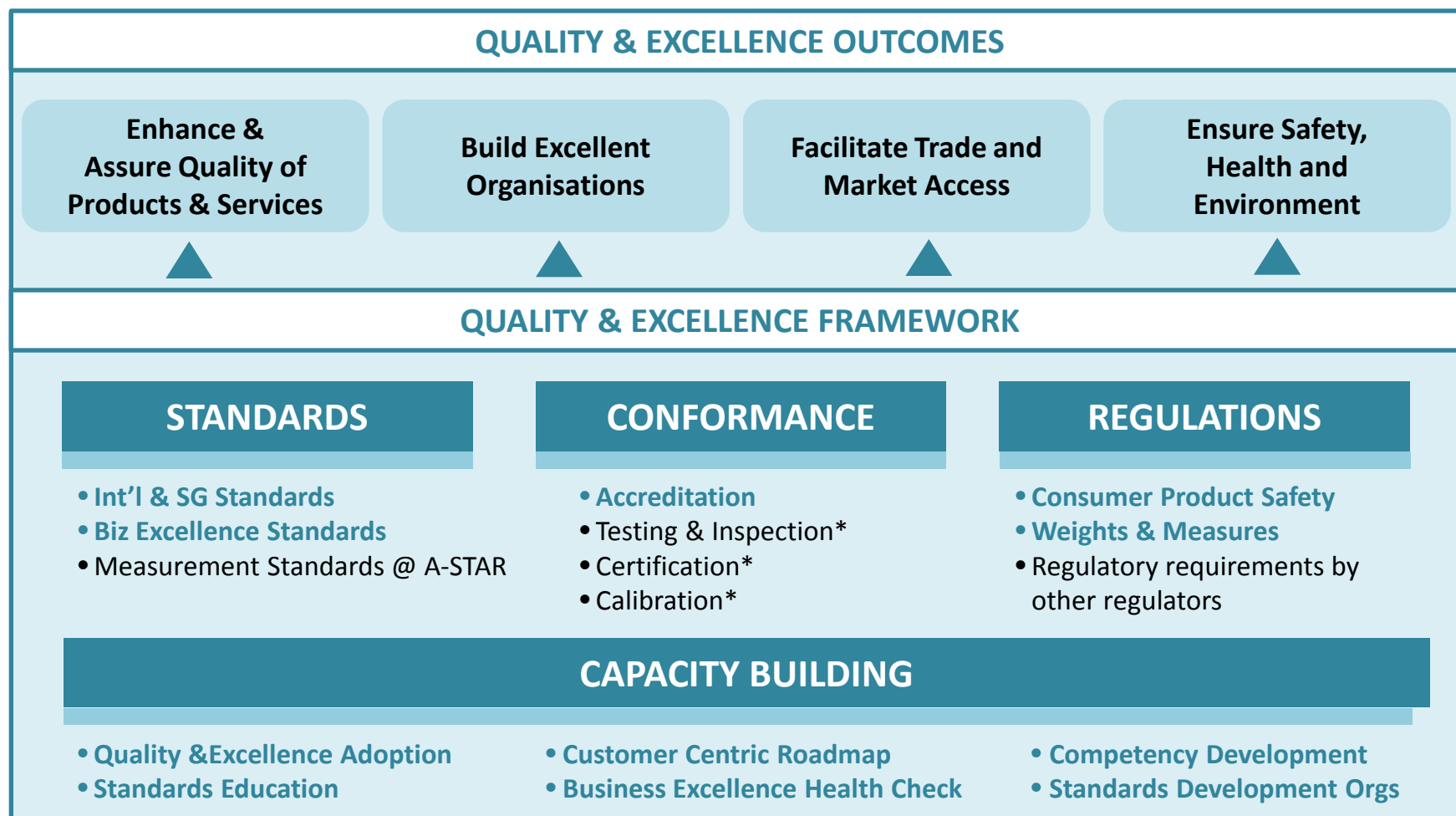
Er. Tan Hak Khoon  
Deputy Chairman  
Singapore National Committee of IEC  
13 June 2016

- Overview of the Singapore Standardisation Programme
- How industry could participate in the IEC

# Overview of the Singapore Standardisation Programme

# Quality & Excellence Framework

**SPRING** : National Standards Body, National Accreditation Body, National Business Excellence Body, Safety Authority for Controlled Goods, Weights and Measures Authority & Good Laboratory Practice (GLP) Compliance Monitoring Authority



\* Private Sector

# National Standardisation Programme



## SPRING as the National Standards Body

- Administers the National Standardisation Programme
- Formulates the policies, strategies, programmes and procedures of the National Standardisation Programme
- Publishes voluntary Singapore Standards (SS) and Technical References (TRs)
- Influences and safeguards Singapore's interest at international and regional standards fora

## Singapore Standards Council (*appointed by SPRING*)

- Industry-led
- Approves the establishment and withdrawal of SS
- Sets up Technical Committees & Working Groups to develop new standards and review existing standards
- Advises and assists SPRING in implementing the policies, strategies, programmes and procedures of the National Standardisation Programme



### Chairman



Mr Edwin Khew  
Managing Director  
Anaergia Pte Ltd

### Deputy Chairmen



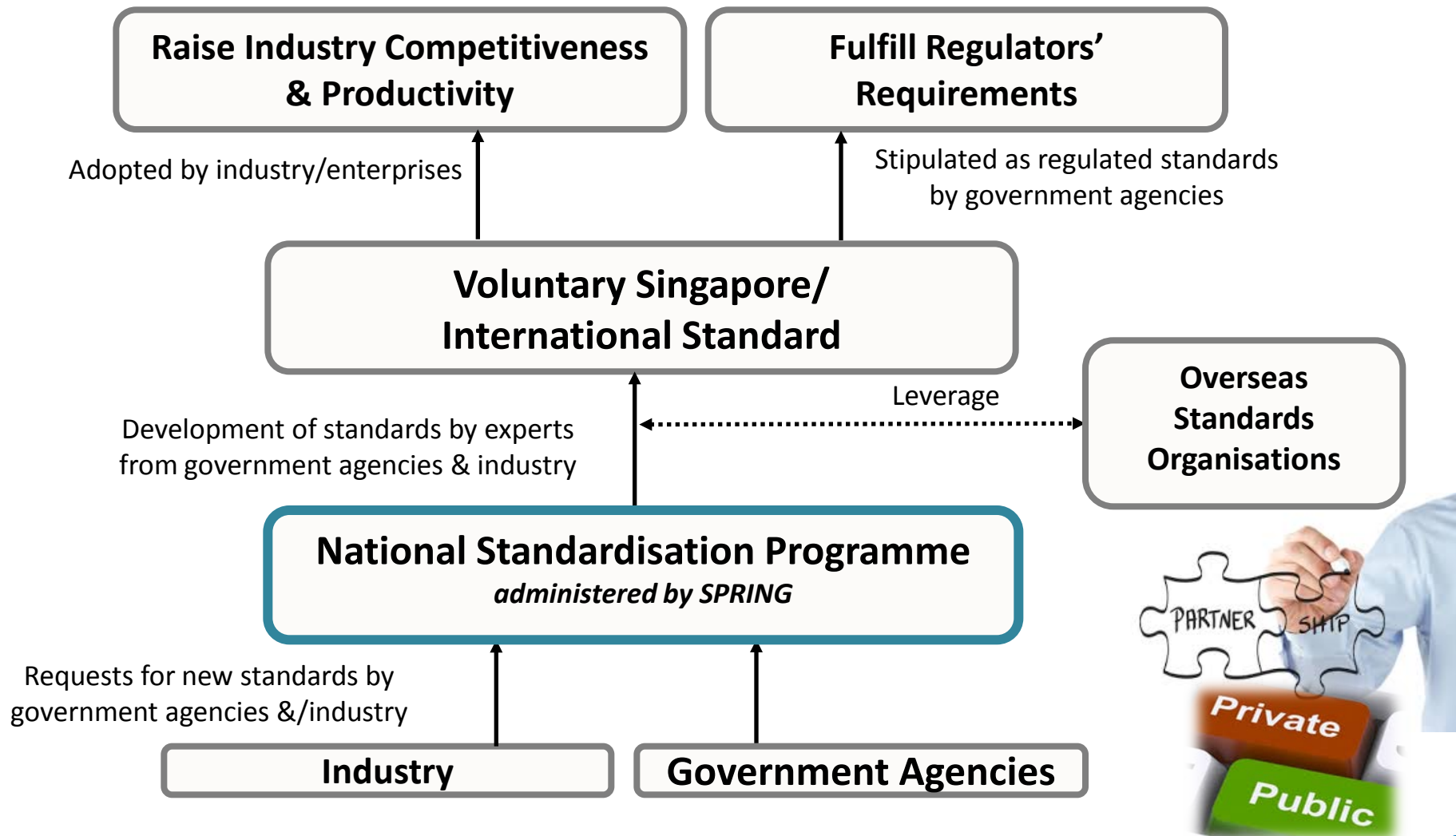
Mr Robert Chew  
Board Member  
Dover Park Hospice  
Kwang Wai Shiu Hospital  
*Appointed as Chairman of SISC*



Mr Lee Chuan Seng  
Emeritus Chairman  
Beca Asia

# National Standardisation Programme

## – A Private & Public Partnership



# National Standardisation Programme – Structure



Secretariat from  
SPRING

STANDARDS COMMITTEES

Secretariats:

SPRING

IES

IDA

SCIC

SMF

SG National  
Committee  
of the IEC

Common  
members



E&E



B&C



IT



Chem



Biomed



GE&S



Food



MSC



Silver Industry



Energy



Environment



Management Systems

Cross-sector SCs

60 TECHNICAL COMMITTEES

90 WORKING GROUPS

1,600 Standards Partners

Industry

Government Agencies

IHLs

Consumers



ABB



Private – 60%



Public - 40%

# Standardisation – Focus Areas & Key Agencies

## Industry-Specific



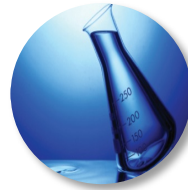
### Biomedical

SPRING, HSA & A\*STAR  
(e.g. Medical devices, TCM)



### Building & Construction

BCA, HDB, URA (e.g. BIM,  
pre-fab bathrooms)



### Chemicals

EDB, A\*STAR, MPA, JTC  
(e.g. Nanotechnology, LNG)



### Electrical & Electronic

EMA, EDB, SPRING & HDB  
(e.g. solar PV, electric  
vehicle)



### General Engineering & Safety

MOM (e.g. Workplace  
safety)



### Food

SPRING, AVA & NEA, (e.g.  
functional food, cold chain)



### Information Technology

IDA & SPRING (e.g.  
IoT, cloud computing)



### Manufacturing

SPRING, EDB, IDA & A\*STAR  
(e.g. Additive Manufacturing,  
Robotics)

## Cross-Sector



### Energy

NEA, EMA, SPRING (e.g. energy mgmt &  
efficiency)



### Environment

NEA, PUB & NCCS (e.g. waste  
mgmt, carbon & water  
footprint)



### Management Systems

SPRING, MOM (e.g. Mgmt  
Consulting, OSH)



### Silver Industry

MOH, AIC, HDB (e.g.  
Nutritional requirements  
for elderly)

## Next 3 years

### Smart Nation

SNPO, IDA, HDB &  
SPRING

### Services

SPRING, BSE, STB (e.g.  
supporting retail  
productivity)

### Future of Manufacturing

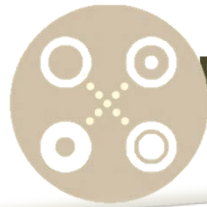
A\*STAR, SPRING



# Leveraging Standards as a Strategic Tool



Drive Industry  
Competitiveness



Facilitate Market  
Opportunities



Support Govt  
Policies &  
Regulations

## Standards Council Strategic Plan

### FACILITATE NEW GROWTH AREAS

- **Future of Manufacturing** (Additive Manufacturing, Service Robots, Remanufacturing)
- **Innovation and Smart Nation** (IoT, Big Data, Cyber Security)
- **New infrastructure** (LNG Bunkering, Mass flow-meter, Electric Vehicles)

### DRIVE PRODUCTIVITY

- **Retail, F&B and Hotel** (e-commerce/e-payment)
- **Building & Construction** (Building Information Modelling, Facility Management, Pre-Cast Modules)

### RAISE RESOURCE EFFICIENCY

- **Energy** (Solar Photovoltaic, Energy Storage, Energy Audits & Performance Indicators)
- **Water** (Water Efficiency Management, Water Recycling)
- **Waste** (Waste Equipment, Cold chain for chilled seafood)

### SUPPORT SAFETY & SOCIAL NEEDS

- **Workplace Safety** (OSH Standards)
- **Active Ageing** (Universal design for age-friendly homes)
- **Healthcare Facilities** (Design guidelines for acute hospitals, nursing homes & polytechnics)

# Improving Productivity in Construction

## – Close Collaboration with BCA & Construction Industry

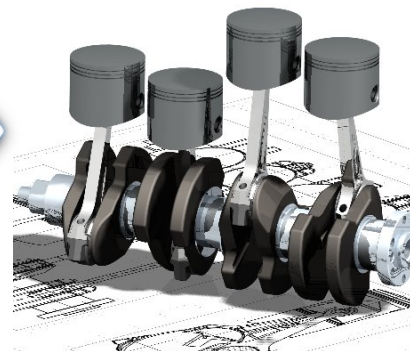
### INDUSTRY CHALLENGE

- Fragmented industry
- Low productivity



### INDUSTRY-SECTOR IMPACT OF A UNIFIED STANDARD SOLUTION

- ❑ Total cost savings of **SGD \$320 million** over 10 years for architects and engineers – through reading/reviewing and retrieving drawings
- ❑ **4 percent productivity improvement**



### CoP for Construction Computer Aided Design (CP 83-2:2000)

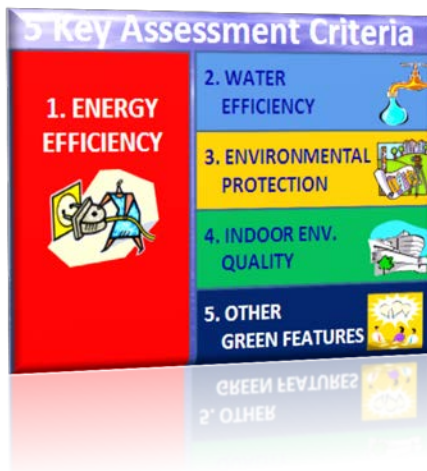
- Standardised building design drawing symbols, naming and organisation of drawings and files across the industry
- Enabled the use of **an integrated IT platform** as a productivity tool to improve communication and collaboration among stakeholders in the building design process



# Singapore Standards on Energy Efficiency Relevant to BCA Green Mark Scheme



BCA GREEN MARK



## Energy Efficiency

- ✓ SS 530 Energy efficiency standards for building services & equipment
- ✓ SS 531 Part 1 Lighting of workplaces - indoor
- ✓ SS 531 Part 2 Lighting of workplaces - outdoor
- ✓ SS 553 Air-conditioning and mechanical ventilation in buildings
- ✓ SS 591 Long term measurement of central chilled water system energy efficiency

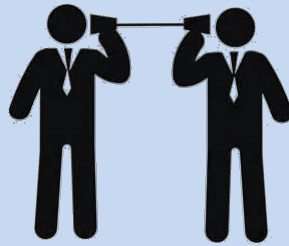
# Initiatives to Raise SME Awareness & Adoption of Standards



**Publications/  
Media**



**Awareness**



**Adoption**



**Training  
Workshops/  
Consultations**



**Events**

(e.g. Conferences, Standards Launches, Seminars)



**Working with  
Industry  
Bodies**



**Government  
Incentives  
Schemes**

# How industry could participate in the IEC

# Singapore's Participation in ISO & IEC Technical Activities

	ISO	IEC
P-memberships	61	15
O-memberships	98	76
Total	159	91



<b>"P"</b>	<ul style="list-style-type: none"> <li>▪ <b>Influence direction of international standards development &amp; promote national interest</b></li> </ul> <p><b><u>Roles / Obligations</u></b></p> <ul style="list-style-type: none"> <li>▪ Form a National Mirror Committee (NMC) to mirror the ISO/IEC committee and nominate a Member to represent Singapore and cast <b>votes</b> on draft standards</li> <li>▪ Optional: Take on Convener/Project Editor/Secretary roles</li> </ul>
<b>"O"</b>	<ul style="list-style-type: none"> <li>▪ <b>Monitor International activities – Influence is minimal</b></li> </ul> <p><b><u>Roles / Obligations</u></b></p> <ul style="list-style-type: none"> <li>▪ Identify Expert(s) / Form a National Mirror Committee (NMC)</li> <li>▪ Monitor and assess upgrading from "O" to "P" membership</li> </ul>



# Singapore: 15 “P” & 76 “O” IEC Memberships



No.	ISO/IEC TC	Name of Committees
1	IEC/TC 9	Electrical equipment and systems for railways
2	IEC/SC 23B	Plugs, socket-outlets and switches
3	IEC/TC 34	Lamps and related equipment
4	IEC/TC 47	Semiconductors devices
5	IEC/SC 47A	Integrated circuits
6	IEC/SC 47D	Semiconductor devices packaging
7	IEC/SC 47E	Discrete semiconductor devices
8	IEC/SC 47F	Micro-electromechanical systems
9	IEC/SC 62D	Electromedical equipment
10	IEC TC 69	Electric road vehicles and electric industrial trucks
11	ISO/TC 82	Solar photovoltaic energy systems
12	IEC/TC 94	All or nothing electrical relays
13	IEC TC 111	Environmental standardization for electrical and electronic products and systems
14	IEC SC 121B	Low-voltage switchgear and controlgear assemblies
15	ISO/IEC JTC1 SC 25	Interconnection of information technology equipment



# Examples of International Standards of Importance to Singapore

## Manufacturing

- ISO 17296 Additive manufacturing

## Energy

- ISO 50004 Guidance for the implementation of an energy management systems
- ISO 50006 Guidelines and principles for measuring energy performance using energy baselines and energy performance indicators

## Environment

- ISO 18617 Sustainable procurement
- ISO 14026 Communication of footprint information on labels and declaration
- ISO 14031 Environmental performance evaluation- Guidelines

Estimated number of ISO/IEC standards of importance to Singapore : 300 to date

## Biomedical

- ISO 15819 Cosmetics – analytical methods - Nitrosamines
- ISO 20776 Clinical laboratory testing & in vitro diagnostic test systems – Susceptibility



## Chemical

- ISO 80000 series nanotechnologies
- ISO 8217 : 2012 Petroleum products -Fuels (class F) - Specification of marine fuels

## Electrical & Electronic

- IEC 61851 Electric vehicle conductive charging system
- IEC 62446 Grid Connected PV Systems
- IEC 60598 Luminaires
- IEC 61439 Low Voltage Switchgear & Control gear Assemblies

\* Potential ISO standard to be considered for participation by Singapore

## Management Systems

- ISO 18826 Management consultancy
- ISO 18420 QMS for educational organizations
- ISO 45001 Occupational health and safety
- ISO 19600 Compliance management systems

## Information Technology

- ISO/IEC 30141 Internet of Things Reference Architecture
- ISO/IEC 19086 Cloud Computing SLA
- ISO/IEC 19637 Sensor Network Testing Framework

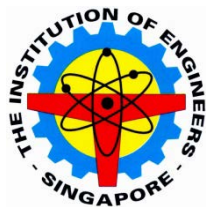
## Building & Construction

- ISO 12006-2 Organization of information about building construction works - Framework for classification
- ISO 16757-2 Data structures for electronic product catalogues for building services Geometry
- ISO 29481-1 Building information models -- Information delivery manual - Methodology and format



# Singapore National Committee of IEC (Term 1Apr2014-31Mar2017)

## Industry representations:



PSB Singapore

## Government agencies:



## Academia:



# Participation in Standards Development Activities (e.g. IEC)

Industry stakeholders  
(experts with relevant  
technical expertise)



Join relevant  
Committees and  
Working Groups to  
develop and review  
standards in a timely  
manner



Promote awareness  
and adoption of  
standards among  
industries



Standards are developed based on the ***principles of transparency, openness, impartiality, consensus, relevance, effectiveness and coherence***

# Key Collaborations with IEC in 2015

## IECEx Industry Dialogue

4 May 2015

Mr Chris Agius, the IECEx  
Executive Secretary



## IEC Training Workshop

24 July 2015

Mr Jan-Henrik Tiedemann,  
Community Manager, IEC



## IECRE Industry Workshop

14 September 2015

Mr Kerry McManama,  
IECRE Secretariat





# Inaugural National Young Professionals Workshop

24 November 2015 @ Keppel Club

**44 YP Participants with 14 Speakers & YP Facilitators**



**Interactive  
Breakout  
Sessions**

**Young  
Professional  
Facilitators**



**Speakers & Panel discussion**





# Thank You!

For more info the Singapore Standardisation Programme:

<http://www.spring.gov.sg/Building-Trust/Std/Pages/standards-overview.aspx>