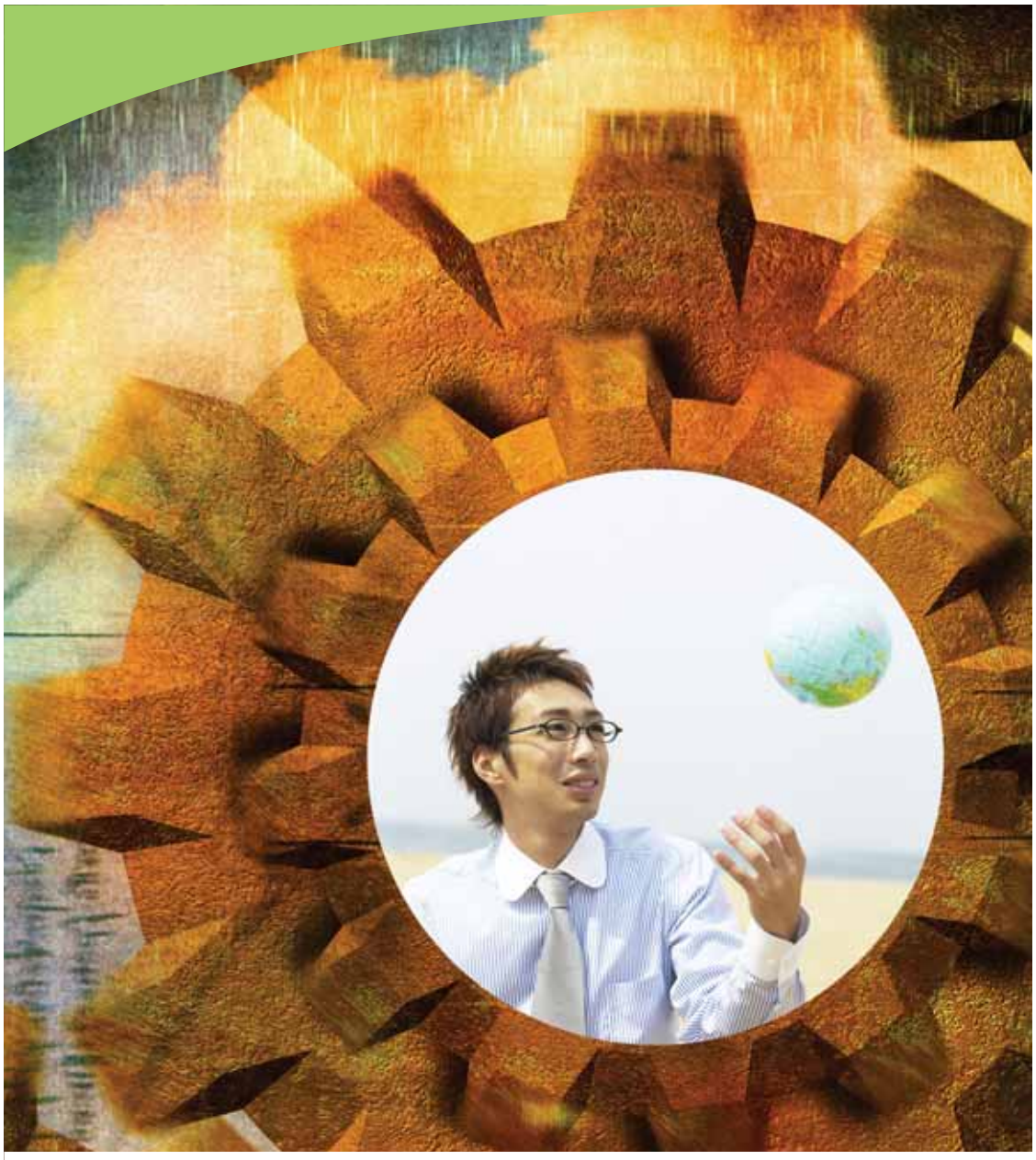

SPRING singapore
Enabling Enterprise

Make Standards Work for You

A Guide for SMEs

Editorial Team

Susan Chong
Director
Standardisation Division

Winston Wong
Senior Manager
Standardisation Division

Marion Abraham
Senior Manager
Corporate Communications

Geraldine Tan
Manager
Standardisation Division

Copy Editing Team

Lim Phay-Ling
Director
Corporate Communications

Marion Abraham
Senior Manager
Corporate Communications

Design and Layout

atomz i! Pte Ltd

Published by SPRING Singapore
2 Bukit Merah Central
Singapore 159835
Tel: (65) 6278 6666
Fax: (65) 6278 6667
E-mail: queries@spring.gov.sg
Website: http://www.spring.gov.sg

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Foreword

You are holding the first guide on standards compiled for small and medium-sized enterprises (SMEs) in Singapore.

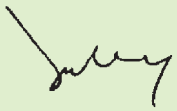
It's our hope at SPRING Singapore that *Make Standards Work for You — A Guide for SMEs* will show enterprises how they can introduce standards in their business and benefit from it. We also showcase real-life SMEs who have successfully used standards in their business.

Standards can give any company – whether big or small – tangible benefits. Some standards help to promote trade by lowering technical barriers to trade. The widespread adoption of national and international standards means that businesses can develop their products and services based on widely recognised specifications or systems. This helps to give them access to world markets.

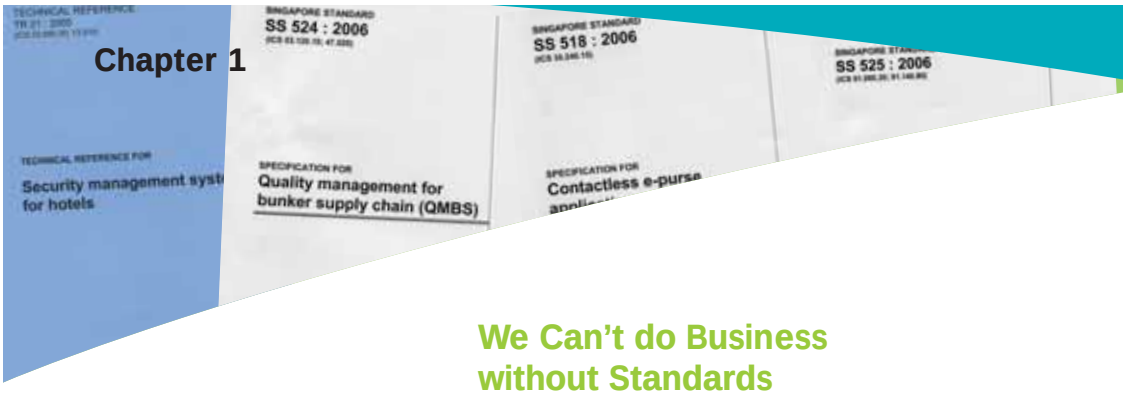
Standards also provide a technical base for quality, health, safety and environment protection. Products and services that conform to standards enjoy widespread market acceptance as they are associated with reliability, safety, compatibility and quality.

Whether you are a CEO or an employee, I encourage you to read this book and be inspired to implement standards in your company. Or, you may wish to participate in our standardisation activities and influence the development of both national and international standards that may affect your business.

I am confident you will find the information in this guide useful. More importantly, I hope you will appreciate how standards can help enable growth for your company.



Mr Loh Khum Yean
Chief Executive,
SPRING Singapore



We Can't do Business without Standards

Setting up a business in Singapore is easy. It costs only $65 to register your business with the Accounting & Corporate Regulatory Authority (ACRA) and you're in business.

But wait. Before you jump into any business, think again. Do your products or services need to meet any national or international standards before they can be sold? Or would there be less testing or certification procedures for your products or services if they comply with certain standards?

Take for example, manufacturing a food product, say chocolate. Are there any national or international health and regulatory standards for the chocolate that you manufacture before it can be sold locally or exported?

Where food is concerned, countries can have very strict food safety guidelines to protect consumers and public health. To ensure food safety in the production process, food manufacturers should implement the internationally recognised Hazard Analysis Critical Control Point or HACCP standard. Or they can use the newly published ISO 22000 Food Safety Management Systems — Requirements for Any Organisation in the Food Chain. Certain countries require HACCP certification before food like meat and seafood can enter the country.

> "In a nutshell, standards provide a vital common basis for buyers and suppliers to understand product or service requirements for their target markets."

WHAT ARE STANDARDS?

Put simply, standards are just a set of specifications or guidelines used to ensure that a product, service or process does what it is supposed to do. And they enable businesses to achieve productivity, quality, safety and reliability of products, processes and services as well as ease access to markets.

Standards are developed in a transparent manner involving a fair representation of the relevant stakeholders so that their needs are taken care of. Consensus decision making is the norm for standards development and this ensures that no one country or representative of an organisation is ignored during the process.

As standards form an essential part of our daily life, they are used in many consumer products. Businesses and industries have long leveraged on standards to maximise their efficiencies and ease market acceptance as well as meet safety, health and environmental regulatory requirements. Therefore, standards affect all industries, including building and construction, chemical, electrical and electronics, food, engineering, telecommunications, health, medical, information technology, tourism, security and banking.

Businesses need to develop their products and services based on specifications and systems that have been standardised and accepted either nationally or internationally by the market or government. Local or international market acceptance for a business' products and services frequently require reports on compliance to a standard.

Standards help to make the development and manufacture of products as well as the provision of services, safer, easier and more efficient. Standards also build supply chain confidence with better interconnectivity of products or services and improve productivity and competitiveness with manpower savings and other cost reductions. Technical barriers to trade can also be overcome by compliance to standards, thus making business across borders easier.

Furthermore, standards help to make regulatory compliance clearer for industry.

Standards Statistics

- **Singapore has about 716 standards in use by industry.**
- **Some 75% of Singapore Standards are voluntary while 25% are mandatory.**
- **There are 5,830 and 716 companies certified to ISO 9001[1] and ISO 14001[2] series of standards respectively.**
- **As the national standards body, SPRING Singapore collaborates closely with about 1,000 standards partners who sit in 158 Standards Committees.**

[1] Source: International Organization for Standardization (ISO), The ISO Survey of Certifications, 2006

[2] Source: National Environment Agency

Chapter 2

The ABCs of Standards

You may not be aware of it, but we all use some form of standards in our daily routines. For example, have you ever wondered why all credit cards are the same thickness and can be read by card machines around the world? Why is paper categorised according to sizes such as A4 or B3?

It's all thanks to work done in the international arena of standardisation.

With the ISO/IEC 7810 (Identification cards – Physical characteristics standard), all credit cards around the world have the same physical dimensions so they can be used anywhere in the world. Similarly, international standards for paper sizes standardises document shapes and sizes.

There are four main types of standards:
1. Company standards that are developed by and for the company concerned.

2. Industry consortia standards that are set and documented for use by companies in specific industries or countries.

3. National standards which are developed by technical, academic and government experts as well as researchers and industry associations.

4. International standards that are developed and published after international consensus is reached.

Singapore Standards vs Technical References

In Singapore, there are two types of national standards — Singapore Standards (SSs) and Technical References (TRs). Both are published in the form of specifications for materials and products, process or services.

There are two differences between SS and TRs:
(a) Technical References are interim or pre-standards developed to meet urgent industry demand in areas where there is an absence of reference standards.

(b) Technical References are issued for use over two years before they are reviewed, assessed and approved as Singapore Standards. At the end of two years, the TR can continue as a Technical Reference for further comments or withdrawn if it is not elevated to a SS. Currently,

around 25% of TRs have been elevated to SSs.

Is it compulsory to implement national standards?

In general, compliance with Singapore Standards is *voluntary*. However, some standards are mandatory. This happens when they are used by government bodies in regulations and are often associated with health and safety issues. For example, all electrical products such as hair dryers, rice cookers etc have to be tested in alignment to Singapore electrical safety standards to ensure they are safe for the public consumers. In addition, the Singapore Standard for Switches for Household and Similar Fixed-Electrical Installations — General Requirements, or SS 227 : Part 1: 2000, ensures that domestic or electric wall switches only allow a certain voltage and current to pass through. Another example is SS 98 : 2005 on Industrial Safety Helmets which specifies physical and performance requirements, methods of test and marking requirements to protect the wearer.

While many standards are voluntary, many companies implement them because compliance ensures customers that their products, services and processes meet standards. It also shows that they are of good quality and are safe for use. In addition, a number of voluntary standards are also used as part of tender specifications such as those issued for building and construction, food purchasing, pest management services, etc.

> “SPRING supports the development, promotion and implementation of relevant international standards where they are required by industry.”

What about international standards?

International standards are important because they set widely accepted common specifications for products, services and processes. They are usually set by recognised international bodies such as the International Organization for Standardization (ISO) and the International Electrotechnical Commisssion (IEC). International standards facilitate trade, exchange of information and technology transfer, and reduce costs incurred from work done in compliance with differing national standards.

Small businesses, especially those planning to venture abroad, may want to keep a close watch on the developments of international standards in the relevant areas for their products, services and processes. Once the international standards become widely adopted, it can make a major impact on a company's business and operations such as how buyers accept a company's products and/or services in the global market. Increasingly, small businesses are actively taking part in international standards development to ensure that they are not unfavourably affected by international standards.

INTERNATIONAL STANDARDS SETTERS

There are four main international standards bodies. They are

1 **INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)**

The ISO is a network of the national standards institutions representing 157 countries and is the world's largest standards organisation. The ISO's principal activity is the development of international technical standards.

2. **INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC)**

The IEC is the leading global organisation that prepares and publishes international standards for all electrical, electronic and related technologies worldwide. There are around 67 member country bodies participating in IEC. The World Trade Organization encourages alignment to ISO and IEC standards as these are considered international standards and less likely to become technical barriers to trade.

3. **INTERNATIONAL TELECOMMUNICATION UNION (ITU)**

The ITU coordinates the operation of telecommunication networks and services, advances the development of communications technology and sets telecommunication standards. Its membership include 191 governments, known as Member States and 607 organisations, known as Sector Members.

4. **CODEX ALIMENTARIUS COMMISSION**

Codex develops food standards and guidelines under the Food and Agriculture Organisation (FAO) and World Health Organisation (WHO) Food Standards Programme. These standards can be used by any country in the world.

Singapore is a member body in all four of these international standards body with SPRING holding Singapore's membership in ISO and IEC. Through strategic participation in international standardisation activities, Singapore is better able to nurture enterprise growth and innovation. As a participating member, Singapore is also able to safeguard its interests and ensure that the standards are relevant to the local industry.

Is there a link between national and international standards?

Standards are developed at the national and international levels. Most countries have a national standards body that coordinates the development of national standards and international standards projects.

Countries can choose to adopt international standards as national standards. However, because of differences between countries in terms of the environment, climate, infrastructure (different voltage), health, safety and environmental protection needs, many countries adopt international standards and adapt them into national standards.

On the local front, Singapore Standards are aligned with international standards wherever possible to facilitate greater market access for our products and services. Of the 716 national standards published, about 175 standards are aligned with international standards.

National standards can also be promoted to become new international standards through a process of consensus and approval within the relevant international bodies. Those that stand a higher chance are the first-in-the-world standards, where no previous standard has been developed in that area in other countries. Singapore already has seven national standards that are used as a base document for international standards.
They are:

1) CP 60 : 2004 Code of Practice for Bunkering by Bunker Tankers

2) SS 505 : 2003 Exhibition Terminology and Audit Procedures

3) SS 507 : 2004 Business Continuity/Disaster Recovery (BC/DR) for Service Providers

4) TR 15-1 : 2003 Thermal Imagers for Human Temperature Screening-Requirements and Test Methods

5) TR 15-2 : 2004 Thermal Imagers for Human Temperature Screening-Implementation Guidelines

6) TR 17 : 2004 Technical Reference for Fingerprint Image Quality Metrics

7) TR 19 : 2005 Technical Reference for Business Continuity Management

Chapter 3

Making Sense of Standardisation, Certification and Accreditation

Very often, companies are confused over what standards, certification and accreditation mean to their business. And many do not understand the fine difference between them.

Here's how to tell the difference and the benefits that each has to offer your business. Standards are written functional and technical requirements in the form of specifications or guidelines that ensure a product, service or process does what it is supposed to do. Certification, on the other hand refers to third party attestation related to products, processes, systems or persons. Accreditation is third party attestation related to a conformity assessment body conveying formal demonstration of its competence in carrying out specific conformity assessment tasks.

What is standardisation?

Standardisation is the process of setting common standards. Standardisation can take place in all areas of our lives.

Some standardisation processes are informal while some require more structured processes before a standard is developed. At the enterprise level, most companies have in place company-specific standardisation processes which are derived to meet only that company's needs. At the national level, the national standards body works closely with industry, academia and other government agencies to set the standards that are also released for public comment to ensure that all relevant needs of the entire industry and its stakeholders are taken care of. At the international level, organisations like the International Organization for Standardization (ISO) sets global standards with the aid of member country representatives.

You can play a part in setting standards that affect your particular industry by participating in the standardisation process at either the national level or the international level. Simply complete an online form at http://www.standards.org.sg/springstandardsparticipation/formedit.aspx

What is certification?

When a company receives written assurance that its product(s), process(es) or service(s)

> In Singapore, there are about 25 certification bodies which include local and foreign certification organisations. Businesses have to pay these certification bodies to certify them. The cost of certification varies, depending on the scope and extent of certification.

meet national or international standards, this process is known as certification. Such services are usually provided by a third party certification body.

A company will be certified only after a thorough audit is done to ensure that its product(s), process(es) or service(s) meet requirements set out in the national or international standards.

Some examples of certification are product certification (e.g. building materials, electrical goods and electronics) and organisation management systems certification such as SS ISO 14001 : 2004 for Environmental Management Systems — Requirements with Guidance for Use.

What about accreditation?

Your company may be going for testing or certification of your products or certification of your quality management system. But how do you know if the laboratories or certification bodies you want to use are competent? This is where accreditation comes in.

Accreditation can be defined as an endorsement of a conformity assessment body's independence, integrity and technical competence. Accreditation is given only to laboratories or certification bodies who meet international standards. Once accredited, there will also be periodic assessments carried out to these companies to ensure continued compliance to accreditation requirements. These accredited service providers will be able to use the mark of accreditation, and offer their services, both nationally and worldwide.

Companies selecting a laboratory, testing and inspection body will usually look for these accreditation marks (see figures on right) for greater level of assurance. These

marks are issued by the Singapore Accreditation Council (SAC), which is the national accreditation body. Its primary function includes accrediting conformity assessment services such as testing, calibration, inspection and certification.
SAC is also the designated Singapore representative in regional and international bodies on accreditation and related conformity assessment activities.

The SAC manages accreditation schemes in the following areas:
1. Accreditation Scheme for Certification Bodies
- Quality Management System
- Environmental Management System
- Occupational Safety and Health Management System
- HACCP Based Food Management System
- Food Safety Management System
- Product

2. Accreditation Scheme for Environmental Management System Certification Bodies

3. Accreditation Scheme for Product Certification Bodies

4. Accreditation Scheme for Laboratories (SAC-SINGLAS)

5. Accreditation Scheme for Inspection Bodies

The National Accreditation Programme is managed by SPRING Singapore. More Information on SAC and our National Accreditation Programme can be found at www.sac-accreditation.gov.sg.

Eight Reasons Why Your Business Needs Standards

When you review your products and services offerings, you will realise that there are many areas where standards can support your business development and expansion. Your business can benefit from adopting standards. How? Standards can help your company cut costs and put you ahead of the competition.

Since its (Hazard Analysis and Critical Control Point system (HACCP)) certification in 2003, Win Sin (Pte) Ltd's turnover has risen by about 20% in 2005. Today, the company exports its products to Asia and its customers include airlines, top hotels and restaurants.

Eight reasons to adopt standards today

Here are how standards can be your strategic tool to grow your business and improve your company's bottom line at the same time.

1. Increase sales and market share

Some of your customers will only buy from you because your company complies with certain standards. For example, many multi-national companies (MNCs) require their suppliers to meet certain standards if they are to serve the MNCs. Standards are a competitive advantage in this instance.

2. Improve business efficiency through better supply chains

Effective and efficient supply chains are key to a company's viability and profitability given the drive to lower costs through outsourcing. For example, TR 9 : 2003 Technical Reference for Maturity Assessment for eSupply Chain Management (eSCM) allows you to identify and plug the gaps in your supply chain and enable you to establish a supply chain partnership with local or international partners.

3. Secure government contracts

If your business has complied with specific standards, you will find it easier to win government procurement contracts as they are generally based on national or international standards. For example, pest management companies stand a higher chance of getting the pest management contracts for public housing estates if they use TR 18 : 2005 Technical Reference for Vector Management Services. It is also common for governments all over the world to use standards to

> "The $40,000 investment the company (Win Sin) made to qualify for the certification has proved to be worth every cent."
>
> **Mr Cheong Chung Kin**
> Chief Executive Officer
> Win Sin (Pte) Ltd

regulate critical products entering their countries. Thus, complying with relevant national, regional or international standards will also help you in the export of your products and/or services overseas.

4. Transfer of technology

As every new technical standard adopted by industry often contains inherent technology and know-how, you and your staff will benefit from the knowledge transfer. CP 5 : 1998 on Electrical Installations is a good example. Used by electricians, technicians and engineers, it contains technical know-how on good industrial practices to enhance the safety of electrical installations. Getting involved in standards development will also give you opportunities to share knowledge and tap on other experts' involved in standards initiatives.

5. Enhance customer confidence

Your company image is enhanced if your products or services are certified to standards, especially standards which are widely recognised.

An example is hotels which implement TR 21 : 2005 Technical Reference for Security Management System for Hotels which will help to improve customer confidence, reduce security risks and improve hotel occupancy.

6. Gain competitive advantage

Your company will have a competitive advantage if your products, services or processes are compliant with relevant standards. This could be the deciding factor when a buyer makes a choice between you and your competitor. For example, a contractor in the building and construction industry is eligible for certain projects only if they meet selected national standards such as SS ISO 9001 : 2000 or SS 506 : Part 1 : 2004.

7. Improve the quality of your products and services

The quality of your products and services can be greatly enhanced, thanks to standards adoption. This could in turn lead to fewer returns, less rework and rejects, lower costs, higher customer satisfaction and better customer retention and eventually *a bigger market share*.

8. Reduce your business costs

Standards can also enhance your company's productivity and efficiency of your products or services and make your business more profitable. By following standards, your business will be able to minimise wastage of resources and reduce costs. For example, the Singapore Standard on Cold Chain Management of Milk and Dairy Products or CP 95 : 2002 helps to increase the product's shelf life, which translates to lowered business costs.

Chapter 5

Demystifying Standards

You want to implement a standard in your business but hesitate to start because you have heard about the high cost involved. Or, you think it's so complicated that you simply do not know where to begin.

These are common misunderstandings about using standards in your business. In this chapter we debunk some myths about standards.

1. "I don't know which standard to use for my business."
There are many standards in the market. Getting the right one for your business is not difficult. You can start by searching online at www.singaporestandardseshop.sg.

You can also seek advice on what standards to use for your type of business from your industry and professional association, SPRING Singapore or the relevant regulatory body.

And what happens if there are no Singapore Standards in the area you are interested in?

You can still choose from a basket of international standards, the most common being ISO and IEC standards.
You can approach SNP Corporation Ltd for help in the purchase of these standards via the one-stop eShop @ www.singaporestandardseshop.sg or through a phone call (tel: 6826 9691).

If you plan to export your goods overseas, remember to check which standards you must adhere to in the country you are exporting to. You can check with the regulatory bodies of the country

you are exporting to. This ensures that your goods meet regulations.

2. "Standards are not relevant for small and medium-sized enterprises (SMEs) like me. They only benefit large companies."

Standards can benefit all types of businesses, regardless of size. The benefits derived from the use of standards are just as important to a small local business as it is to a large multinational corporation. SMEs who have implemented standards have happily reported more sales of their products and/or services, higher productivity and greater productive efficiency, safer workplaces, and improved product and service quality.

3. "I don't manufacture products. Are there standards for my business?"

There are many standards which ensure the safety and quality of products. But standards do not just apply to the manufacturing sector.

There are also standards for services as well as management systems. Some examples are the ISO 22222 on Personal Financial Planning — Requirements for Personal Financial Planners, SS 519 : 2006 Singapore Standard for Performance of Managing Agents for Strata Residential Properties, TR 19 : 2005 Technical Reference for Business Continuity Management, ISO 9000 Quality Management System series of standards and the ISO14000 Environmental Management System series of standards.

4. "I have no influence on the standards which affect my business."
You can have a say in the standards which affect your business:

1. You can participate in national or international standards development and you and your industry will benefit from this involvement.

2. If your company has developed an original product, process, service or management system, you may want to set a national or international standard that would open markets for your company. Just approach SPRING for assistance.

3. The contents of standards are agreed upon by representatives from the industry, professional trade and industry associations, academia and government agencies. When the standard is in its draft stage, it is circulated for public comments before the standard is approved. You can also take the opportunity to provide your feedback on areas which affect you and your industry during the public comment period.

5. "Whenever standards are revised, I have to then replace my copy with a new revised version of the standard."
Some standards need to be revised to keep up with world trends, technology changes, industry trends, new knowledge, new practices and new market information. With these new developments, it will benefit you to purchase the most current version of the standard which affects your business.

6. “It takes too much effort to implement standards at my workplace.”

Implementing a standard is easier than you think. First, select the standard appropriate for your type of business, discuss with your key staff and business partners and then implement it in the relevant areas of your business.

You may wish to engage a consultant to help you do it company-wide. The effort will be worth it as you stand to reap many benefits from the use of standards. If the standard you have selected is a new voluntary standard that can bring about significant productivity improvements, you can approach SPRING to help you in this implementation with a number of your supply chain partners or other members of your industry.

Chapter 6

Introducing Standards in Your Business

So you have decided to implement standards in your business. Congratulations.

How do I buy a standard?

Once you know which standards you need, make sure you have the most current version as standards can change and new versions may be introduced over time.

You can browse at our Standards website www.standards.org.sg for information on the latest standards launched or come down to the SPRING Singapore Information Resource Centre to browse and make enquiries on standards. You can also purchase Singapore Standards online at http://www.singaporestandardseshop.sg.

Standards can also be purchased from SNP Corporation Ltd (1 Kim Seng Promenade, #18-01, Great World City East Tower, Singapore 237994).

If you are not able to find the standard you wish to purchase, e-mail singaporestandardseshop@snpcorp.com

When searching for standards, remember to specify which type of standards you need i.e. Singapore Standards (SS) or international standards such as the International Organization for Standardization (ISO) or British Standards (BS). Put the prefix SS, ISO or BS followed by the standard number.

But before you even receive your standard, you should already assign someone in your company to ensure that the standard is used correctly. All the contents and the requirements in the standard must be carefully read and understood. You may even need to consider changing certain aspects of your products, services or processes to accommodate the standard's requirements.

As employees may see the new programme as additional work, it is critical to get buy-in at an early stage to ensure successful implementation.

How do I know if my product, service meets the standard?

You may need to perform some tests or get another company to test if your products, meet the required standards and obtain a test

report to state that it does meet the necessary standard.

Or, you can have your services certified for compliance. Remember you may not be able to export your services unless you have been certified to a standard that is recognised and accepted in the country(ies) you are exporting to.

Your customers may also need your company to be certified to a management system standard, such as the ISO 9001 Quality Management Systems — Requirements or the ISO 14001 Environmental Management Systems — Requirements with Guidance for Use, before your product or service is considered for acceptance. Accredited certification bodies in Singapore would be able to assist you in this certification.

How will others know that my products or services have met the required standards?

You can market your company in various ways, i.e. use your corporate website, send e-mail, distribute brochures, produce posters, display on packaging and your business's stationery that you have complied with the standard.

Such marketing efforts are good for existing as well as new potential customers. This will help your customers to appreciate and understand the value add and benefits of implementing standards in your business.

> "You will need to explain how the use of the standard will benefit not only your company but also your employees.
>
> Next, try to implement all the measures for compliance as quickly as possible."

Chapter 7

Use Standards and Hone Your Competitive Edge Today

Are you planning to improve the productivity and competitiveness of your business through the use of standards in your business but you hesitate because you need help to do so?

SPRING Singapore works closely with industry associations to encourage the use of standards with a high impact on productivity for small businesses and their partners. Ultimately, this will enhance the competitiveness of the industry sector concerned.

Standards Implementation for Productivity or SIP projects cover both the manufacturing and services sectors. The standards to be implemented can either be adopted from existing standards or if need be, developed to meet new needs. Both international and national standards or widely-accepted industry standards are used in SIP projects. (See Appendix 3 for a list of SIP projects that have been implemented.)

Playing a key facilitator role, SPRING brings major players and stakeholders in the industry's value chain together to take part in the SIP project which may or may not need a pilot.

Co-funding of SIP pilots is available to catalyse the use of standards for the industry and to help widen adoption particularly among the small and medium-sized enterprises (SMEs). Pilots can involve both large and small companies. Companies who have participated reaped savings of more than $20 million (see pages 30 to 44 for case studies on successful projects.)

"At FairPrice, fresh food such as fruits and vegetables are handled through a stringent and well-executed cold chain management system. The strict guidelines that FairPrice observes on temperature control guarantees that we bring the freshest foods possible to our customers."

Mr Tan Kian Chew

Group CEO of NTUC Fairprice Co-operative Ltd

SMES CAN BENEFIT FROM IMPLEMENTING SIP PROJECTS

Small businesses who have participated in the SIP projects have gained benefits ranging from reduction in costs, better connectivity, and improvements in productivity, quality, safety and health. Here are a few examples:

PALLET STANDARDISATION FOR THE FAST MOVING CONSUMER GOODS (FMCG) INDUSTRY

Work on standardising pallet sizes in Singapore was initiated by leading members in the industry in 1999 as part of efforts to improve operational efficiency and to rationalising the 13 sizes of pallets in use by the Fast Moving Consumer Goods (FMCG) industry in Singapore. The pilot study showed that among the tangible benefits gained was a 155% internal rate of return (IRR) on the financial investment in the project over five years on a recurrent basis. More than 300,000 standard pallets are currently in use, resulting in savings of $7.8 million per year for the FMCG industry.

COLD CHAIN MANAGEMENT OF MILK AND DIARY PRODUCTS STANDARDISATION

The successful trial implementation of the Singapore Standard for Cold Chain Management for Milk and Dairy Products or CP 95 : 2002 resulted in the shelf life of milk and dairy products being extended by over 30% — from 18 to 24 days as better handling meant that these products can be kept on the shelves until their expiry dates. Previously, poor handling meant that the products were removed before their expiry dates. This benefits consumers as well as manufacturers and retailers. This Singapore Standard (CP 95) is currently being used by a number of major retailers and their suppliers.

STANDARD FOR COMPUTER-AIDED DESIGN

The use of CP 83 Parts 1 to 5, Code of Practice for Computer-aided Design, resulted in substantial savings for the construction industry, many which are made up of SMEs. A survey by a Mechanical & Electrical (M&E) Engineering Consultant firm and a Civil & Structural (C&S) Engineering Consultant firm on the benefits of having standardised rules for the naming and layering for CAD drawings showed that data re-entry was significantly reduced. Based on an estimate of 800 major fresh projects for the industry per year, the extrapolated manpower savings for the whole industry each year was estimated to be $2.4 million. This standard is now used widely by building and construction industry professionals.

Chapter 8

Tapping Services Standards

What do businesses in the e-supply chain management, cleaning, pest management and hotel industries have in common? Besides being part of the services sector, these industries have claimed world's first positions — with the launch of national standards in areas that will help the industries to grow with these new performance standards.

> "With the implementation of TR 16 : 2003 Technical Reference for Cleaning Performance for Public Housing Estates, Town Councils have revised their cleaning contracts to focus on cleaning performance, rather than on manpower utilised. We can now better utilise manpower and exercise flexibility in staff deployment."
>
> **Mr Tan Kok Wee**
> Technical Manager
> Clean Solutions Pte Ltd

Singapore is one of the few countries in the world pushing for national standards for the services sector. In 2005, the services sector contributed almost 64% of Singapore's gross domestic product (GDP) and 70% of employment. Given its growing importance, it is critical that services standards are identified and developed quickly so that our industries can get a head start.

To do so, SPRING established the Services Standards Committee (SSC) to oversee the development of services standards under the national standardisation programme. Technical committees and working groups have been formed to look into standards for the tourism, exhibition, logistics, environment, financial planning, education, healthcare and retail industries. SPRING also works with the Singapore Workforce Development Agency on the skills standards that complement the performance standards developed for services under the SSC.

One major achievement is the decision by ISO to agree to the development of a new ISO Standard on Exhibition Terminology, using Singapore's standard as the initial draft.

Looking ahead, SPRING will continue to work closely with relevant service industry bodies to identify critical areas which require standardisation. Standards addressing these gaps can then be developed so that companies in these industries can benefit from higher productivity, professionalism and efficiency.

THUMBS UP FOR EIGHT SERVICES STANDARDS

To date, SPRING has developed and launched eight services standards in areas of e-supply chain management, exhibition management, cleaning services, pest management and hotel security management system. They are:

1) SS 499 : 2002 Cleaning Service Industry — Cleaning Performance for Commercial Premises
2) SS 505 : 2003 Exhibition Terminology and Audit Procedures
3) SS 519 : 2006 Performance of Managing Agents for Strata Residential Properties
4) SS 533 : 2007 Cleaning Performance for Public Housing Estates
5) TR 5 : 2001 Exhibition Management Services Industry — Safety, Health and Technical Operational Efficiency (currently under revision)
6) TR 9 : 2003 Maturity Assessment for the eSupply Chain Management (eSCM)
7) TR 18 : 2005 Vector Management Services in Housing Estates Managed by Town Councils: Scope of Works and Quality Measuring System
8) TR 21 : 2005 Security Management System for Hotels

These services standards have helped Singapore's service industry to rise to the challenge posed by more discerning customers and the rise of the importance of services industries both in Singapore and overseas. In particular, the Maturity Assessment for eSupply Chain Management (TR 9 : 2003) is the first national standard in the world developed to combine best practices in global e-business readiness and supply chain management. This will help local industries, and especially small and medium-sized enterprises (SMEs) improve their competitiveness and global connectivity.

Another service standard SS 505: 2003 on Exhibition Terminology and Audit Procedures is also the first national standard in the world for the exhibition industry. This standard will help to strengthen Singapore's position as an international exhibition city.

SS 533 : 2007 on Cleaning Performance for Public Housing Estates is also the first standard of its kind in the world, which will help SMEs in the cleaning services industry to improve their productivity and service performance.

Chapter 9

Excuse Me, are You a Standards Partner?

Mr Ng Say Kiat is Managing Director of Ikari Services Pte Ltd, a small and medium-sized enterprise in the pest management industry. He also co-chairs the Working Group on Vector Management Services which developed and launched TR 18 : 2005 Technical Reference (TR) for Vector Management Services in Housing Estates Managed by Town Councils.

Mr Ng is one of 1,000 partners — from the public and private sectors — who plays an active role in standards development. These volunteer partners are involved in a total of 51 technical committees and 98 working groups under the standards committee. By meeting regularly, they are able to shape the standards and keep abreast of world trends.

How standards take shape

Each year, some 25 new or revised standards are launched. These standards are created based on requests from companies or industries and/or the government. A request is usually submitted to the Standards Committee for approval stating the industry or regulatory need for a new Singapore Standard (SS) or Technical Reference (TR). Once endorsed by SPRING Singapore, an appropriate Technical Committee/Working Group (TC/WG) will be assigned to explore and study the subject and prepare a draft of the proposed SS/TR.

Meanwhile, existing standards are reviewed every five years to ensure that they are up-to-date. All new and existing standards being reviewed will be released for public comments. The purpose is to inform a wider industry audience about the new developments. The public has two months to comment.

Thanks to our 1,000 standards partners, we are able to keep our 716 national standards up to date. That's not all. Singapore has also put itself on the world map by taking a leading role in the development of standards for the services sector.

What happens to draft standards?

A draft standard, once drawn up, will be submitted for approval by the Standards Committee and circulated concurrently for public comments. The normal period of circulation for all proposed drafts to new standards is two months.

For published standards, the period for public comment is one month. For standards confirmed without amendment, no public comment is required.

All draft SS which have undergone the above procedure and approved by the Standards Committee will be sent for notification in the Government Gazette and printed for sale.

What happens to standards after they are published?

Once published, a SS/TR continues to be open to review and comment that will be considered in the next review. Amendments are made only if there are very significant changes required arising from these comments.

Where do international standards fit in?

International standards are used directly whenever possible. In drafting the standards, reference is usually drawn from international standards. These standards may be adopted if they are suitable for local needs. Any deviations should be appropriately justified. In the absence of an international standard, the SS/TR may be aligned with a relevant overseas national standard.

You, too, can benefit from standards development

We welcome partners committed to the development of standards. Participation is not limited to big companies as small companies can participate too. Whether big or small, your business will benefit from your participation whether it is in national or international standards development.

The benefits include:

- Savings made in your businesses by the early application of standards in anticipation of regulatory or market requirements
- Early alerts of upcoming developments affecting your industry arising from your participation in standards development committees
- Direct involvement means you have the opportunity to influence the content of standard
- Networking opportunities with industry experts both nationally and internationally while participating in standards development initiatives

> “Being a member of the Services Standards Committee and co-chair of the Working Group on Vector Management Services has given me an insight into how we can benchmark ourselves and set standards for service quality at the national level. This is extremely important as I can now find ways to improve the service level in my company through training, recognition and rewards. This will help to sharpen our competitive edge.”

Mr Ng Say Kiat
Managing Director
Ikari Services Pte Ltd

Chapter 10

BIOMETRIC PASSPORT

DART Races to Develop e-Passport Reader Software

Governments around the world have started to develop biometric passports as part of their relentless efforts to tackle terrorism. One local company, Digital Applied Research and Technology Pte Ltd or DART, has developed software with the international standards being used to test e-passport readers.

Biometrics technology has gained new ground since September 11. The United States government has advocated that all visitors entering the US must carry passports imbedded with contactless smart card chips by October 2006. These chips contain the personal identification information of the traveller.

Around the world, the race is on as governments rush to comply with the US regulation. In March 2006, the Singapore government announced the availability of the BioPass biometric passport.

With the biometric passport comes the need for biometric passport readers. These passport readers are being developed by various companies worldwide. But how can immigration authorities ensure that the biometric passport reader reads the information embedded in the RFID chip accurately?

Here is where standards play a part. Recognising the advantages and need for international e-passport standards, the ICAO (International Civil Aviation Organization) requested the Subcommittee 17 (SC 17) — Cards and Personal Identification under the Joint Committee of the International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC) (JTC1) — to look into the standardisation of contactless smart passports with biometrics inside the chip.

Singapore is an active member of this subcommittee and its working groups. The Cards and Personal Identification Technical Committee (CPITC) of the Information Technology Standards Committee, an industry partnership supported by SPRING Singapore and the Infocomm Development Authority of Singapore tracks the activities of this ISO/IEC JTC 1 subcommittee and drives the application of international biometric standards development locally.

Mr Lin Yih (Director, Digital Applied Research and Technology Pte Ltd

In early 2005, technology development project house, Digital Applied Research and Technology Pte Ltd (DART) started developing testing software that can read and verify different passport readers in their reading of different biometric passports. Called e-Passport InterFest Testing Software, this software adheres to several ISO/IEC JTC 1 standards on smart cards and personal identification as the biometric passport has two components — biometrics and smart card technology.

"It is important to write a software which cannot be disputed," said Mr Lin Yih, Director, DART. "If not, passport reader companies will come up with their own software to demonstrate that their readers work. But when different biometric passports cannot be read by the reader, which is to blame — the biometric passport or the reader?"

The testing software developed by DART reads thumb prints and facial features. This testing software is available on the Internet for any passport reader company as a standard to test their passport readers against.

Developing software that adopts international standards has benefited DART. According to Mr Lin, who is also the Chairman of CPITC, the DART developed software is available for sale to passport reader companies to incorporate into their product.

"Do I see the e-passport software and smart cards making big bucks?" added Mr Lin. "Maybe. But the technology business is highly volatile. We don't fix ourselves on one sector and not change. As technology changes, demands change too."

Nonetheless, DART has been doing well with an annual sales turnover of S$1–1.5 million, all thanks to the software it has developed.

ABOUT INTERNATIONAL E-PASSPORT STANDARDS

The ICAO 9303 – Machine Readable Travel Documents (MRTDs) series of standards are widely recognised standards for MRTDs (including passports and visas) developed by the International Civil Aviation Organization (ICAO). The MRTDs make it easy for automated systems to scan a travel document. ICAO works closely with the ISO/IEC JTC1 SC17 for machine readable passports. The ICAO 9303 is accepted and endorsed by SC17 as the ISO/IEC 7501 series of standards.

CONSTRUCTION IT

Common Standard Cuts Layers for Construction Industry

With the Code of Practice for CAD Symbols or CP 83, the construction industry can exchange electronic information, without having to 'translate' inconsistent symbols into a common standard. This improves productivity as well as prevents errors. Ms Rita Soh, Director of RDC Architects Pte Ltd, shares more details on how CP 83 can be a boost to the industry.

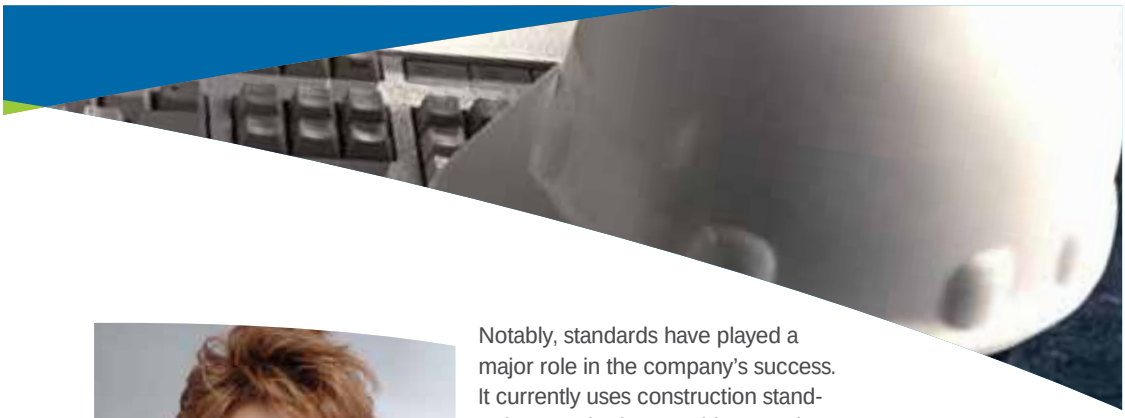
In the construction industry, architects and engineers communicate through technical drawings which are transmitted electronically. For example, after an architect draws the initial design for a room, civil and structural engineers will supplement the design with drawings of supporting columns and beams. The mechanical and electrical engineers will then add drawings of light fittings, air-conditioning vents and electrical sockets.

All these are then stored as 'layers' in a single CAD (computer-aided design) file. Understandably, things can get complicated if these layers are done haphazardly. For example, an architect might refer to a wall as 'WL' while another might use a different term, which thus makes the integration of all these layers difficult.

Fortunately, the situation has improved since the introduction of a common standard — the Code of Practice for CAD Symbols or CP 83.

"Standardising the way of naming the construction data information will facilitate more effective and efficient communication among various parties in the industry," said Ms Rita Soh, the co-chairman of the Design Work Group which was actively involved in the drafting of CP 83. "A common standard removes the need to 'translate' these languages, saving time and money as well as avoiding the possibility of introducing errors during the process."

Indeed, one key benefit of having a common standard is the significant reduction of data re-entry. Based on an estimate of 800 major new projects for the industry per year, the manpower savings is expected to be $2.4 million per annum. Moreover, the standardisation of CAD files also means that architectural and engineering firms save time when filing their electronic plan with government agencies for approval through the Construction and Real Estate Network (Corenet).



Ms Rita Soh (Director, RDC Architects Pte Ltd)

Ms Soh, President of the Singapore Insitute of Architects (from 2004–2007) and also a Director at RDC Architects Pte Ltd, can attest to the benefits of the standard to the industry. RDC Architects is a leading architectural practice that is a pioneer in the adoption of a Quality Management Programme for all its projects. The company is, in fact the first in the industry to obtain ISO 9000 certification in Singapore.

Since its inception in October 1974, the over 30 staff-strong company has achieved a string of accolades, including the *Facade Design Excellence Award* (Gold) by the Singapore Institute of Architects (SIA) and *Construction Excellence Award* by the Building Construction Authority (BCA) for the Singapore Post Centre in 1999 and *Best Buildable Design Award* by Building and Construction Authority (BCA) in 1998, for the Singapore Godown — an art-deco inspired warehouse constructed using pre-cast technology.

Notably, standards have played a major role in the company's success. It currently uses construction standards. "Standards can address and improve certain aspects of professional work as well as help to innovate and increase efficiency within an organisation and between the different players in the building industry," said Ms Soh.

And, standards can achieve that by 'functioning as a common platform to allow better integration of services and work processes," Ms Soh added. "This will allow better communications as well as set bench marks for quality and value-added progress."

Moving forward, Ms Soh urged fellow players in the industry to leverage standards to increase their business competitiveness. "We need to keep abreast with times and with technology," she said. "It is critical that we embark on processes and use standards that are relevant and meaningful to our work."

WHAT IS CP 83?

A series of construction IT Singapore Standards developed to aid the efficient exchange of electronic information among developers, architects, engineering consultants, contractors and quantity surveyors. The different parts of the standards were developed between 2000 and 2004.

E-SUPPLY CHAIN MANAGEMENT

Jade Precision Engineering Scores with Customers with Supply Chain Standards

Mr Khoo Suu Chat (Management Information Systems Director, Jade Precision Engineering Pte Ltd)

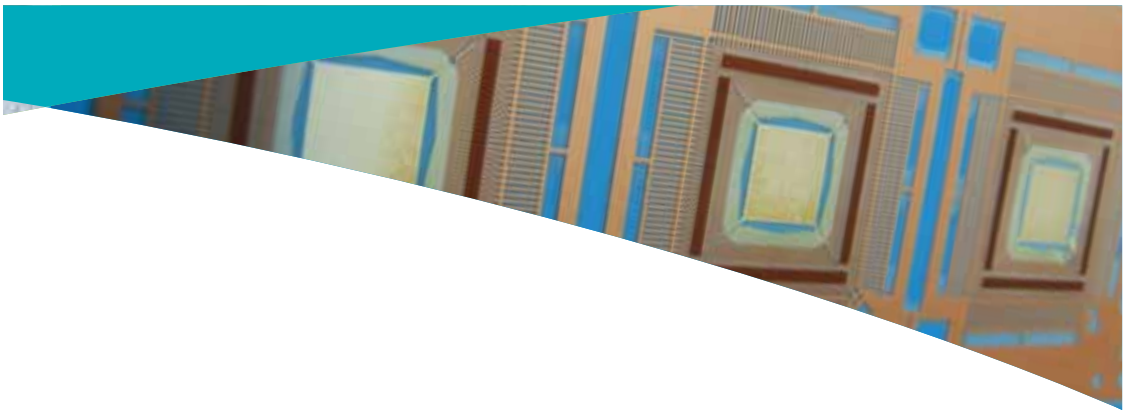
Using the Technical Reference for Maturity Assessment for eSupply Chain Management and RosettaNet standards has helped Jade Precision Engineering Pte Ltd to improve its supply chain capabilities. The benefits? Happier customers and better sales.

Providing excellent customer service is very important at Jade Precision Engineering Pte Ltd. In fact, this prompted the company to have its electronic supply chain management (e-SCM) processes audited using the Technical Reference for Maturity Assessment for eSupply Chain Management, or TR 9 : 2003.

"The main driving force for Jade is the partnership with our customers," said Mr Khoo Suu Chat, Management Information Systems Director, Jade Precision Engineering. "Collaboration in supply chain management is one of the key areas where we work closely with our customers."

Jade manufactures metal lead-frames for integrated circuits. These metal plates are supplied primarily to semi-conductor companies. Jade's customers come from several countries in Southeast Asia as well as China, Taiwan and Sweden. Using information technology (IT) to create an integrated e-supply chain that can connect companies anywhere in the world helps to make Jade's business more effective and efficient.

In 2004, the Singapore e-SCM Council audited the supply chain capabilities of Jade including electronic linkages to its trading partners based on TR 9 guidelines. The audit identified the strengths and weaknesses of its e-SCM processes and recommended how the company



could address the gaps in its e-SCM processes.

"The e-SCM assessment showed us which areas we are good at and which areas we need improvement," continued Mr Khoo. "We are ready and want to forge close partnerships with other major customers through close collaboration including implementation of e-SCM for mutual benefits."

Jade is currently participating in the Chain Master project. Launched in May 2005, this is part of the e-SCM Assessment Programme which encourages SMEs to improve their supply chain management. The programme is jointly managed by the Singapore Manufacturers' Federation and SPRING Singapore.

Besides using national standards, Jade also uses RosettaNet standards to stay connected with its major customers.

The standards are available free for any company who wants to use them. RosettaNet standards provide a common language for e-business transactions and lay the foundation for integrating critical processes among partners within the global supply chain.

"We were looking for something which would help in terms of planning and collaboration with our customer along the supply chain," said Mr Khoo. "RosettaNet seemed to be the ideal solution. It made sense to leverage on IT to strengthen information flow between two companies even though we are using different IT backend systems."

Under the RosettaNet initiative, Jade worked on five areas of the supply chain with its customers. These five areas are

1. Purchase order,
2. Purchase order change,
3. Consignment stock report,
4. Vendor inventory report and
5. Consignment billing report.

According to Mr Khoo, better partnership and collaboration with Jade's customers has brought in more orders. This yielded a 25% increase in the stock quantity supplied to the customers resulting in an 18.5% increase in value of sales in 2005.

What is TR 9 : 2003?

TR 9 Technical Reference for Maturity Assessment for eSupply Chain Management helps companies to find the baseline for their existing supply chain after assessing their strengths and weaknesses based on a scoring system. It was jointly developed in 2003 by SPRING Singapore, Economic Development Board, Infocomm Development Authority of Singapore, International Enterprise Singapore, Singapore Manufacturers' Federation and industry partners.

What are RosettaNet Standards?

RosettaNet is a globally supported standards organisation that provides leadership in promoting collaborative commerce and develops universal standards for the global supply chain.

RosettaNet standards are developed by users for users, facilitating speed, efficiency and reliability, enabling greater collaboration and improved communication between trading partners. By streamlining the exchange of business information, companies reduce costs while realising gains associated with inventory reduction, order processing time, product cycle time-to-market and customer satisfaction.

Universally accepted, RosettaNet standards provide a common language for transactions and the foundation for integrating critical processes among partners within the global trading network. RosettaNet standards and implementation services provide the infrastructure for integrating business processes with trading partners across the globe, delivering essential value to industries and proven real-world business results such as:

- Reductions in cycle time
- Lower inventory costs
- Better productivity through automation
- Standardisation and simplification of business processes
- Measurable supply chain return on investment

BUNKERING

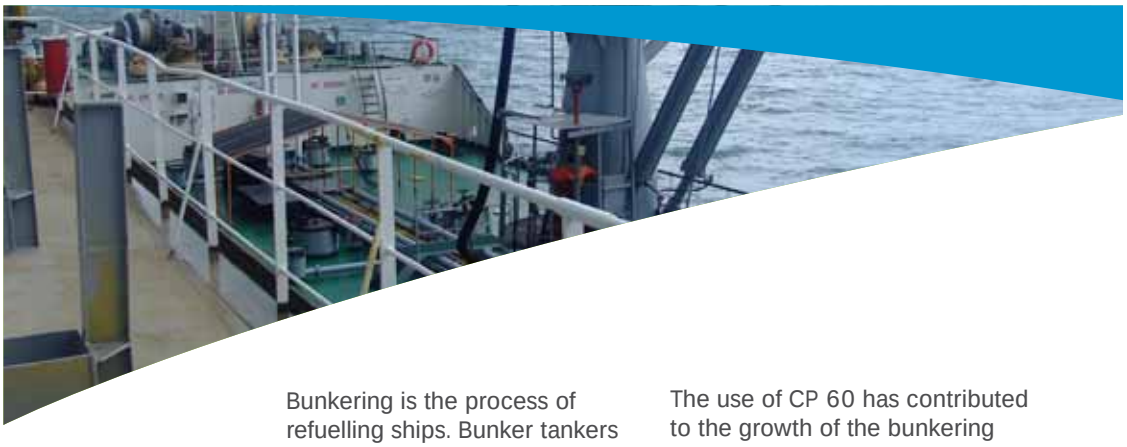
Speaking the Same Language with CP 60

The Singapore-based company specialises in bunkering, shipping and logistics services in the marine industry, and has a staff strength of over 250 employees. Global Energy Group's bunkering segment complies with the Code of Practice for Bunkering by Bunker Barges/Tankers or CP 60 : 2004. Mr Sim Kim Pun, Director of the Global Energy Group, explains why this standard is essential in the bunkering industry.

Singapore is the world's top bunkering port. Each year, more than 20 million tonnes of bunkers are sold resulting in a turnover of more than S$9.4 billion. How does Singapore maintain its top spot and differentiate itself from its competitors?

According to Mr Sim, the use of the Code of Practice for Bunkering by Bunker Barges/ Tankers, or CP 60, is one of the key reasons for Singapore's top position in bunkering. "Singapore is the only country to have a delivery standard for bunkering," Mr Sim explained. "This is beneficial as it provides a standard delivery procedure which is fair to both parties. In other countries, market practice governs delivery procedure and such practices are usually inconsistently applied, leading to disputes between supplier and buyer."

Mr Sim Kim Pun (Director, Global Energy Group)



Bunkering is the process of refuelling ships. Bunker tankers or barges go alongside ships and transfer bunker to the ship via a hose. The process is similar to refuelling a car, except in bunkering, the petrol station goes to the vehicle.

CP 60, a national standard, helps to standardise the procedures and requirements of delivering bunker to ships. This procedure includes documentation, equipment and verification during the entire bunkering operation. It covers pre-delivery, actual delivery and post delivery. Importantly, CP 60 gives assurance to ship owners of the reliability of the quantity and quality of bunkers supplied in Singapore.

What is CP 60 : 2004?
A Singapore Standard which specifies the procedures and requirements for the delivery of bunker by bunker tankers to vessels in the port of Singapore, including documentation, equipment and verification during a bunkering operation. It provides added assurances to ship owners on the reliability of the quantity and quality of bunkers supplied. The standard was revised in 2004.

The use of CP 60 has contributed to the growth of the bunkering industry in Singapore. Like many other bunker suppliers in Singapore, Global Energy has benefited from it.

“Before the implementation of CP 60, there was no standard procedure or requirement,” Mr Sim said. “This resulted in suppliers and buyers using different methods of assessing the quality and quantity of the bunkers supplied.”

The standard therefore provides a procedure to help companies through the stages of bunker delivery. With the standard in place, everyone has to follow the same procedure and abide by the same rules. Both ship owner and supplier know at which point of the delivery samples will be taken, the kind of sampling equipment used and the minimum standards required.

The standard has worked well in Singapore and SPRING Singapore had proposed to the ISO (International Organization for Standardization) that CP 60 be adopted as an ISO standard. An ISO Technical Report has been developed based on the Singapore Standard and work is underway on the development of an ISO standard using the

latest Singapore Standard for bunkering. Mr Sim is a member of the Singapore expert team working in this effort. “As a member of the Singapore Team, we hope to make CP 60 an international standard,” said Mr Sim. “When fully adopted, suppliers and ship owners worldwide will follow the same rules and speak the same language.”

With the internationalisation of this standard, ship owners, engineers of vessels (especially those who don’t often stop by Singapore) and suppliers will be required to know or be familiar with this standard. Importantly, they will be proactive in ensuring that their crew are aware of the obligations and standards expected of them. By adopting the standard internationally and “educating” ship owners and bunker suppliers around the world, ship owners and bunker suppliers can look forward to a fair and orderly business relationship.

EXHIBITION SERVICES

It's Show and Tell with SS 505

Ms Dilys Yong (Group President, HQ Link Pte Ltd)

HQ Link Pte Ltd is a high-flying exhibition management company that expects to double its turnover in 2006. Key to its success is the use of the Singapore Standard on Exhibition Terminology and Audit Procedures or SS 505 : 2003, which has helped the company enhance its professionalism and brand name. Ms Dilys Yong, Group President, tells us how the standard has benefited her company.

Over 40 exhibition-related terms are used in the exhibition industry, and more often than not, those in the industry face great confusion due to different interpretations of these terms from country to country. Take for example, the word 'visitors'. In Singapore, the term refers to 'registered individuals'. However, in other countries, it refers to visitor count. That means individuals who have registered and then leave but returned to the event again, are re-counted.

"When there is no standardised set of terminology in the industry, it leads to confusion and misunderstanding," said Ms Dilys Yong, Group President of HQ Link. "It is therefore crucial to have a standard set of terminology so as to ensure that everyone in the industry has a common understanding."

That's where the Singapore Standard on Exhibition Terminology and Audit Procedures, or SS 505 comes in handy. A standard that gives clear definitions for a core set of standardised terminology commonly used in the Singapore exhibition industry, the SS 505 helps to reduce ambiguities and uncertainties caused by different understanding and usage of exhibition-related terms. The standard also provides a recommended set of standard audit procedures to enable the exhibitions to be meaningfully assessed.

Set up in 1989, HQ Link is a leading organiser of trade exhibitions, with a portfolio of over 200 exhibitions and events in the Asia region. The company started off with three staff (including the founder, Ms Yong) and has since grown to a 60 staff-strong company. Its clients in-

clude local big names such as the Nanyang Technological University, the Informatics Group, Prudential and the Ministry of Home Affairs.

The company has received the "Approved International Fair (AIF) Award" by the Singapore Exhibition and Convention Bureau and an "UFI Approved Event" by UFI, The Global Association of The Exhibition Industry for its PSA 2006 and HVAC Asia 2006 exhibitions.

Ms Yong likens recognition by the AIF similar to receiving a Singapore Oscar award. In order to attain this recognition, exhibition organisers have to comply to audit procedures and requirements of the SS 505, so that they can prove themselves as a professional exhibition organiser. "Customers will only come in, if they know that you follow a standard and that your events will go through audit," Ms Yong said.

"Also, following a standard enhances your reputation and helps you build up a good brand, so that you find it easier to grow," Ms Yong added. "Once you have established a brand, for whatever show you launch, you will find that people trust you."

Indeed, the use of the SS 505 has helped HQ Link to grow both locally and regionally.
Ms Yong revealed that turnover in 2005 was over S$5 million, and the company expects to hit the S$10 million mark in 2006 — a whopping 100% growth!

In fact, the SS 505 is well on the way to becoming an ISO (International Organization for Standardization) standard. "The SS has in fact been approved by the ISO as a work item," said Ms Yong, who is also the Singapore expert in the ISO Working Group on Exhibition Terminology and the President of the Singapore Association of Convention and Exhibition Organisers and Suppliers (SACEOS). "We are currently using the SS 505 as a base document to incorporate inputs from all countries so that the standard can be used by the global exhibition industry."

"This ISO exhibition standard, when implemented, will be further proof to exhibitors and trade visitors that our exhibitions are well audited and that our figures are true. This will then lead to greater customer trust and buy-in," concluded Ms Yong.

What is SS 505 : 2003?
SS 505 is a set of guidelines on exhibition-related terminology and audit procedures jointly developed in 2003 by SPRING Singapore, Singapore Exhibition and Convention Bureau and Singapore Association of Convention and Exhibition Organisers and Suppliers for the Exhibition Management Services sector.

PALLET

Standardisation Spells New Business Opportunities

A project which was started to standardise the size of pallets used in Singapore's Fast Moving Consumer Goods (FMCG) industry has resulted in improvements in productivity and work efficiency. For wooden pallet manufacturer, LHT Holdings Limited, participation in the project resulted in a new business venture.

For wooden pallet manufacturer, LHT Holdings Limited, the standardisation of 13 pallet sizes in Singapore into one was a revolution in the storage and transportation of goods in the Fast Moving Consumer Goods (FMCG) industry. It was also an incredible boost to its business.

With the standardised pallet, goods can be transported from the manufacturer to the distributor and finally, to the supermarket or retailer on the same pallet.

LHT was one of 35 companies that were part of an ambitious project started in 1998 to reduce supply chain costs and increase productivity in the FMCG industry through the standardisation of pallet sizes. The Working Group for this project was jointly led by SPRING Singapore and Grocery Logistics of Singapore Pte Ltd.

Ms May Yap (Executive Director, LHT Holdings Limited)

"The advantages of participating in the project were attractive," said Ms May Yap, Executive Director, LHT Holdings Limited. "It was envisioned that having a standard pallet size in the storage and transportation of goods in the FMCG industry would help save costs and increase productivity. This would benefit every link in the FMCG supply chain — from the pallet manufacturer to the supermarket."

LHT manufactured the four-way 1m x 1.2m sized pallets for the project. This standard size was decided upon by the project participants who hailed from various links in the FMCG supply chain. The standardised pallets can take loads of up to one tonne in weight.

"Prior to the introduction of the standardised pallet for the FMCG industry, we had to custom-make pallets for our customers," said Ms Yap. "It was very labour-intensive. Now the production process for the standardised pallets is semi-automated. This has improved our production efficiency."

In 2000, LHT set up a new business unit called Kim Hiap Lee Co (Pte) Ltd whose core business is the rental of the standardised pallets. Kim Hiap Lee manages a pool of pallets which it rents at three to five cents per pallet. At any one time, there are 200,000 of these standardised pallets bearing the company's green corporate colours in circulation. With this rental scheme, there is a 5–10% higher utilisation rate for the standardised pallets.

It is much cheaper to rent a pallet than to purchase one. Ms Yap explained: "With the standardised pallets, companies in the FMCG industry can now rent the pallets when they need them rather than manufacture excess pallets and store them in their warehouse.

For example, during peak seasons like Chinese New Year and Christmas, supermarkets stock up on goods and need more pallets."

Besides optimising warehouse storage space and reducing warehouse storage costs, companies can see a minimisation of pallet wastage, less damaged goods given the reduction of double handling, and fewer transportation trips given that there was no longer wasted space in the trucks with the new sizes. With leased pallets of the same

WHAT IS THE PALLET STANDARDISATION PROJECT ABOUT?

The pallet standardisation project is the first Standards Implementation for Productivity project to be undertaken by SPRING Singapore. It resulted in the standardisation of the four-way 1m x 1.2m pallet among the FMCG industry project members for the storage and transportation of goods.
The design specifications for the standardised pallet conforms to ISO 6780 : 1998 General-Purpose Flat Pallets for Through Transit of Goods — Principal Dimensions and Tolerances and SS 334 : 1998 Singapore Standard for Specification for Timber Pallets.
Results from the project were encouraging. The key benefits reaped from using standardised pallets were higher productivity and improved work efficiency. There are approximately 300,000 standardised pallets in use today, generating an estimated annual savings of about $7.8 million for the FMCG industry.

size used, there would also not be a need to sort pallets for returns. A shorter unloading time also resulted when the standardised pallets fitted into warehouse shelves without having to unload the pallet onto different sized pallets that fitted the warehouse shelves. This means that companies will benefit from cost savings and improved productivity.

LHT has seen a 10% increase in sales turnover annually since 2003 from the rental of the standardised pallets. The standardised pallets will be tagged with RFID (Radio Frequency Identification) tags in October 2006. The movement of each tagged pallet can then be traced accurately at every stage of storage and transport. For LHT, this will mean a 35% manpower savings in inventory tracking time. Its customers will benefit too as the RFID tracking system will enhance traceability of goods and result in increased efficiency.

About SPRING Singapore

As the national standards and conformance body, SPRING Singapore helps to lower technical barriers to trade, provide quality assurance for products and services and promote industry use of Singapore and international standards.

SPRING Singapore is also the agency for enterprise development which aims to enhance the competitiveness of enterprises. We help to nurture a pro-business environment, facilitate the growth of industries and enhance innovation and enterprise capabilities of small and medium enterprises for better access to markets and business opportunities.

Please visit **www.spring.gov.sg** for more information about SPRING Singapore.

SPRING singapore
Enabling Enterprise

Appendix 2

About the Singapore Standardisation Programme

As the national standards body, SPRING Singapore works closely with industry to develop, promote and help industry in the use of national standards. Under the guidance of an industry-led Standards Council, we actively promote and encourage companies to use and adopt Singapore Standards and other relevant standards in manufacturing products, services and management systems.

Where feasible, Singapore Standards are aligned with international standards to ease entry into overseas markets for Singapore's manufactured goods and exports. As at December 2007, there are 696 Singapore Standards and 20 Technical References, and 175 standards have been aligned to international standards.

The alignment strategy supports Singapore's open trade policy and reduces the likelihood of standards becoming unnecessary technical barriers to trade. Where there are international standards that can be used directly by the local industry without modification, SPRING helps to raise industry awareness and use of such international standards.

SPRING also actively supports and facilitates the development of new international standards by Singapore industry to ensure that they do not hinder trade or limit market access. Key industry players currently sit on 34 International Organization for Standardization (ISO) committees and seven International Electrotechnical Commission (IEC) committees. Singapore now leads in six international standards committees.

What is the Standards Council?

The Standards Council is responsible for:

- Providing strategic directions for national standardisation;
- Mapping out the overall standardisation policies and priorities;
- Determining areas of work; and
- Providing the necessary guidance for the implementation of the Singapore Standardisation Programme.

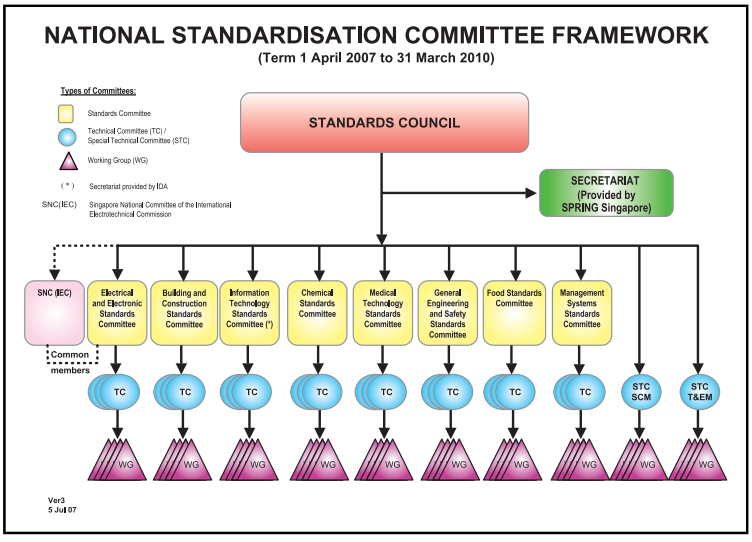
What are Standards Committees?

Standards Committees are appointed by the Standards Council to develop Singapore Standards for and promote standardisation to the target industries. To ensure that all viewpoints are considered in the preparation of Singapore Standards, all committees appointed consist of representatives from various interest groups including professional bodies, industry associations, consumer bodies, trade associations, government agencies and tertiary institutions.

There are currently eight Standards Committees covering

1. Building and construction,
2. Chemical,
3. Electrical and electronic,
4. Food manufacturing
5. General engineering and safety,
6. Information technology,
7. Management systems and
8. Medical technology

Figure 1: Singapore Standardisation Programme



Appendix 3

Standards Implementation for Productivity Projects

Some 62 Standards Implementation for Productivity or SIP projects have been initiated since 1997. Benefits to the industry have ranged from the hundreds of thousand dollars to millions. Major Singapore Standards, Technical References and overseas standards in SIP projects include:

Chemical Standards

TR 8 : 2003	Technical Reference for Quality Management for Bunker Supply Chain (QMBS)

Electrical and Electronic Standards

SS 334 : 1998	Timber Pallets

Food Standards

CP 95 : 2002	Cold Chain Management — Milk and Dairy Products
TR 20 : 2005	Technical Reference for Cold Chain Management — Chilled Pork

General Engineering and Safety Standards

TR 10 : 2003	Technical Reference for Compressed Natural Gas (CNG) Vehicle Workshop and Personnel Requirements
TR 11 : 2003	Technical Reference for Compressed Natural Gas (CNG) Vehicle Component and Installation
TR 12 : 2003	Technical Reference for Compressed Natural Gas (CNG) Vehicle Refueling Stations

Information Technology Standards

SS 496 : 2001	e-Learning Framework
SS 467 : 2002	Smart Card Reader Application Program Interface (API)
CP 83 : Part 1 : 2004	Code of Practice for Construction Computer-aided Design (CAD) — Organisation and Naming of CAD Layers
CP 83 : Part 2 : 2000	Code of Practice for Construction Computer-aided Design (CAD) — CAD Symbols

CP 83 : Part 3 : 2001	Code of Practice for Con struction Computer-aided Design (CAD) — Organising and Naming of CAD Files
CP 83 : Part 4 : 2001	Code of Practice for Con struction Computer-aided Design (CAD) — CAD Drafting Conventions
CP 83 : Part 5 : 2001	Code of Practice for Con struction Computer-aided Design (CAD) — Colour and Line Type

Services Standards

SS 505 : 2003	Exhibition Terminology and Audit Procedures
TR 5 : 2001	Technical Reference for Exhibition Management Services (EMS) Industry — Safety, Health and Technical Opera tional Efficiency
TR 9 : 2003	Technical Reference for Maturity Assessment for e-Supply Chain Management (eSCM)
SS 499 : 2002	Cleaning Performance Standard for Commercial Premises
SS 533 : 2007	Cleaning Performance for Public Housing Estates

RosettaNet Standard 3A4 — Request Purchase Order
RosettaNet Standard 3A7 — Notify of Purchase Order Update
RosettaNet standard 3B18 — Notify of Shipping Documentation

You and Your industry can benefit from SIP

SIP is a key initiative of the National Standardisation Programme to promote the implementation of standards by industry that have a high impact on productivity and competitiveness.

SIPs will help Singapore-based enterprises in the use of Singapore Standards or other relevant standards that have a high impact on productivity. The intent is to catalyse the use of standards that will eventually benefit the entire industry concerned. Co-funding is provided for SIP projects.

SPRING Singapore has more details on how SIP can benefit you and your business.

Please call us at (65) 6279 1802, fax us at (65) 6278 6990,
e-mail stn@spring.gov.sg, or visit our website at www.standards.org.sg/sip

Appendix 4

Useful Information and Contacts

Name	Area	Contact Details
1 Standardisation Department	National standards authority that establishes, publishes, promotes and assists companies in the use of Singapore Standards. It also promotes and assists companies in the use of ISO, IEC and relevant industry standards.	www.standards.org.sg
2 Sale of Standards	Sale of National and International Standards	www.singaporestandards eshop.sg
3 National Metrology Centre	National metrology authority offering a broad range of calibration and measurement services.	www.nmc.a-star.edu.sg
4 Singapore Accreditation Council	National agency for accreditation of conformity assessment bodies.	www.sac-accreditation.org.sg
5 Consumer Product Safety Department	Electrical, electronic and gas appliances.	www.safety.org.sg

REGULATORY AUTHORITIES IN SINGAPORE

Name	Area	Contact Details
1 Agri-Food and Veterinary Authority	Food safety (fresh produce,manufactured or cooked).	www.ava.gov.sg
2 Building and Construction Authority.	Building and construction	www.bca.gov.sg
3 Energy Market Authority	Electrical and gas safety.	www.ema.gov.sg
4 Fire Safety and Shelter Department, Singapore Civil Defence Force	Fire-related equipment.	www.scdf.gov.sg
5 Health Sciences Authority	Pharmaceutical products and medical devices.	www.hsa.gov.sg
6 Infocomm Development Authority of Singapore	Information and telecommunication equipment.	www.ida.gov.sg
7 Ministry of Manpower	Occupational safety and health.	www.mom.gov.sg
8 The National Environment Agency	Environment and public health issues, meteorological services, markets and food centres, public toilets, public cleansing, pollution and recycling.	www.nea.gov.sg www.mewr.gov.sg

INTERNATIONAL AND REGIONAL ORGANISATIONS

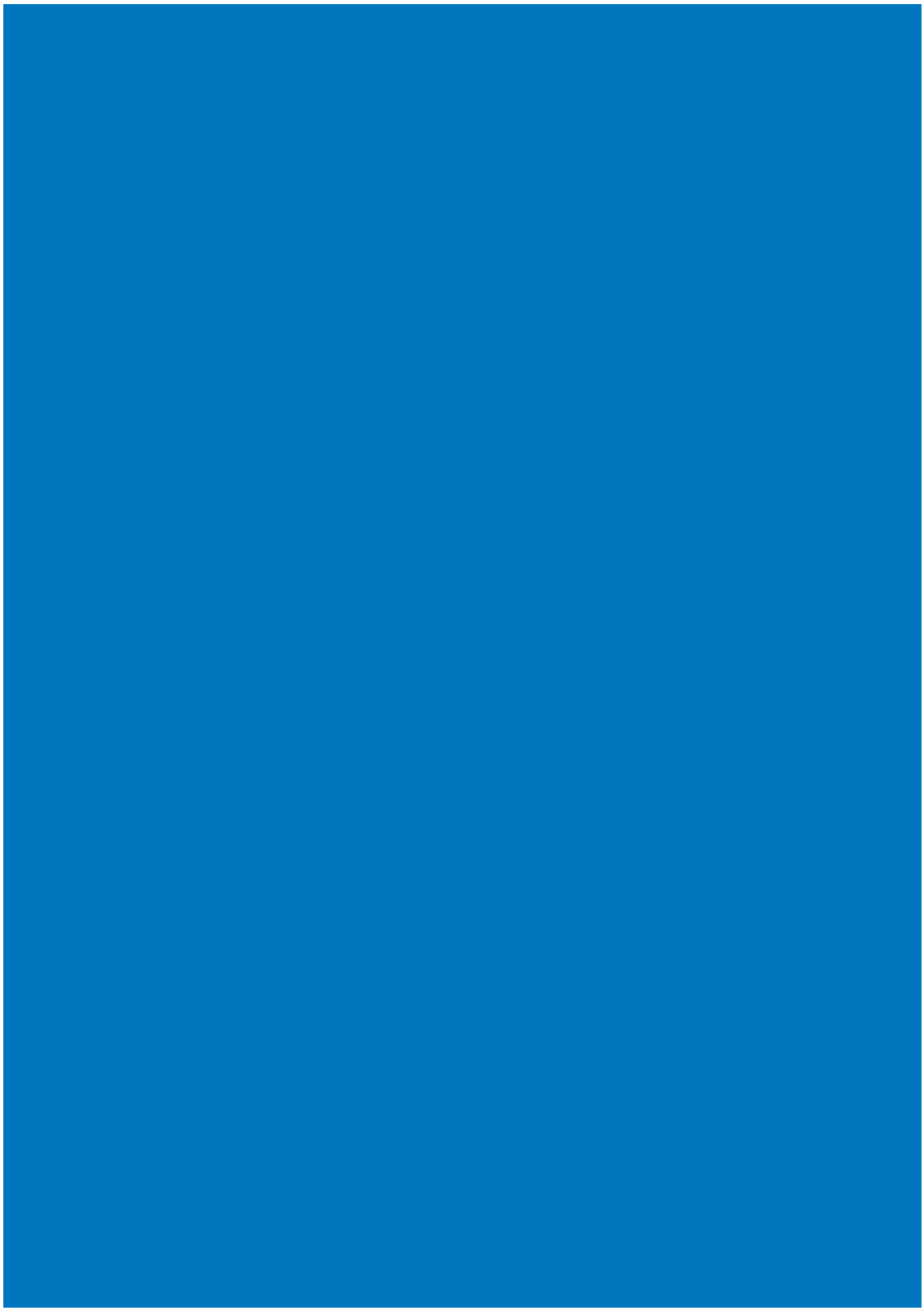
Name	Area	Contact Details
1 ASEAN Consultative Committee on Standards and Quality	ASEAN cooperation committee to facilitate trade by reducing technical barriers to trade.	www.aseansec.org
2 Asia Pacific Economic Co-operation Sub-committee on Standards and Conformance (APEC SCSC)	Cooperation activities within APEC for standards and conformance.	www.apecsec.org.sg
3 ASTM International	Develops standards for a diverse range of industries e.g. construction, electrical and electronic, and medical technology.	www.astm.org
4 British Standards Institution (BSI)	Facilitates, drafts, publishes and markets British standards and other guidelines.	www.bsi-global.com
5 Deutsches Institut for Normung eV (DIN)	Defines specific standardisation requirements and records the results as German standards.	www.en.din.de

Name	Area	Contact Details
6 International Electrotechnical Commission (IEC)	Prepares and publishes international standards for all electrical, electronic and related technologies.	www.iec.ch
7 International Organization for Standardization (ISO)	Develops voluntary technical standards to help raise levels of quality, safety, reliability and interchangeability.	www.iso.org
8 Japanese Standards Association (JSA)	Research and development, publication and distribution of Japanese Industrial Standards and other international standards.	www.jsa.or.jp

Information correct as of date of publication.

Whether you are a big corporation or a small start-up, standards are important to give your business that extra competitive edge. Adopting standards in your business can:

- Increase your sales
- Lower costs
- Improve the quality of your products and services
- Keep your customers happy
- Attract new customers
- Grow your business overseas



This first ever guide on standards for small and medium-sized enterprises or SMEs helps small businesses to understand what, when, why, and how to adopt standards in their business.

Six successful businesses – such as Digital Applied Research and Technology Pte Ltd, Global Energy Group, HQ Link Pte Ltd, Jade Precision Engineering Pte Ltd, LHT Holdings Limited, and RDC Architects Pte Ltd – also share how standards have made a difference in the growth of their businesses.

"The publication of *Make Standards Work for You* is timely as it helps to further promote the development and implementation of standards to enhance productivity and competitiveness, facilitate trade, improve quality, protect public safety, health and environment, leading to tangible business results at both economic and enterprise levels. I would like to congratulate SPRING Singapore for taking this excellent initiative."

Ng Say Kiat
Managing Director, Ikari Services Pte Ltd

"*Make Standards Work for You* is an all-inclusive and easy-to-understand book about issues of national and international standards implementation. An invaluable tool, this book is highly recommended as it provides the benefits of participating in standardisation activities and adopting standards which will contribute to the growth of the company."

Tan Jin Soon
Executive Director, GS1 Singapore Council

"Standards are meant to eliminate waste, prevent mistakes and therefore result in higher productivity and better profits for all organisations, large or small. Through the use of standards, the learning curve will be shorter, especially for smaller companies. *Make Standards Work for You* will be useful to SMEs and help them in their businesses."

Benedict Soh
Group Managing Director, Kingsmen Creatives Ltd

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SINGAPORE INDIAN CHAMBER OF COMMERCE & INDUSTRY

SPRING Singapore
2 Bukit Merah Central, Singapore 159835 **Tel:** +65 6278 6666 **Fax:** +65 6278 6667 **E-mail:** queries@spring.gov.sg
www.spring.gov.sg