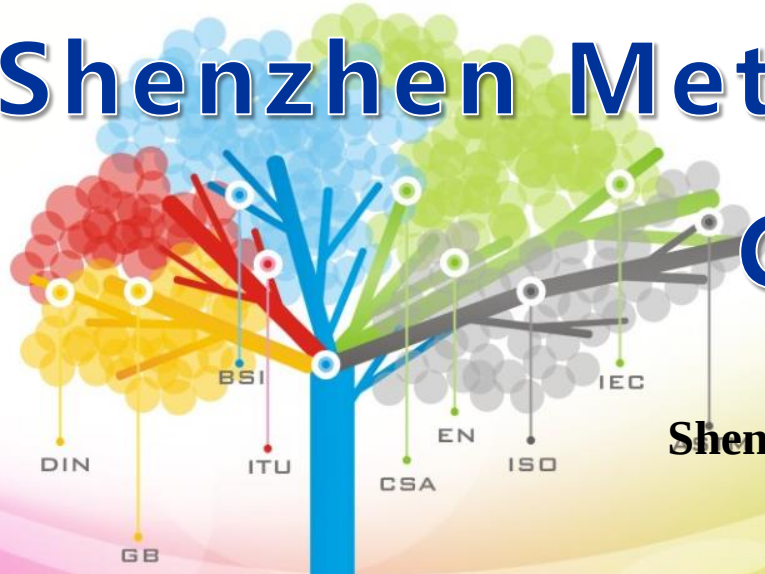
深圳市标准技术研究院
标准化应用研究所
Standardization Application Research Centre of
Shenzhen Institute of Standards and Technology

SIST

Non-economic benefits of standards: Case study of the Shenzhen Meteorological Service Center



Shenzhen Institute of Standards and Technology (China)

Summary

- Background and objectives of the project
- Four steps in the assessment
- Conclusions

Background

深圳市气象局（台）
Meteorological Bureau Of Shenzhen Municipality

Objective

- Assess the non-economic benefits of standards on the Shenzhen Meteorological Service Center (SMSC)

Approach

- ISO methodology

Duration

- June - August 2013

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Four steps in the assessment

1 Understand the value chain

- Clarify industry boundaries
- Understand the industry value chain
- Select assessment samples
- Analyze the company value chains

2 Identify the impacts of standards

- Identify the functions that are most affected by standards
- Determine the standards used in key functions of the services

3 Select the key operational indicators

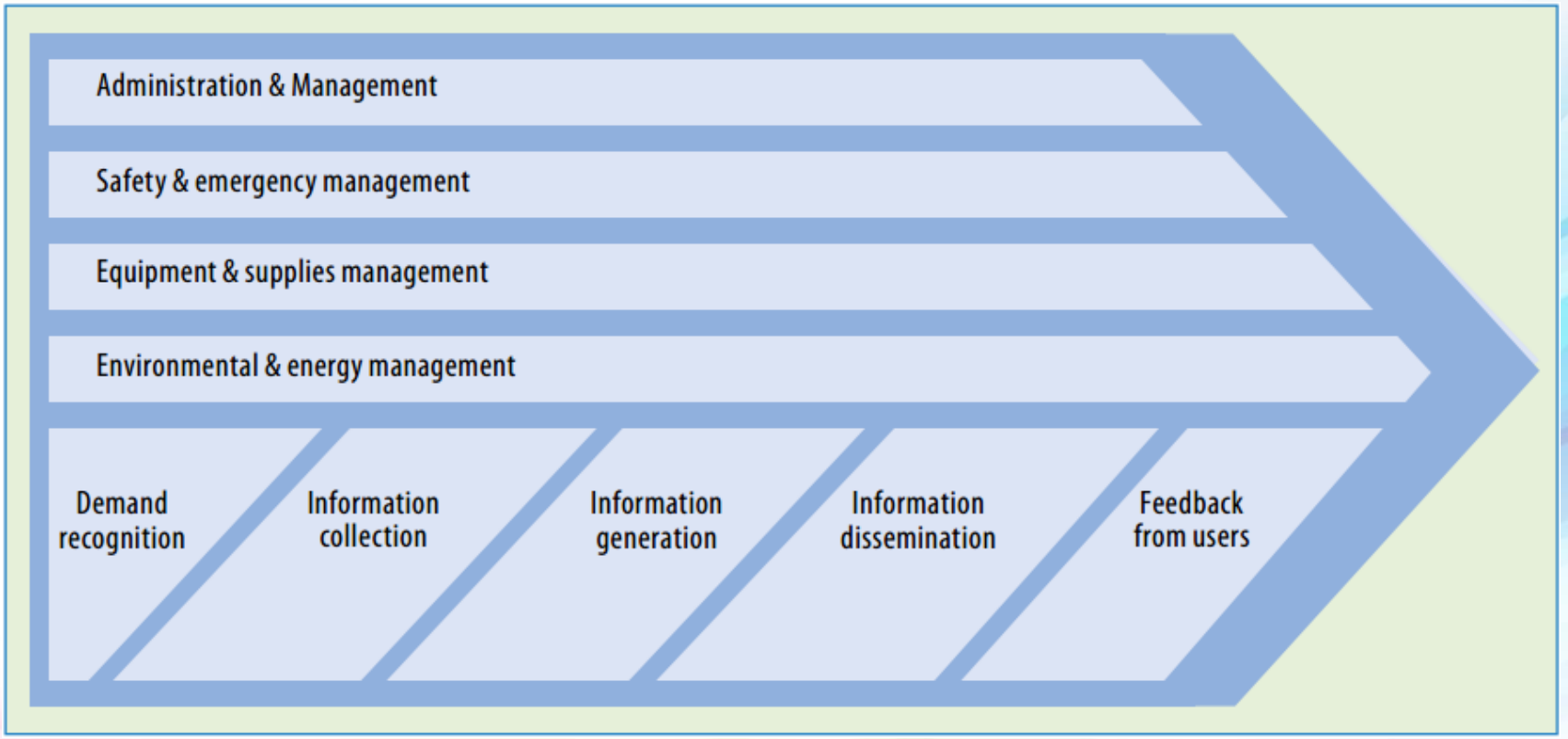
- Identify the key value drivers
- Select key operational indicators
- Describe specifically how standards affect each key operational indicator

4 Quantify the benefits of standards

- Quantify the most important impacts of standards
- Calculate the non-economic benefits

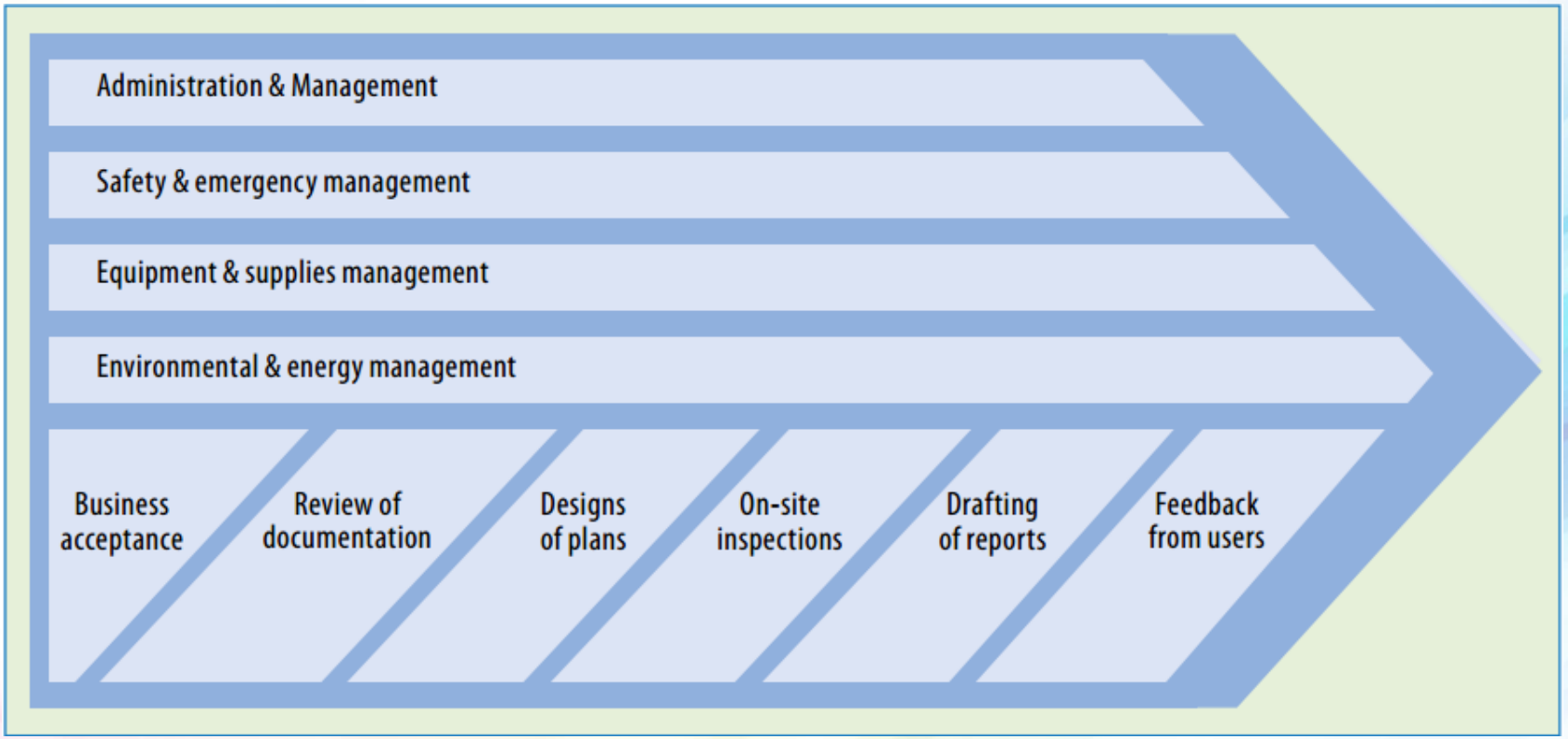
Step 1: Analyze the value chain (1)

- The value chain of the meteorological services



Step 1: Analyze the value chain (2)

- **The value chain of the lightning protection services**



Step 2: Identify the impacts of standards (1)

- **Key value drivers**

Type of service	Key value drivers
Public meteorological services & lightning protection services	Increase in the standardization of services
	Increase in the efficiency of services
	Increase in service quality for the public
	Increase in public satisfaction
	Reduction of accident rate
Meteorological services for the industry	Reduction of damage for property

Step 2: Identify the impacts of standards (2)

- **Determine the scope of the assessment**

Type of service	Inside the scope of the assessment
Meteorological services	Information generation
	Information provisioning
Lightning protection services	On-site inspection of protection devices

Step 2: Identify the key standards

Business function	Standards reference	Title of standards
Information generation & provision	GB/T 22164	Public meteorological service -- Weather graphic symbols
	GB/T 27962	Graphical symbols for meteorological disaster warning signal icon
	Q/SZQX 301201	Service specification for public meteorological information
	Q/SZQX 302105	Quality management specification for meteorological service
	Q/SZQX 301301	Service specification for professional special meteorological information
On-site inspection	GB/T 21431	Technical specifications for inspection of lightning protection system in building
	GB 50057	Code for design protection of structures against lightning
	GB/T 21714	Protection against lightning

Step3: Select key operational indicators

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Business function	Operational indicators	Definition of indicators & Impact of standards
On-site inspection	Service coverage rate	Improvement of detection capability of Enhancement of service coverage rate
	Accident rate	Increase in public trust Reduction of lightning accident
Information generation & provision	Public recognition	Increase in public recognition and the accuracy of public understanding of meteorological information
	Public benefit range	Raising the efficiency of service Increase in benefit range
	Public satisfaction	More efficient meteorological services Increase in public satisfaction
	Contribution rate of service	Reduction of loss of property

Step 4: Quantify the impacts (1)

- **Impact of external standards**

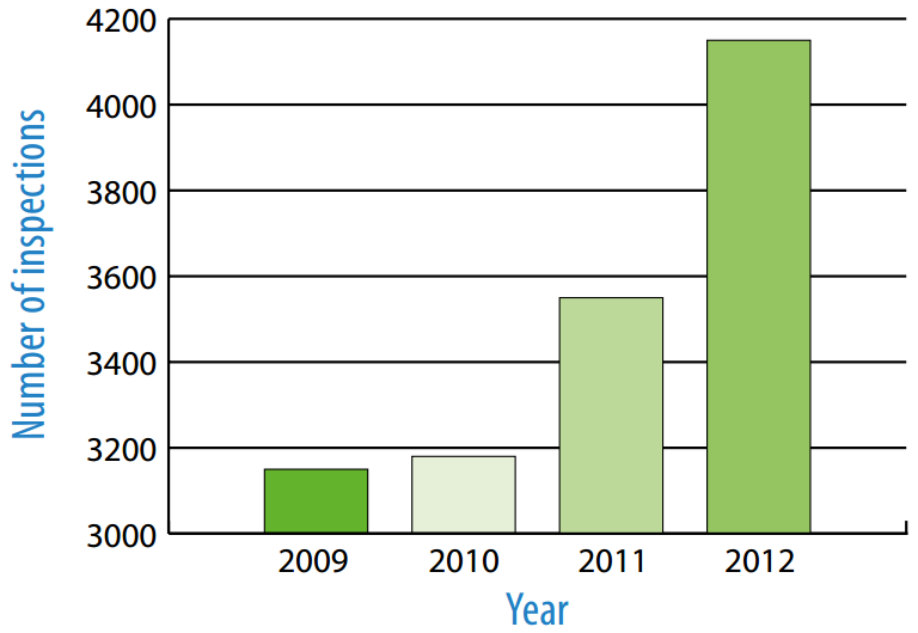
-- Public knowledge and recognition of the meteorological services

Indicator	2009	2010	2011	2012
Public recognition	33.2%	33.2%	35.2%	35.4%
	Before the use of standards		After the use of standards 2%↑	

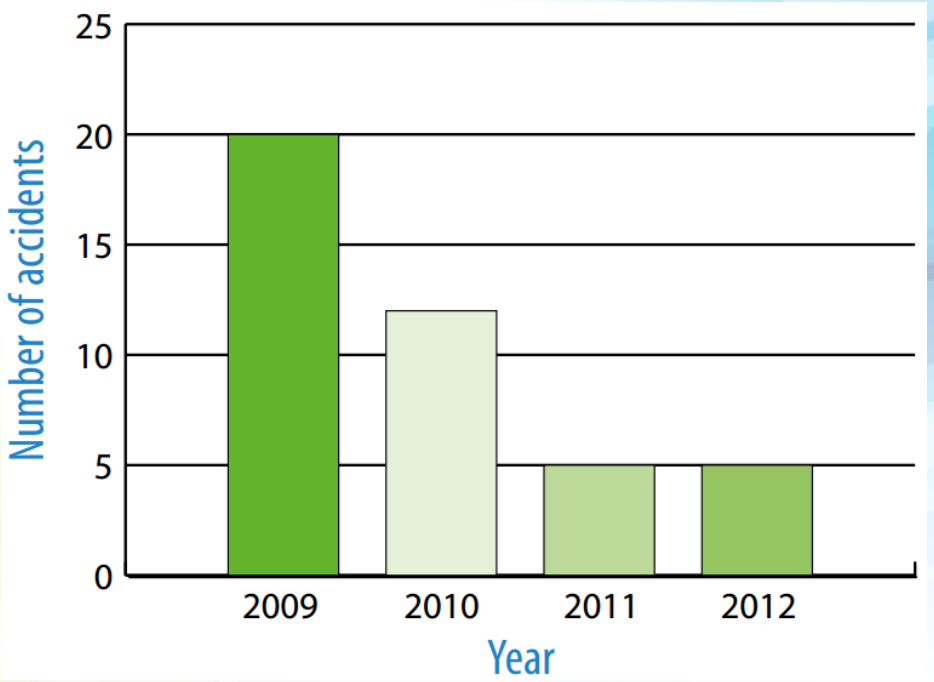
Step 4: Quantify the impacts (2)

- The impact of external standards

-- Service coverage through inspections of lightning protection service



-- Accident rate



Step 4: Quantify the impacts (3)

- Impact of SMSC-internal “company” standards

-- Number of users of meteorological services

Year	# of SMS sent with weather warnings (in billions)	# of users of the SMS weather information service (in millions）
2012	0.9	2.5
2011	0.84	2.09
2010	0.8	2.03

Step 4: Quantify the impacts (4)

-- Level of public satisfaction

Indicator	2009	2010	2011	2012
Public recognition	94.1%	94.4%	95.7%	96.1%

-- Service contribution rate (example study :Xili reservoir)

Indicator	Water runoff (million cubic meters)	Saving of water reservoir	Cost of water (RMB/cubic meters)	Total water value (million cubic meters)
Service contribution rate	40	50%	0.7	402
	40*50%*0.7/402*100%=3.5%			

Conclusions - Method

The method that was applied in the quantification is as follows:

The impact of the standards is estimated as a percentage contribution to the total improvement in a certain area. As an example, if an improvement in the area of lightning protection services could be identified, then 10% means that the contribution of standards was estimated by experts in the meteorological services to amount to 10% of the total improvement.

Conclusions - Results

- **External standards:**
  - Increase in public knowledge and recognition of the meteorological services: **2%**
  - Increase of the service coverage through inspections by the lightning protection service: **10%**
  - Reduction of accidents: **16%**
- **Internal "company" standards:**
  - Increase in the number of users of the meteorological services: **2%**
  - Increase in the level of public satisfaction: **0.4%**
  - Overall contribution to the meteorological services: **3.5%**

Thank you!

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