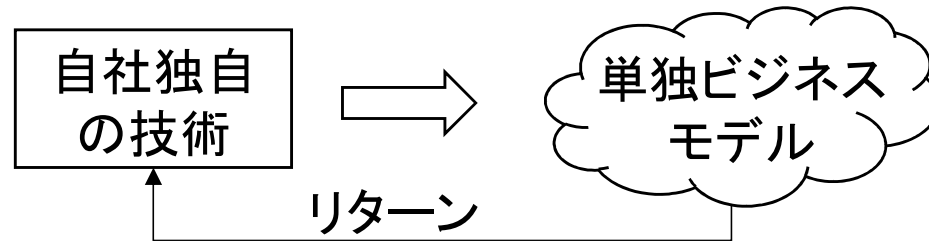


# スマートシティの国際標準化

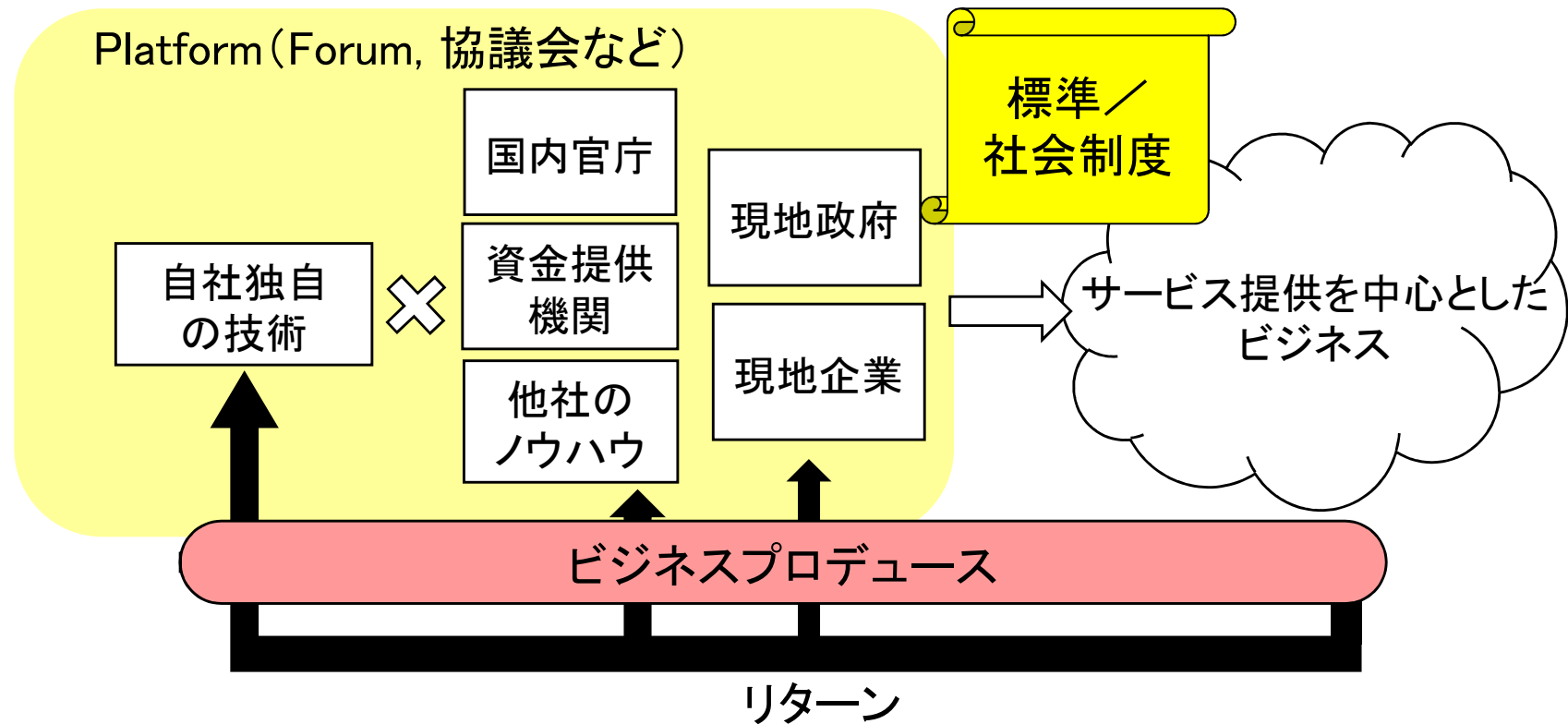
日立製作所研究開発グループ  
社会イノベーション協創統括本部  
チーフアーキテクト室室長  
ISO/TC268/SC1議長 市川芳明

# 新しいビジネスモデルの考え方

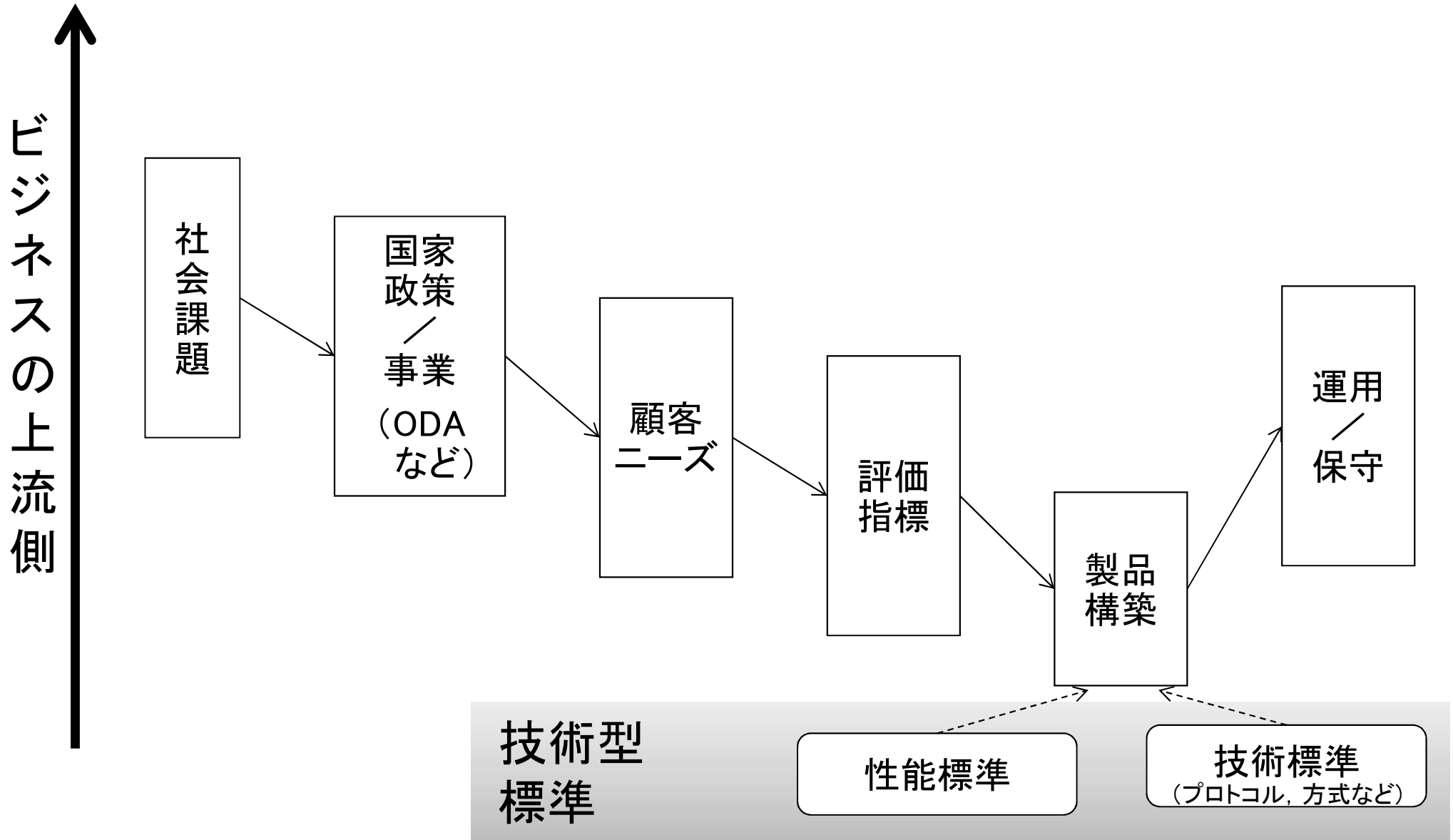
## 従来のビジネスモデル



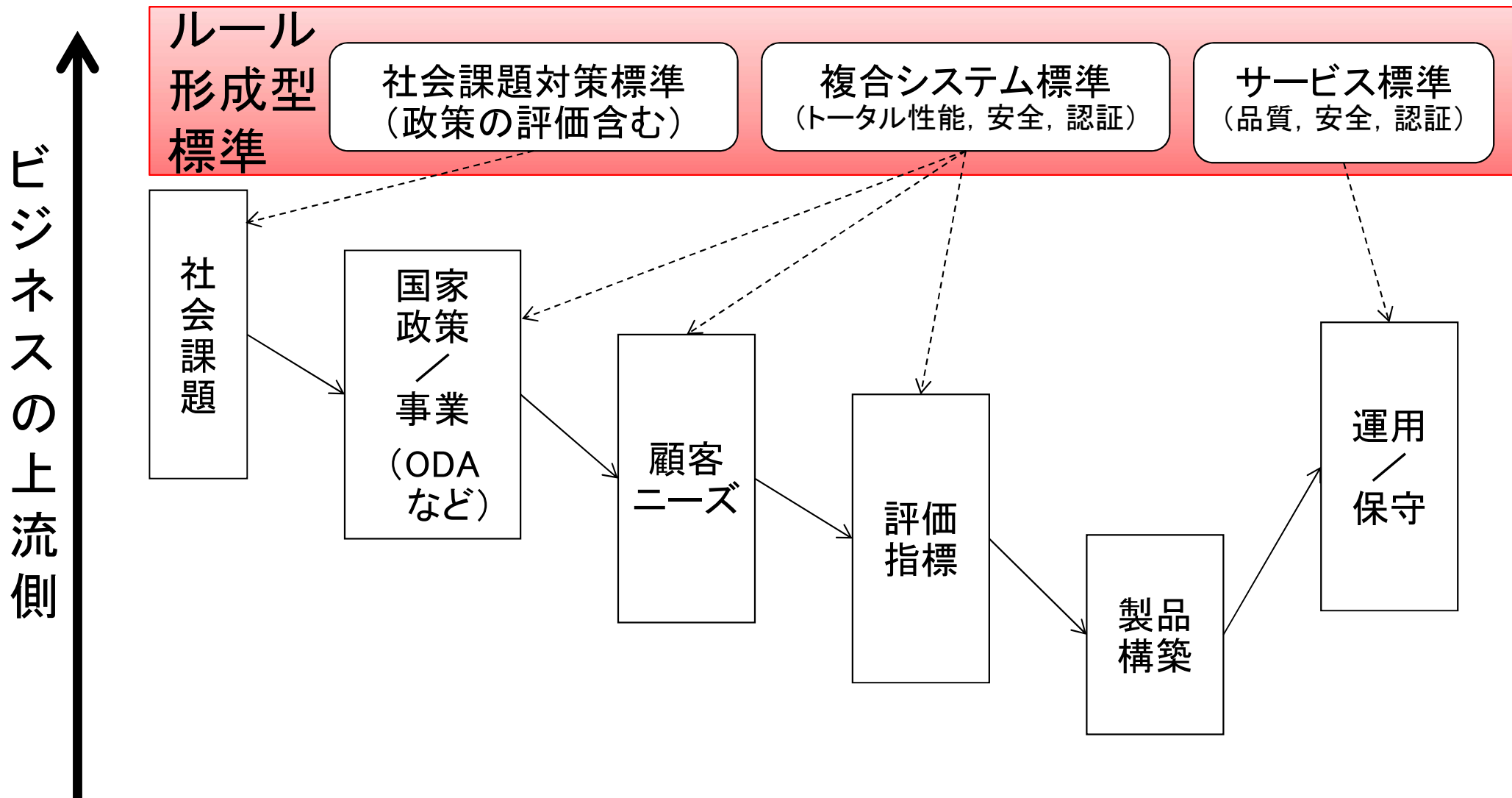
## 共生型のビジネスモデル



# 従来の標準化の領域



# 新しい標準化の領域—上に行くほどメリットあり



# 社会課題対策規格の例

## ISO/TC 292 Security and resilience

About

Contact details

Structure

Liaisons

Meetings

Tools

Secretariat: SIS

Secretary: Bengt Rydstedt

Chairperson: Ms Åsa Kyrk Gere until end 2020

ISO Technical Programme Manager: Mr. Henry Cuschieri 

ISO Editorial Programme Manager: Mr. Brian Stanton 

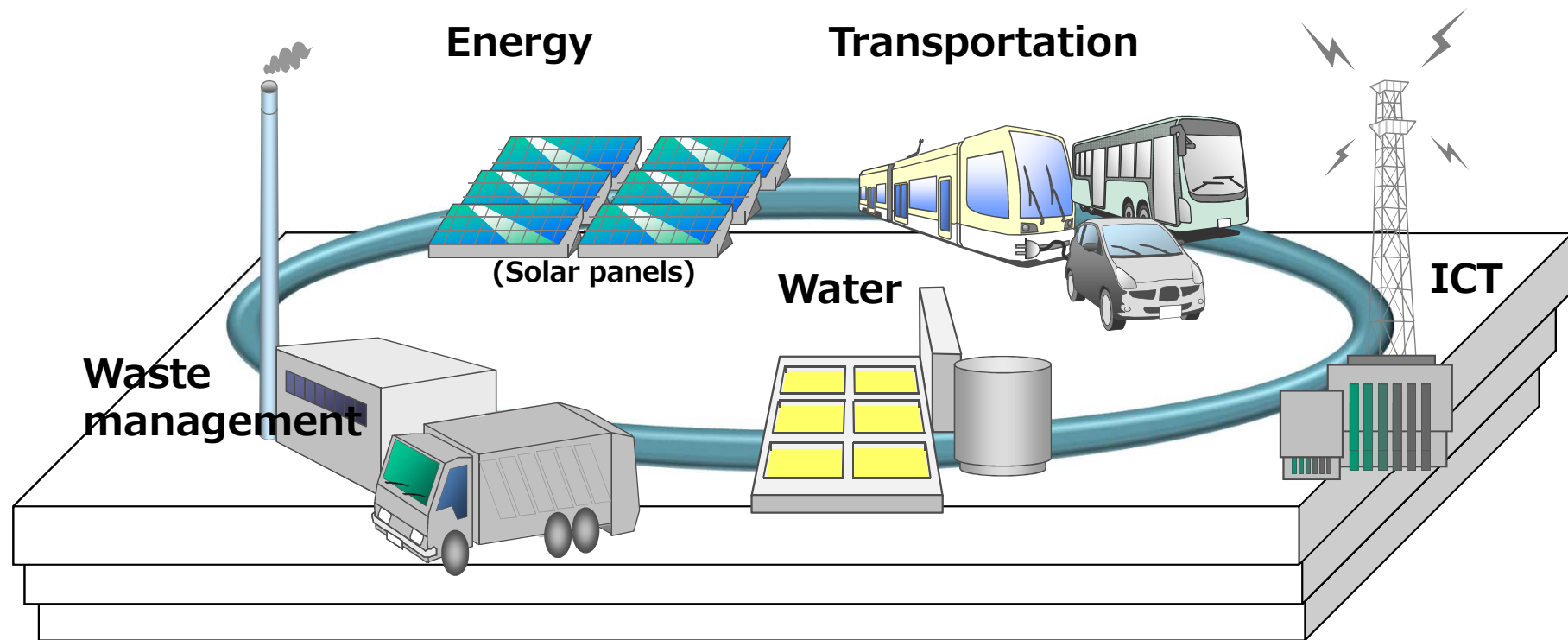
Creation date: 2014

### Scope:

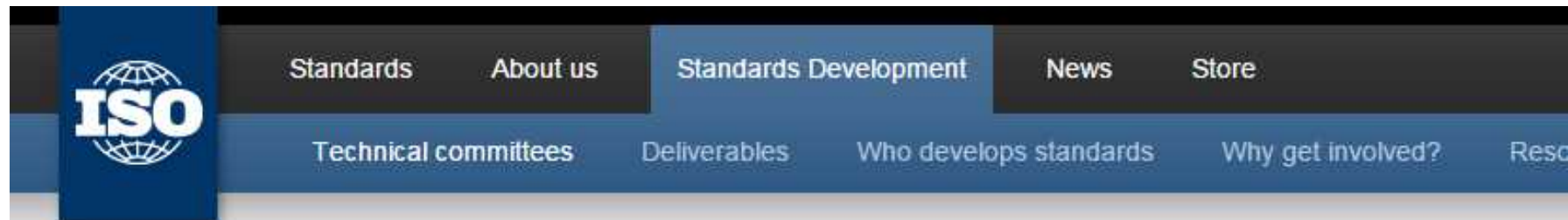
Standardization in the field of security to enhance the safety and resilience of society.

# System of Systemsとしてのスマートシティー

## *Smart community infrastructures*



# スマートシティの標準化委員会



Standards Development > Technical committees > ISO/TC 268 > ISO/TC 268/SC 1

## ISO/TC 268/SC 1 Smart community infrastructures

About

Contact details

Structure

Liaisons

Meetings

Tools

Secretariat: JISC

Secretary: Mr. Isao Endou

Chairperson: Dr Yoshiaki Ichikawa until end 2017

ISO Technical Programme Manager: Mr Yusuke Chiba

ISO Editorial Programme Manager: Mr. Brian Stanton

Creation date: 2012

Number of published ISO standards under the direct responsibility of ISO/TC 268/SC 1 (number includes updates):	2
Participating countries:	19
Observing countries:	12



## Dr. Yoshiaki Ichikawa

### Qualifications:

- Dr. Eng: University of Tokyo, Tokyo, Japan, July 1987
- B.S.: Mechanical Engineering, University of Tokyo, March 1979

### Professional Experience:

- 2007 – Present: Senior Chief Engineer, Environmental Strategy Office, Hitachi, Ltd.
- 2000 – 2006: Director, Environmental Solution Center, Industrial Systems Division, Hitachi, Ltd..
- 1996 – 1999: Senior engineer, Omika Works, Hitachi, Ltd.
- 1979 – 1995: Research Scientist, Energy Research Laboratory, Hitachi, Ltd.  
(Within this period: Visiting Scientist at Carnegie Mellon University)

### ISO and IEC Experience:

- 2012 – Present: Chairperson of ISO/TC 268/SC 1 “Smart community infrastructures”
- (Within this period: CAG member of IEC/SEG 1 “Smart Cities”;  
Liaison officer to ITU-T SG5 and Focus Group on Smart Sustainable Cities;  
Member of CEN/CLC Smart Sustainable Cities & Communities CG)
- 2009 – Present: Chairperson of IEC/TC 111,
- 2009 – 2013: Expert of ISO/TC207/SC 7/WG 2
- 2005 – 2009: Convenor of IEC/TC 111/WG 2
- 2007 – 2008: Expert of IEC/TC108/PT 62075
- 2008 – 2011: Expert of ISO/TC 207/SC 1/WG 4
- 2006 – 2008: Expert of ISO/TC 207/WG 7







## Dr. Biyu Wan (CN)

### Qualifications:

- Dr. Eng: University of Kobe, Kobe, Japan, March 2003
- M.S. of Eng: Shanghai Maritime University, Shanghai, China, March, 1998
- B.S. of Eng: Shanghai Maritime University, Shanghai, China, September, 1995

### Occupation:

- Minister of Planning Dept. and Chief Engineer of Smart City Research Center of MOHURD (Ministry of Housing and Urban-Rural Development of the PRC).



### International Awards

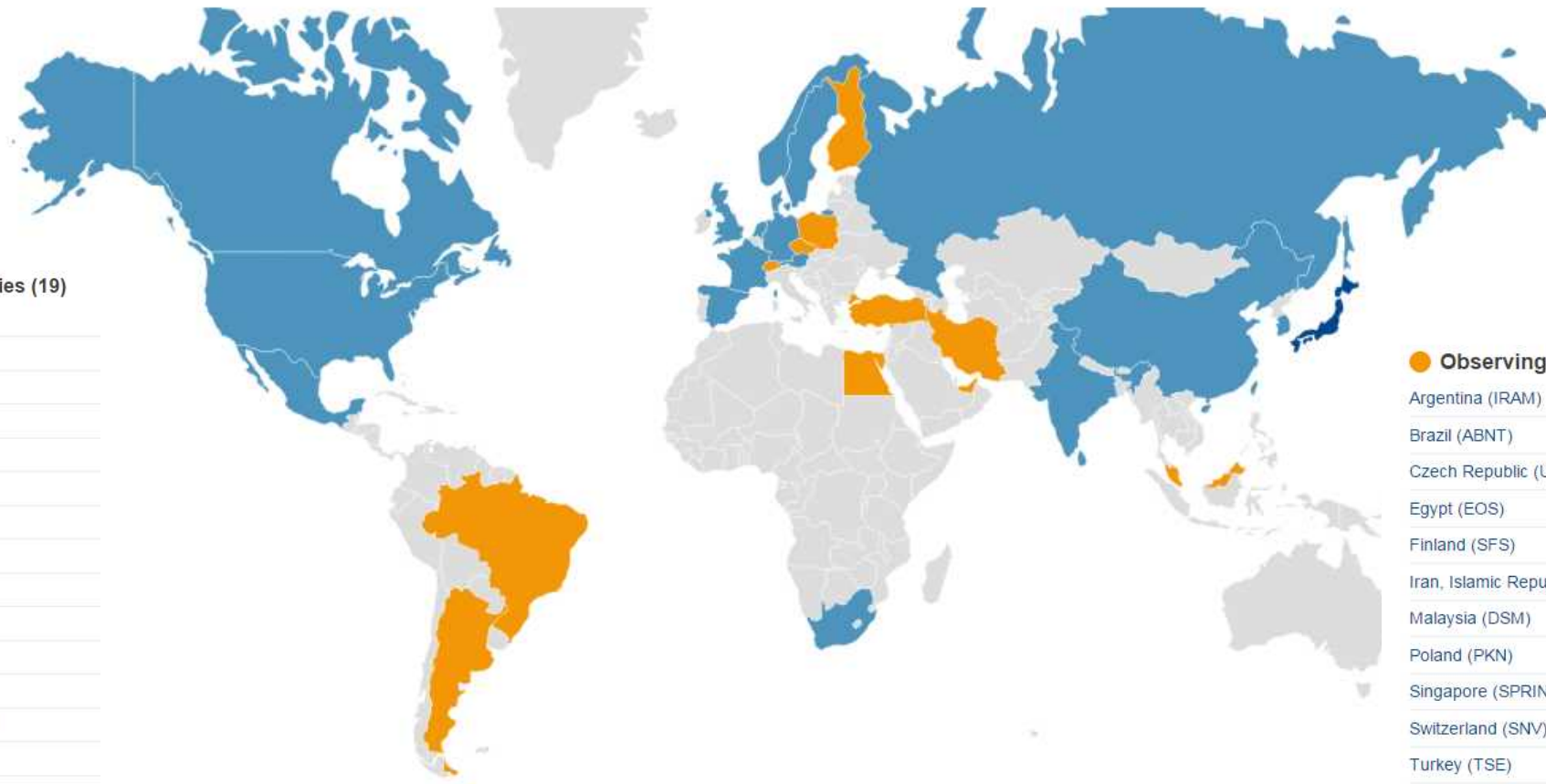
- Award of (Grants-in-Aid for Young Scientists (B) (22760635)), 2009-2010
- Best Paper Award of Techno-Ocean, 2010
- Best Paper Award of China Internal Combustion Engine Association, 1999

## ISO/TC 268/SC 1 の概要

名称	Smart community infrastructures
設立	2012
国際議長	市川 芳明 氏 (日本)
副議長	万 碧玉 氏 (中国)
国際幹事	遠藤 功 氏 (日本)
TPM	Mr. Antoine Morin (ISO 中央事務局)
国際会合	<ul style="list-style-type: none"><li>• 準備会合：2012年5月、東京（日本）</li><li>• 第1回総会：2012年7月、パリ（フランス）</li><li>• 第2回総会：2013年7月、ボルンホルム（デンマーク）</li><li>• 第3回総会：2014年5月、トロント（カナダ）</li><li>• 第4回総会：2015年1月、バルバドス（バルバドス）</li><li>• 第5回総会：2015年6月、グラスミア（英国）</li><li>• 第6回総会：2016年1月、ウィーン（オーストリア）</li><li>• 第7回総会：2016年6月、杭州（中国）</li></ul>

# ISO/TC 268/SC 1 の参加国

## ISO/TC 268/SC 1 - Smart community infrastructures



### ● Participating Countries (19)

- Austria (ASI)
- Canada (SCC)
- China (SAC)
- Denmark (DS)
- France (AFNOR)
- Germany (DIN)
- India (BIS)
- Japan (JISC)
- Korea, Republic of (KATS)
- Mexico (DGN)
- Netherlands (NEN)
- Norway (SN)
- Russian Federation (GOST R)
- South Africa (SABS)
- Spain (AENOR)
- Sri Lanka (SLSI)
- Sweden (SIS)
- United Kingdom (BSI)

### ● Observing Countries (12)

- Argentina (IRAM)
- Brazil (ABNT)
- Czech Republic (UNMZ)
- Egypt (EOS)
- Finland (SFS)
- Iran, Islamic Republic of (ISIRI)
- Malaysia (DSM)
- Poland (PKN)
- Singapore (SPRING SG)
- Switzerland (SNV)
- Turkey (TSE)
- United Arab Emirates (ESMA)

# ISO/TC 268/SC1の構成

ISO/TC 268/SC 1  
“スマートコミュニティ-インフラ”

ISO/TC 268/SC 1/WG 1  
“評価指標”

ISO/TC 268/SC 1/WG 2  
“インフラ間の統合と相互作用を取り扱う  
枠組み”

ISO/TC 268/SC 1/WG3  
“スマートコミュニティ-  
交通”

ISO/TC 268/SC 1/AHG 3  
“スマートコミュニティ-  
データ共有”

# なぜインフラなのか？

以下の図に示すように

- 都市インフラの機能は、都市の設備やサービスを支える基盤となる
- 都市インフラに関する製品やサービスは他のレイヤーに比べてより技術に立脚しており、国際的な取引の対象となりやすいので、国際標準化することが適切である。

## 都市のレイヤー

レイヤー	機能の例
<b>Community Services</b>	教育、ヘルスケア、治安、セキュリティ、ツーリズム、など
<b>Community Facilities</b>	住居、商業ビル、オフィスビル、工場、病院、学校、レクリエーション施設など。
<b>Community Infrastructures</b>	エネルギー、水、交通、廃棄物処理、ICTなど

↑ Contribution

## (1) 「都市インフラ」の例

1	エネルギー (Energy)	電力グリッド、ガス、燃料 (ガソリンスタンド)、...
2	水 (Water)	上水処理、工業用水、再生水、下水処理、....
3	交通 (Transportation)	道路交通、鉄道、空港、港湾、河川...
4	廃棄物 (Waste)	廃棄物回収、リサイクル ..
5	情報通信 (ICT)	多目的ビッグデータ、分散センサ、Wifi環境...

## (2) スマートさに関する「性能」の例

1	住民視点	Reliability, Availability, Service quality, Safety, etc
2	都市管理者視点	Operational efficiency, Resilience, Expandability, Security, etc
3	環境視点	Climate change, Biodiversity, Resource efficiency, Air pollution, Water shortage, etc

Smartness should be discussed taking into account the balance between multiple viewpoints of residents, community managers and environmental

## 合意されたスマート都市インフラの定義

smart community infrastructure:

community infrastructure with **enhanced technological performance** that is designed, operated and maintained to **contribute to sustainable development** and resilience of the community

Note 1: It is the infrastructure that is considered to be “smart” in this standard and not the community.

Note 2: Sustainable development tends to require community infrastructures that meet multiple, often contradictory, needs at the same time.

Note 3: ICT is an enabler but not a precondition for achieving smart community infrastructures.

# ISO TS 37151

TECHNICAL  
SPECIFICATION

**ISO/TS**  
**37151**

First edition  
2015-05-01

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**Smart community infrastructures —  
Principles and requirements for  
performance metrics**

*Infrastructures communautaires intelligentes — Principes et  
exigences pour la métrique des performances*



## スマートシティ評価のための枠組みの概要(1)

視点	ニーズ	具体例
住民の視点 (エンドユーザー, 受益者, 消費者 含む)	アベイラビリティ	時間的範囲(24時間運行など)
		地域的範囲
		人的範囲(住民の何割など)
	アクセシビリティ	高齢者なども使える
	アフォーダビリティ	手頃な価格設定
	安全・安心	情報セキュリティとプライバシー
		物理的セキュリティ
		安全性
	サービスの品質	サービスの容量・規模
		理解と利用の容易性
		明朗会計
		情報提供

## スマートシティ評価のための枠組みの概要(2)

視点	ニーズ	具体例
地域運営者の視点	運営効率	適切な設備規模
		相互運用性
		需要変動への適応性
	経済効率	ライフサイクルコスト
		投資効率
	性能情報の入手可能性	利用者との情報交換
	保守性	メンテナンスの適切性
		メンテナンスの効率
	レジリエンス	頑健性
		冗長性
		持続性
		回復の迅速性

## スマートシティ評価のための枠組みの概要(3)

視点	ニーズ	具体例
環境の視点	資源有効利用	エネルギー消費効率
		資源効率
		廃物量
	気候変動の対策	GHGの排出量
	汚染の防止	汚染物質の排出量
		騒音・振動の発生
	生態系保全	緑地の量
		表面流出の制御と流域
		健康および公衆衛生への貢献

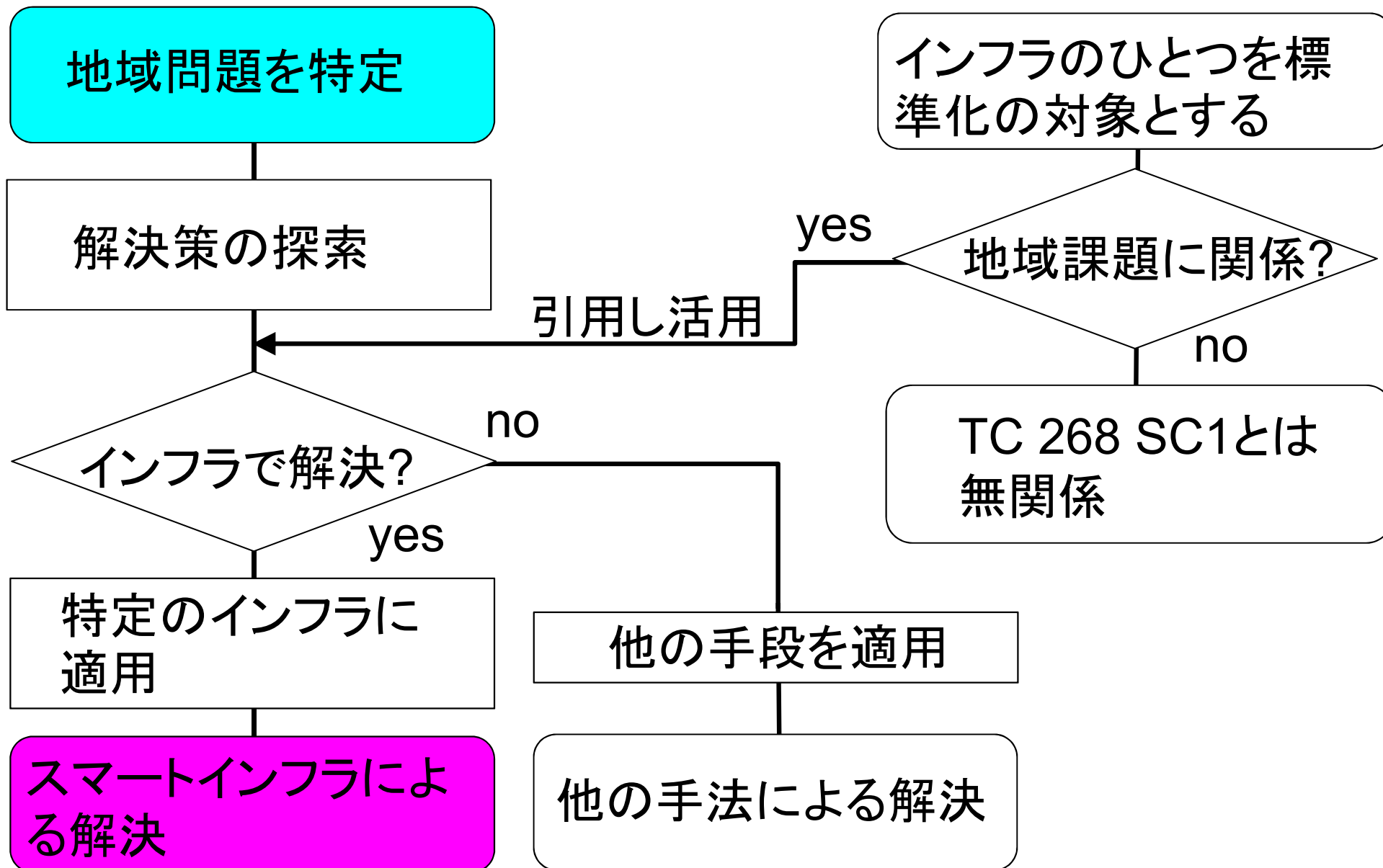
# 今後の展開

1. すべてのインフラに適用される規格
  - ISO TR 37120(尺度と指標の調査)
  - ISO TS 37151(尺度の原則と要求事項)
  - ISO 37153 (成熟度モデル)
  - ISO TR 37152 (開発と運用の共通枠組み)
  - ISO 37155(インフラ間の相互干渉)
  
2. 個別インフラの規格
  - ISO 37154 都市交通のベストプラクティス指針
  - ISO 37158 蓄電池駆動バス交通システムによる都市課題解決
  - ISO 37157 コンパクトシティのためのスマート交通
  - (提案中)スマートシティのためのデータ交換と共有の指針
  - (将来)エネルギー分野, 廃棄物/資源循環分野

# 他の専門規格との相補的關係

## 地域問題の解決を目指す

## 他の専門委員会

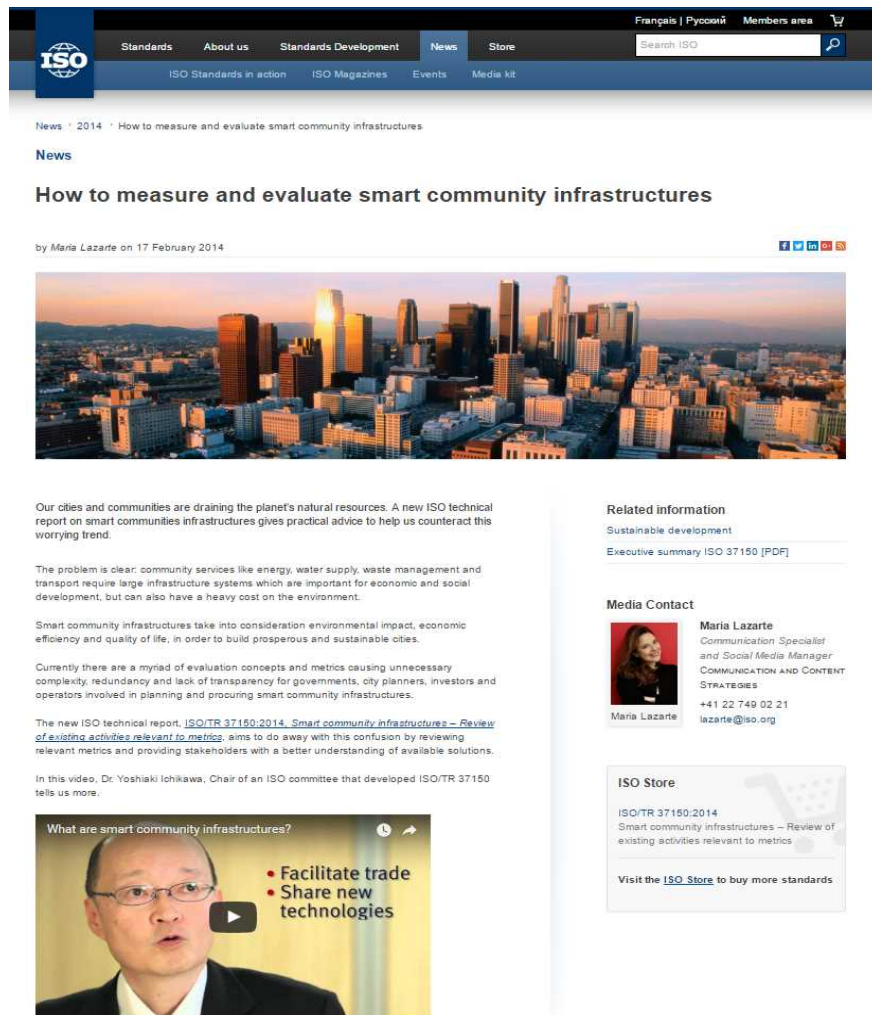




# Additional explanation available on the WEB

[http://www.iso.org/iso/home/news\\_index/news\\_archive/news.htm?refid=Ref1817](http://www.iso.org/iso/home/news_index/news_archive/news.htm?refid=Ref1817)

[http://www.iso.org/iso/home/news\\_index/news\\_archive/news.htm?refid=Ref2001](http://www.iso.org/iso/home/news_index/news_archive/news.htm?refid=Ref2001)




News » 2014 » How to measure and evaluate smart community infrastructures

News

## How to measure and evaluate smart community infrastructures

by Maria Lazarte on 17 February 2014



Our cities and communities are draining the planet's natural resources. A new ISO technical report on smart communities infrastructures gives practical advice to help us counteract this worrying trend.


The problem is clear: community services like energy, water supply, waste management and transport require large infrastructure systems which are important for economic and social development, but can also have a heavy cost on the environment.

Smart community infrastructures take into consideration environmental impact, economic efficiency and quality of life, in order to build prosperous and sustainable cities.


Currently there are a myriad of evaluation concepts and metrics causing unnecessary complexity, redundancy and lack of transparency for governments, city planners, investors and operators involved in planning and procuring smart community infrastructures.

The new ISO technical report, [ISO/TR 37150:2014, Smart community infrastructures – Review of existing activities relevant to metrics](#), aims to do away with this confusion by reviewing relevant metrics and providing stakeholders with a better understanding of available solutions.

In this video, Dr. Yoshiaki Ichikawa, Chair of an ISO committee that developed ISO/TR 37150 tells us more.



**Related information**  
Sustainable development  
Executive summary ISO 37150 [PDF]

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lazarte@iso.org

**ISO Store**  
ISO/TR 37150:2014  
Smart community infrastructures – Review of existing activities relevant to metrics  
Visit the [ISO Store](#) to buy more standards



News » 2015 » How to measure the performance of smart cities

News

## How to measure the performance of smart cities

by Maria Lazarte on 5 October 2015



Smart cities make sense: they waste less, offer better quality of life and ensure a brighter future for the next generation. But as more and more communities strive to optimize services and become more sustainable, how can they tell if their actions are making a difference? A new ISO technical specification can help them out.

[ISO/TS 37151](#) outlines 14 categories of basic community needs (from the perspective of residents, city managers and the environment) to measure the performance of smart community infrastructures. These are typical community infrastructures like energy, water, transportation, waste and information and communication technology systems, which have been optimized with sustainable development and resilience in mind.

Not only will the metrics in ISO/TS 37151 support city and community managers in planning and measuring performance, they will help compare and select procurement proposals for products and services geared at improving community infrastructures.

Dr. Yoshiaki Ichikawa, Chair of the subcommittee that developed the standard (ISO/TC 268/SC 1), says: "Prior to starting this project, the subcommittee spent quite a bit of time evaluating the already existing processes and metrics for smart community infrastructures. We found that some of the methodologies were not publicly available, and that though helpful, their complexity, redundancy and lack of transparency made it difficult for public and private managers (e.g. governments, city planners, operators of community infrastructure) to evaluate and implement proposals, plans and performance consistently and fairly. It was clear that globally harmonized metrics were needed. That is when we started to work on ISO/TS 37151."

**Related information**  
ISO/TC 268/SC 1 - Smart community infrastructures  
Solutions for today's urban challenges in the latest ISO focus  
Creating tomorrow's urban landscape  
Smart cities get on their bikes

**Related links**  
ISO Standards in action: Sustainable development

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ご清聴感謝します