

# Norms and Standardisation in Relation to Cities

**URBAN** Intergroup

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### **Agenda**

- 1 Challenges for cities
- 2 ISO CEN/CENELEC DIN-standards supportive or directive?

  Examples on "Sustainable Development" and "Smart Cities"
- 3 Standardisation procedures
- 4 Sustainable and Smart Cities through norms and standards?
- **5 Conclusions**

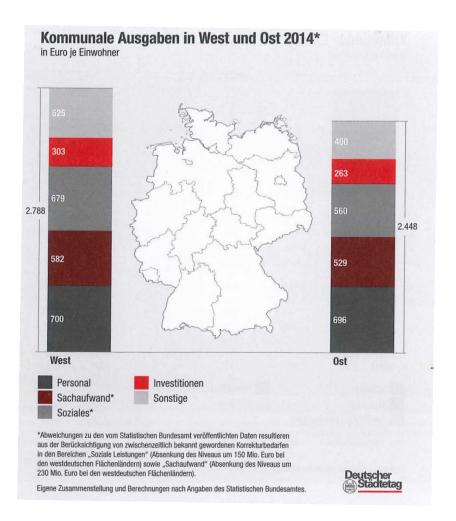


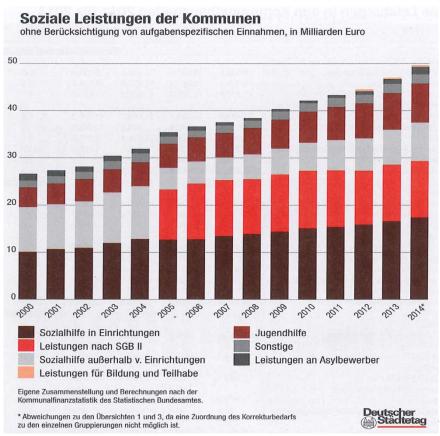
### **Challenges for Cities**

- Globalisation (Competition, Real estate markets, etc.)
- International and european migration
- Digitization and interconnectivity
- Climate change and "Energiewende"
- Social und demografic dynamics
- Structural and economic changes
- Social and physical disparities between cities and cities, urban and rural, quarters
- Uneven and changing revenue generation
- ...



### **Challenges for Cities**







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#### What is a standard?

- A standard is a document which reflects the state of technology, which has been elaborated in determined processes within a standardising organisation.
- Standards regulate and facilitate general and repeating applications. They relate to physical items or procedures.
- For the expanded definition see ISO, CEN or DIN EN 45020.

(Quelle: Homepage DIN <a href="http://www.din.de/cmd?level=tpl-rubrik&cmsrubid=47513#Was ist Norm">http://www.din.de/cmd?level=tpl-rubrik&cmsrubid=47513#Was ist Norm</a>)



#### What does standardisation mean?

- This is the process of finding a standard. Standardisation is "the structured process to standardize material objects and immaterial subjects through interested circles for the public benefit.
- Standards may not lead to an economic extra benefit of individuals. They promote rationalization, quality standards in economy, technology, science and administration. They serve the security of people and objects and the improvement of quality in all spheres of life."

(Quelle: Homepage DIN <a href="http://www.din.de/cmd?level=tpl-rubrik&cmsrubid=47513#Was bedeutet Normung">http://www.din.de/cmd?level=tpl-rubrik&cmsrubid=47513#Was bedeutet Normung</a>)



#### **Basics of standardisation**

- Voluntary contributions to the standardisationization process and the application of standards (to be questioned!)
- Standards are recommendations
- Standards are public
- Involvement of all interested circles
- Principle of consensus (also to be questioned!)
- Orientation along state of science and technology, economic conditions and general benefit



#### Procedure of a international standardisation

	Vorschlagsstufe (Proposal Stage)	Vom Vorschlag ( <b>NP</b> ) bis zur Annahme eines neuen Normungsvorhabens
8	Bearbeitungsstufe (Preparatory Stage)	Von der Annahme des Normungsvorhabens bis zur Verabschiedung zur Registrierung als Komitee-Entwurf
8	Komiteestufe (Committee Stage)	Vom Komitee-Entwurf ( <b>CD</b> , mehrere möglich) bis zur Verabschiedung zur Umfrage (Internationaler Norm- Entwurf)
Fast track	Umfragestufe (Enquiry Stage)	Von der Annahme zur Umfrage (Internationaler Norm- Entwurf ( <b>DIS</b> bzw. <b>CDV</b> )) bis zur Verabschiedung zum Schlussentwurf
Fast track	Annahmestufe (Approval Stage)	Von der Annahme als Schlussentwurf ( <b>FDIS</b> ) bis zur Verabschiedung zur Internationalen Norm
	Veröffentlichungs- stufe (Publication Stage)	Von der Annahme als Internationale Norm bis zur Veröffentlichung als ISO-, IEC- oder ISO/IEC-Norm

Quelle: Homepage DIN <a href="http://www.din.de/cmd?level=tpl-unterrubrik&cmssubrubid=47503&languageid=de">http://www.din.de/cmd?level=tpl-unterrubrik&cmssubrubid=47503&languageid=de</a>



## Standards on Sustainable **Development in Communities**

NA 172-00-12 AA N 934

**ISO/TC 268** "Sustainable Development in Communities" (France)

ISO/TC 268/SC 1 "Smart Community Infrastructures" (Japan)

"Best practice

AHG 1

Common

and operation of SCI

ISO/DTR 37152

WG1 ..Management System

ISO/DIS 37101

WG4 "Strategies for smart cities and (UK)

WG2 ..Citv (Canada)

ISO 37120 ISO/DTR 37121

(UK)

ISO/DIS 37102

p-members: 26 o-members: 19

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## ISO TC/268 "Sustainable development in communities"

International standardisation procedure ISO/TC 268 "Sustainable development in communities" with numerous chapters.

- 1. "Substainable Development in Communities" Norms on management systems
- "Smart Urban Infrastructure Metrics" Measurement methos for efficient and intelligent communal infrastructures
- "Global City Indicators Facility" additional sets of city indicators compiled by a self mandated Global City Indicators Facility in Toronto



#### **SC1 – Smart Community Infrastructures**

- Technical report "Review of works relevant to smart community infrastructure metrics and future directions of standardisation"published by the working group on "Infrastructure Metrics" (ISO/TC 268/SC 1/WG 1)
- Draft for the standard ISO 37151 "Smart community infrastructure metrics"already adopted and published
- Technical report on "Smart community infrastructures Common framework for development and operation" approved and published



#### **WG1 – Management System Standards**

- Working group on "Management Systems Standards"
   (ISO/TC 268/WG 1) developed the standard 37101
   "Sustainable development and resilience of communities Management systems General principles and
   requirements".
- Final version has passed in 2015 under the new title
   "Sustainable Development of Communities Management
   System Requirements and Guidance for Resilience and Smartness".
- Upon suggestion of the German mirror committee (NA 172-00-12 AA "Nachhaltige Entwicklung in Kommunen") a "Guidance for practical implementation of ISO 37101 in cities" shall be developed.



#### **WG2 – City Indicators**

- Working group on "City Indicators" (ISO/TC 268/WG 2) has adopted and published the standard on "Sustainable development and resilience of communities - Indicators for city services and quality of life" (ISO 37101).
- Due to formal reasons (fast-track-procedure) there was no alternative to adopting it, even the majority was not in line with the standard. Due to high discontentment the just adopted standard will be again revised and therefore, also in future part of the work of the different groups.
- In parallel a technical report (ISO 37121) "Inventory and review of existing indicators on sustainable development and resilience in cities", is under process.



#### Who is behind GCIF?

#### **About The Global City Indicators Facility**

The Global City Indicators Facility responds to the urgent need for a globally standardized set of city indicators. Headquartered in Toronto, the Global City Indicators Facility (GCIF) hosts a network of 253 cities and provides a globally standardized system for data collection that allows for comparative knowledge and learning across cities globally.



Cities are the cultural and economic centres of the world whose progress depends upon effective management and evidence-based policy making. The prospective power of these indicators, in this age of urbanization, can be used as critical tools for city managers, politicians, researchers, business leaders,

Quelle: Homepage GCIF

http://www.cityindicat ors.org/Deliverables/ GCIF%20-

%20Overview%20Re port%20-

%20Fall%202013\_1-7-2014-1051267.pdf



#### Which indicators are included?

#### Themes

The Global City Indicators Facility is structured around 20 "themes" organized into two Categories that measure a range of city services and quality of life factors. These Categories and themes are listed below:

City Services – includes services provided by city governments and other entities.

- Education
- Fire and Emergency ResponseHealth
- Finance
- Recreation
- Safety
   Solid Waste
- Governance Energy
- Urban Planning
- Transportation
- Water
- Wastewater

Quality of Life - includes critical contributors to overall quality of life, but are not the direct responsibility of any local service provider.

- Civic Engagement
- Environment
- Economy
- Social Equity
- Shelter
- Technology and Innovation

Culture

City performance relative to each of these themes is measured by a number of indicators, which collectively tell a "story". Overall, 115 indicators have been developed. Recognizing the differences in resources and capabilities between developed and developing world cities, the overall set of 115 indicators has been divided into 31 "core" indicators, which all cities participating would be expected to report on, and 43 "supporting" indicators, which all cities would be encouraged, but not expected, to report on, along with 41 "profile" indicators which provide basic statistics and background information to help cities determine which cities are of interest for comparisons.

This set of global city indicators was selected based on significant input from the partner cities, ensuring that these indicators reflect city information needs and interests, and a rigorous screening process. The indicators must be:

- · Available, up to date, and able to be reported annually;
- Readily comparable among cities globally;
- Relevant for public policy decision making and/or linked to established goals (e.g. MDG);
- Cost effective to collect:
- · Meaningful to cities across the globe regardless of geography, culture, affluence, size, or political structure;
- Understandable and not overly complex:
- · Clear as to whether changes in the indicators are good or bad.

#### **GCIF Profile Indicators**

	Indicator
People	Total city population
	Population density (per square kilometer)
	Percentage of country's population
	Percentage of population that are children (0-14)
	Percentage of population that are youth (15-24)
	Percentage of population that are adult (25-64)
	Percentage of population that are senior citizens (65+)

Quelle: Homepage **GCIF** http://www.cityindicat ors.org/themes.aspx





#### **GCIF Performance Indicators**

	Core Indicator	Supporting Indicator
City Services		
Education	Student/teacher ratio	Percentage of school-aged population enrolled in schools
	Percentage of students completing primary and secondary education: survival rate	Percentage of male school-aged population enrolled in schools
	Percentage of students completing primary education	Percentage of female school-aged population enrolled in schools
	Percentage of students completing secondary education	
Fire and Emergency	Number of firefighters per 100,000 population	Response time for fire department from initial call
Response	Number of fire related deaths per 100,000 population	
Health	Number of in-patient hospital beds per 100,000 population	Number of nursing and midwifery personnel per 100,000 population
'	Number of physicians per 100,000 population	
	Average life expectancy	
	Under age five mortality per 1,000 live births	



#### Coming soon...

#### Future Indices - Under development

	Future Index	
Economy	Competitiveness Index	
Energy	Total Energy Use Index	
Environment	Greenhouse Gas Index	
Governance	Governance Index	
Recreation and Culture	Recreation and Culture Index	
Social Equity	Social Capital Index	
Subjective Well- Being	Subjective Well-Being Index	
Transportation	Urban Accessibility Index	
Technology	Creativity Index	Towards an Accessibility Index:
Water	Water Quality Index	Transport and Connectivity in Cities

Aging in the City:
A Measured Response

The Educated City: Tracking Success

Climate Vulnerable Cities:
The Need for Standard Indicators

City Governance and Finance: Global Comparisons



#### Coming soon...



#### NA 172-00-12 AA N 561

NA 172 Normenausschuss Grundlagen des Umweltschutzes (NAGUS) NA 172-00-12 AA Arbeitsausschuss Nachhaltige Entwicklung in Kommunen E-Mail des Bearbeiters bei DIN: reiner.hager@din.de

DIN MITTEILUNGEN

#### Intelligenz und Resilienz für die Stadt der Zukunft

I Smart and resilient City

#### Notification of NWIP Ballot on Indicators for Smart Cities Internationaler Normungsbedarf

Datum des Dokumentes

2015

Aktion Antworttermin Absti 2015

Aus der TC 268/WG 2 wurde nun ein Projektvorschlag zum Thema "Sustainable Indicators for Smart Cities" eingereicht (siehe umseitig). Bitte stimmen Sie in der bis 17. April 2015 über den Vorschlag ab.



Peter Löffler, Head Innovation and Industry Affairs, Siemens Building Technologies, Zug (Schweiz).

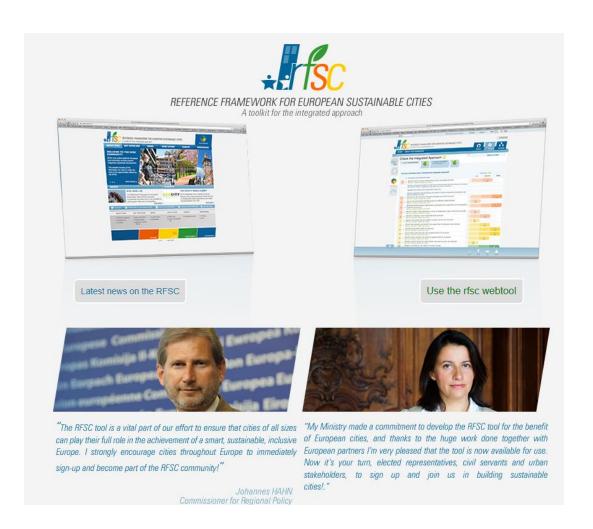
kehrs-, Menschen- und Transportströme gesamtheitlich steuerbar. Das sorgt zum einen für mehr Effizienz im Normalfall, zum anderen für bessere Widerstandsfähigkeit in der Krise.

#### Widerstandsfähige Städte sind besser gewappnet

In jeder Stadt gibt es bestimmte Anlagen und Einrichtungen, deren Schutz besonders hohe Priorität hat. Wenn solche kritischen Infrastrukturen angegriffen werden oder von einer Naturkatastrophe oder Unfällen betroffen sind, hat das weitreichende Folgen. Das haben etwa



## Available RFSC as measuring tool for sustainabilty in Europe



Quelle: Homepage RFSC http://www.rfsc.eu/



### **Integrated approach of RFSC**





## Total neglect of SDGs and related indicators at ISO, CEN/CENELEC and DIN

- In parallel to standardisation activities on sustainability the SDGs have been elaborated and adopted on Sept 25 2015
- The related indicators have not played any role in the standardisation activities
- We are heading for a multitude of indicator sets at UN and ISO level – is that meaningful?



## Standards on Smart Cities – all at all levels





### Standards / Programs on Smart Cities





Home Einstieg Antrag Projekt Beratung Veranstaltungen Service

#### Kurzüberblick



#### Programmaufbau von Horizont 2020

Horizont 2020 ist das Rahmenprogramm der Europäischen Union für Forschung und Innovation. Als Förderprogramm zielt es darauf ab, EU-weit eine wissens- und innovationsgestützte Gesellschaft und eine

wettbewerbsfähige Wirtschaft aufzubauen sowie gleichzeitig zu einer nachhaltigen Entwicklung beizutragen. Um gezielt in die Gesellschaft wirken zu können, setzt das Programm Schwerpunkte und enthält einen umfassenden Maßnahmenkatalog.

Kurzüberblick

Programmaufbau von Horizont 2020

Möglichkeiten der Teilnahme in Horizont 2020

Unterstützungsmöglichkeiten

Hintergrund

Förderbereiche

Teilnahme

Alle Förderformen und Instrumente im Überblick

77 Mrd. Euro für Horizont 2020 für die Laufzeit von 2014 - 2020

Quelle: Homepage Horizont 2020 http://www.horizont2 020.de/



### **Programs on Smart Cities**



PRESSEMITTELLUNG

Brüssel, 10. Juli 2012

#### Kommission ruft Innovationspartnerschaft "Intelligente Städte und Gemeinschaften" ins Leben

Eine der größten Herausforderungen der EU ist es, bestmögliche Wege zur Entwicklung von Städten zu intelligenten und nachhaltigen Lebensräumen zu ermitteln. Fast drei Viertel der Menschen in Europa leben in Städten, und auch 70 % des Energieverbrauchs in der EU fällt dort an. Staus verursachen in Europa jährlich Kosten in Höhe von ca. 1 % des BIP, und auch davon sind vor allem städtische Gebiete betroffen. Intelligente städtische Technologien können einen wichtigen Beitrag zur Bewältigung vieler dieser Herausforderungen leisten.

Mit der Gründung einer Europäischen Innovationspartnerschaft für Intelligente Städte und Gemeinschaften ("Smart Cities and Communities", SCC) möchte die Europäische Kommission die Entwicklung intelligenter städtischer Technologien vorantreiben. Dazu sollen Forschungsressourcen in den Bereichen Energie, Verkehr und Informations- und Kommunikationstechnologien (IKT) gebündelt und auf eine begrenzte Zahl von Demonstrationsprojekten konzentriert werden, die in Partnerschaften mit Städten umgesetzt werden. Allein im Jahr 2013 sind EU-Mittel in Höhe von 365 Mio. EUR für Demonstrationsprojekte zu solchen technischen Lösungen vorgesehen.

Die Erschließung des Potenzials innovativer, intelligenter Technologien wird derzeit durch zahlreiche Hindernisse erschwert, darunter ein hohes technisches Risiko, unsichere Investitionsrenditen oder aufsichtsrechtliche Schwierigkeiten. In wirtschaftlich schwierigen Zeiten schrecken viele Unternehmen und Städte zudem vor einem umfassenden und raschen Einsatz innovativer Technologien zurück, auch wenn sie dadurch möglicherweise Kosten sparen und langfristig Emissionen senken könnten.

Quelle: Homepage EU-Kommission http://europa.eu/rapid /press-release\_IP-12-760\_de.htm



## Umbrella of Smart Cities – Integrated urban development

## Integrated urban development

Sustainability

Climate protection

**Smartness** 

Resilience, social mobility etc.

Social, Economy, Ecology

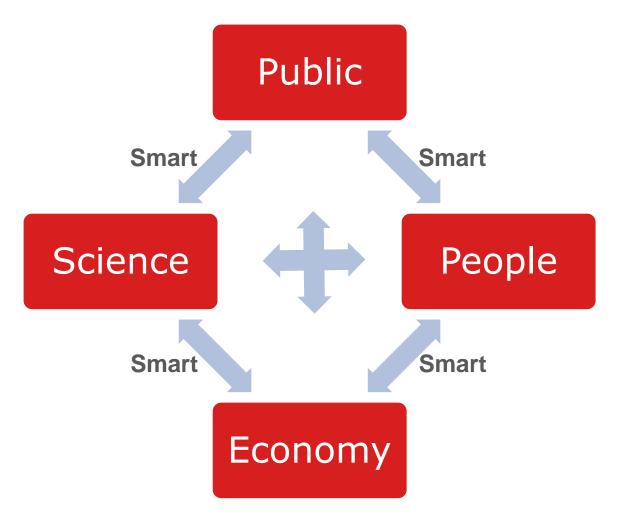
Adaptation, Mitigation...

Digitization, Networks, Interfaces etc

etc....



## What makes up Smartness?





### Questions on standardisation

- How is the participation of stakeholders affected by standards and the public assured?
- What means consensus?
- How to assure the means for "voluntary participation" in standardisation?
- Are ISO/DIN-standards in fact recommendations which are applied voluntarily?
- Who decides on the benefit for the public?
- standards may not generate an individual economic benefitso what?



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## Adopting standards at international / european / national level

- Decisions by interested groups which do not necessarily represent affected groups or stakeholders
- Adoption of standards by the same members which have prepared the draft standard
- No in any sense democratically legitimised control of standardisation
- Automatism of adoption of ISO and CEN/CENELEC standards at national level through agreement from Vienna. Even the industry raisesdoubts about this automatism.



## Questions to be raised / Claims to be made

- Standardisation process needs to allow for exit points
  - upon submission of a proposal on a standard
  - upon finishing the drafted standard
  - upon regular evaluation of the effect and meaningfulness of standards
- Differentiation between standards for products and services is needed as soon as standards have impacts on public budgets
- Representation of affected groups / stakeholders needs to assured
- SDGs and related indicators are the relevant proof of the applicability of standards

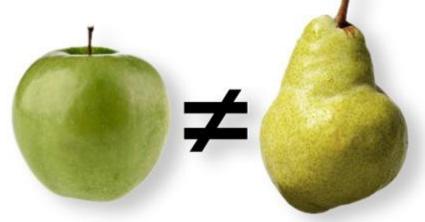
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#### Impacts of the status quo in standardisation

- Strong demands from the economy, industry and lending banks etc.
- Ranking or a direct comparison of cities with these indicators leads to wrong conclusions
- What is the required investment determined through standards or democratic decision making processes in line with available funds?



Quelle: http://www.sandyund daniel.de/apfel\_birne \_gleichung.jpg



#### Impacts of the status quo in standardisation

- A wrong conclusion leads to wrong action.
  - wrong rating of financial risks (e.g. granting of credits from the world bank group)
  - wrong investment decisions (e.g. financing of infrastructure)
  - wrong policy of subsidies etc.
- This will have considerable if not decisive effects on the capacities to take unbiased decisions on investments, to act freely and the development of cities.



#### **Resolution by the UCLG 2013 in Rabat**

#### ISO NORMS AND IMPACT IN LOCAL AUTHORITIES

"In view of the ongoing standardisation procedure led by the ISO-Technical Committee 268 'Sustainable development in communities' the UCLG executive committee expresses its concerns about the development of standards that go beyond technical or natural science based evidence.

Further aspects such as quality and societal values should only be the responsibility of the democratically elected political representatives, the citizens and relevant stakeholders.

Therefore, we call on the governments and the ISO Technical Committee to respect the principle of local self-government and the diversities of our cities.

Furthermore, we request that the work of ISO is organised in a transparent way and that local government and cities representative organisations are duly consulted. "



#### Activities from the DST - national

#### Normung in der Stadtentwicklung – Smart Cities

(Beschluss des Präsidiums vom 17.09.2014 –400. Sitzung)

#### **Beschluss TOP 13a:**

- 1. Das Präsidium wendet sich weiterhin entschieden gegen jegliche Versuche des Deutschen Instituts für Normung e.V. (DIN) oder anderer normsetzender Institute, Inhalte, Verfahren und/oder Prozesse der Stadtentwicklungsplanung zu normieren. Das Präsidium sieht das Erfordernis, dass die maßgeblichen Akteure zur Normung von Verfahren Abstand nehmen, die keinen gesellschaftlichen Mehrwert produzieren, weil das Verhältnis von Nutzen zu Aufwand und Kosten der Umsetzung nicht mehr ausgewogen ist.
- 2. Das Präsidium sieht das Erfordernis, Normungsverfahren grundsätzlich zu reformieren und unterstützt die Aktivitäten der Hauptgeschäftsstelle, dies im Rahmen einer auf Bundesebene einzurichtenden Reformkommission zu bewerkstelligen. Das Präsidium teilt die Ziele, die Relevanz von Normungsverfahren vor Einleitung zu prüfen und die Beteiligungskultur in Normungsverfahren zu verbessern.
- 3. In diesem Zusammenhang fordert das Präsidium, das bislang ausschließlich geltende Kriterium der "Marktrelevanz" zu ergänzen, da insbesondere im Baubereich Normungen und Regelsetzungen die als anerkannte Regeln der Technik und durch Rechtsprechung in der Praxis Verbindlichkeit erlangen zu Kostensteigerungen und Rechtsunsicherheiten führen.



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## To standardise or not to standardise ...

We need standardisation and norms on ...

- Minimum requirements on performance and function to technologies and appliances
- Interfaces between technological solutions
- Maintaining the flexibility for future system changes and extensions
- Data security and data safety
- Safeguarding a consistent and permanent support for technological solutions and appliances
- Electric plugs ...
- **-** ...



## To standardise or not to standardise ...

#### No standardisation in the fields of ...

- When is a city "smart" / "sustainable" / "prone to investments" ... ?
- Minimum requirements for Smart Cities / sustainable cieits
- Indicator systems for "Smart Cities" / sustainable cities outside RFSC and SDGs
- (International) City rankings
- Social and societal spheres
- Objectives for integrated urban development

**-** ...



## Careful monitoring of standardisation processes

#### Standardisation needs to be ...

- Understood as a political matter if it extends beyond mere technological spheres
- Codified in order to control encroachment of standardisation processes in political, fiscal and societal fields
- In line with the SDG indicators
- Self-corrective in view of contradictory standards, standards with a hidden purpose of marketing products
- Open for the interested public
- Democratically legitimised
- · ...



There are many ways to better standards – Thank you



Quelle: http://designyoutrust.com/2013/06/smart-ideas-for-smarter-cities/

