

Towards development of a top-level TC/268 maturity model



Introduction

- At the Paris meeting of TC/268, the UK suggested that it would be helpful to develop an overall maturity model for cities, drawing on the framework set out by SC1 in ISO/DIS 37153. The TC agreed, and WG4 was asked to work up proposals.
- At its Berlin meeting in May, WG4 made good progress and recommended a way forward. But in plenary discussion with other working groups, there was concern that WG4 was moving too quickly and on too narrowly-focused a basis
- The purpose of this document is to respond to those concerns, proposing a broader framework for future work in this area across TC/268
- The document is structured as follows:
 - Page 3 summarises the potential benefits from a TC/268 maturity model
 - Pages 4-7 re-cap on the key elements that a maturity model normally consists of
 - Page 8 summarises the approach to a smart city maturity model originally recommended by WG4
 - Pages 9-12 propose a broader approach that TC / 268 could use to build up a richer maturity model, using a modular approach that could be built up over time through integration of work by all WGs within a common, interoperable framework
 - Page 13-14 suggests some issues for discussion at our webex on 26 July, and suggests next steps in preparing for a TC-wide workshop on city maturity in Mexico in October

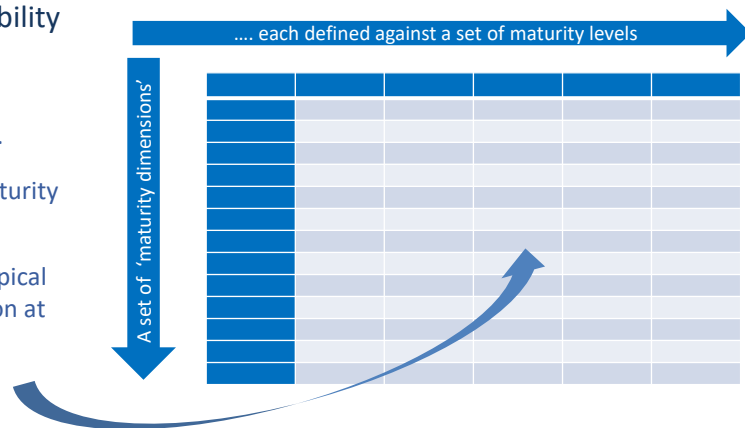


What are the potential benefits from a TC/268 maturity model?

- TC/268 offers a wide range of standards and good practice guidance, but:
 - While ISO 37120 offers a common way for city to measure indicators of their performance in key sectors....
 - it is not currently straightforward for a city to assess the extent to which the processes they are currently managing embrace TC/268 good practices
- An ‘overview’ maturity model (drawing on the framework developed by SC1) offers a potentially highly valuable way for cities to self-assess, identify gaps, and find their way quickly to the standards and guidance that are most relevant
- There is demand for this from cities, and the potential to develop something rapidly given existing work in this space

What is a city maturity model?

- Maturity models provide a widely-used approach for assessing the maturity of a process or capability
- Most use a similar structure:
 - a set of ‘maturity dimensions’....
 - mapped against a set of ‘maturity levels’
 - with descriptions showing typical characteristics of each dimension at each level



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- Example from BS1's PD8100:
 - dimensions focus on cross-cutting enablers of change

.... each defined against a set of maturity levels

| Component | ID | Characteristics | Maturity assessment | | | | | |
|--------------|-----|--|---------------------|------------|-----------|--------|---------|--|
| | | | Emerging | Developing | Competent | Proven | Leading | |
| Leadership | 101 | Providing a strong city leadership network that articulates a compelling vision and sets an effective strategic plan | | | | | | |
| Partnerships | 102 | Building a strong city leadership network that articulates a compelling vision and sets an effective strategic plan | | | | | | |
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- Example from Annex A of ISO 37101 :
 - dimensions focus on sustainability outcomes

.... each defined against a set of maturity levels

| Purpose | Initial - Initial initiatives | Establishing coherent framework | Integration and embedding | Leadership and innovation |
|---|--|---|---|---------------------------|
| | | | | |
| <p>Resilience</p> <p>Response to short-term crises and longer term such as food control measures. Creating basic buffers to over-voiced planning for some future risk, some initial environmental, demographic and economic measures</p> | <p>More complex risk awareness and modeling. Risk framework and plans for risk mitigation/adaptation. Co-ordinated response and forward planning as required by national agencies. Some resources allocated to future risks.</p> | <p>Development of social and economic resilience diversity e.g.: residential units, energy diversification, dual sourcing, dual-use, shared IT and broadband.</p> <p>Response starts to all new physical and social practices. Becomes part of culture</p> | <p>Independent accreditation of risk mitigation. Community resilience plans developed and shared. Integrated risk mitigation in cross-and inter-community schemes.</p> <p>equal to national and international understanding and action.</p> | |
| <p>Resource use</p> <p>Early engagement in new schemes such as new shared transport travel to work schemes, organic waste collection and grey water schemes</p> | <p>Building wider efficiency agenda applied in more comprehensive and planned way such as the use of green roof, city gardens, energy joint buying, car sharing etc.</p> <p>Resource use measurement undertaken and widely and accessibly disseminated</p> | <p>Shifting resource balance fund - only through changing balance of renewable energy supply produced food, promoting food markets and plant-producer exchange and bargaining. Encouraging stores to sell local products.</p> <p>Transport shifts such as bus and rail enhancement, cycle paths. Tonic site replacement and renewal</p> | <p>Resource planning long term. Long term carbon reduction based on shared resource ownership</p> <p>Pioneering schemes in land-use, energy transformation, and pollution reduction can be case studies for others to replicate.</p> | |

What is a city maturity model?

- Maturity models provide a widely-used approach for assessing the maturity of a process or capability
- Relevant existing models vary from 4 to 8 maturity levels

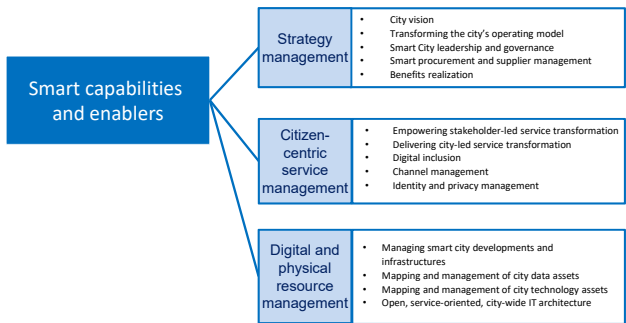
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.... each defined against a set of maturity levels

A set of 'maturity dimensions'

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-------------------------------|--------------|---------------------------------|---------------------------------|---------------------------|---------------------------|------------------------|--------------------|----------------|
| SC1 | | Initial | Partially fulfilled | Fulfilled | Improving | Sustainably optimising | | |
| ISO 37101 | | Start-up – isolated initiatives | Establishing coherent framework | Integration and embedding | Leadership and innovation | | | |
| BSI PD 8100 | | Lagging | Developing | Competent | Progressive | Compelling | | |
| Scottish Cities | | Ad hoc | Opportunistic | Purposeful and repeatable | Operationalised | Optimised | | |
| SMR Resilience Maturity Model | | Starting | Moderate | Advanced | Robust | Vertebrate | | |
| IDC | | Ad hoc | Opportunistic | Repeatable | Managed | Optimised | | |
| CS Transform | Non-existent | Fragmented | Coordinated | Managed | Eco-system enabled | | | |
| TM Forum | Not started | Informal | Documented | Planned | Deployed | Some impact | Significant impact | Maximum impact |

The approach originally recommended by WG4

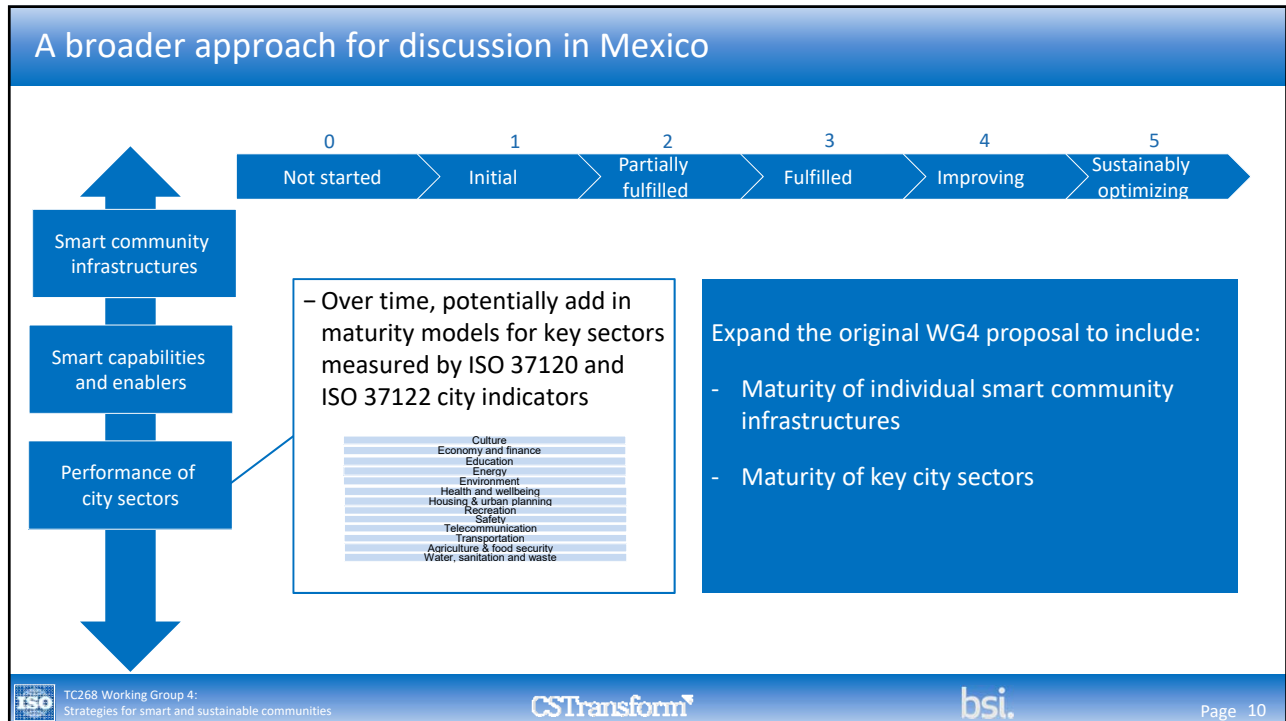
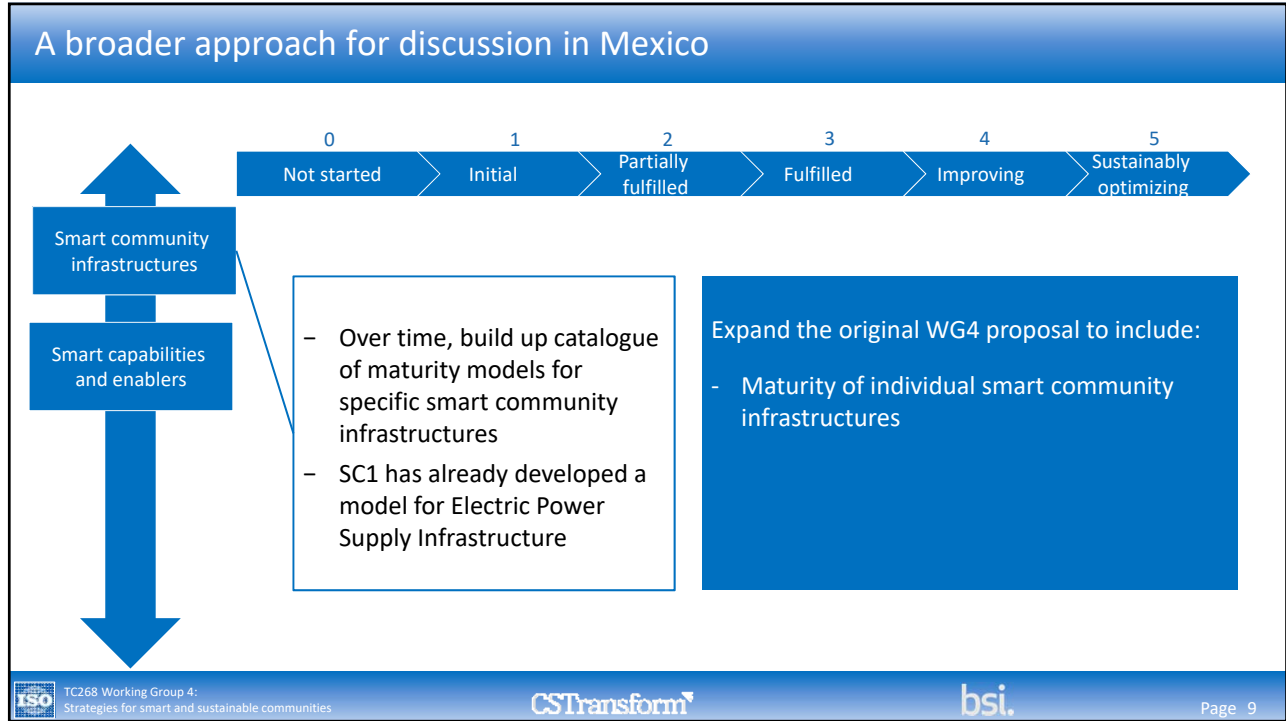


TC/268 should develop a 'whole-of-city' maturity model.....

..... that uses the maturity levels defined by SC1 for assessing maturity of smart community infrastructure

..... but with an additional 'Level 0' (recognising that at a whole-of-city level some key processes might not exist at all)

..... and which uses the set of city-wide smart capabilities and enablers identified in ISO 37106 as the basis for the 'dimensions' to be assessed



A broader approach for discussion in Mexico

0 1 2 3 4 5
 Not started Initial Partially fulfilled Fulfilled Improving Sustainably optimizing

- Develop a more extensive maturity model around the ISO 37101 / ISO 37104 strategic purposes

| |
|---|
| Attractiveness |
| Preservation & improvement of the environment |
| Resilience |
| Responsible resource use |
| Social cohesion |
| Well - being |

Expand the original WG4 proposal to include:

- Maturity of individual smart community infrastructures
- Maturity of key city sectors
- Maturity of the sustainable development outcomes being achieved by the city

TC268 Working Group 4:
Strategies for smart and sustainable communities

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Key principles

0 1 2 3 4 5
 Not started Initial Partially fulfilled Fulfilled Improving Sustainably optimizing

Smart community infrastructures

→

SC1

- A holistic, integrated model
 - Modular, interoperable
 - Can be built out over time

Smart capabilities and enablers

→

WG4

- Different WGs to lead on different elements, within common framework

Performance of city sectors

→

WG2

- High level TC/268 framework can link with more detailed supporting frameworks developed by others (for example, the maturity model on Resilient Cities being developed by the European Commission could underpin a TC/268 maturity model for resilience as a sustainability outcome)

Sustainability outcomes

→

WG1

TC268 Working Group 4:
Strategies for smart and sustainable communities

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Questions for discussion

- Does the approach sketched out here seem sensible?
- What work are different WGs doing that could feed into this? For example:
 - Is SC1 planning to develop any more maturity models for smart community infrastructures, to supplement the existing one on Electric Power Supply Infrastructure?
 - Is WG1 planning to expand the very short 4-level maturity description of the six sustainability purposes that is annexed to ISO 37101?
 - What thoughts does WG2 have about describing how different levels of performance on city indicators might combine to say something about city maturity?
- What sort of ISO deliverables might be the result of work in this area? For example:
 - International Workshop Agreement
 - Publicly Available Specification
 - Technical Specification
 - Future amendment to existing ISO standard(s)
 - New ISO standard(s)



Next steps in preparation for Mexico

- We are scheduled to hold a joint TC and SC1 workshop on city maturity models at 2-5pm on Thursday 26th October in Mexico City
- A potential agenda for this might be:

| | |
|---|----------------------|
| Introduction | Chairman |
| Setting the scene: | |
| • Overview of ISO/DIS 37153 (Smart community infrastructures - maturity model for assessment and improvement) | SC1 |
| • The rationale for using the 37153 approach to develop an overall city-wide maturity model, and overview of proposed approach (phased, modular, multi-level) | WG4 |
| Break-out groups (with cross-WG membership): | All |
| • What would be the purpose of a TC 268 City Maturity Model – what problems would we be trying to solve? | |
| • Options and priorities for taking this forward? | |
| An illustrative example (ie a first cut at what some elements of this might look like, presented by one or more pilot cities) | City representatives |
| Plenary discussion | All |
| Conclusions and next steps | Chairman |

