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SERIES Y: GLOBAL INFORMATION
INFRASTRUCTURE, INTERNET PROTOCOL ASPECTS
AND NEXT-GENERATION NETWORKS, INTERNET OF
THINGS AND SMART CITIES

ITU-T Y.4000 series – Smart sustainable cities - Setting the stage for stakeholders' engagement

ITU-T Y-series Recommendations – Supplement 34

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GLOBAL INFORMATION INFRASTRUCTURE

General	Y.100–Y.199
Services, applications and middleware	Y.200–Y.299
Network aspects	Y.300–Y.399
Interfaces and protocols	Y.400–Y.499
Numbering, addressing and naming	Y.500–Y.599
Operation, administration and maintenance	Y.600–Y.699
Security	Y.700–Y.799
Performances	Y.800–Y.899

INTERNET PROTOCOL ASPECTS

General	Y.1000–Y.1099
Services and applications	Y.1100–Y.1199
Architecture, access, network capabilities and resource management	Y.1200–Y.1299
Transport	Y.1300–Y.1399
Interworking	Y.1400–Y.1499
Quality of service and network performance	Y.1500–Y.1599
Signalling	Y.1600–Y.1699
Operation, administration and maintenance	Y.1700–Y.1799
Charging	Y.1800–Y.1899
IPTV over NGN	Y.1900–Y.1999

NEXT GENERATION NETWORKS

Frameworks and functional architecture models	Y.2000–Y.2099
Quality of Service and performance	Y.2100–Y.2199
Service aspects: Service capabilities and service architecture	Y.2200–Y.2249
Service aspects: Interoperability of services and networks in NGN	Y.2250–Y.2299
Enhancements to NGN	Y.2300–Y.2399
Network management	Y.2400–Y.2499
Network control architectures and protocols	Y.2500–Y.2599
Packet-based Networks	Y.2600–Y.2699
Security	Y.2700–Y.2799
Generalized mobility	Y.2800–Y.2899
Carrier grade open environment	Y.2900–Y.2999

FUTURE NETWORKS

CLOUD COMPUTING	Y.3000–Y.3499
	Y.3500–Y.3999

INTERNET OF THINGS AND SMART CITIES AND COMMUNITIES

General	Y.4000–Y.4049
Definitions and terminologies	Y.4050–Y.4099
Requirements and use cases	Y.4100–Y.4249
Infrastructure, connectivity and networks	Y.4250–Y.4399
Frameworks, architectures and protocols	Y.4400–Y.4549
Services, applications, computation and data processing	Y.4550–Y.4699
Management, control and performance	Y.4700–Y.4799
Identification and security	Y.4800–Y.4899

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Supplement 34 to ITU-T Y-series Recommendations

ITU-T Y.4000 series – Smart sustainable cities - Setting the stage for stakeholders' engagement

Summary

Supplement 34 to the ITU-T Y-series Recommendations is addressed to a broad audience of city decision makers and practitioners involved in the design and implementation of SSC. It is intended to be as general and inclusive as possible, applicable and relevant to any city, regardless of its size or location, in both developed and developing countries. The concepts and definitions presented in this Supplement are in alignment with the series of Supplements to the Y.4000 series.

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Table of Contents

		Page
1	Introduction.....	1
2	Abbreviations and acronyms	1
3	Methodology for SSC stakeholder identification and engagement	2
3.1	Identification of all stakeholders involved in an SSC	2
3.2	Categorization of stakeholders	3
4	Detailed analysis of selected stakeholders.....	5
4.1	An analysis of selected stakeholders	5
4.2	Analysis of stakeholder engagement progress	6
5	Stakeholders' roles in SSC	6
5.1	Municipalities, city councils and city administration.....	7
5.2	National and regional governments.....	9
5.3	City services companies	11
5.4	Utility providers.....	11
5.5	ICT companies (e.g., telecom operators, start-ups, software companies).....	12
5.6	Non-governmental organizations	12
5.7	International, regional and multilateral organizations.....	12
5.8	Industry associations	13
5.9	Academia, research organizations and specialized bodies	14
5.10	Citizens and citizen organizations	14
5.11	Urban planners.....	15
5.12	Standards developing organizations	15
6	Conclusions.....	16
	Appendix I.....	18
	Appendix II – SCC – CERT/CSIRT/SOC	24
	Bibliography.....	28

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Supplement 34 to ITU-T Y-series Recommendations

ITU-T Y.4000 series – Smart sustainable cities - Setting the stage for stakeholders' engagement

1 Introduction

It is suggested that one of the major challenges in the emerging smart sustainable city (SSC) field is the lack of a common framework and understanding of SSC stakeholders, including their roles and responsibilities. Responding to that need, the objective of this Supplement is to strengthen the design and implementation of SSC by providing all interested stakeholders with a clear overview of roles and responsibilities, including a series of recommendations that can help maximize their contributions to SSC goals.

Global human security and development depend on the strengthening of collective action. The many challenges faced (including the establishment process of SSC) cannot be met effectively by individual governments without the active involvement of civil society, non-governmental organizations (NGOs) and the private sector [b-UN].

Hence, countries, governments, business and various stakeholders realize that complex issues, such as the establishment of an SSC, cannot be achieved by a single actor. Such complex activities require coordinated effort with multiple stakeholders contributing to innovative and sustainable solutions [b-SEM].

This Supplement, based on this fact, is expected to help maximize the contribution of each of these actors, prevent overlapping of functions and facilitate the identification of gaps so as to increase the likelihood that an SSC's goals will be achieved.

This Supplement is addressed to a broad audience of city decision-makers and practitioners involved in the design and implementation of an SSC. It is intended to be as general and inclusive as possible, applicable and relevant to any city, regardless of its size or location, in both developed and developing countries. The concepts and definitions presented in this Supplement are in alignment with the series of Supplements to the ITU-T Y.4000 series.

2 Abbreviations and acronyms

This Supplement uses the following abbreviations and acronyms:

CERT	Computer Emergency Response Team
CSIRT	Computer Security Incident Response Team
EMF	Electromagnetic Field
GSM	Global System for Mobile communications
ICT	Information and Communication Technology
IDS	Intruder Detection System
ISMD	Information Security Management Department
KPI	Key Performance Indicator
LFA	Logical Framework Approach
NGO	Non-Governmental Organization
R&D	Research and Development
SDO	Standards Developing Organization

3 Methodology for SSC stakeholder identification and engagement

In this report, a stakeholder is defined as any entity, an institution or an individual, that has an interest in smart sustainable cities. A stakeholder may also be an entity, institution or individual that can significantly influence or be influenced by its deployment.¹

Stakeholder engagement may be viewed as a technique of enhancing the: (i) relevance; (ii) responsiveness; (iii) accountability; (iv) transparency; (v) inclusiveness; (vi) legitimacy; (vii) effectiveness; (viii) efficiency; and (ix) equitability of the decision-making process. Keeping in mind the aforementioned aspects, if stakeholder identification and participation are carried out properly, good participation can itself make a significant contribution to the governance. This is based on the assumption that policymaking conducted in an interactive way will build on stakeholder knowledge and this process of policymaking would be more contextual, reliable and easy to implement [b-UNEP]. Based on this assumption, the methodology for stakeholder analysis for SSC has been elaborated in this Supplement.

The methodology for stakeholder analysis that has been followed in this report is an adaptation of the principles proposed by the logical framework approach (LFA) [b-LFA]. The methodological approach proposed is general in scope, and aims at obtaining a broad classification of the stakeholders involved in a city that wants to become smart and sustainable. This method can be adapted by a particular city to identify and analyse the stakeholders that play a role at the local level.

The steps proposed are summarized in Figure 1 and further developed in this clause.

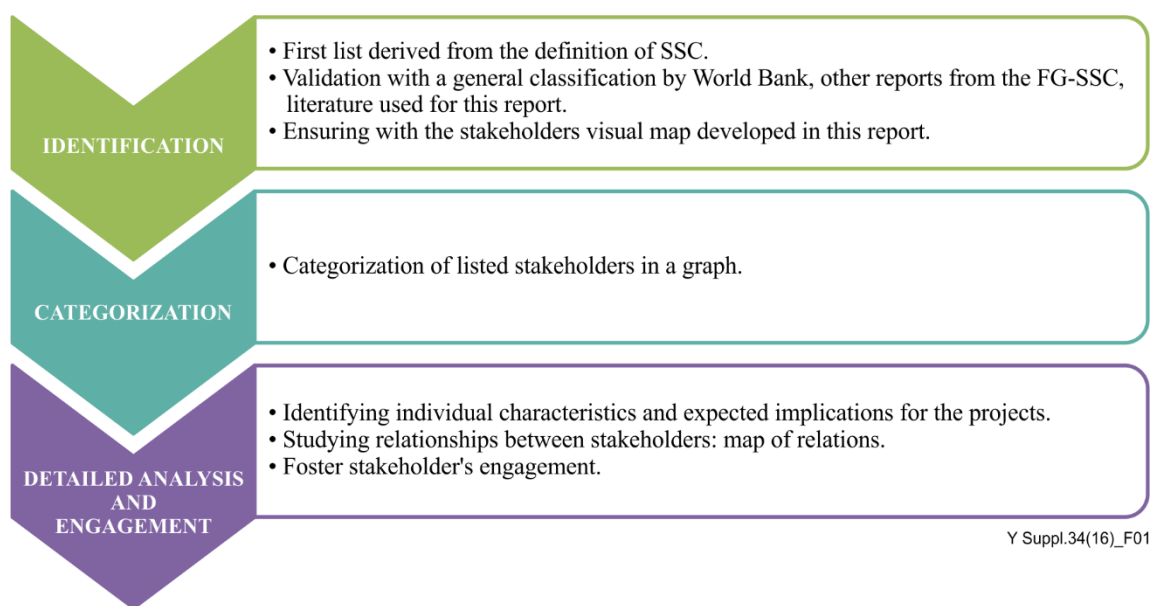


Figure 1 – Steps involved in the analysis of SSC stakeholders

Adapted from World Bank and LFA approach.

3.1 Identification of all stakeholders involved in an SSC

In this first stage, all stakeholders that may be affected or can affect the deployment of the SSC model are identified. The following steps were carried out in order to compile the list of key SSC stakeholders:

¹ The definition is a modification of that appearing in [b-WB].

- initial list derived from the definition: agents that are interested, affected or that have power to influence SSC;
- validation of the list based on a general classification of stakeholders;
- validation of the list with stakeholders that appear in different Supplements;
- validation of the list with stakeholders that appear in the literature used for this report.

Based on these steps, the following non-exhaustive list of SSC stakeholders has been compiled (in no particular order):

- a. **Municipalities, city councils and city administrations:** They are responsible for city management and therefore they are the main promoters of SSC initiatives in each specific city.
- b. **National and regional governments:** They have remits on policies that can affect SSC implementation.
- c. **City services companies:** They implement SSC solutions to increase city services efficiency.
- d. **Utility providers:** They are responsible for the deployment of some of the features of an SSC, such as smart grid or smart water management.
- e. **Information and communication technology (ICT) companies** (telecom operators, start-ups, software companies): They are the providers of global and integrated solutions, city platforms, as well as ICT infrastructure to support SSC deployment.
- f. **NGOs:** These are involved in all initiatives that can influence society and therefore are considered a stakeholder in SSC, especially on the axis of social sustainability.
- g. **International, regional and multilateral organizations:** They include UN agencies and multilateral organizations. They can be promoters of initiatives towards human development, environmental sustainability and improvement of quality of life worldwide. They can offer funding opportunities, and are promoters of SSC initiatives.
- h. **Industry associations:** Since industries are interested in the deployment of SSC, industry associations also work towards the success of this new model.
- i. **Academia, research organizations and specialized bodies:** They study SSCs and associated trends, including their impacts on and contributions to sustainable development.
- j. **Citizens and citizens' organizations:** As inhabitants of cities, citizens are affected both directly and indirectly by SSC deployment.
- k. **Urban planners:** Their expertise is important to better understand how to include ICTs in medium- and long-term city planning, as well as to consider urban complexities.
- l. **Standardization bodies:** These organizations are critical to ensuring the application of common terminology and minimum characteristics of an SSC, as well as specifying measurement methods to assess the performance and sustainability of city services based on ICTs.

The roles and responsibilities of each of these stakeholders are further explained in clause 5.

3.2 Categorization of stakeholders

The stakeholders included in the list are then categorized according to two different criteria:

- a) According to their *role and participation in project(s) related to SSC*. This classification is based on the LFA methodology, as follows:
 - **Active:** This refers to all the actors that have the resources and the power to influence the initiative. In this Supplement, all stakeholders have been classified as active because potentially any of them can influence the SSC agenda. When making this classification

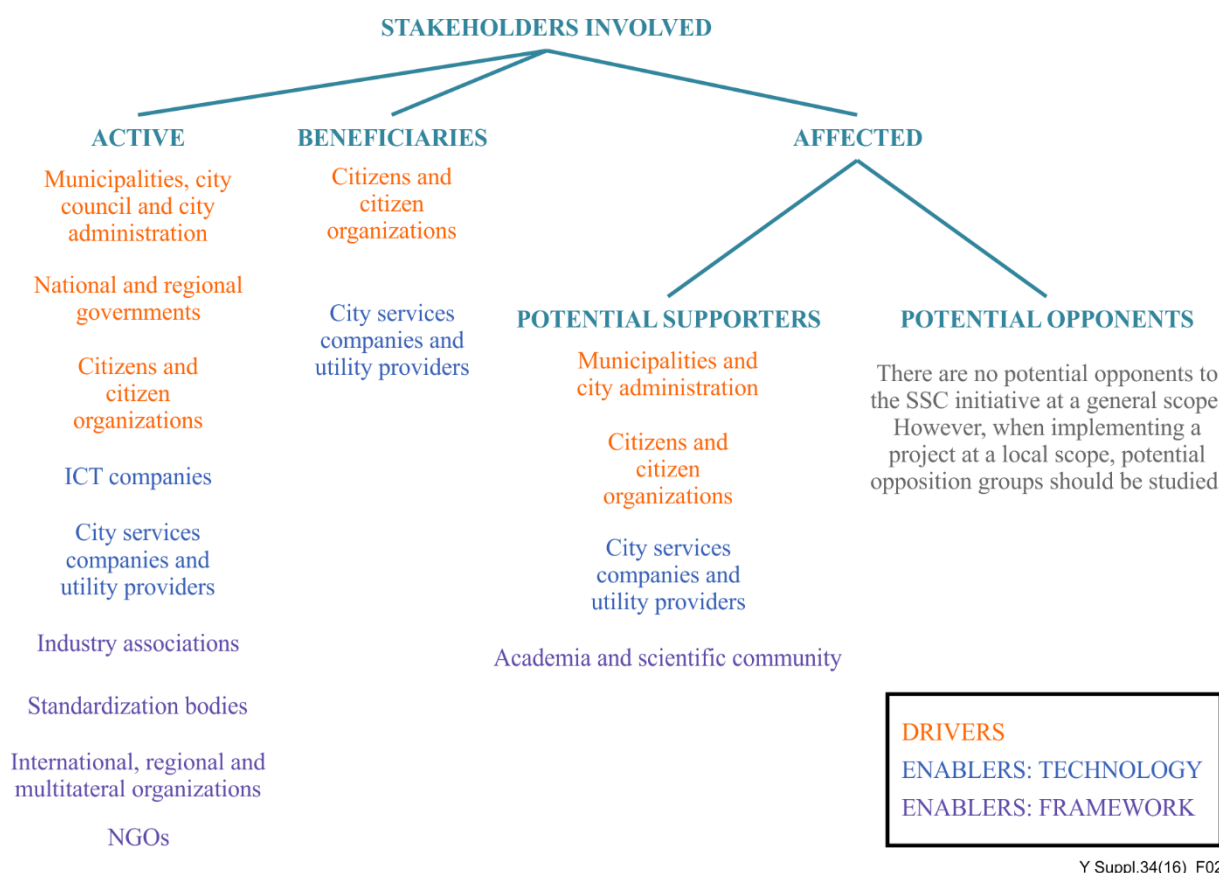
at the local level, this list is usually shorter since not all the actors who potentially could, will have the resources and power to do so.

- **Beneficiaries:** These are the stakeholders that will directly benefit from the deployment of SSC.
- **Affected:** This category includes all actors that will be somehow affected by the deployment of SSC. They can be further divided into potential supporters and potential opponents.

b) According to their role as drivers or enablers of SSC processes and solutions.

- **Enablers of technology:** They provide the technology or the technological solutions.
- **Drivers of technology:** These are the stakeholders that incorporate technology and SSC solutions into their processes, e.g., in city services provision processes.
- **Enablers of the SSC:** They facilitate the technical and policy framework needed for SSC by collaborating to some extent in the specification of concepts and key performance indicators (KPIs), infrastructure development, standardization, etc.

Figure 2 illustrates a classification of SSC stakeholders at a general level, based on the categories explained above. It is relevant to note that, given the specific context and set of stakeholders that operate in a particular city, the implementation of this method will differ slightly from one city to another.



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Figure 2 – Example of SSC stakeholder classification

Adapted from the LFA Methodology.

This mapping exercise will provide cities with an initial framework to identify the stakeholders that will take part in their transformation into smart sustainable cities. It is intended to be a tool to facilitate the coordination activities needed to implement SSC policies and projects. As mentioned before, the stakeholder identification has to be city specific.

4 Detailed analysis of selected stakeholders

4.1 An analysis of selected stakeholders

This is one of the most important phases of the stakeholder's identification process for SSC, because it establishes a methodological approach to analyse the role and potential contribution implications that one stakeholder may have on a city. This analysis can be done considering two approaches, described as follows:

- a. By identifying their individual characteristics and their potential contribution, the expected implications for the project can be illustrated in a matrix of stakeholders containing the following dimensions:
 - *Scale and sector*: The scale at which the stakeholder operates (e.g., local or supra-local scale); and, when relevant, the sector in which they operate (e.g., public or private sector).
 - *Aims and challenges*: The aims refer to the key objectives or advantages they seek from their involvement in SSC strategies, while challenges refer to the problems, unsatisfied needs or concerns they might have.
 - *Potential and constraints*: Potential refers to issues such as stakeholders' resource endowment, knowledge, experience and know-how. Constraints refer to issues that limit the realization of their role within the SSC, including lack of coordination, lack of expertise, limited financial resources, among others.
 - *Role and contributions*: This refers to the role of the stakeholder with respect to the SSC's goals, and the contributions towards their achievement.

Table I.1 illustrates this classification.

- b. Figure 3 provides an overview of the stakeholders involved in SSCs, and how they relate to each other.

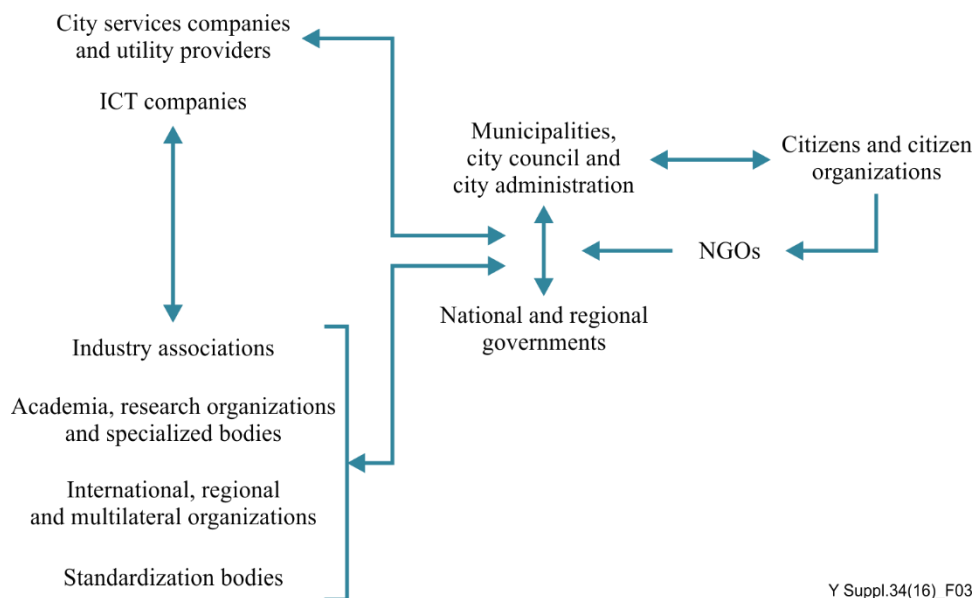


Figure 3 – Example of an SSC stakeholder's (interaction) map

Both analyses should be developed together in order to better understand stakeholders' roles and relationships. Clause 4.2 provides an analysis of these dimensions for each SSC stakeholder.