

Recommendation

ITU-T Y.4910 (03/2023)

SERIES Y: Global information infrastructure, Internet protocol aspects, next-generation networks, Internet of Things and smart cities

Internet of things and smart cities and communities –
Evaluation and assessment

Maturity model of digital supply chain for smart sustainable cities

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

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
Computing power networks	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

Y.3000–Y.3499

CLOUD COMPUTING

Y.3500–Y.3599

BIG DATA

Y.3600–Y.3799

QUANTUM KEY DISTRIBUTION NETWORKS

Y.3800–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
Evaluation and assessment	Y.4900–Y.4999

For further details, please refer to the list of ITU-T Recommendations.

Recommendation ITU-T Y.4910

Maturity model of digital supply chain for smart sustainable cities

Summary

With the rapid development of advanced information technologies such as the Internet of things (IoT), big data and cloud computing, the traditional supply chain has been transformed into a digital supply chain. Digital supply chains may help to maintain high growth by reducing operation costs and improving the efficiency of supply chain management with the help of digital methods. As a result, digital supply chains can assist with the construction and management of smart sustainable cities (SSC).

Recommendation ITU-T Y.4910 provides a maturity model of digital supply chain for SSC referring to the key performance indicators (KPIs) for SSCs in Recommendation ITU-T Y.4900 and the maturity model for SSC in Recommendation ITU-T Y.4904. Both of these Recommendations support the maturity model for digital supply chains. The use of the maturity model for digital supply chains has specific benefits for socioeconomic indicators, such as: environmental sustainability, productivity, innovation, and trade. This maturity model helps identify the goals, levels, dimensions and assessment methods of digital supply chain for SSC. It is designed as a practical tool for city managers and all related stakeholders to study the performance and benefits of digital supply chain from economic, social and environmental perspectives. Thus, this Recommendation gives general guidance for accurately assessing the maturity of digital supply chains and help in achieving sustainable development goals for SSC.

History

Edition	Recommendation	Approval	Study Group	Unique ID*
1.0	ITU-T Y.4910	2023-03-28	20	11.1002/1000/15489

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Digital supply chain, key performance indicators (KPIs), maturity model, smart sustainable city (SSC).

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In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

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Table of Contents

Page

1	Scope	1
2	References.....	1
3	Definitions	1
3.1	Terms defined elsewhere	1
3.2	Terms defined in this Recommendation	1
4	Abbreviations and acronyms	2
5	Conventions	2
6	Overview of the maturity model.....	2
7	Maturity levels.....	3
7.1	Overview	3
7.2	Initial starting level (L1)	4
7.3	Unit optimization level (L2)	4
7.4	Integrated collaboration level (L3).....	4
7.5	Full-chain collaboration level (L4).....	4
7.6	Ecosystem intelligence level (L5)	5
8	Maturity dimensions of digital supply chain for SSC.....	5
8.1	Overview	5
8.2	System design of digital supply chain.....	6
8.3	Platform empowerment of digital supply chain	9
8.4	Business operation of digital supply chain	11
8.5	Efficiency and benefit of digital supply chain.....	14
9	Maturity assessment methods.....	16
9.1	Collection of assessment evidence	16
9.2	Calculation of assessment score	17
9.3	Determination of maturity level	17

Recommendation ITU-T Y.4910

Maturity model of digital supply chain for smart sustainable cities

1 Scope

This Recommendation presents a maturity model, which contains maturity levels and maturity dimensions, as well as maturity guidelines and assessment methods of the digital supply chain for smart sustainable cities (SSC). The goal of this Recommendation is to provide an effective way to achieve sustainable development goals for SSC by assessing and promoting the use of advanced technologies, and gradually improving the capabilities of digital supply chain.

The scope of this Recommendation includes:

- 1) Maturity model of digital supply chain for SSC;
- 2) Maturity levels of digital supply chain for SSC;
- 3) Maturity dimensions of digital supply chain for SSC; and
- 4) Maturity assessment methods of digital supply chain for SSC.

This Recommendation is not intended either to compare or to prescribe any commercial products or solutions. It is intended to be a technology-neutral Recommendation.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

- [ITU-T Y.4900] Recommendation ITU-T Y.4900/L.1600 (2016), *Overview of key performance indicators in smart sustainable cities*.
- [ITU-T Y.4904] Recommendation ITU-T Y.4904 (2019), *Smart sustainable cities maturity model*.

3 Definitions

3.1 Terms defined elsewhere

None.

3.2 Terms defined in this Recommendation

This Recommendation defines the following term:

3.2.1 digital supply chain: A smart, efficient, data-driven network structure, which is formed by suppliers, manufacturers, service providers, distributors and consumers and other subjects, so as to plan, organize, control and optimize the entire business process from initial raw materials to final products and services.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

AGV	Automated Guided Vehicle
CRM	Customer Relationship Management
DSC	Digital Supply Chain
ERP	Enterprise Resource Planning
KPI	Key Performance Indicators
R&D	Research and Development
SDG	Sustainable Development Goal
SRM	Supplier Relationship Management
SSC	Smart Sustainable City
WMS	Warehouse Management System

5 Conventions

In this Recommendation:

The keywords "**is required**" indicate a requirement which must be strictly followed and from which no deviation is permitted if conformance to this document is to be claimed.

The keyword "**is recommended**" indicates an optional requirement which is permissible, without implying any sense of being recommended. These terms are not intended to imply that the vendor's implementation must provide the option and the feature can be optionally enabled by the network operator/service provider. Rather, it means the vendor may optionally provide the feature and still claim conformance with the specification.

6 Overview of the maturity model

As shown in Figure 1, the digital supply chain maturity model consists of maturity levels and maturity dimensions, which can be used to achieve the sustainable development goals for smart sustainable cities (SSC) by evaluating the maturity of the digital supply chain. Based on the maturity model of digital supply chain, relevant stakeholders can comprehensively evaluate the maturity level of digital supply chain for SSC, or select to evaluate the level and performance of several key activities of a digital supply chain for SSC.