FINAL
DRAFT

INTERNATIONAL
STANDARD

**ISO/IEC
FDIS
5153-1**

ISO/IEC JTC **1**

Secretariat: **ANSI**

Voting begins on:
2023-12-08

Voting terminates on:
2024-02-02

Information technology — City service platform for public health emergencies —

Part 1:
Overview and general requirements

iTeh Standards
(https://standards.iteh.ai)
Document Preview

ISO/IEC FDIS 5153-1
https://standards.iteh.ai/catalog/standards/sist/36aea672-863a-4b49-842b-30fe3c181c97/iso-iec-fdis-5153-1

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT PATENT RIGHTS OF WHICH THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

Reference number
ISO/IEC FDIS 5153-1:2023(E)

© ISO/IEC 2023

iTeh Standards
(https://standards.iteh.ai)
Document Preview

ISO/IEC FDIS 5153-1
https://standards.iteh.ai/catalog/standards/sist/36aea672-863a-4b49-842b-30fe3c181c97/iso-iec-fdis-5153-1

COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2023

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

© ISO/IEC 2023 – All rights reserved

Contents

Page

iTeh Standards
(https://standards.iteh.ai)
Document Preview
ISO/IEC FDIS 5153-1
https://standards.iteh.ai/catalog/standards/sist/36aea672-863a-4b49-842b-30fe3c181e97/iso-iec-fdis-5153-1

© ISO/IEC 2023 – All rights reserved

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives or www.iec.ch/members_experts/refdocs).

ISO and IEC draw attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO and IEC take no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO and IEC had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents and https://patents.iec.ch. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

iTeh Standards
(https://standards.iteh.ai)
Document Preview

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html. In the IEC, see www.iec.ch/understanding-standards.

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*.

https://standards.iteh.ai/catalog/standards/sist/36aea672-863a-4b49-842b-30fe3c181e97/iso-iec-fdis-5153-1

A list of all parts in the ISO/IEC 5153 series can be found on the ISO and IEC websites.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

© ISO/IEC 2023 – All rights reserved

Introduction

Public health emergencies, particularly those caused by infectious diseases such as the COVID-19 pandemic, have unprecedented impacts on the social and economic aspect of many cities. A Public Health Emergency of International Concern (PHEIC) is a formal declaration by the World Health Organization (WHO) of "an extraordinary event which is determined to constitute a public health risk to other States through the international spread of disease and to potentially require a coordinated international response".[6]

Information technology can provide significant support in expanding city capacities to respond to such public health emergencies, in particular by providing capabilities to coordinate data, services and applications across operational domains for multiple stakeholders in smart cities.

Smart city applications can be classified into two groups: domain-specific applications and cross-domain applications. In a public health emergency scenario, various information and services are provided via different channels from different sources. It would be more convenient and simpler for users to have a single hub which can provide all necessary services at the application layer.

This document introduces a city service platform as a single hub for public health emergencies.

iTeh Standards
(https://standards.iteh.ai)
Document Preview

ISO/IEC FDIS 5153-1
https://standards.iteh.ai/catalog/standards/sist/36aea672-863a-4b49-842b-30fe3c181c97/iso-iec-fdis-5153-1

© ISO/IEC 2023 – All rights reserved

iTeh Standards
(https://standards.iteh.ai)
Document Preview

ISO/IEC FDIS 5153-1
https://standards.iteh.ai/catalog/standards/sist/36aea672-863a-4b49-842b-30fe3c181c97/iso-iec-fdis-5153-1

Information technology — City service platform for public health emergencies —

Part 1: Overview and general requirements

1 Scope

This document specifies the general requirements for a city service platform for public health emergencies. It also specifies the requirements in terms of data, functions, security and privacy protection.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 27701, *Security techniques — Extension to ISO/IEC 27001 and ISO/IEC 27002 for privacy information management — Requirements and guidelines*

iTeh Standards
(https://standards.iteh.ai)
Document Preview

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

https://standards.iteh.ai/catalog/standards/sist/36aea672-863a-4b49-842b-30fe3c181e97/iso-iec-fdis-5153-1

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
city service
service rendered in the public interest

Note 1 to entry: This is also known as "public service" and "service of general interest".

4 Abbreviated terms

DDoS	distributed denial-of-service
PHE	public health emergency
SCDP	smart city digital platform

5 Public health emergency scenario

A public health emergency (PHE) is a typical smart city scenario which requires cross-sector and cross-department cooperation and collaboration. To control a public health emergency and allocate necessary emergency resources requires professional authority and enforceability, such as disease control and prevention, emergency response and management, and healthcare. Information technologies also

© ISO/IEC 2023 – All rights reserved

enable accurate information collection and analysis, quick community reactions, enhancement of society cooperation and support in decision-making, thus improving city sustainability and resilience under a PHE scenario.

According to a study taken by the World Summit on the Information Society (WSIS), the main stakeholders for a PHE include academia, civil society, the government, international organizations, the private sector and others (individuals and organizations).[4] These stakeholders can be further categorized into three roles, as follows.

1) Manager and coordinator: ensures preparedness, readiness and response actions at an appropriate scale to reduce both PHE spread and economic, public and social impacts.

2) Service provider: implements and provides necessary technologies, measures, services and tools based on user demand and policies made by manager and coordinator.

3) User: follows official guidance and uses services provided to protect themselves and others with respect to public interest.

PHEs have wide impact on all aspects of city operation and public daily life. In general, the following four phases of emergency management are widely applied:

— Prevention and mitigation: cover activities or precautions for assessing and preventing the risks, vulnerabilities, threats, potential severity, likelihood, consequences and impact of a PHE for cities. With these activities or precautions, it can be ensured that cities have taken adequate steps to prevent and reduce the likelihood of occurrence or mitigate the damaging effects.

NOTE Prevention and mitigation need to be considered and planned in advance of an actual emergency.

— Preparedness: covers the planning that needs to be incorporated or decided actions that will assist in successfully dealing with an emergency.

— Response: covers the reality of how to respond to an emergency scenario.

— Recovery: takes place after the emergency is over and the immediate danger has subsided.

iTeh Standards (https://standards.iteh.ai) Document Preview ISO/IEC FDIS 5153-1

City services are located at the smart applications layer as described in ISO/IEC 30145-3. With the common data and service capabilities provided by a smart city digital platform as described in ISO/IEC 24039, a city service platform for PHE focuses on providing scenario-specific and integrated services to improve emergency response efficiency, ensure city operation, protect public safety and continue daily life throughout the emergency prevention and mitigation, preparedness, response and recovery stages, as shown in Figure 1.

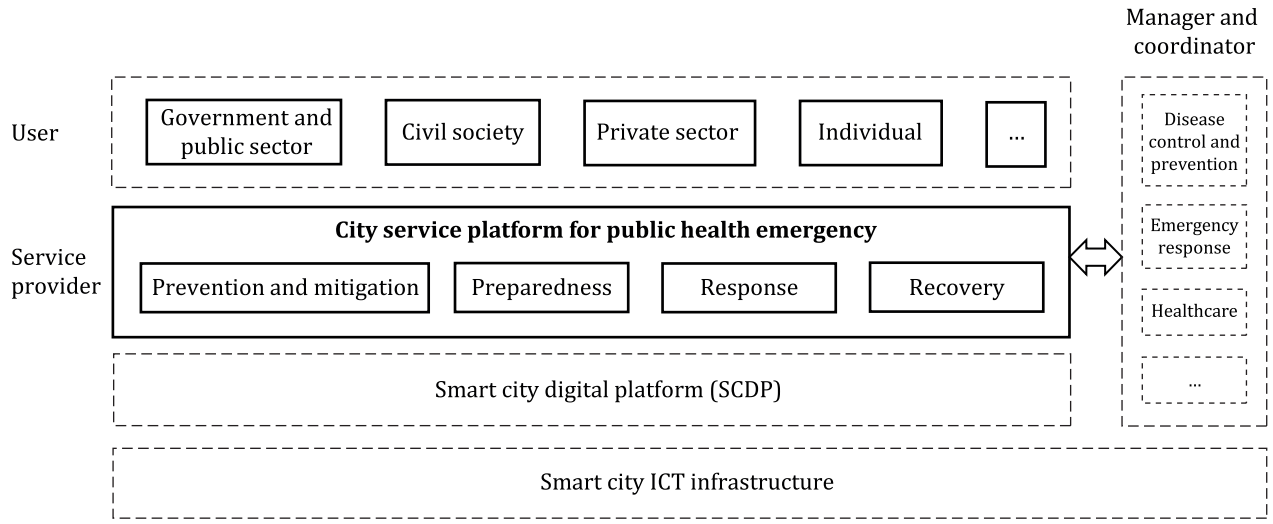

Figure 1 — City service platform for public health emergency (PHE)

© ISO/IEC 2023 – All rights reserved

6 General requirements

6.1 Accessibility requirements

A PHE can have global impact for everyone, including people living in situations of poverty, older people, people with disabilities, young people and indigenous peoples.

Thus, a city service platform for PHE shall provide the necessary accessibility supports for people with difficulties in vision, physical ability, hearing or mobility, and people with cognitive impairments or learning disabilities. A city service platform for PHE should support and meet corresponding requirements for digital inclusion solutions and initiatives provided by government, civil society and international organizations, taking into consideration the unbalanced development of information infrastructure that can present startling digital inequalities between and within countries.

6.2 Interoperability requirements

A PHE can impact all aspects of daily life and social activities. PHE-related digital services can be delivered via various channels, such as sensors, cameras, mobile devices, tablets, smart terminals, smart screens, etc. Thus, a city service platform for PHE should enable data and system interoperability for various devices and terminals.

For example, individuals can use mobile APPs to report relevant information. Professional or authorized organizations can use client web programs to confirm reported information and executive responses. Coordinators and management departments can use smart screens to visualize the overall situation and perform decision-making.

Technical requirements for a city service platform for PHE in terms of data, service and interface are provided in Clause 7 and Clause 8.

iTeh Standards
(https://standards.iteh.ai)
Document Preview

6.3 Privacy protection requirements

To control the spread of a PHE, the collection of personal information, such as health-related information, travel history and medical records can be necessary. Thus, a city service platform for PHE shall establish a complete privacy protection policy according to municipal policy and regulations, taking both technical and business aspects into consideration, such as the location of the platform, where and to whom the service is delivered, etc. Technical privacy protection requirements for a city service platform for PHE are provided in Clause 10.

7 Data requirements

7.1 Data traceability

Data traceability requirements and recommendations of a city service platform for PHE shall include the following points.

a) Within the specified data retention period, the data should be clear, readable, understandable and traceable, ensuring that the steps and the sequence of data generation can be completely reproduced.

b) Operations such as data extraction, cleaning, loading, fusion and conversion during data processing shall be recorded through the audit trail function to ensure the traceability.

c) Alternative methods should be used for situations that do not have the audit trail function, such as log, change control, record version control or original electronic records, supplemented with paper records to ensure the data traceability.

© ISO/IEC 2023 – All rights reserved

d) The audit trail function of the platform shall not be closed and the data generated by the audit trail function shall not be modified. The frequency and the content of the audit trail review should be determined based on task risk level.

e) Data traceability analysis, auditing and tracking should be supported to improve supervision for the spread of unauthorized data.

f) The record storage duration should be determined by fully considering the municipal regulations and legal requirements.

7.2 Data exchange and sharing

The data exchange and sharing requirements and recommendations of a city service platform for PHE shall:

a) provide a variety of data sharing and exchange methods to realize data sharing and business collaboration between provincial, prefectural, county and district levels of commissions, bureaus and related organizations, and provide support for cross-departmental applications;

b) be able to exchange data across domains and network segments, access across network segments and firewalls, and provide data exchange and data forwarding functions between the same or different networks;

c) realize the exchange and sharing of a variety of information resources, including file exchange, database data exchange, and event-driven, request/response, and publish/subscribe;

d) support the convenient and rapid packaging of various databases and application systems into services, and analyze the data in various service interfaces provided by various institutions;

e) provide data exchange logs to ensure that all data exchange tasks record detailed log information, and that data exchange tasks can be tracked and audited afterwards.

iTeh Standards
(https://standards.iteh.ai)
Document Preview

7.3 Data security

ISO/IEC FDIS 5153-1

The data security requirements and recommendations of a city service platform for PHE shall:

a) enable data security protection throughout the data lifecycle;

b) provide secured information inquiry, copy and share methods to ensure data security, and comply with relevant municipal policies.

c) support the complete destruction of corresponding data as local laws and regulations require data to be deleted, storage space to be released, medium to be redistributed, replaced or eliminated; appropriate destruction methods should be selected for different types of data and medium to ensure that the data are destroyed and cannot be restored.

7.4 Data quality

The data quality requirements and recommendations of a city service platform for PHE shall:

a) objectively reflect the reality (authenticity);

b) reflect the actual situation in the process of time change (timeliness);

c) take into account compliance with data standards, data models, data rules, etc. (normative);

d) ensure the completeness of data field information and metadata (integrity);

e) establish a data management mechanism from data collection, data transmission, data processing, data exchange to data destruction throughout both the data lifecycle and emergency management lifecycle;

© ISO/IEC 2023 – All rights reserved