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Automation systems and integration – Assessment on convergence of informatization and industrialization for industrial enterprises – Part 1: Framework and reference model (ISO 22549-1:2020)

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**Automation systems and
integration — Assessment on
convergence of informatization
and industrialization for industrial
enterprises —**

**Part 1:
Framework and reference model**

*Systèmes d'automatisation et d'intégration — Évaluation de la
convergence de l'informatisation et de l'industrialisation pour les
entreprises industrielles —*

Partie 1: Cadre et modèle de référence



ISO 22549-1:2020(E)



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 ISO documents 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).

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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.

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A list of all parts in the ISO 22549 series can be found on the ISO website.

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.

Introduction

Convergence of informatization and industrialization (CII) refers to a process that integrates information technology into industrial production. The purpose of convergence is to improve productivity and resource allocation by digital transformation.

This improvement consists of:

- increasing the integration of production and resource allocation (internally and with each other);
- making production and resource allocation more dynamic and responsive to external changes;
- optimizing production and resource allocation.

The purposes of this document include is to provide industrial enterprises guidance for:

- assessing the current situation of CII;
- finding weakness within the CII;
- identifying ways to improve CII.

The intended users of this document can be grouped into the following categories:

- independent third-party, e.g. a consulting company or government department, that assesses the maturity of CII;
- organization in charge of production management department, quality management department, inventory management department, etc., which sponsors an assessment of itself or a subordinate organization;
- any other enterprises who have interest in digital transformation.

Automation systems and integration — Assessment on convergence of informatization and industrialization for industrial enterprises —

Part 1: Framework and reference model

1 Scope

This document defines the basic principles for an assessment concerning the convergence of informatization and industrialization (CII) in industrial enterprises, including the following:

- assessment framework definitions;
- assessment reference model definitions;
- assessment reference model components.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

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

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1 industrialization

procedure of increasing productivity using sequential task allocation to automated or semi-automated methods, or to individuals

3.2 informatization

procedure of generating information from data within a given context using computing and communication technologies

3.3 convergence of informatization and industrialization CII

integrating information technology into industrial production, which promotes the development of industry towards a higher value-added direction through wide application of information and restructuring of traditional industry

3.4 domain application

application of information technology in a single business activity that has a well-defined and identifiable boundary of responsibility and authority for subordinate activities