Technical Report

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Sharing economy — Shared manufacturing — Concepts and models

Économie du partage — Fabrication partagée — Concepts et modèles

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Foreword

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This document was prepared by Technical Committee ISO/TC 324, *Sharing economy*.

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

Shared manufacturing is an innovation in the application of sharing economy in the field of production and manufacturing. It is a new business model that uses the concept of sharing to gather scattered and idle production resources and share them flexibly and dynamically to the demand side around all aspects of production and manufacturing.

Facing the results of global events disrupting supply chains and driving up costs, the development of shared manufacturing is an important initiative to optimize resource allocation, improve output efficiency and promote the high-quality development of manufacturing industry in accordance with the development trend of integration of new generation information technology and manufacturing industry, as well as reduce risks and to strengthen the resilience of manufacturing supply chains.

As markets evolve towards more customization, rapid product development and resilient supply chains, shared manufacturing offers an adaptable and collaborative approach to production. The manufacturing paradigm has gradually evolved from mass production to mass customization and eventually to a mass personalized production in order to accommodate the increasingly diverse needs of the consumer market. The mass personalized production needs large and diversified manufacturing capacity, which is difficult for individual companies to organize. Therefore, shared manufacturing is necessary. The excessive production capacity of some industries or enterprises in some countries and even the world and meanwhile the lack of funds and resources for small and medium-sized enterprises to expand the scale of production highlight the value of the shared manufacturing platform.

Shared manufacturing enables broader sharing of manufacturing capacities through peer-to-peer (P2P) collaboration, thereby improving resource utilization, promoting leaner production processes, reducing costs through economies of scale, supporting small and medium enterprises (SMEs), making the industry more competitive and promoting fairer competition within the industry. The shortage of skilled workers can also be countered by sharing expertise and know-how more easily. Digital networking enables companies to react more quickly and flexibly to market changes.

It is necessary to create a global standard providing practice on the shared manufacturing industry to promote the development of this industry around the world.

This document aims to:

— propose concepts and models related to shared manufacturing;

— provide good practices related to different types of shared manufacturing;

— promote the orderly and sustainable development of shared manufacturing industry;

— enrich existing standards and promote further standardized activities in the field of shared manufacturing.

Sharing economy — Shared manufacturing — Concepts and models

1 Scope

This document defines the concepts, characteristics and models associated with shared manufacturing. It identifies models associated with shared manufacturing practices and provides principles of intellectual property (IP) management in shared manufacturing.

This document is applicable to stakeholders engaged in shared manufacturing.

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 42500:2021, *Sharing economy — General principles*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 42500:2021 and the following apply.

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

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

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

3.1
manufacturing resource
physical or logical entity that enables a manufacturing process

Note 1 to entry: Manufacturing resources include (but are not limited to) manufacturing assets such as equipment, machinery, software, automation units, control devices, instrumentation, tooling and other resources (e.g. operators, materials, fuels and the physical plant wherein the resources are deployed).

[SOURCE: ISO 18435-1:2009 [1], 3.17]

3.2
manufacturing capability
ability to complete the manufacturing process formed by the organic combination of production resources, organization, business management and technology

EXAMPLE Design ability, simulation ability, production and processing ability, testing ability, product maintenance ability.

Note 1 to entry: It reflects the ability to allocate and integrate *manufacturing resources* (3.1) , and reflects the level of T (development time), Q (quality), C (cost), S (service), E (environmental cleanliness) and K (knowledge content) of manufacturing enterprises or entities to complete a certain task and expected goals.