

IEC PAS 63178

Edition 1.0 2018-07

PUBLICLY AVAILABLE SPECIFICATION

PRE-STANDARD



Smart manufacturing service platform – Service-oriented integration requirements of the manufacturing resource/capability

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ICS 25.040.40; 35.210; 35.240.50

ISBN 978-2-8322-5879-8

Warning! Make sure that you obtained this publication from an authorized distributor.

– 2 –

CONTENTS

FOREWO	DRD	3
1 Scop	oe	5
2 Term	ns and definitions	5
3 Gene	eral requirements	5
4 Integ	ration requirements of hard manufacturing resources	6
4.1	Integrated content	
4.2	Application requirements after integration	
4.3	Integration mode	
4.3.1	Complete set of equipment	6
4.3.2	Production equipment	7
5 Integ	ration requirements of soft manufacturing resources	
5.1	Integrated content	7
5.2	Requirements of application mode after integrated	8
5.2.1	·	
5.2.2	Virtual interactive mode	8
5.2.3	Collaborative interoperability mode	8
5.3	Integration method	8
6 Integ	ration requirements of manufacturing capabilities	9
6.1	Integration content	9
6.2	Requirements of application mode after integrated	11
6.3	Integration mode	11
7 Class	sification of cloud manufacturing service	11
Annex A	(informative) Resource service classification	12
A.1	Resource service classification (see Figure A.1)	12
A.2	Classification of manufacturing capabilities service (see Figure A.2)	
A.3	Classification of cloud manufacturing service (see Figure A.3)	13
Annex B	(informative) Introduction of cloud manufacturing service platform	14
B.1	Background	14
B.2	Architecture of cloud manufacturing service platform (see Figure B.1)	15
B.3	Cloud manufacturing services platform applications	16
B.3.1	Manufacturing industry cloud (see Figure B.2)	16
B.3.2	Manufacturing enterprise (factory) cloud (see Figure B.3)	17
B.3.3	Manufacturing workshop cloud (production cloud) (see Figure B.4)	17
Figure 1 -	- Integration method for complete set of simulation equipment	7
Figure 2 -	- Capability classification based on product life cycle	9
Figure 3 -	- Capability classification based on types of equipment manufacturing	10
Figure A.	1 – Resource service classification	12
Figure A.:	2 – Classification of manufacturing capabilities service	12
•	3 – Classification of cloud manufacturing service	
-	1 – Architecture of cloud manufacturing service platform	
•	2 – Manufacturing industry cloud	
•	3 – Manufacturing industry cloud	
•		
Figure B.	4 – Manufacturing workshop cloud (production cloud)	1/

INTERNATIONAL ELECTROTECHNICAL COMMISSION

SMART MANUFACTURING SERVICE PLATFORM – SERVICE-ORIENTED INTEGRATION REQUIREMENTS OF THE MANUFACTURING RESOURCE/CAPABILITY

FORFWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

A PAS is a technical specification not fulfilling the requirements for a standard, but made available to the public.

IEC PAS 63178 has been processed by subcommittee 65E: Devices and integration in enterprise systems, of IEC technical committee 65: Industrial-process measurement, control and automation.

The text of this PAS is based on the following document:

This PAS was approved for publication by the P-members of the committee concerned as indicated in the following document

Draft PAS	Report on voting
65E/578/DPAS	65E/585/RVDPAS

Following publication of this PAS, which is a pre-standard publication, the technical committee or subcommittee concerned may transform it into an International Standard.

- 4 - IEC PAS 63178:2018 © IEC 2018

This PAS shall remain valid for an initial maximum period of 2 years starting from the publication date. The validity may be extended for a single period up to a maximum of 2 years, at the end of which it shall be published as another type of normative document, or shall be withdrawn.

A bilingual version of this publication may be issued at a later date.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

IEC PAS 63178:2018 © IEC 2018

- 5 -

SMART MANUFACTURING SERVICE PLATFORM – SERVICE-ORIENTED INTEGRATION REQUIREMENTS OF THE MANUFACTURING RESOURCE/CAPABILITY

1 Scope

This PAS provides the requirements of all relevant manufacturing resources integrated to the cloud manufacturing service platform, including integration of hard manufacturing resources, soft manufacturing resources and manufacturing capabilities.

This document is used for the integration of the relevant resources to the smart manufacturing service platform.