IVI スタートアップセミナー

海外動向と国際標準化へむけた活動予定

2022年4月14日 IVRA タスクフォース 主査 小倉 信之



IVIの国際標準化活動 今までのいくつか

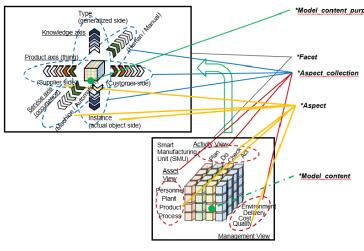


- > IEEE-2413 (IoT Framework)とのリエゾン
 - ▶ 2020年3月に制定の同規格にIVRA(Industrial Value chain Reference Architecture)を記載
- > ISO/IEC/JWG21 Smart Manufacturing Reference Model
 - 2022年5月頃発行予定のISO/IEC TR 63319 Meta-modeling analysis approach to smart manufacturing reference models anational modelの一つとして紹介の記述がされる(右記)
- > IIC(Industrial Internet Consortium
 - ⇒International IoT Consortium)とのリエゾン
 - > 2021年5月 Smart Manufacturing Task Group とWeb会議: CIOFを紹介
- ▶ 2021年6月 G20 産業におけるDX フォーラム
- ➤ 2022年3月 GIO/BSI共催 GIO Roundtable

65/812/DTR

IEC TR 63319 Ed1 © IEC

- 7.8 Mapping for IVRA Next
- 7.8.1 Graphical depiction of IVRA Next mapping
- Figure 15 shows the IVRA Next mapping to three axes of SM and SMU.



- NOTE 1: The mapping shown in Figure 15 is to illustrate how the same meta-model configuration can be map a submitted model regardless of submitted model's representation and configuration. It is not inter represent the details of each models mapping. Information on the submitted model can be obtained froi
- NOTE 2: Not every *aspect is identified

1318

Figure 15 - IVRA Next: Mapping to Three Axes of SM and SMU



GIO Roundtable 2022-02-28/03-01



欧州メンバー(独i40, ZVEI, IDTA等),中国メン バー, 日本よりはIVIのみが出席

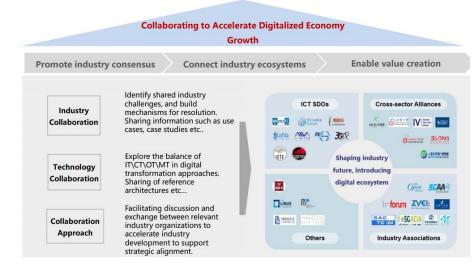
2月28日 Industry Digital Transformation Workshopにて西岡先生が CIOFの状況を発表

3月1日 Workshopを受けて、第9回GIO Roundtableに小倉が出席

GIO Secretariat/ Martin Creaner氏より IVIのCIOFをさして、「データ共有の実応用という 面では、一番進んでいるのが日本で実現している」 という評価をいただいた.

データ共有というのは、巨大な分野であり、1つの システムですべて満足するということはあり得ない

GIO supporting industry organizations collaboration







GLOBAL INDUSTRY **ORGANIZATIONS** Global Industry Organization BSI (英国規格協会) 共催

海外での評価 (GIO)



Invitation to Industry Data Value Workshop

Dear participants,

With the digital economy growing at a breakneck pace, digital technologies are accelerating the upgrade of industrial productivity and structural optimization of industry value chains. Many countries and regions around the world, especially Europe, Japan, and China, are actively exploring how to drive the upgrade of traditional vertical industry with ICT, develop and promote digital industrial equipment, and fully realize the value of industrial data. They are also working to jointly build industry-specific platforms and create new value. While valuable practices are being formed, many new challenges have emerged along with new developments.

You are cordially invited to attend **the Industry Data Value Workshop** at 09:30 – 12:30 (Central European Time) /
16:30 – 19:30 (China Standard Time) /17:30–20:30 (Tokyo Time) on February 28, 2022, jointly hosted by the Global Industry Organizations Roundtable (GIO), the Alliance of Industrial Internet (All), and the Industrial Digital Twin Association (IDTA).

This workshop will gather together industry organization representatives, opinion leaders, business leaders, and industry experts. Together, we will discuss cutting-edge technologies and practices for fully realizing the value of industrial data in Europe, Japan, and China, exploring potential directions and opportunities for cooperation to promote industrial digital

Invitation to

Industry Data Value Workshop

Agenda

Link	Topic	Speaker	Organizati	Time (CET)
	Guest introduction	Moderator		9:30-9:35
Opening	Opening speech	William Xu Meik Billmann Jianbo Hu	Co-chairs	9:35-9:50
	Industrial digital space progress	Boris Otto	IDSA	9:50-10:05
Enabling technology	Development trend and exploration of industrial data	Sha Wei	All	10:05-10:20
	The role of Industrial Digital Twins for sustainable manufacturing and cross industries collaboration	Meik Billmann	IDTA	10:20-10:3
	Enabling Technology of Connected Industries Open Framework (CIOF)	Yasuyuki Nishioka	IVI	10:35-10:50
	Coffee Break	fee Break		
Market the Val	Equipment data value	Jinsong Ouyang	SAC TC/124	11:00-11:15
	Present and Future of Data Value from Digital Twin	Massimo Canducci	Engineering Group	11:15-11:30
	Digital asset model research and exploration sharing	Ting Wang	ECC	11:30-11:4
	Machine digital asset case sharing	Zhenhua Chen	СМТВА	11:45-12:0
Panel	Now to support and identify data sharing among stakeholders to jointly create global ecosystems in the value network, and what are the different needs and sarvices of various stakeholders, such as infrastructure providers, surpollers inclustrial internators.	Guided by Moderator		12:00-12:29

Workshop at 09:30 – 12:30 (Central European Time) / 16:30 – 19:30 (China Standard Time) /17:30-20:30 (Tokyo Time) on February 28, 2022, jointly hosted by the Global Industry

Industrial digital space progress	Boris Otto	IDSA
Development trend and exploration of industrial data	Sha Wei	All
The role of Industrial Digital Twins for sustainable manufacturing and cross industries collaboration	Meik Billmann	IDTA
Enabling Technology of Connected Industries Open Framework (CIOF)	Yasuyuki Nishioka	IVI

- 1. 産業データの企業間流通に対するCIOFのビジョ
- 2. NEDOプロジェクトの狙いと国内動向
- 3. CIOFアーキテクチャーの特徴
- 4. 基盤実装の現状(共通部分の画面など)
- 5. 各社のユースケース(実証実験結果)
- 6. カーボンニュートラルへの貢献
- 7. 今後の展開(ビジネスモデル) 各社の成果を1ページで紹介します。



G20での発表(生産におけるDX)





Digital Transformation in Production for Sustainable Growth

Multi-stakeholder Forum 23 - 24 June 2021



G20

Digital Transforma Multi-stakeholder

Digital Transformation in Production for Sustainable Growth Multi-stakeholder Forum 23 - 24 June 2021

Inclusive and human centered digital transportation in manufacturing

Industrial Value Chain Initiative, President Hosei University, Professor

Yasuyuki NISHIOKA, Ph.D

Industrial Value Chain Initiative

13.15 - 14.00 A-1: skills and intangibles for digitalization

- Mariela Balbo, Undersecretary of Entrepreneurs from the Secretariat for Small and Medium Enterprises and Entrepreneurs, Ministry of Productive Development, Argentina
- Luciano Massone, Director of World Class Manufacturing Development Center, Stellantis, United States of America/France/Italy
- Francesco Manaresi, Economist (STI), OECD
- Francesca Passudetti, Representative, Youth 20
- Mlindi Mashologu, Deputy Director-General of the Information Society and Development branch, Department of Communications and Digital Technologies, South African Government. South Africa

14.00 - 14.45 A-2: Policies to build a digital and inclusive recovery

- Carlos Lopez-Gomez, Head Policy Links, IfM Education and Consultancy Services, University
 of Cambridge, United Kingdom
- Yasuyuki Nishioka, IVI President, Hosei University & Industrial Value Chain Initiative, Japan
- José Sampaio Gondjo, Deputy Secretary of Endepreneurship and innovation, Ministry of Science, Technology and Innovations, Brazil
- Linda Laura Sabbadini, Chair, Women 20
- Semih Özkan, Technical Director, MEXT Technology Center, Turkey



海外での評価(IIC)



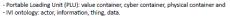
any transformation to compare two identifiers and tell whether they are the same.

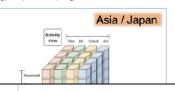
RI9 Identifiers should not contain more information than necessary (including personal identifiable information).

A central matching table is not necessary (as there is no central ID authority within GAIA-X). Participants identity systems can self-issue valid principal identifiers. In line with the above, it is possible to determine the technology and the unique reference to the identity based on the identifier.

9 INDUSTRIAL VALUE CHAIN INITIATIVE

Industrial Value Chain Initiative (IVI) is a forum and platform for activities to design a new







Identification of Information Entities

	2022-02-03	
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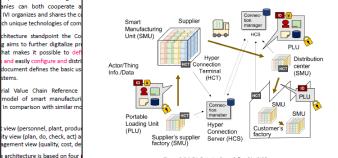


Figure.9-2 IVRA Data trade as defined in CIOF

Table of content Overview Introduction Properties of identifiers Basic Identification Standards OpenID Connect Decentralized Identifiers (DID) 12 Plattform Industrie 4.0 14 Catena-X. GAIA-X and IDS 16 Industrial Value Chain Initiative Alliance of Industrial Internet (All) in China 25 Observations and Conclusions 29

re traded between SMUs. Procedures for data trading are Open Framework (CIOF) specification. CIOF enables data and fulfilling data rights and obligations in advance for both noving data between different terminals. Trading involves a contact, transmission of data, fulfilliment of rights and stract. The trading data received from a Hyper Connection The HCS ID and trading data ID are globally unique. A hash saving the hash instead of the trading data, it is possible to his hash is used for traceability of the trading data.

flow is shown in Figure 9.3:

01/CIOF_SystemRequirements_pr.pdf



rigure.9-5 Process and architecture from CIOP

In CIOF, uniqueness of ID is ensured in a bottom-up style. They are checked and kept unique when SMUs trade data:

Logical hierarchy	CIOF Assets	Hierarchy of Authority	ID Hierarchy
Connected World			Standard Global Cod
CIOF World	Framework Control Server	Framework Administrator	Unique ID in CIOF World
Domain	Hyper Connection Server	Domain Administrator	
Enterprise	Hyper Connection Manager	Enterprise Administrator	Unique ID in the domain
Site	Hyper Connection Terminal	Trading Administrator	
Edge	Edge Control Unit	Implementation Administrator	Unique ID in the Edge area
Physical Asset			Service-specific ID
Figure.	9-4 Bottom up ID stru	cture of CIOF	



海外の状況



データ主権 Data Sovereignty

- ドイツの IDSA: International Data SpaceAssociation と 欧州のGaia-X が競合
- ➤ いくつかの日本企業もIDSAと提携しているのも事実
- 2020年3月 IDSAよりDIN SPEC 27070 が発行 された. ただし、DIN SPECは、規格ではなく、規格案 (Publicly Available Standard)であり、DIN規 格でさえない. (ドイツのネーミングの妙!)
 - ➤ これからISO標準化を図る
 - ▶ 内容的にもIEC62443セキュリティ規格からの要求が 主でレファレンスアーキテクチャの記述は少ない
- > IVIとIDSAのリエゾン
 - 2019年6月のIDSA Summit(独ボン)で後川さんが、IVI活動を報告



March 2020

DIN SPEC 27070:2020-03

REQUIREMENTS AND REFERENCE ARCHITECTURE
OF A SECURITY GATEWAY FOR THE EXCHANGE
OF INDUSTRY DATA AND SERVICES

活動の目的



IVRAタスクフォース

• 製造業のアーキテクチャーの参照モデルを、海外の動向などをフォローしつつ日本独自の提案を、スマートシンキングやIVRAなどとして議論し提案する

- 海外動向の追求
- 国際標準化、海外団体との連携
- 辞書システム(オントロジー) 推進
- スマートシンキングの海外展開



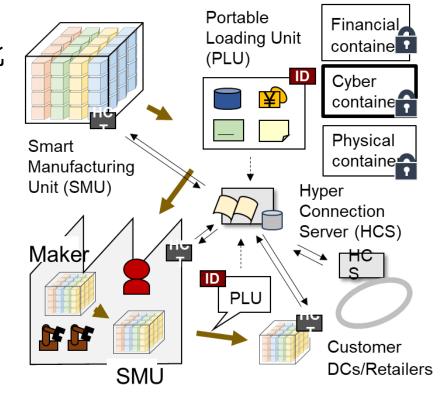
活動の内容



IVRAタスクフォース

- 従来(IEC・IIC・GIO)の国際標準化 活動の継続
- CIOFの国際標準化をめざした仕様 の検討
-

ご関心をお持ちいただける みなさま のご参加を是非お願いいたします。







ご質問・コメントをお願いします。

