13thGerman-Japanese Economic Forum

Facilitating International Cooperation for secure industrial IoT / Induetrie 4.0

TOSHIBA

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Germany and Japan Collaboration Industrial Cyber Security

p PLATTFORM INDUSTRIE 4.0 (PI4) Germany and Robot Revolution Initiative (RRI) Japan announced their 3rd common position paper "Facilitating International Cooperation for Secure Industrial Internet of Things / Industrie 4.0" at the conference "HANNOVER MESSE 2019" .

p The goal of this activity is to foster trustworthiness in increasing digital and interconnected economies.

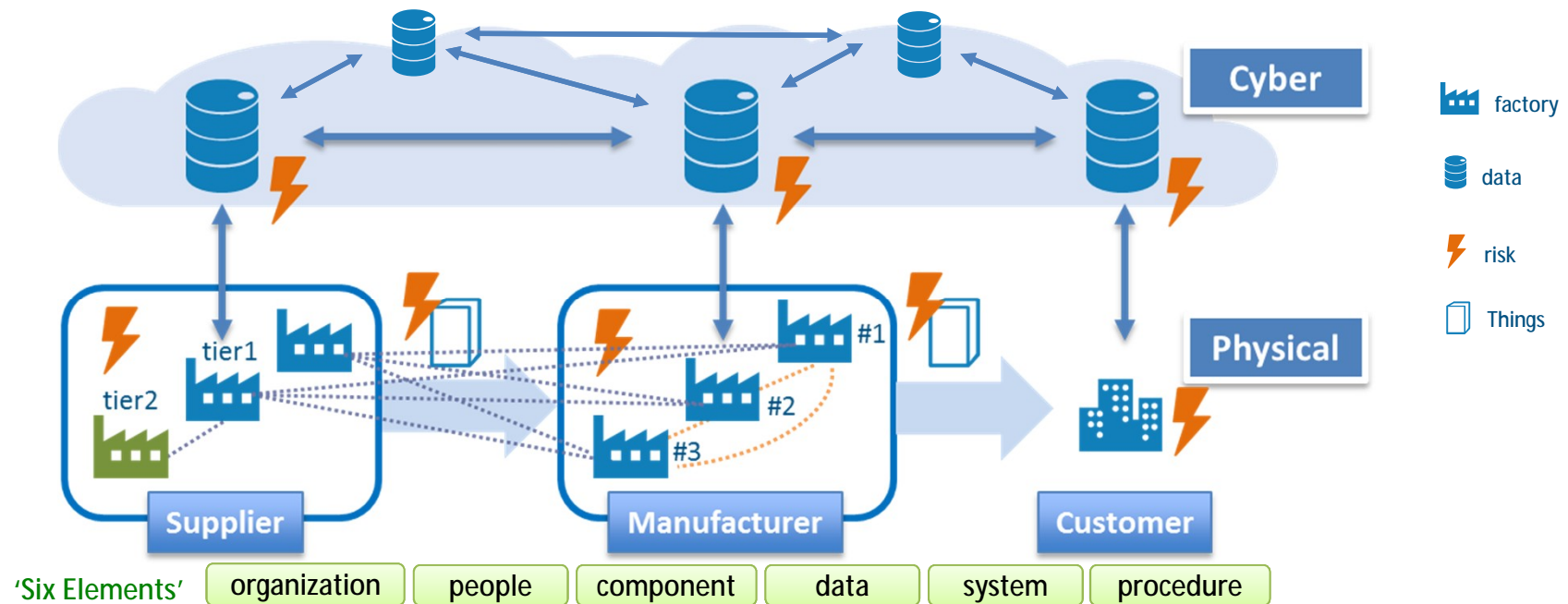p Trustworthiness is an important qualitative decision-making criterion for the entire secure value chain.

Need to build security and trustworthiness for Cyber Physical System

Overall Industrie 4.0 Production Scenario
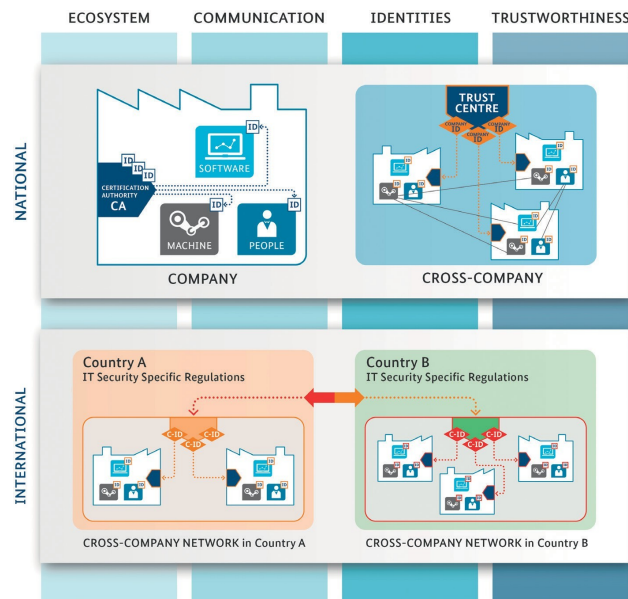
Use-case scenario: Establishing the infrastructure for secure communication between Germany and Japan

- A potential supplier based in Japan wants to establish a new business relationship with a customer in Germany.

- They do not have a business history together, i.e. they have not worked on any joint projects or collaborations in the past.

- They need support for secure communication and collaboration.

- At this stage, existing and new international standards are to be applied.

Discussion Key issues to be considered in use case scenario

Germany

Japan

Legal Person ID
President ID

G-CAs

J-CAs

Corporation A

Corporation B

Legal Person ID
President ID

General Manager ID

General Manager ID

Business Unit A-1

Business Unit A-2

Online contract

Business Unit B-1

Business Unit B-2

Security level A-2

Security level B-1
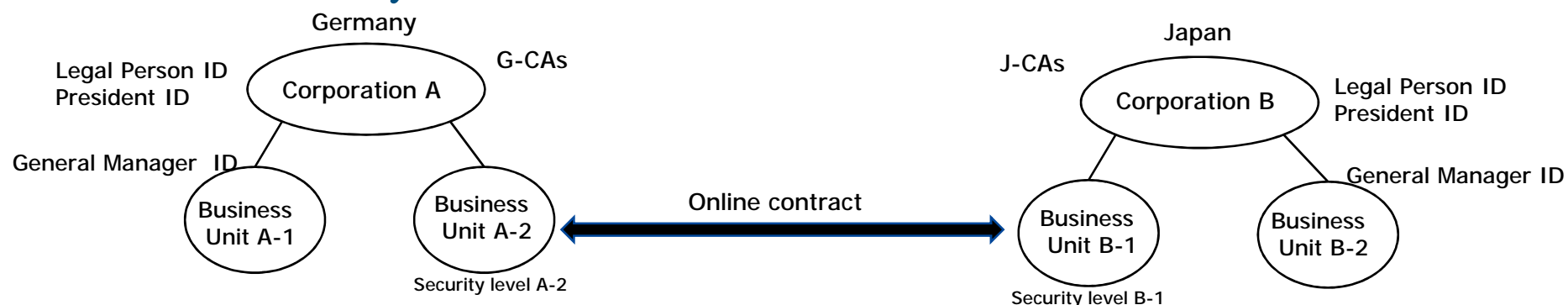
Solutions of both sides, derived from technical, business and legal issues

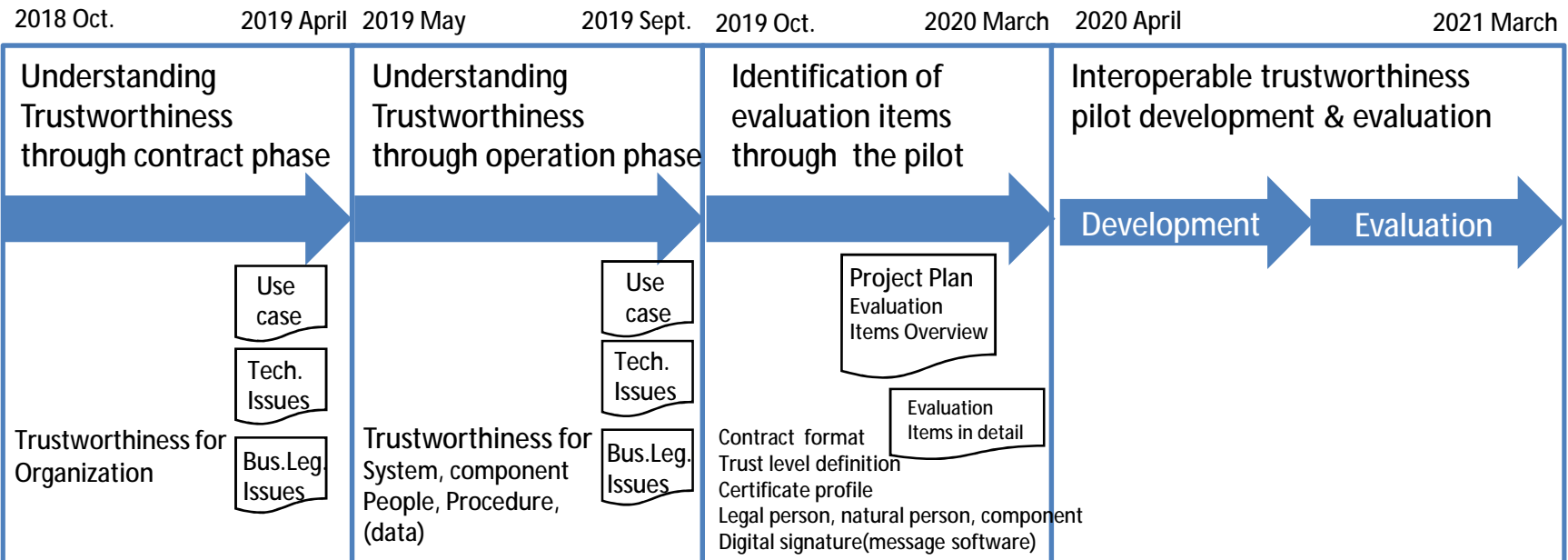| Item list to be identified	Germany	Japan	Technical Issues
Legal Person ID and its provider	VATIN (USt-IdNr.), DUNS	NTA,TSE	—
Natural person ID/BU ID and its provider	eIDAS	Each Corp.	Appropriate BU ID code is not yet determined.
Digital Certification for natural person	eSignature, eIDAS	Each Corp.	—
Digital Certification for legal entities	SEAL, eIDAS	NTA, TSE	Cross certification is needed.
Standards used for security assurance	ISO/IEC27001, IEC62443		Digital Certificate of security level should be issued.
Security level certification	Trusted 3rd party		Corporate Process certification is not yet established.
Online contract signing	Signed by the representative of a BU		Cross certification is needed.
Online contract security level agreement	Using certification issued by a trusted 3rd Party.		—

Draft plan of interoperable trustworthiness pilot project

2018 Oct. — 2019 April	2019 May — 2019 Sept.	2019 Oct. — 2020 March	2020 April — 2021 March
Understanding Trustworthiness through contract phase	**Understanding Trustworthiness through operation phase**	**Identification of evaluation items through the pilot**	**Interoperable trustworthiness pilot development & evaluation**
			Development → Evaluation →
Use case / Tech. Issues / Bus.Leg. Issues	Use case / Tech. Issues / Bus.Leg. Issues	Project Plan — Evaluation Items Overview / Evaluation Items in detail	
Trustworthiness for Organization	Trustworthiness for System, component People, Procedure, (data)	Contract format / Trust level definition / Certificate profile / Legal person, natural person, component / Digital signature(message software)	

Robot Revolution & Industrial IoT Initiative
Activities

● **Forum Industrie 4.0 (meets RRI) @ Hall 8**
 · Monday, 1 April, 12:30-13:00,
   "IoT Design Approach by Adapting Framework", Mr. Hiroshi YAMAMOTO, Toshiba Corp., Corporation Digitaization CTO
 · Monday, 1 April, 14:00-14:30,
   "Connected Industries Open Framework for Industrial Value Chain Transformation", Dr. Yasuyuki NISHIOKA, Industrial Value Chain Initiative, President
 · Tuesday, 2 April, 16:00-16:30,
   "Navigation Scheme of Smart Manufacturing System Development for Each Maturity Level Enterprise",
     Dr. Youichi NONAKA, Hitachi, Ltd., Senior Chief Researcher
 · Wednesday, 3 April, 10:00-10:30,
   "German-Japan Collaboration for Standardization in Smart Manufacturing", Dr. Fumihiko KIMURA, The University of Tokyo, Professor Emeritus
 · Wednesday, 3 April, 11:00-11:30
   "Toward Realization of Smart Manufacturing Systems",
     Dr. Shinsuke KONDOH, National Institute of Advanced Industrial Science and Technology, Group leader

● **13th German – Japanese Economic Forum @ Hall 27**
 Wednesday, 3 April, 13:45–14:30
  · "IIoT Security: The role of trustworthiness in international value chains", Ms. Masue SHIBA, Toshiba Corp.
  · "Standardization Activities in Germany-Japan Cooperation for Smart Manufacturing", Dr. Youichi NONAKA, Hitachi. Ltd.

● **Japan Pavilion for Connected Industries @ Hall 8   F19**

Hall 7

Hall 8

Japan Pavilion for Connected Industries

Hall 9