10. Digital Trust building trustworthiness of supply chain in Society 5.0
– introduction of outline and concept –

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Create “Trust” by implementing “Creation & Confirmation of Trust” and “Construction & Maintenance of Trust Chain” in the supply chain.

A Creation & Confirmation

B Construction & Distribution

C Verification & Maintenance

Introduction of concept

Be required to realize a safe and comfortable Society 5.0

Creating value by connecting ⇒ “Resiliency” & “Flexibility”
Response to rule formation in each country ⇒ “Accountability”

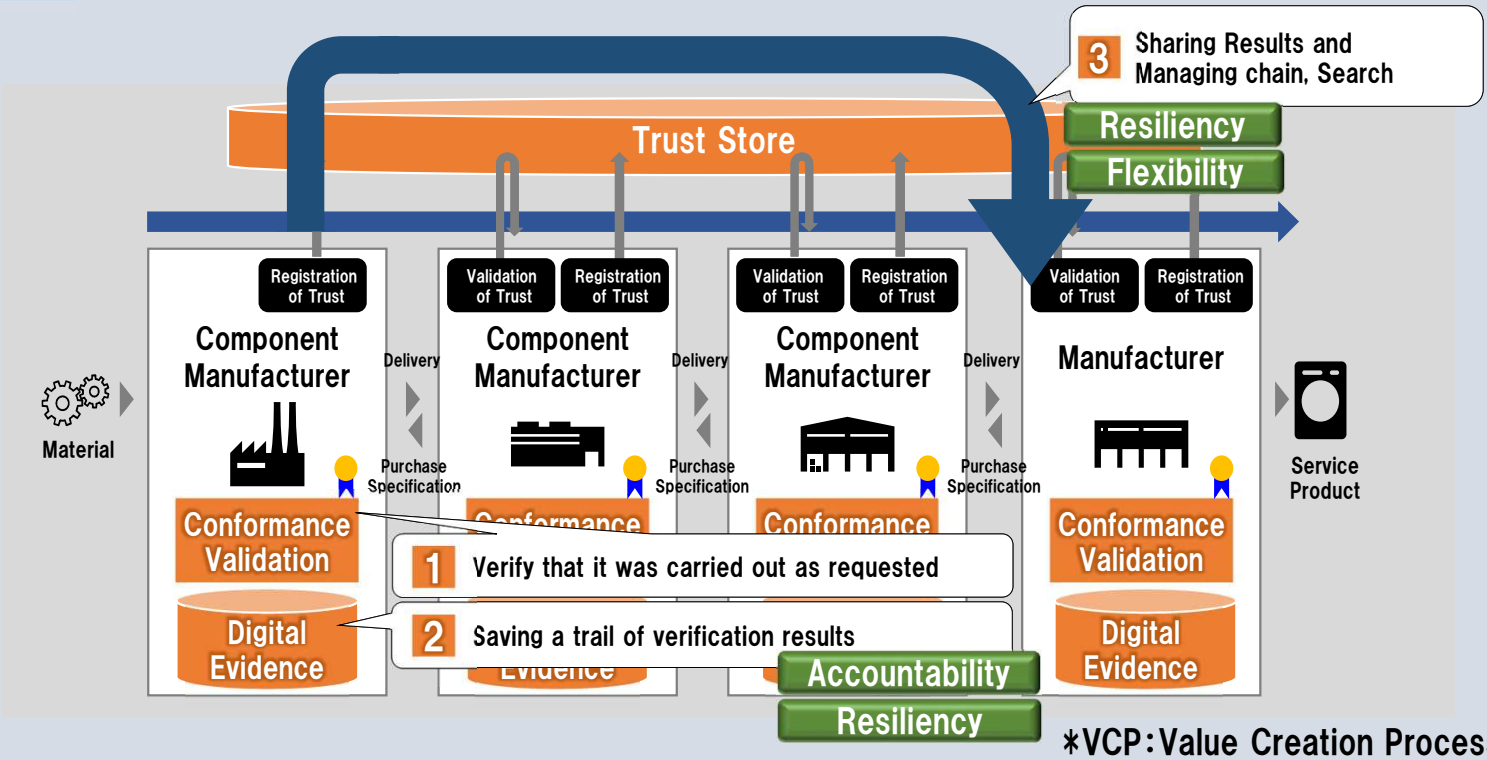
The above is aimed at realizing throughout the supply chain.

- **Resiliency** : Resilience against pandemics and cyber attacks.
- **Flexibility** : Flexible restructuring of supply chain and connections.
- **Accountability** : Ensure production activities being done in accordance with the rules by digital evidence.

To be realized

“Resiliency”, “Flexibility”, and “Accountability” of the supply chain

1. Verify that production activity on the supply chain (VCP(*)) was carried out according to the rules. (Conformance Validation)
2. Save and search the rationale for the verification result as digital evidence. (Digital Evidence)
3. Share results across the supply chain, ensure traceability, search. (Trust Store)



*VCP: Value Creation Process

10. Digital Trust building trustworthiness of supply chain in Society 5.0
– Technology introduction –

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- reation of Trust: Conforming of "Value Creation Process" with defined standards or rules / Creating "Trust" proved by "Digital Evidence"
- Trust Chain: Connecting each Trust by mutual linkage in the Trust Store / Validness of "Trustworthiness" in the whole of the supply chain

A Creation & Confirmation

B Construction & Distribution

C Verification & Maintenance

Technical Features

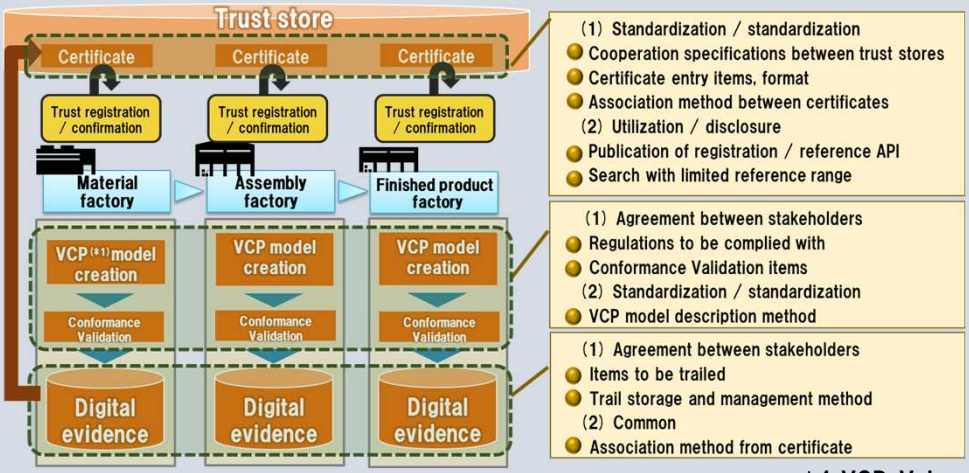
The traditional process has not been validated from an objective point of view. The key is to create a mechanism for sharing supply chain trust.

"Creation and verity of trust" to reduce uncertainty and risk

- Conformance Validation : Confirm that the value creation process was carried out according to the standards and rules.
- Digital Evidence: Grounds for explaining to a third party that the rules were followed.

Adapting to an international framework through a "chain of trust" throughout the supply chain

- Chain of trust: Visualization of individually secured "trust" throughout the supply chain.



*1 VCP: Value Creation Process

Goals and Current Situation

A3	Goals	Procedure suitability: Verification throughput 60s, number of simultaneous verification processes 15 (15 cases / minute).
	Current Situation	VCP model, proof scenario formulation for digital evidence, functional design necessary for proof is underway.
B1	Goals	(1) Trust store throughput: 150,000 processing / day (assuming the total data volume of TWX-21 (*2) EDI (*3)). (2) Certificate addition time: Within 2 seconds (adding a new certificate to the trust chain consisting of thousands of certificates).
	Current Situation	Prototype improvement for demonstration experiment and method study for achieving the goal are underway.
C1	Goals	Aiming for social implementation by demonstrating the effectiveness of linking each technology and acquiring application examples. Trust chain protection: Confidential trace function search performance to protect trust chain information 1 million cases / second.
	Current Situation	Clarify issues in manufacturing and factories to be solved in the demonstration scenario and clarify the evaluation viewpoint.

*2 TWX-21: Hitachi 's business-to-business cloud service (SaaS) *3 EDI: Electronic Data Interchange

10. Digital Trust building trustworthiness of supply chain in Society 5.0 – Demonstration Introduction –

A Creation & Confirmation

B Construction & Distribution

C Verification & Maintenance

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- Visualization of trust global supply chain in overseas share factory with outsourced use.
- Provision of trust building air-conditioning information and tenant sanitation management information in the COVID-19 Pandemic.

Features of Technology

■Visualization of trust global supply chain at Overseas share factory

Providing the results obtained through demonstration to the society by applying the technology to the field and making commercial materials.

■ Provision of trust building air-conditioning information and tenant sanitation management information in the COVID-19 Pandemic

The research results are applied to the mechanism which supports people's daily life in the "coronavirus era".

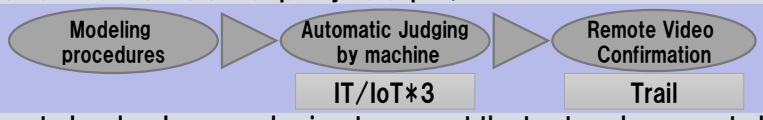
■ Trust store to share and leverage reliability information across the supply chain

Use of electronic commerce using procurement system environment corresponding to electronic and electric industry standard EDI*1.

Reliable Manufacturing Supply Chain : Hitachi High-Tech Corporation

Regarding the manufacturing in Japan, a model of unwritten production technologies is defined with using the VCP*2 model. It is systematized in overseas factory, and being verified whether it fulfills the same quality as Japan.

Quality of factory operation in Japan



【Voice in field】 Building a chain of trust is essential. We must also develop a mechanism to connect the trust we have created. In that, the demonstration experiment to create and prove the trust which is done now is only the beginning, but I feel a certain response.

Application of trust to building field, food and beverage industry : eHills Corporation

Through the demonstration site of SIP*4, we provide the reliability information such as 3 C's (Three C's) information and sanitary management information that can understand the corona infection measures of the store utilizing the research results of SIP.

Trusted information

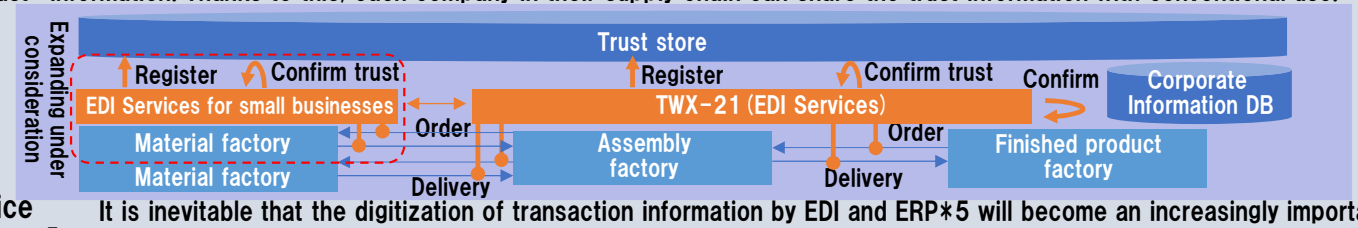
Provide reliable supply chain information on the three close information and sanitation management of buildings and stores
→ Reduce worries about the infection that is suppressing consumption, consumers can safely consume activities, through which leads to the understanding of the concept of reliability and the recognize

Demonstration Site Screen

【Voice in field】 It is understood that ventilation is done neatly by measuring the CO2 concentration. I want to put out real information. It is the most promising that an objective visualization will be made and you can use various facilities at ease.

Share and utilize reliability information throughout the supply chain: SmileWorks Inc.

An EDI service provider with 50,000 members, including small and medium-sized enterprises, has provided the feature of registration of "trust" information. Thanks to this, each company in their supply chain can share the trust information with conventional use.



【Voice in field】 It is inevitable that the digitization of transaction information by EDI and ERP*5 will become an increasingly important economic infrastructure in the future. As a premise, we expect that multiple vendors and systems will be able to authenticate and secure information that is sent and received by across.

*1:EDI [Electronic Data Interchange] *2:VCP [Value Creation Process] *3:IoT [Internet of Things] *4:SIP [Cross-ministerial Strategic Innovation Promotion Program] *5:ERP [Enterprise Resources Planning]