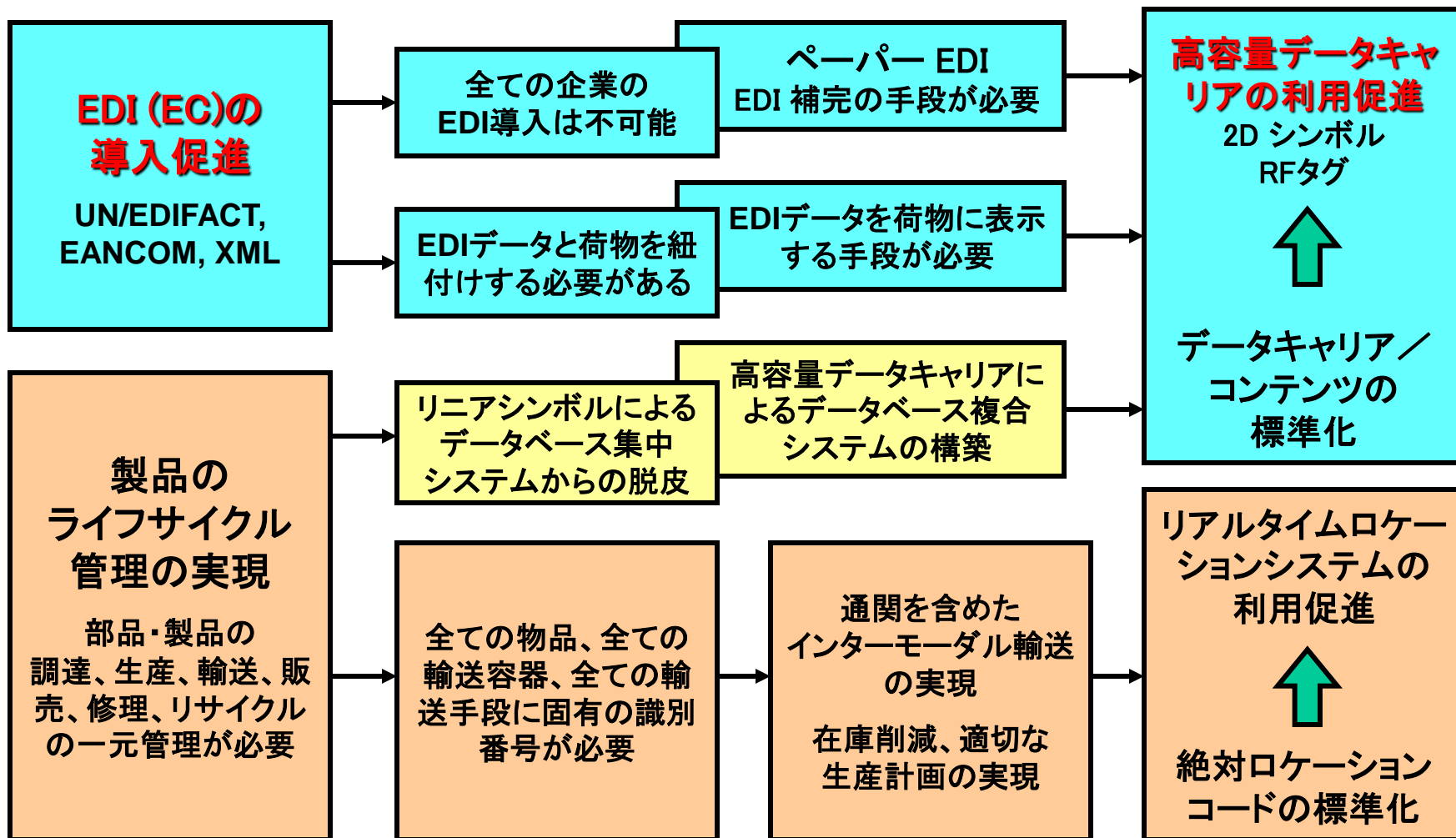


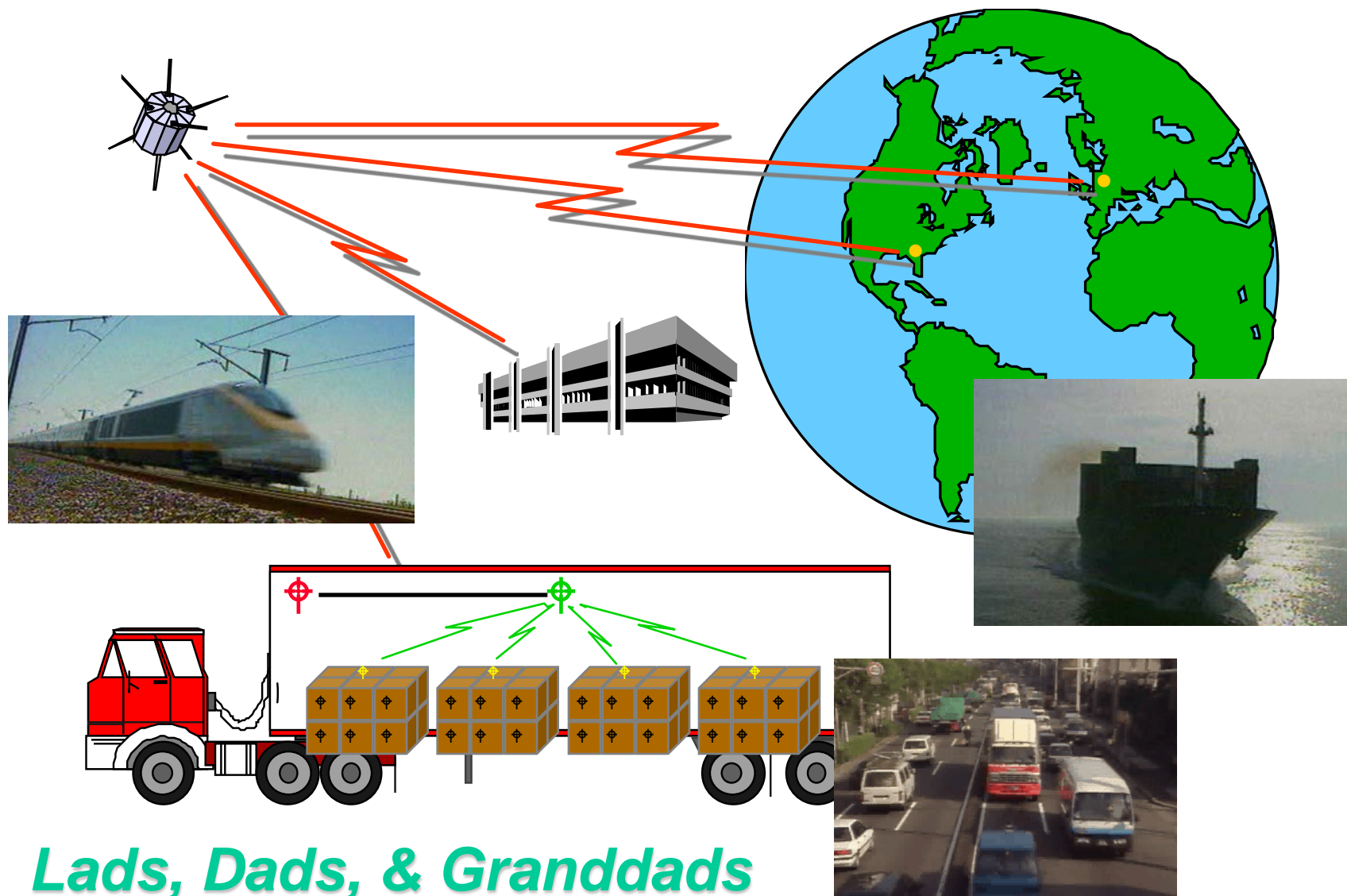
データキャリアを利用した 国際物流プラットフォーム

柴田 彰

SCM高度化の考え方

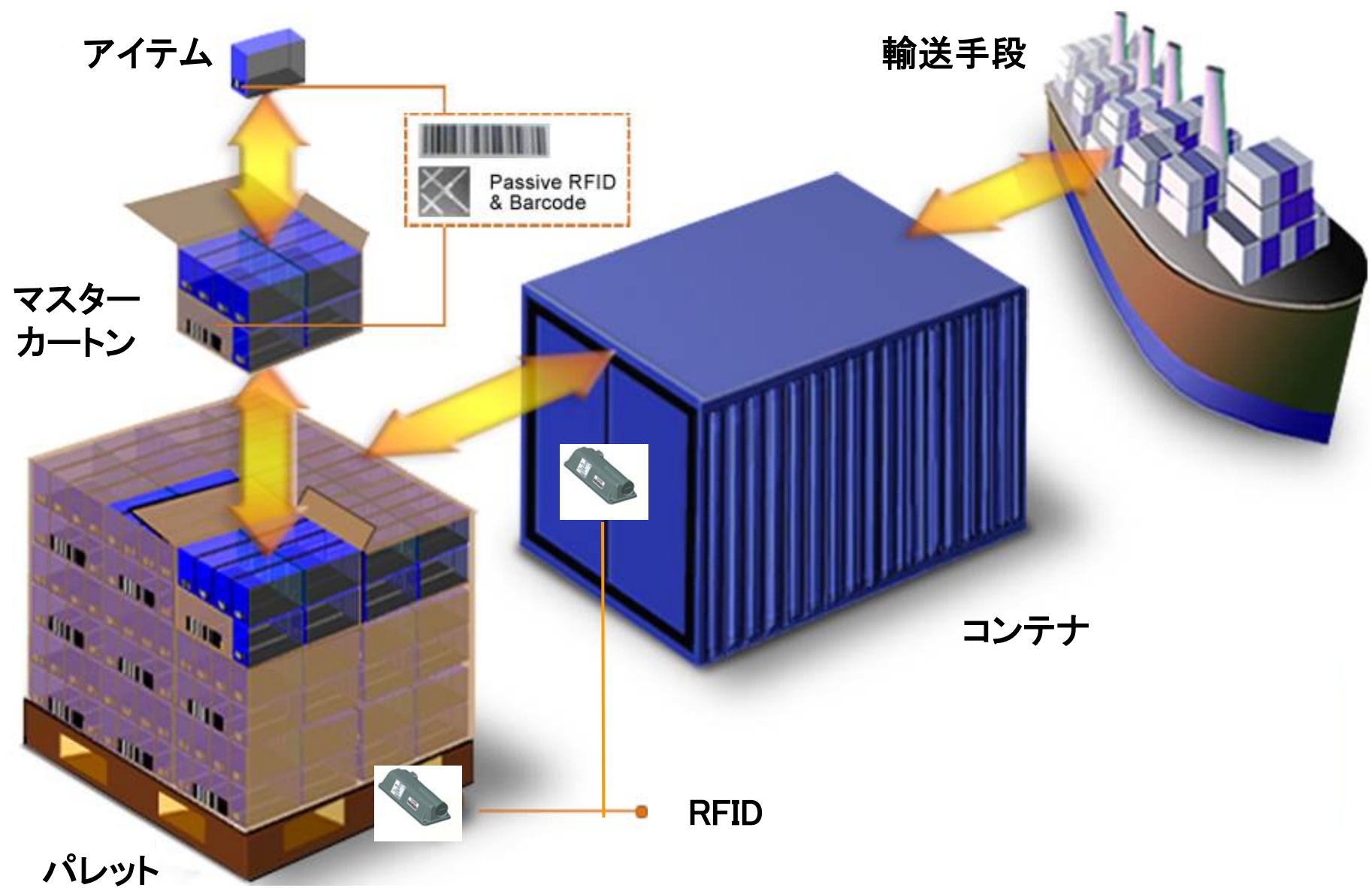


リアルタイム貨物追跡システム

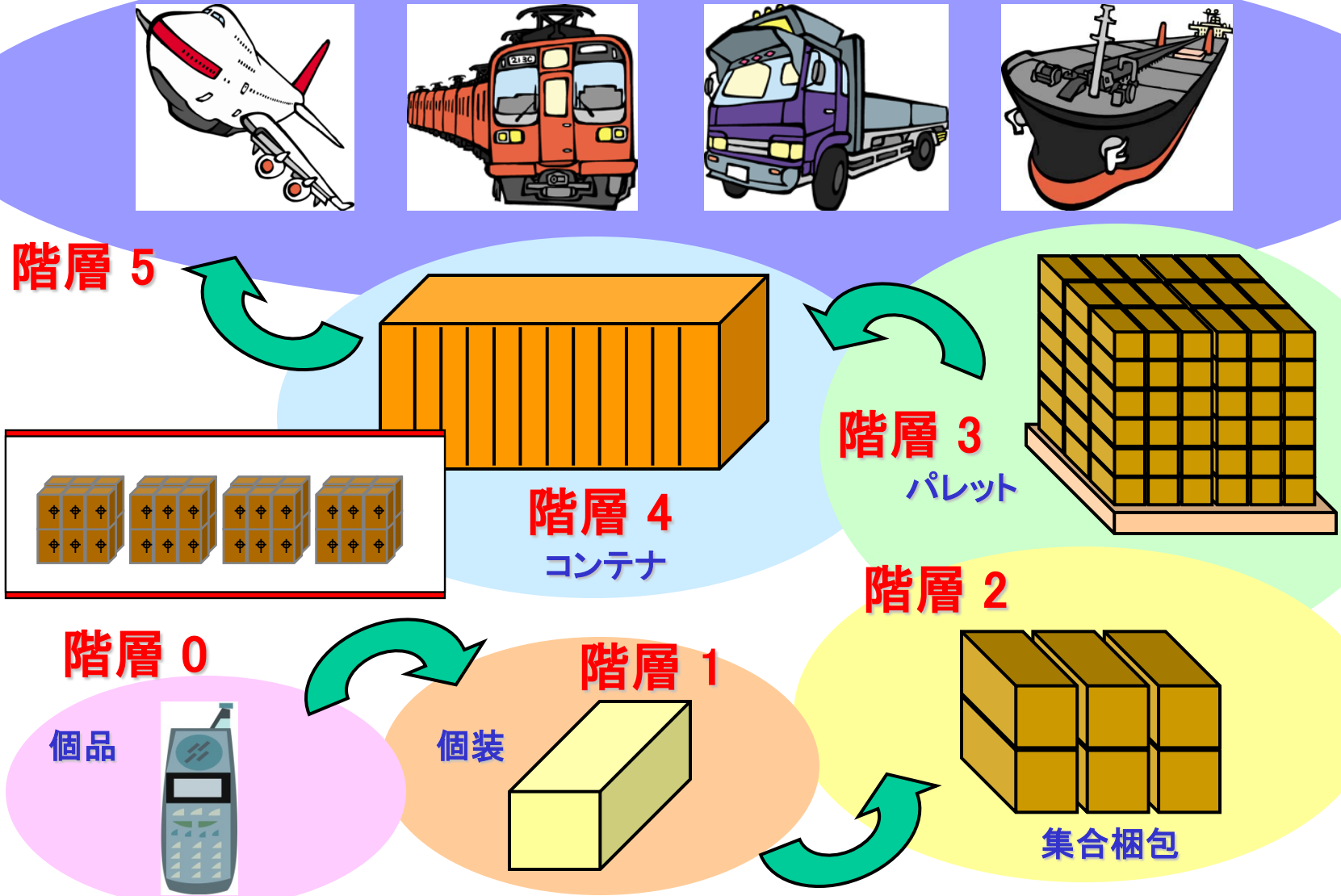


Lads, Dads, & Granddads
Real Time Locating Systems

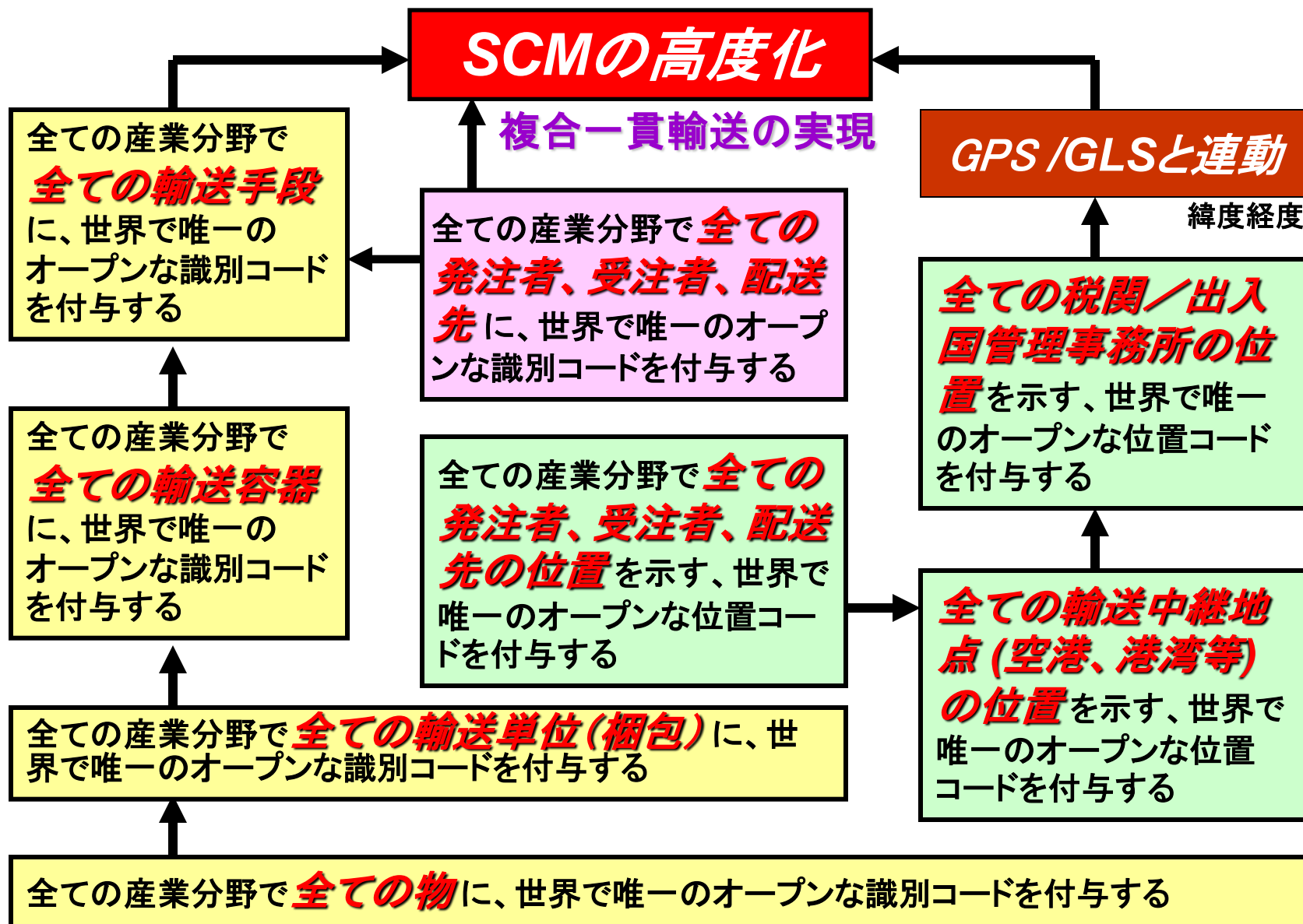
サプライチェーン全域の可視化

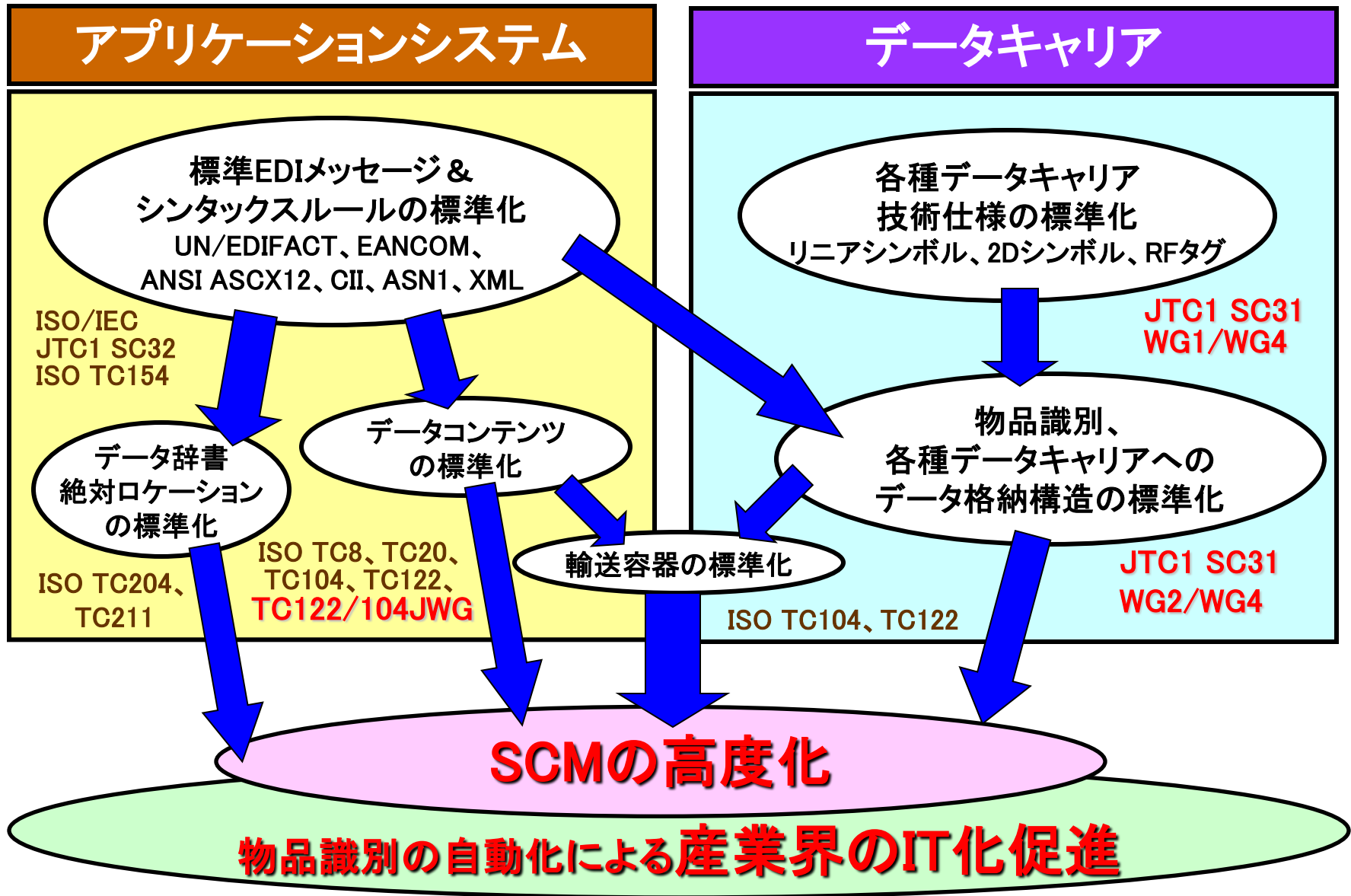


SCMの階層

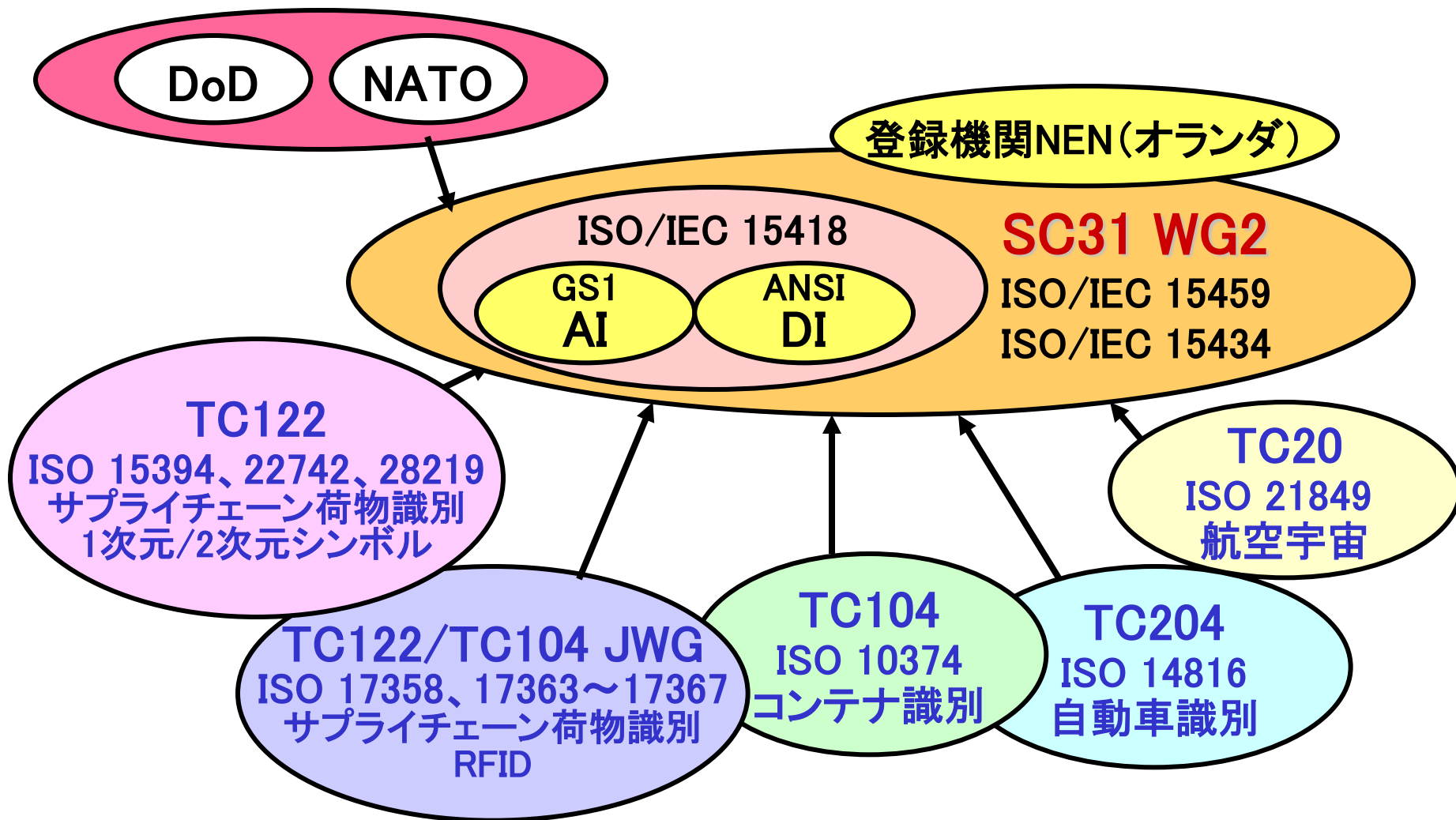


SCMでの物品識別の原則





ユニークID関連団体



15418: GS1 Application Identifiers and FACT Data Identifiers and Maintenance
 15459: Unique Identifier for Transport Units
 15434: Transfer Syntax for High Capacity ADC Media

データ識別子

ISO/IEC JTC1 SC31 ISO/IEC 15418 (JIS X 0531)

データ識別子とはデータ(内容)を分類するためのID

アプリケーション識別子

GS1 (EAN/UCC)で規定
GS1 Specifications

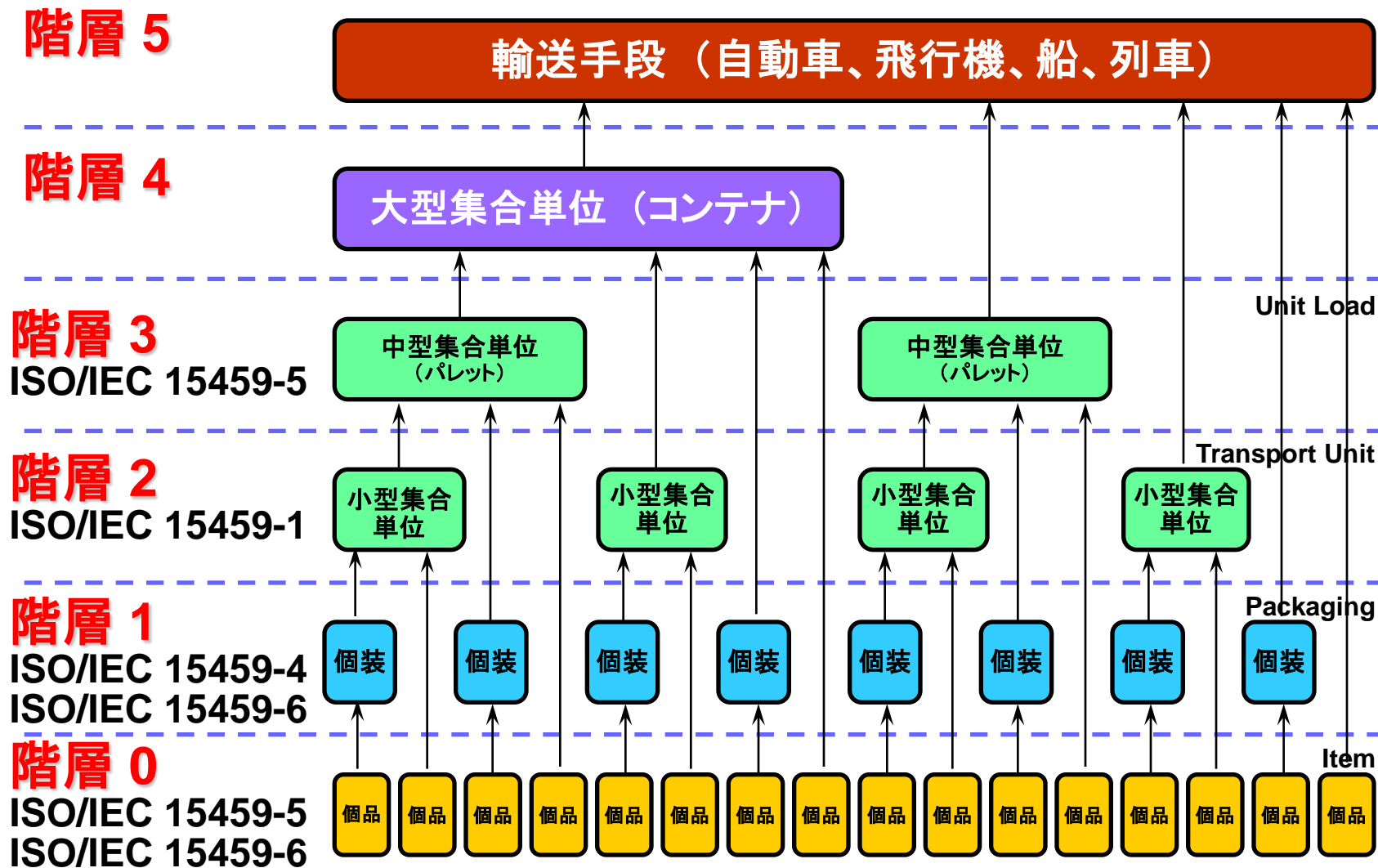
| 識別子 | 内容 |
|-----|---------------------------------------|
| 00 | Serial Shipping Container Code (SSCC) |
| 01 | Global Trade Item Number (GTIN) |
| 11 | Production Date |
| 21 | Serial Number |
| 241 | Customer Part Number |
| 30 | Variable Count |

データ識別子

ASC MH10.8.2で規定
Data Application Identifier Standard

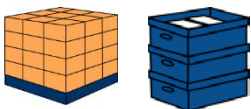


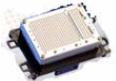
| 識別子 | 内容 |
|-----|-------------------------------------|
| B | Container Type |
| D | Date Code |
| I | Vehicle Identification Number (VIN) |
| J | Unique License Plate |
| L | Storage Location |
| P | Item Identification Code |
| Q | Quantity, Number of Pieces |
| S、T | Traceability (Serial) Number |
| V | Supplier Code |

サプライチェーンの階層



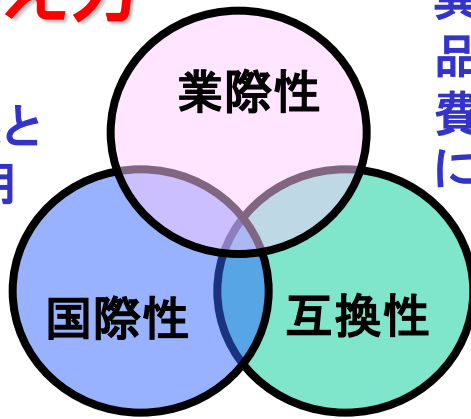
| 規格番号 | 規格名称 |
|---------|--|
| 15459-1 | Unique Identifiers Part1: Transport unit. |
| 15459-2 | Part2: Registration procedure. |
| 15459-3 | Part3: Common rules |
| 15459-4 | Part4: Unique items |
| 15459-5 | Part5: Returnable transport items |
| 15459-6 | Part6: Product groupings |

物品識別の基本的な考え方

| 階層 | 国際規格 |
|---|--|
|  輸送容器 | ISO/IEC 15459-5 |
|  輸送単位 | ISO/IEC 15459-1 |
|  個装箱 | ISO/IEC 15459-4 |
|  部品・製品 | ISO/IEC 15459-4 15459-6 |

基本的な考え方

国内に閉じた体系とせず国際的に通用する体系とする



異なる業種の商品を扱う流通や消費者にとって共通に扱える

商品識別用コードに関する標準規格

| 発番機関コード / 企業コード | 製品コード | シリアル番号 |
|------------------------------|---|--|
| 申請が必要 e.g.) CII, Duns etc | 発番機関が管理 e.g.) Honda, TOYOTA, DENSO, IBM... | 各企業で内容も管理 e.g.) Odyssey, AS400.... |
| | | 各企業で内容も管理 e.g.) VIN No., Lot No.... |

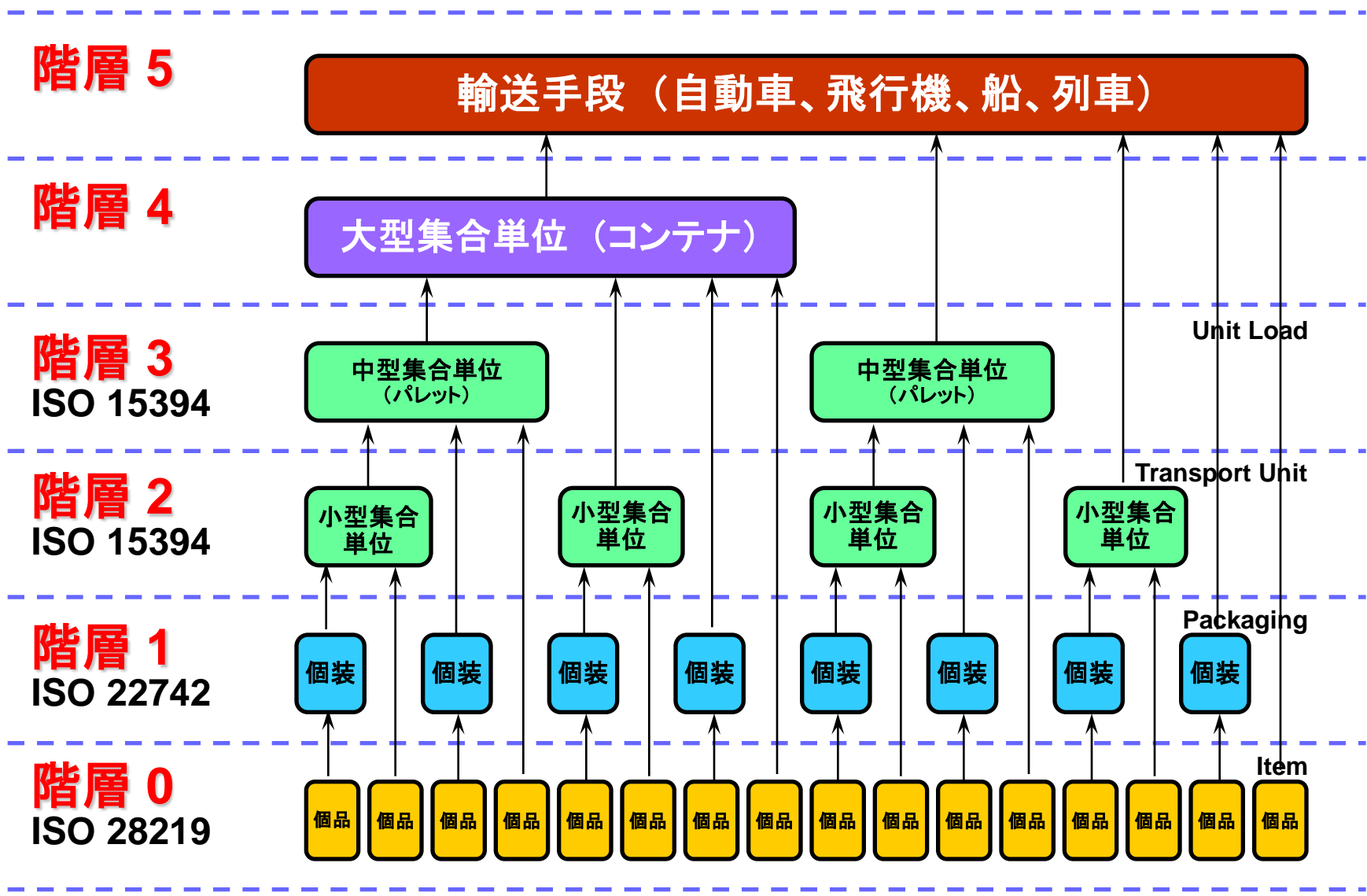
各々のコードのデータ長は特段定めず、必要に応じISO15418に従った識別子を挿入する。

ISO/IEC JTC1 SC31 ISO/IEC 15459-2 (JIS X 0532-2)

| IAコード | 発番機関 |
|-------|---|
| 0 ~ 9 | EAN-international International Article Numbering Association E.A.N. |
| LA | JIPDEC/CII Japan Information Processing Development Center/ Center for the Informatization of Industry |
| LE | EDIFICE Electronic Data Interchange for Companies with Interest in Computing and Electronics |
| LF | FIATA International Federation of Freight Forwarders |
| OD | ODETTE Organization for Data Exchange and Tele Transmission In Europe |
| UN | Dun & Bradstreet |

登録機関はオランダの国家標準化団体 (NEN)

サプライチェーンの階層



ISO15394, ISO22742, ISO28219

Supply chain applications

| Layer | No. | Title |
|--------------|--------------|---------------------------|
| 4 | 10374 | Freight containers |
| 2,3 | 15394 | Unit Load |
| 2,3 | 15394 | Transport units |
| 1 | 22742 | Product packaging |
| 0 | 28219 | Item |

サプライチェーンの階層

階層 5

輸送手段（自動車、飛行機、船、列車）

階層 4

ISO 17363

大型集合単位（コンテナ）

階層 3

ISO 17364

中型集合単位
（パレット）

中型集合単位
（パレット）

Unit Load

階層 2

ISO 17365

小型集合
単位

小型集合
単位

小型集合
単位

小型集合
単位

Transport Unit

階層 1

ISO 17366

個装

個装

個装

個装

個装

個装

個装

個装

Packaging

階層 0

ISO 17367

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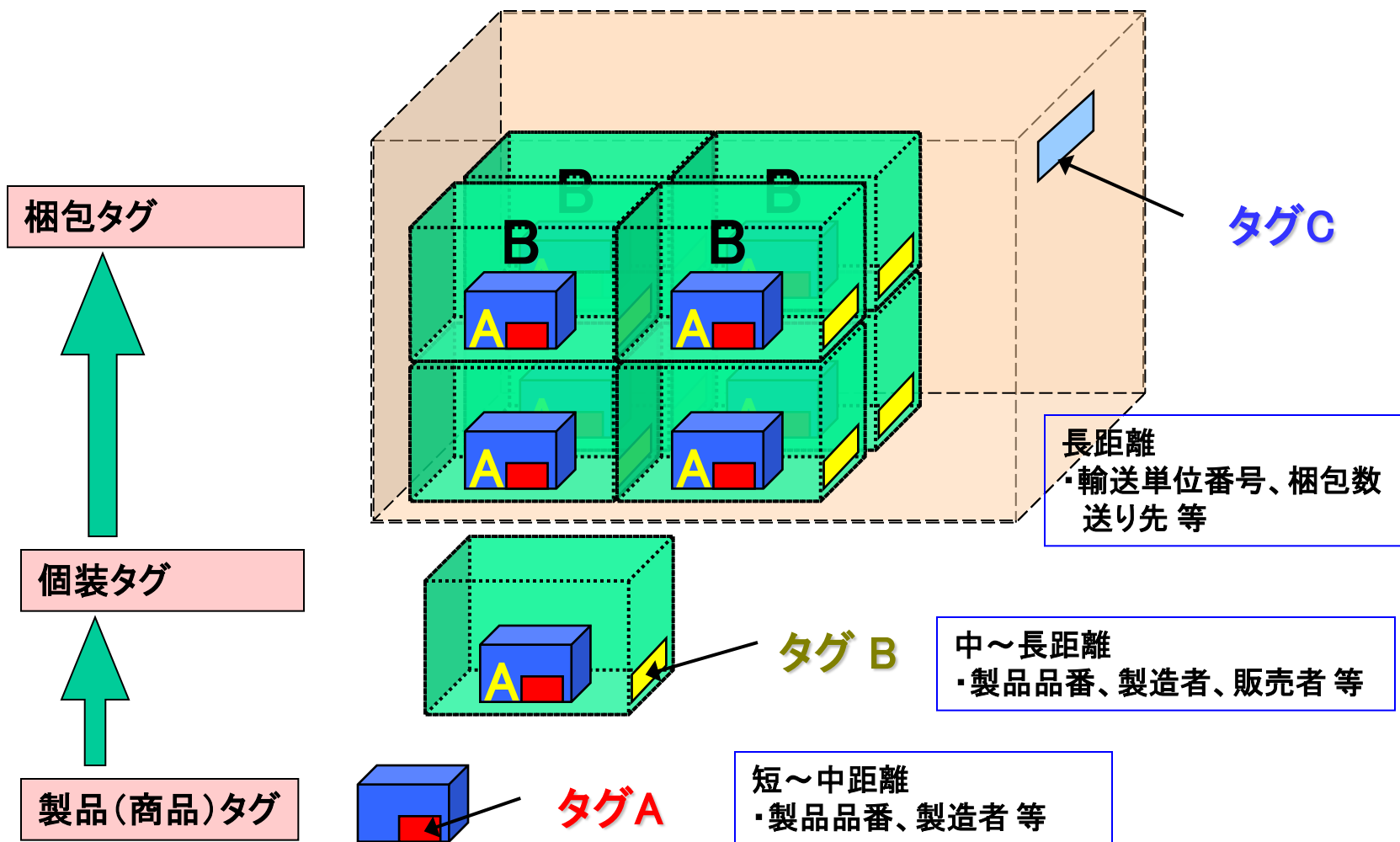
個品

個品

Item

| 規格番号 | 規格名称 |
|-------|---|
| 17363 | Supply Chain Applications for RFID - Freight containers |
| 17364 | Supply Chain Applications for RFID - Returnable transport items |
| 17365 | Supply Chain Applications for RFID - Transport units |
| 17366 | Supply Chain Applications for RFID - Product packaging |
| 17367 | Supply Chain Applications for RFID - Product tagging |

SCMの階層へのRFタグ応用例



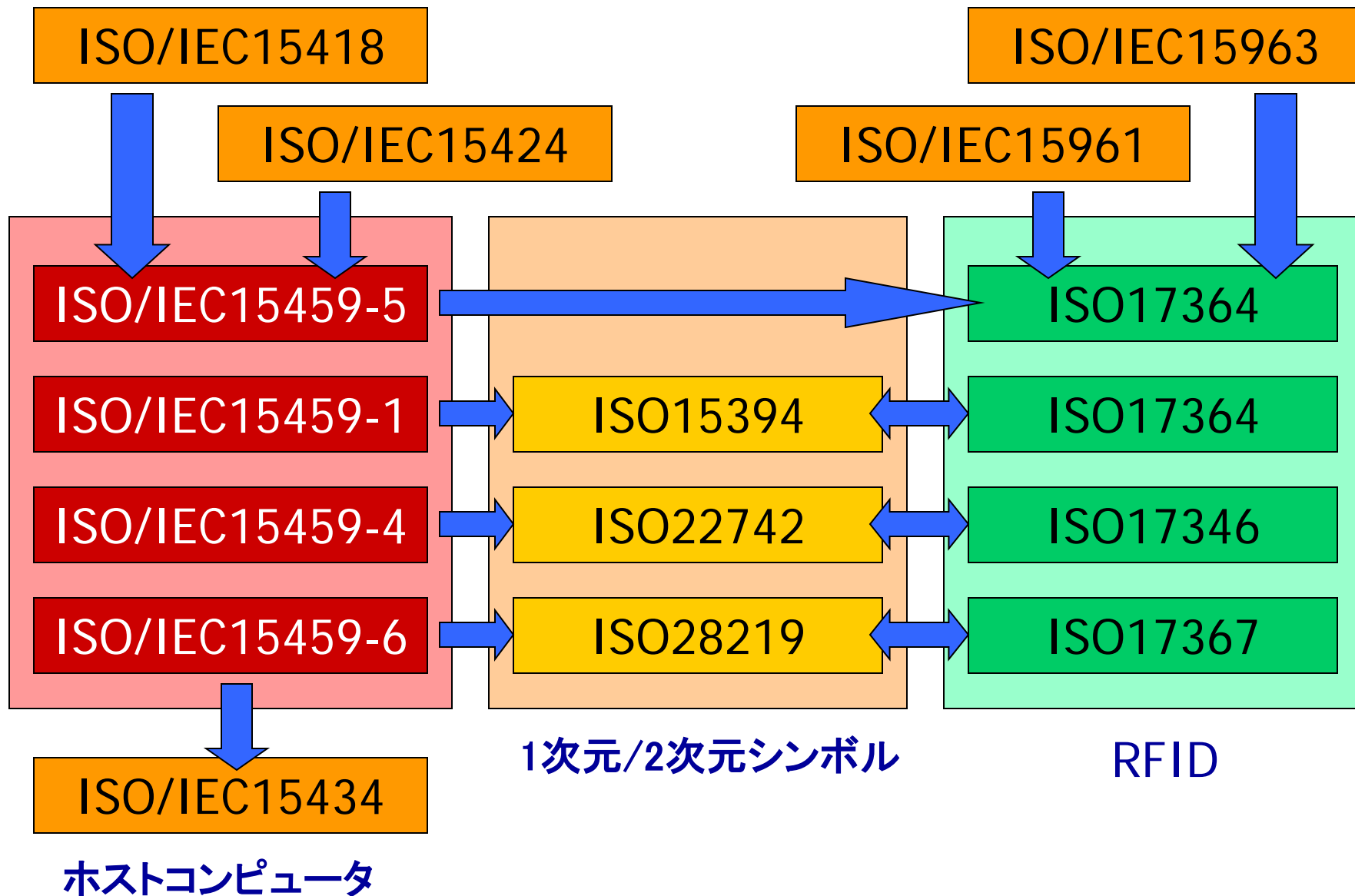
- ◆ 各階層のタグ毎に、要求される機能、格納される情報は違ってくる。
- ◆ RFタグを一律のものと考えず、アプリケーションシーンに対応できる柔軟性が必要である。

物品識別のための国際規格

| データ キャリア | | 対象物への媒体使用時の規格 | | |
|--|---|---------------|--|--|
| | | RFID | 1次元/2次元シンボル | |
| 階層 |  輸送容器 | ISO17364 | N/A | |
| |  輸送単位 | ISO17365 | ISO15394 | License Plate ▪ Shipping Labels ▪ GTL Global Transport Label  |
|  個装箱 | ISO17366 | ISO22742 | ▪ Packaging Labels  | |
|  部品・製品 | ISO17367 | ISO28219 | ▪ Labels ▪ Direct Marking  | |

RFタグは、既に活用されている自動認識技術との並存が必須である。

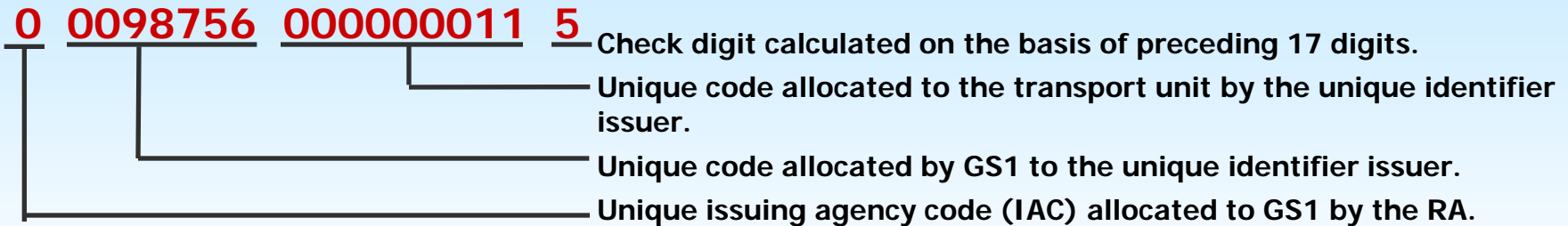
ユニークIDの体系



Unique identifier for transport units

● GS1 unique identifier for transport units.

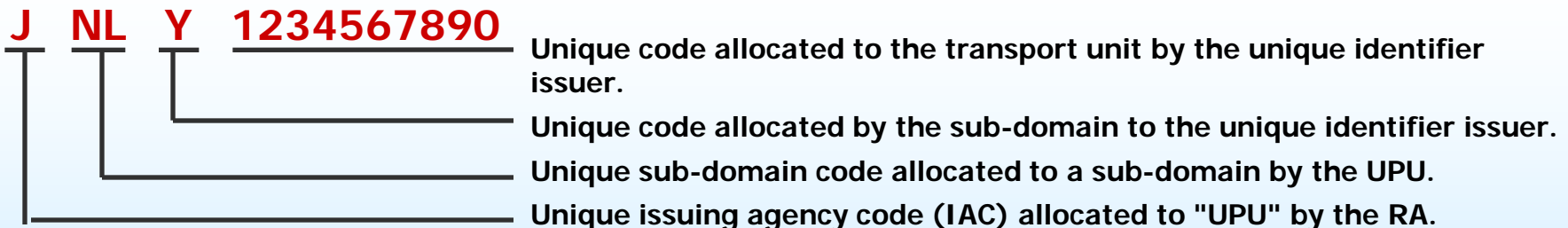
The example below shows a GS1 unique identifier (SSCC) for transport units.



| | | |
|----------------------|----------------------------|---------------------------|
|]C1 | 00 | 000987560000000115 |
| Symbology Identifier | GS1 Application Identifier | Unique Identifier |

● ASC MH10 unique identifier for transport units.

The example below shows an ASC MH10 unique identifier (Data Identifier "J") for transport units.



| | | |
|----------------------|--------------------------|-----------------------|
|]C0 | J | JNLY1234567890 |
| Symbology Identifier | ASC MH10 Data Identifier | Unique Identifier |

One of the ASC MH 10 Data Identifiers from ANS MH10.8.2 Category 10, in the general range J to 6J, which starts with an Issuing Agency Code.

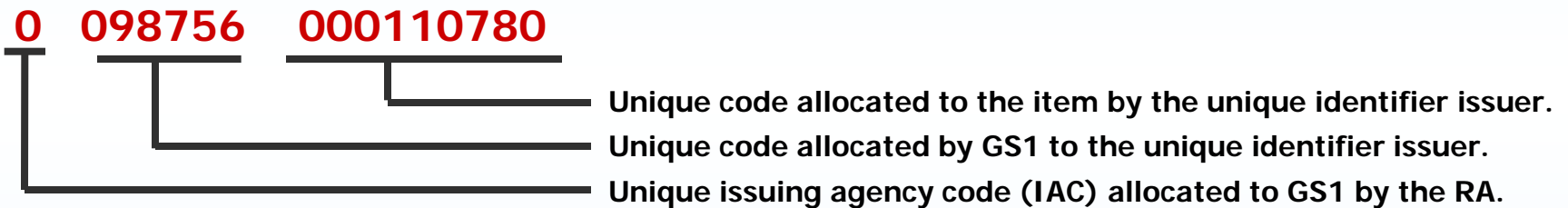
Unique identifier for item identification

● GS1 unique identifier for supply chain management.

The rules of GS1, to whom the Issuing Agency Codes "0" till "9" have been allocated by the Registration Authority, are that the unique identifier consists of no more than 30 alphanumeric characters, the first part of which is always numeric. The first numeric string of characters is allocated by GS1 to the issuer (Global Company Prefix) and the following characters are assigned by issuer under the rules of GS1.

Unique identifier issued under the rules of GS1. In this example the Application Identifier is "8004", the Issuing Agency GS1 has provided the unique identifier issuer with "0098756", that starts with the Issuing Agency Code "0", and "000110780" has been assigned by the issuer.

The example below shows a GS1 unique identifier (Application Identifier 8004).



| | | |
|----------------------|----------------------------|-------------------------|
| IC1 | 8004 | 0098756000110780 |
| Symbology Identifier | GS1 Application Identifier | Unique Identifier |

One of the GS1 Application Identifiers 8003, 8004 or the combination AI 01 21.

If this class identification method is used each Issuing Agency, or unique identifier issuer if authorized by it's Issuing Agency, shall select the appropriate GS1 Application Identifier to identify the sub-class representing the class of the unique identifier.

Unique identifier for item identification

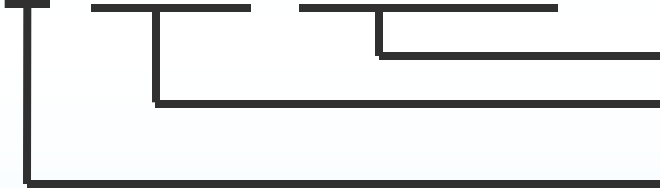
● ASC MH10 unique identifier for item identification.

NATO ALLIED COMMITTEE 135, to whom the Issuing Agency Code "D" has been allocated by the Registration Authority, have issued rules for the creating unique identifiers. The characters following the Issuing Agency Code "D" are allocated by NATO ALLIED COMMITTEE 135 to commercial or government entities and are referred to as a CAGE/NCAGE codes, The unique identifier issuer then assigns the remaining characters.

Typical Unique Item Identification issued under the rules of "military organization NATO ALLIED COMMITTEE 135" : In this example the Data Identifier is "25S", the IAC is "D", the CIN (CAGE/NCAGE) is "1U2R7", and the serial number is "000110780" .

The example below shows an NATO ALLIED COMMITTEE 135 item identifier (Data Identifier 25S).

D 1U2R7 000110780



Unique code allocated to the article by the unique identifier issuer.

Unique code [CAGE/NCAGE] allocated by AC135 to the unique identifier issuer.

Unique issuing agency code (IAC) allocated to AC135.

| | | |
|----------------------|--------------------------|------------------------|
| I CO | 25S | D1U2R7000110780 |
| Symbology Identifier | ASC MH10 Data Identifier | Unique Identifier |

One of the ASC MH10 Data Identifiers, as defined in ISO/IEC 15418 (ANS MH10.8.2), 25S or 25T.

If this class identification method is used each Issuing Agency, or unique identifier issuer if authorized by it's Issuing Agency, shall select the appropriate ASC MH10 Data Identifier to identify the sub-class representing the class of the unique identifier.

ご清聴、ありがとうございました。

柴田 彰