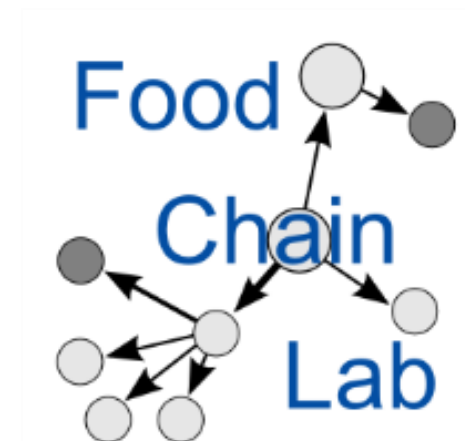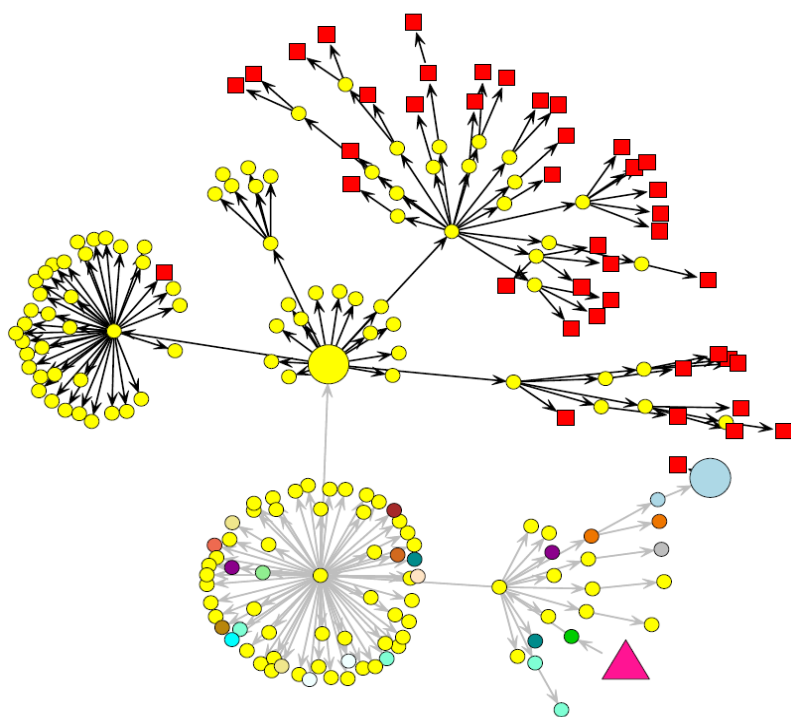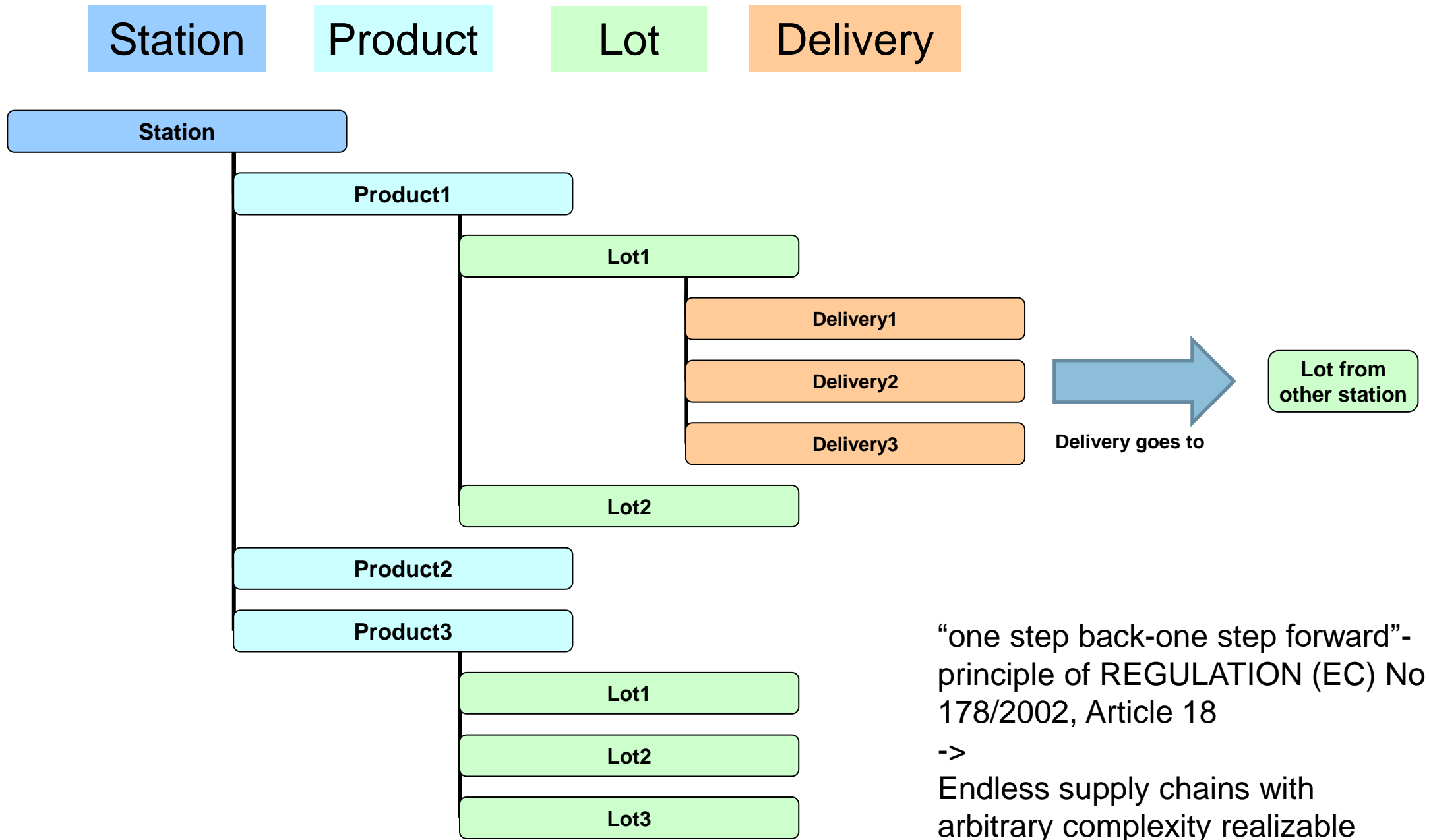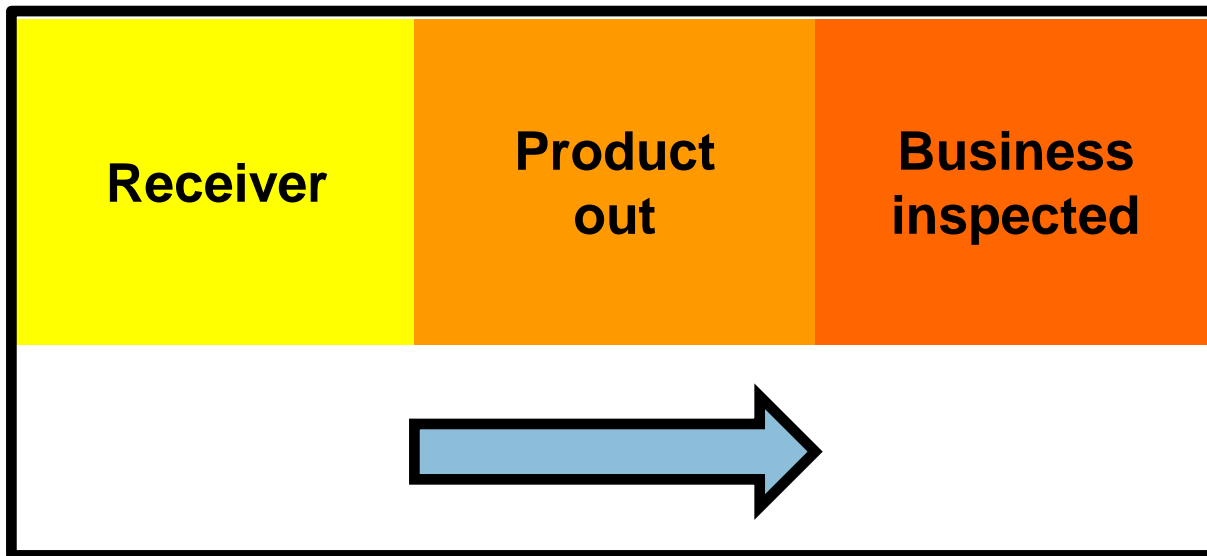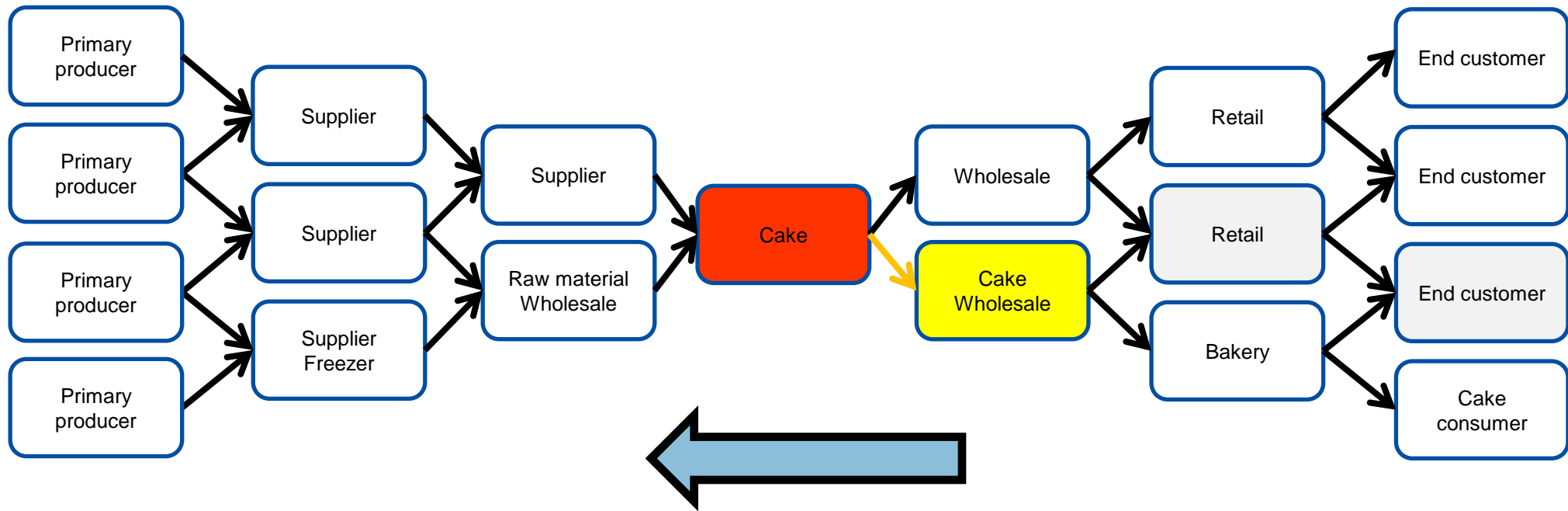# FoodChain-Lab
Data Structures and Data Collection

Armin Weiser, Christian Thöns, Alexander Falenski, Matthias Filter, Annemarie Käsbohrer, Bernd Appel

Database – Structure for Food Chains

Station   Product   Lot   Delivery

Station

Product1

Lot1

Delivery1

Delivery2

Delivery3

Delivery goes to

Lot from other station

Lot2

Product2

Product3

Lot1

Lot2

Lot3

"one step back-one step forward"-principle of REGULATION (EC) No 178/2002, Article 18

->

Endless supply chains with arbitrary complexity realizable

Principle of tracing back – Data gathering

Principle of tracing back – Data gathering

```
Primary          Supplier
producer
                                  Supplier          Cake          Wholesale        Retail          End customer
Primary                                                                                            End customer
producer          Supplier       Raw material      Cake           Retail          End customer
                                  Wholesale         Wholesale
Primary           Supplier                                                                         End customer
producer          Freezer                                          Bakery          Cake
                                                                                   consumer
Primary
producer
```

Receiver	Product out	Business inspected	Product(s) in	Supplier(s)
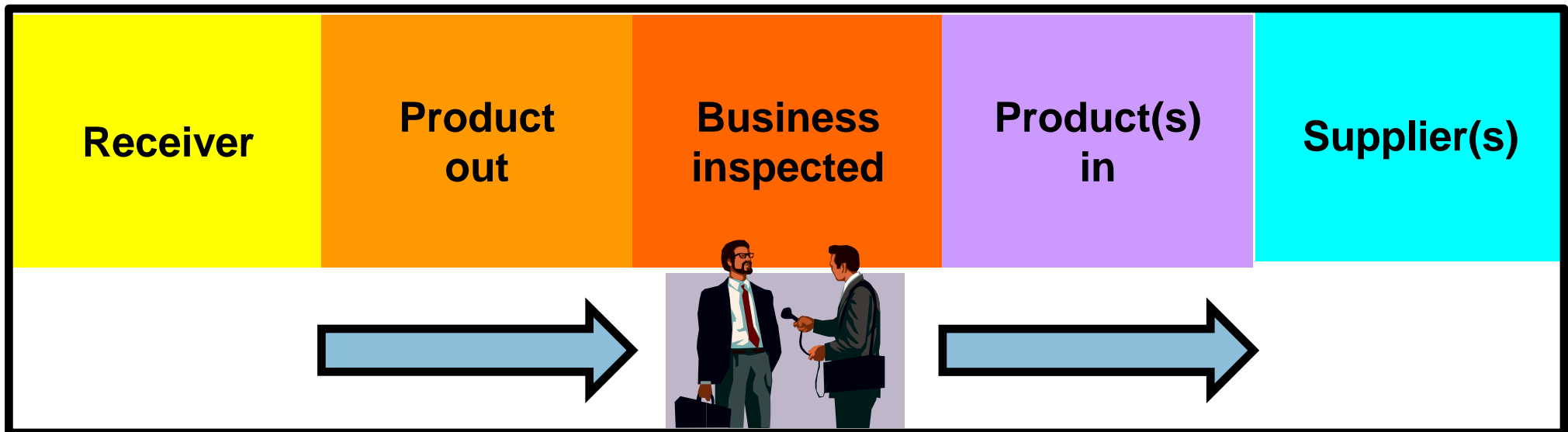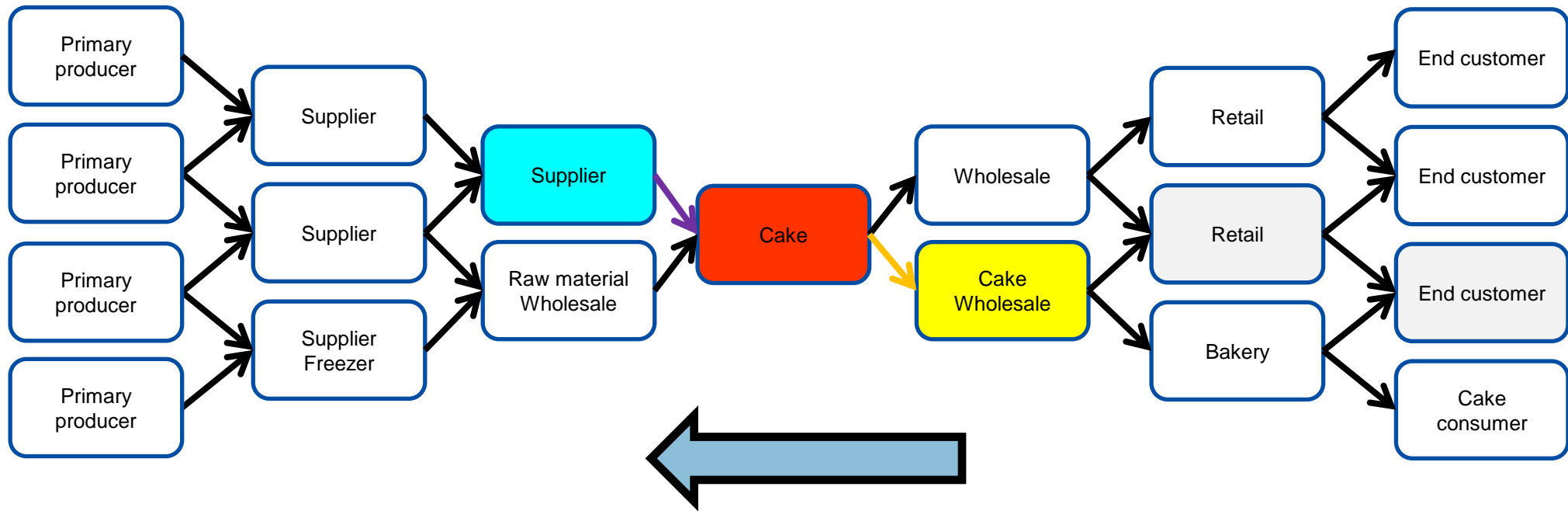
DATA COLLECTION, E.G. AT CAKE MANUFACTURER

Data at each knot of the food supply chain

Establishment where the data are collected:
1 record per ingredient-product combination
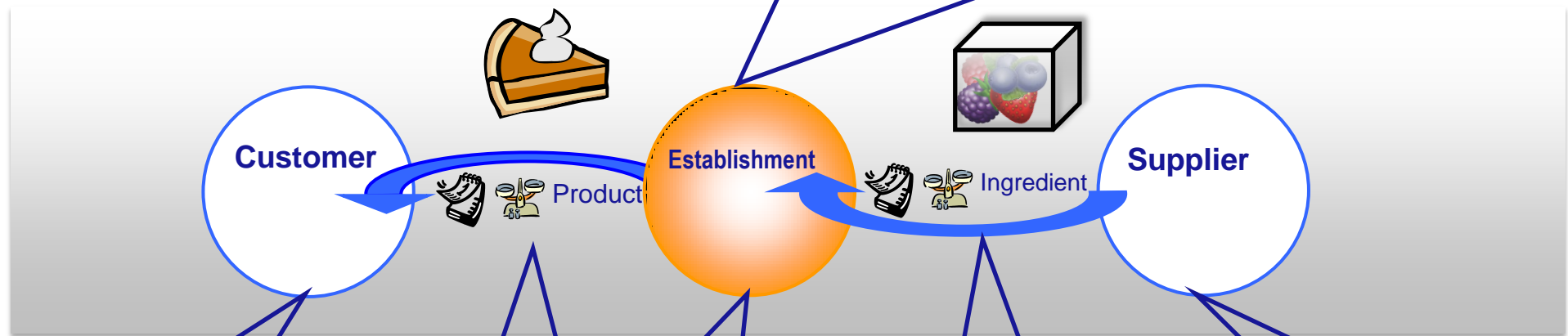
Customer of the Establishment:
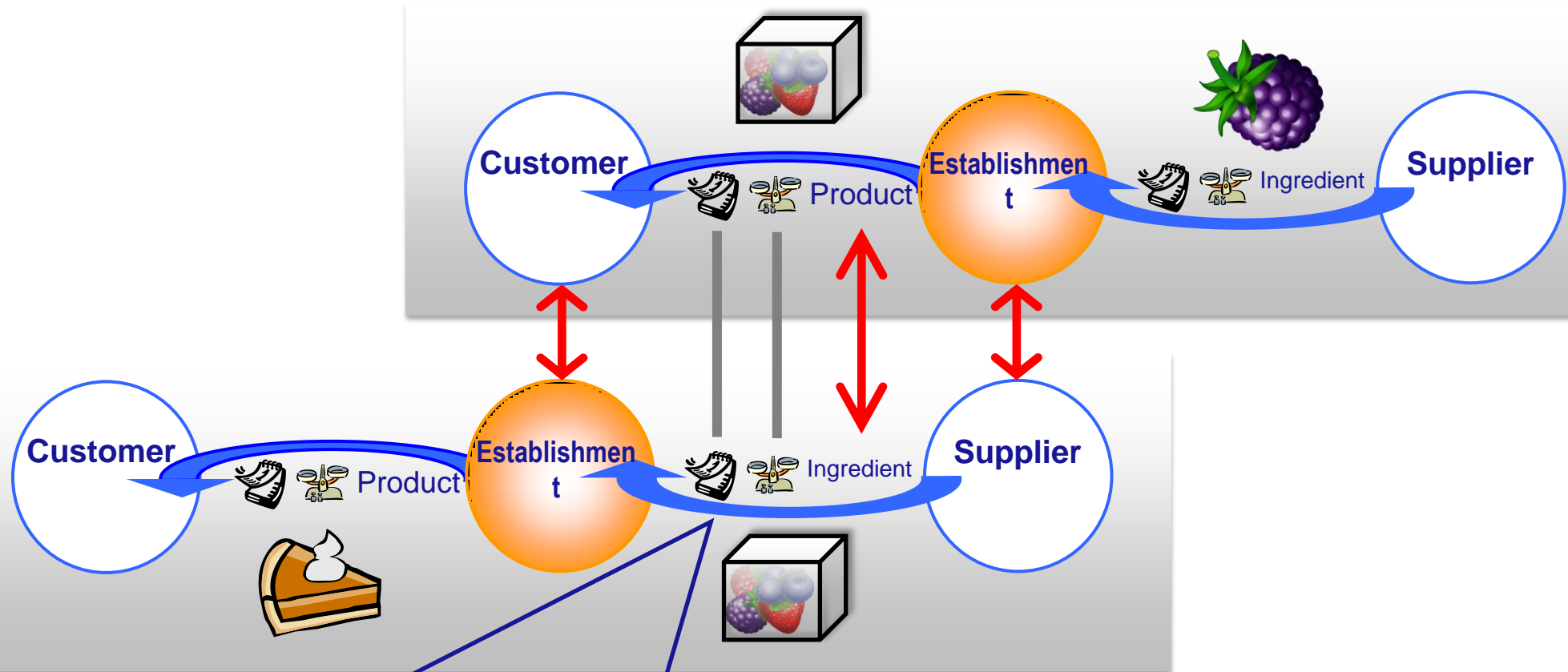
Identification, e.g.

Name,
address,
tax no.

Product of the Establishment:

Identification, e.g.

Date of delivery,
amount,
name,
article/lot no.,
production date,
expire date

Establishment:
Identification, e.g.

Name,
address,
tax no.

Production process:

Recipe,
processing

Ingredient of the product:

Identification, e.g.

Date of delivery,
amount,
name,
article/lot no.,
production date,
expire date

Supplier of the Establishment:

Identification, e.g.

Name,
address,
tax no.

5

DATA ANALYSIS: BUILDING THE FOOD SUPPLY CHAIN

Identification of common links by Costumer=EstablishmentA / EstablishmentB=Supplier / Product=Ingredient

Verification (proof of consistency) by correct date of delivery / correct amount of the product

Collected were 6227 transactions among 1974 food operators.

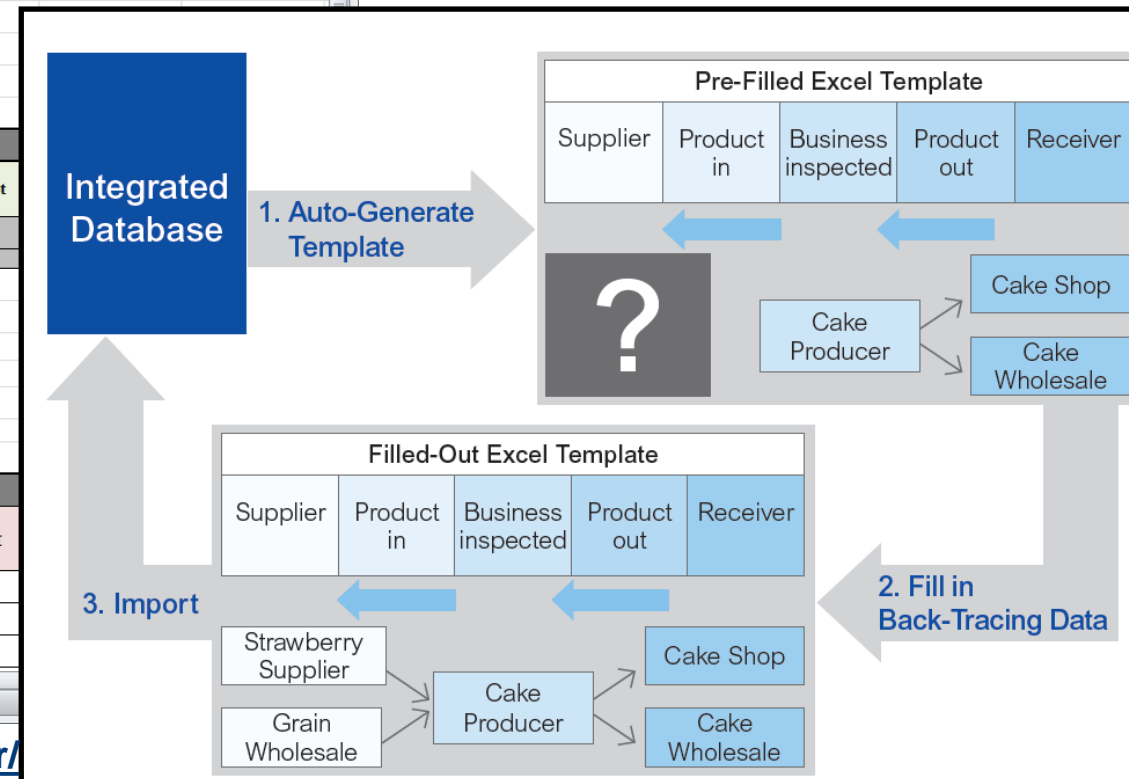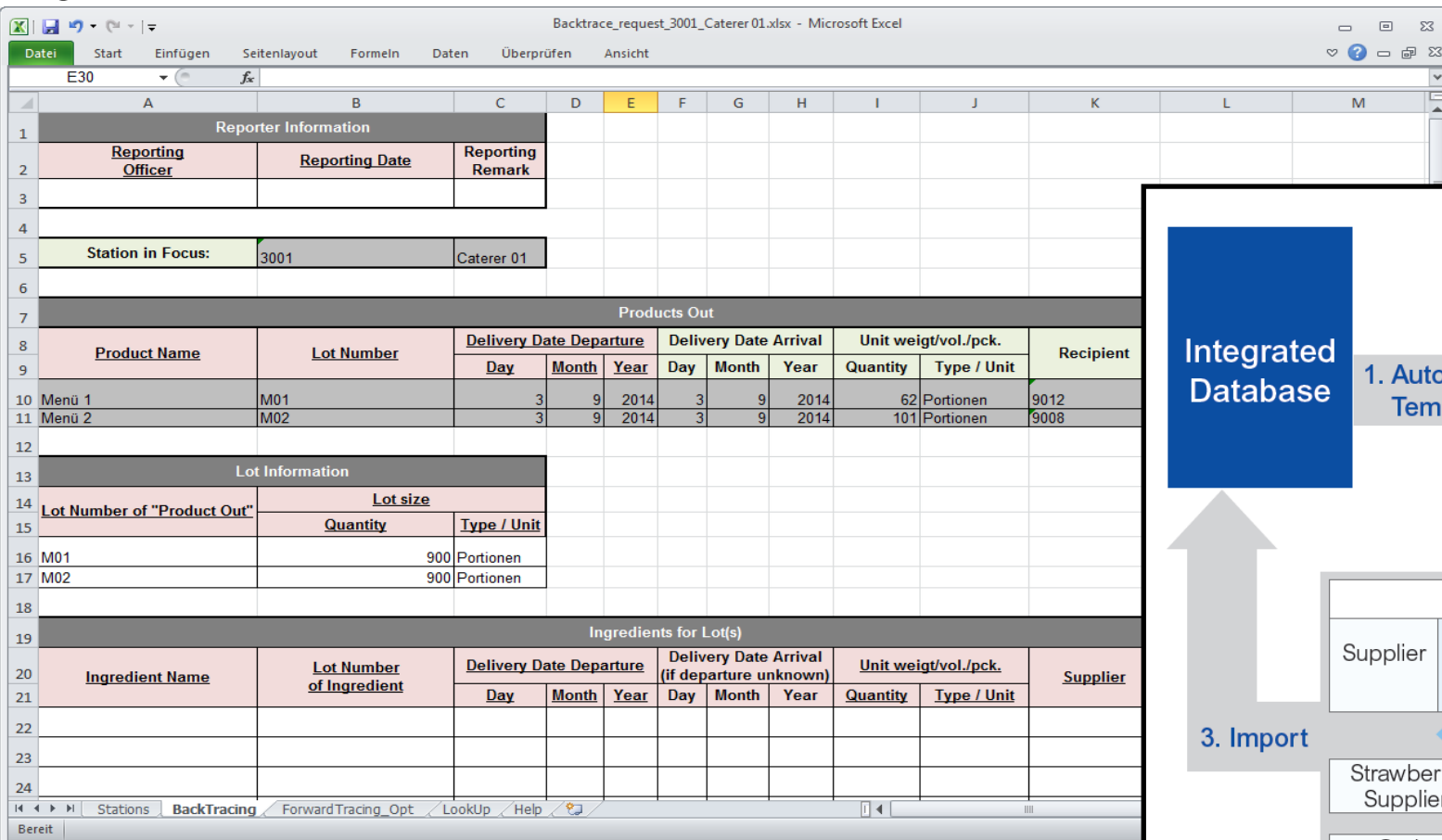# Data gathering – Development of a new "simple" template

old:
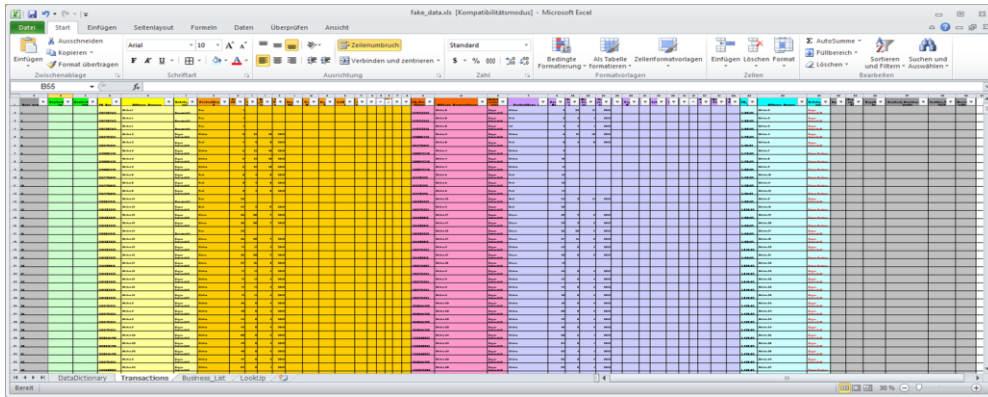
"one step back-one step forward"-principle of REGULATION (EC) No 178/2002, Article 18
->
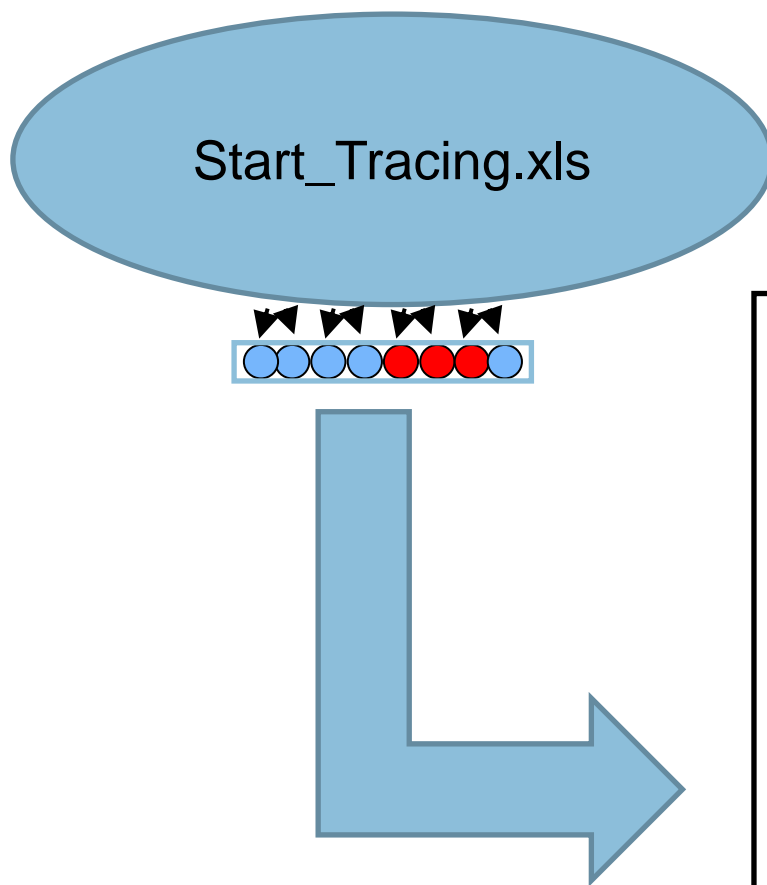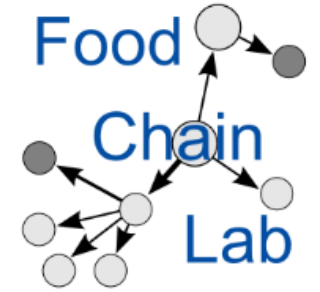Endless supply chains with arbitrary complexity realizable

new:

Online Validation: https://foodrisklabs.bfr.bund.de/templatevalidator/
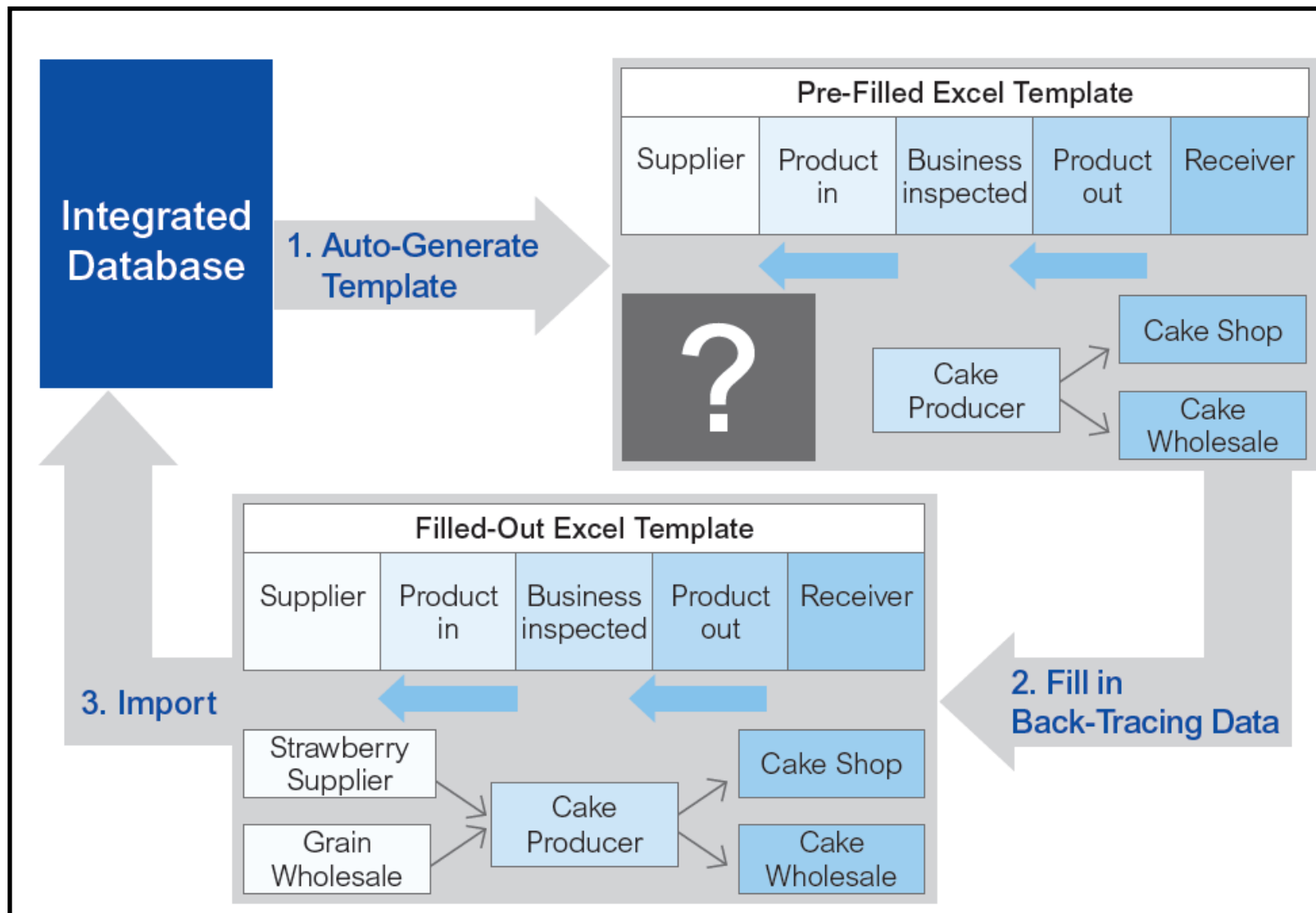
Outbreak Scenario 2:
Affecting Multiple Locations/Countries

The outbreak investigation team see:
**Cases**

??

Advised approach

Start_Tracing.xls

Food Chain Lab

Integrated Database

1. Auto-Generate Template

Pre-Filled Excel Template

Supplier	Product in	Business inspected	Product out	Receiver

?

Cake Producer → Cake Shop, Cake Wholesale

2. Fill in Back-Tracing Data

Filled-Out Excel Template

Supplier	Product in	Business inspected	Product out	Receiver

3. Import

Strawberry Supplier, Grain Wholesale → Cake Producer → Cake Shop, Cake Wholesale

Other approaches:

- Direct injection via

  - SQL

  - Alternative Excel sheets

  - Xml structures

  - …

Another approach:
COS - Busstop - FoodChain-Lab

- COS collects (NRW-) Tracing Data

- COS is doing validation internally based on existing master data

- COS outputs data into newly defined xml-strukture and sends it into a newly developed webservice

- FCL always looks into the webservice for new data

- FCL analyses data (semi)-automatically

- FCL prepares analysis reports and sends it back to the webservice

- COS fetches the report – management measures or further data collections will be initiated

Next steps
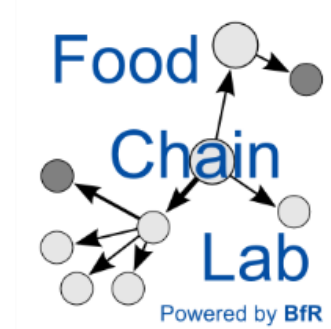
- Simplify Data Input
  - Allow to import data from other systems (e.g. iRASFF)
  - "Immediate" data injection

- DEMOS – defining a data standard (EU)

- ALB – defining a standard data format (DE)

FoodChain-Lab - Outlook

Web Service for Data Input

Available Templates/Data imports in FCL
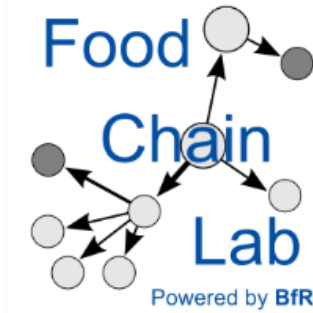
- Start tracing
  - backward
  - forward
- Production tracing
  - Backward (auto generation)
  - Forward (auto generation)
- All-In-One Template
- Web-Edit
- Xml Busstop

Advised approach

Thank you for your attention

Armin Weiser

https://foodrisklabs.bfr.bund.de

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