



Data for FoodChain-Lab

Collection – Import – Cleaning

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Collecting Data: Excel Template



StationBacktrace_request_All-Year-Fruits Pic...-173209535_completed.xlsx - Excel

Inquired Company: All-Year-Fruits Plc Supplier

For questions please contact the FoodRisk-Labs team, +49 (30) 18412-4444, foodrisklabs@bfr.bund.de

Outgoing Goods

Product	Lot Information			Delivery			Recipient			Comments		
	Name	EAN	Lot Number	Best Before Date or Use-by Date	Day	Month	Year	Amount (e.g. 45 kg)	Name		Address (e.g. Street, ZIP City)	Country
Apricots, frozen			Ap20170821	27	10	2017	1.17 kg	Bakersfield Bakery				Manufacturer
Blackberries, frozen			Bi20170810	27	10	2017	900 g	Bakersfield Bakery				Manufacturer
Peaches, frozen			Pe20170725	27	10	2017	6.6 kg	Bakersfield Bakery				Manufacturer
Strawberries, frozen			Si20170811	27	10	2017	1.5 kg	Bakersfield Bakery				Manufacturer

Information to complete the sheet:

13 Fill in outgoing goods which are already known (see grey fields above).

14 Please keep track of the ingredients of all sent products - do it in a lot-based manner.

15 In Column A starting with Line Number 23 please enter the line number of the outgoing good being the product of this ingredient. Afterwards, enter the

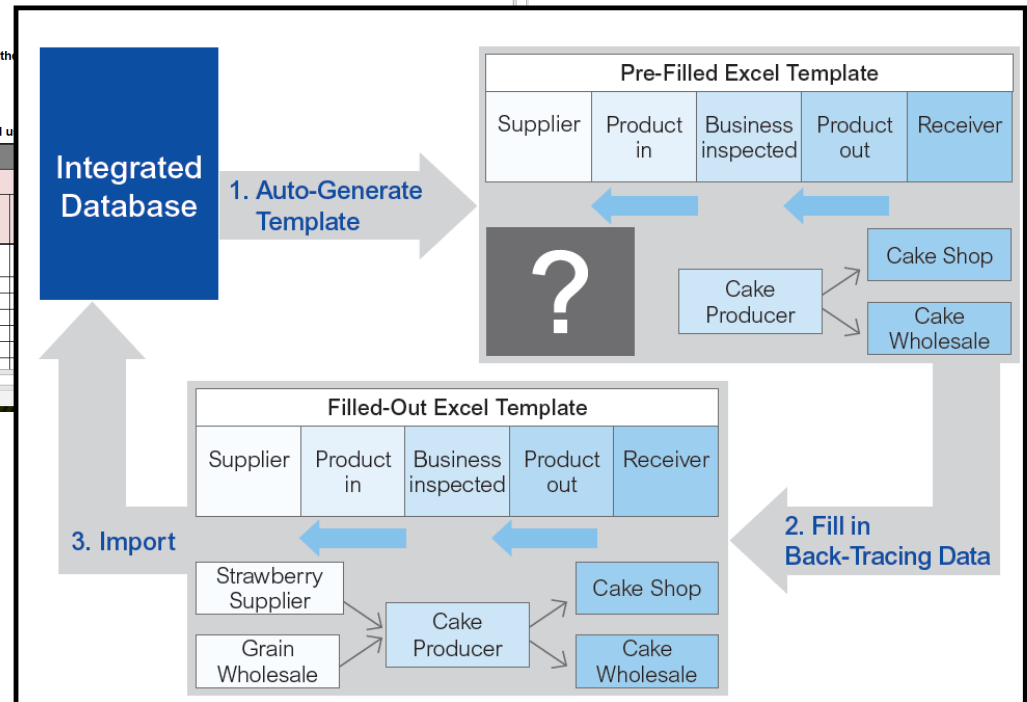
16 Please repeat the outgoing good as often as necessary in order to capture all its ingredients.

17 Then, please assess the data for the next outgoing good(s) accordingly.

18 Digital extracts (e.g. Excel or XML files) of the company database could also be suitable. In this case you do not need to fill this template - please call u

Incoming Goods - lot-based Ingredient List

Line Number or Lot Number from Outgoing Goods	Ingredient		Lot Information		Delivery			Name	
	Name	EAN	Lot Number	Best Before Date or Use-by Date	Day	Month	Year		Amount (e.g. 45 kg)
8	Blackberries		BB001		10	8	2017	500 kg	Black Berry Farm



Online Validation: <https://foodrisklabs.bfr.bund.de/templatevalidator/>

Outbreak: Tracing workflow using FoodChain-Lab I

First information on food producing company involved in foodborne disease outbreak



Template

Start tracing template

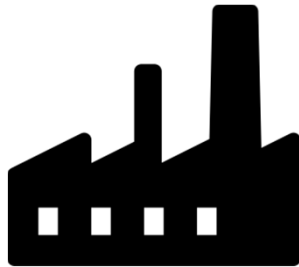
Data needs for tracing – by type



Type of Business

A station

(e.g. a food producer)



Name

Longitude
Latitude

Address

Lot No.

A delivery

(e.g. of a food ingredient)



Name

Amount

Delivery Date

Delivery Relations

Start Forward tracing template: Bakery and patients



Bakery

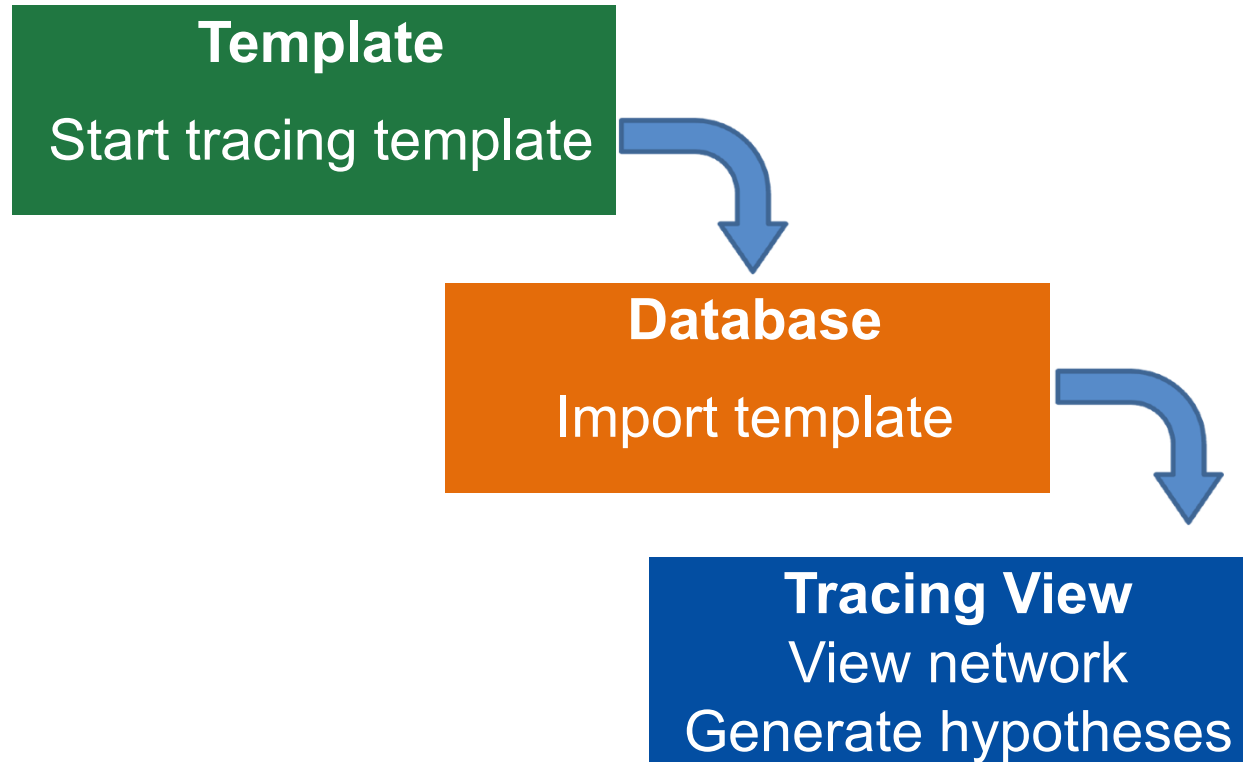
Inquired Company:		Bakersfield Bakery		[Address]		DE		Manufacturer				
For questions please contact the FoodRisk-Labs team, +49 (30) 18412-4444, foodrisklabs@bfr.bund.de												
Products in Focus:	Relevant period of sale:	Onset of disease:										
Information to complete the sheet:												
Please keep track of all delivered products matching the product descriptions that were sold during the relevant period in a lot-based manner.												
<u>Recipient</u>				<u>Product</u>		<u>Lot Information</u>		<u>Delivery</u>			<u>Comments</u>	
<u>Name</u>	<u>Address</u> (e.g. Street, ZIP, City)	<u>Country</u>	<u>Type of Business</u>	<u>Name</u>	<u>EAN</u>	<u>Lot Number</u>	<u>Best Before</u> <u>Date or</u> <u>Use-by Date</u>	<u>Delivery Date</u>				<u>Amount</u> (e.g. 45 kg)
								<u>Day</u>	<u>Month</u>	<u>Year</u>		
Patient01		DE	Patient	Summer Cake		SC01		6	11	2017	1 Piece	
Patient02		DE	Patient	Summer Cake		SC02		6	11	2017	1 Piece	
Patient03		DE	Patient	Summer Cake		SC03		6	11	2017	1 Piece	
Patient04		DE	Patient	Summer Cake		SC04		6	11	2017	1 Piece	
Patient05		DE	Patient	Summer Cake		SC05		6	11	2017	1 Piece	

Patients

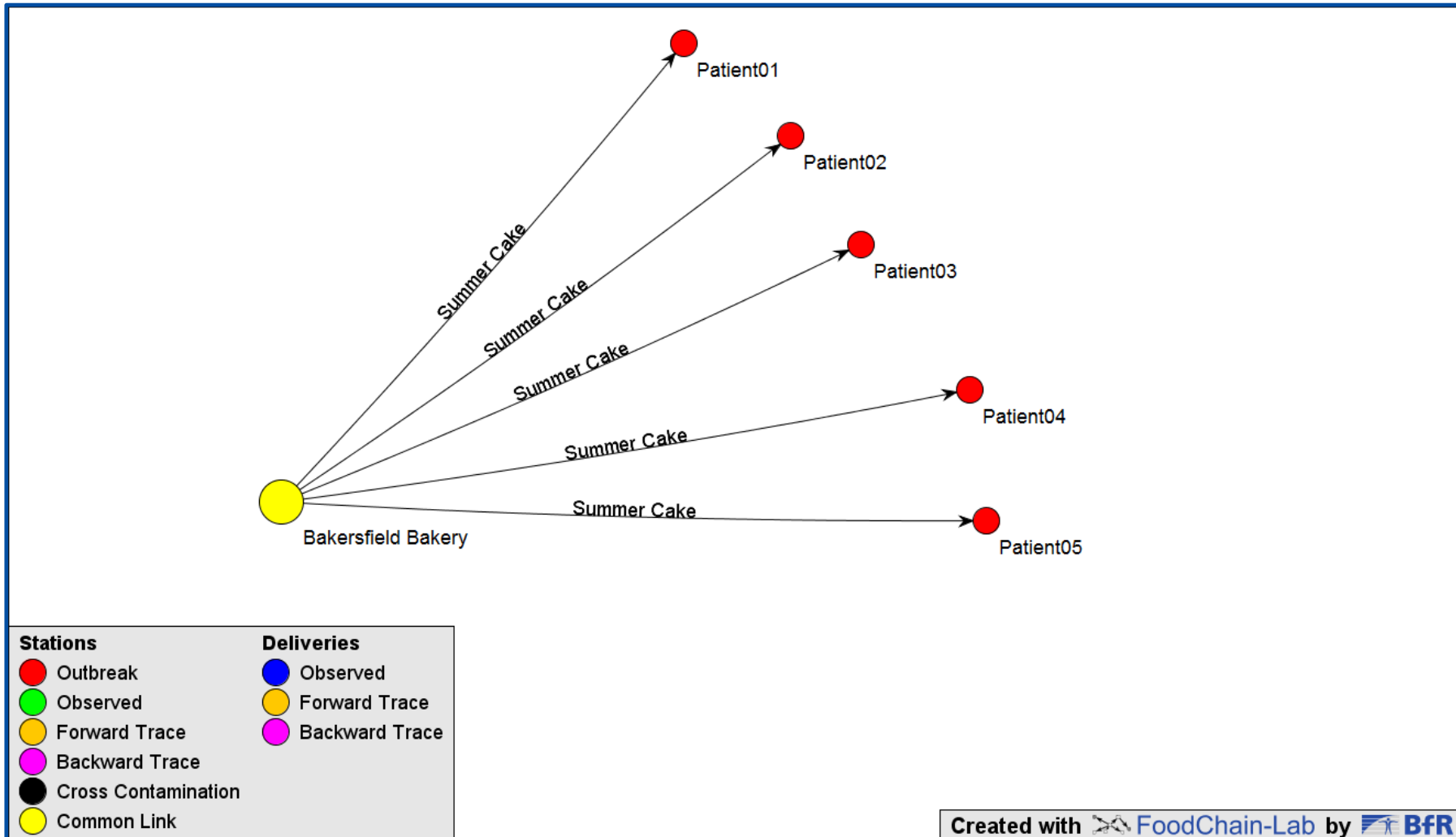
Contaminated product

Outbreak: Tracing workflow using FoodChain-Lab II

First information on food producing company involved in foodborne disease outbreak



Tracing View: Bakery and patients



Database: Structure of food chains

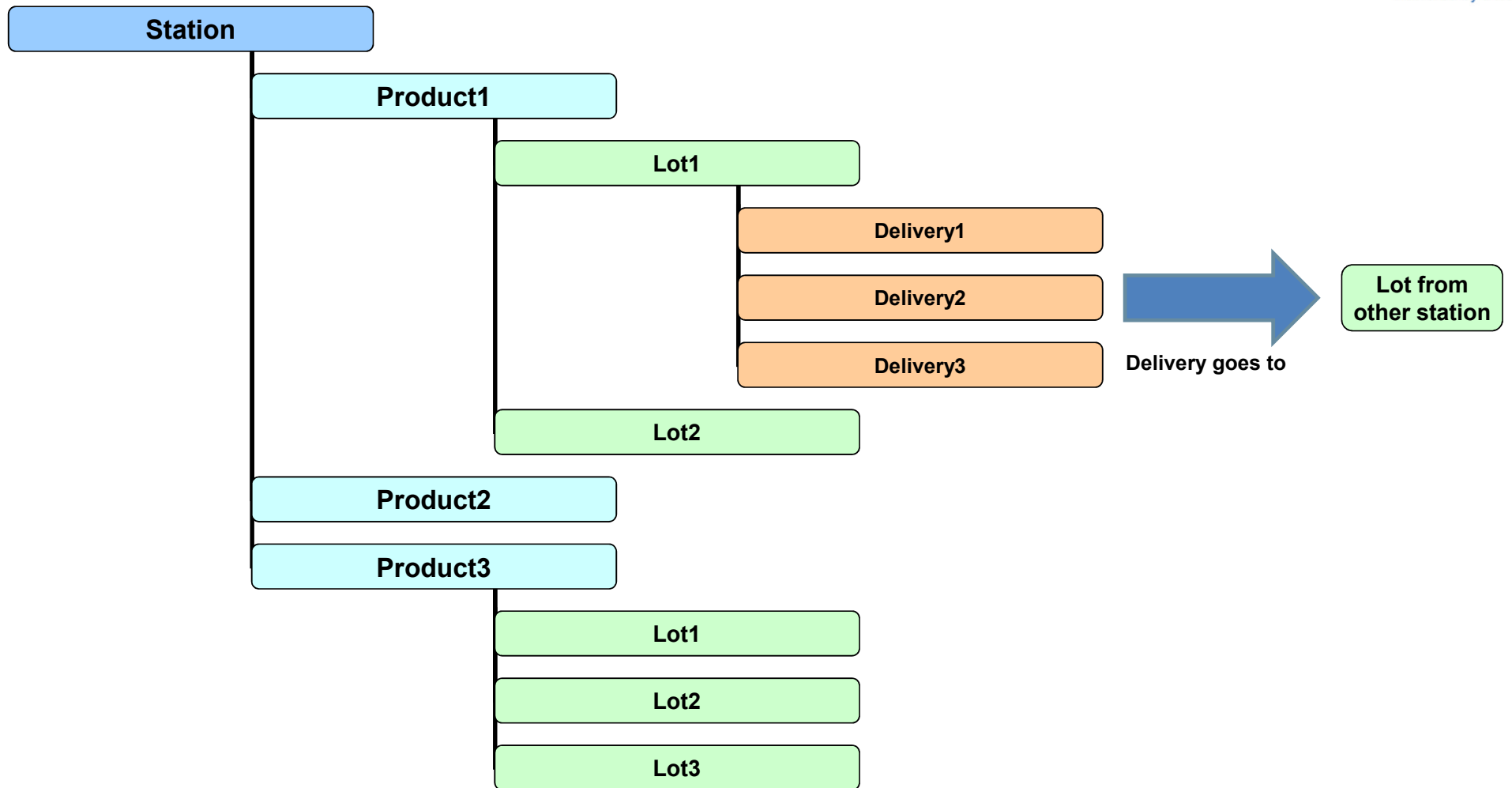


Station

Product

Lot

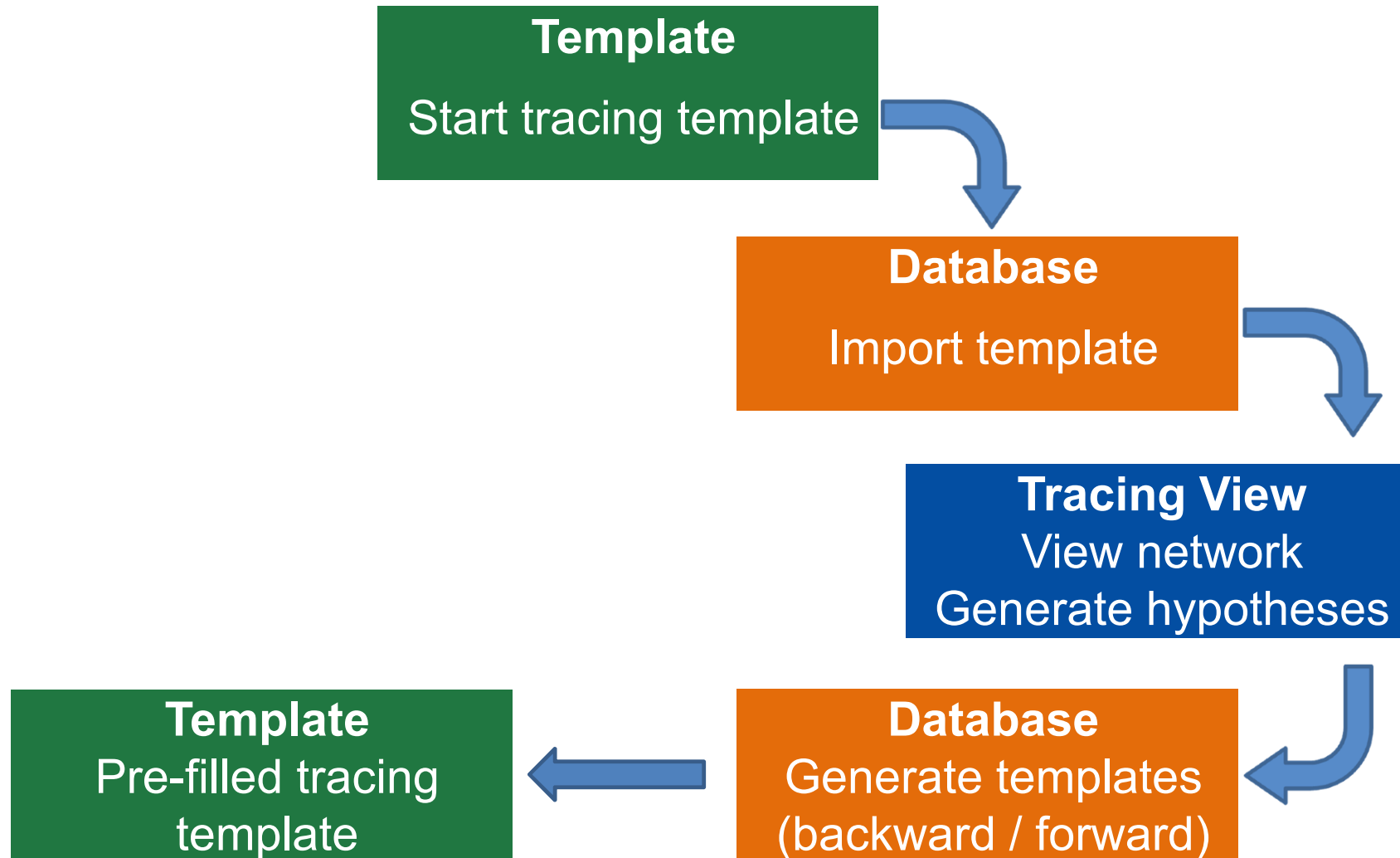
Delivery



Outbreak: Tracing workflow using FoodChain-Lab III



First information on food producing company involved in foodborne disease outbreak



Pre-filled backtracing template generated by the database

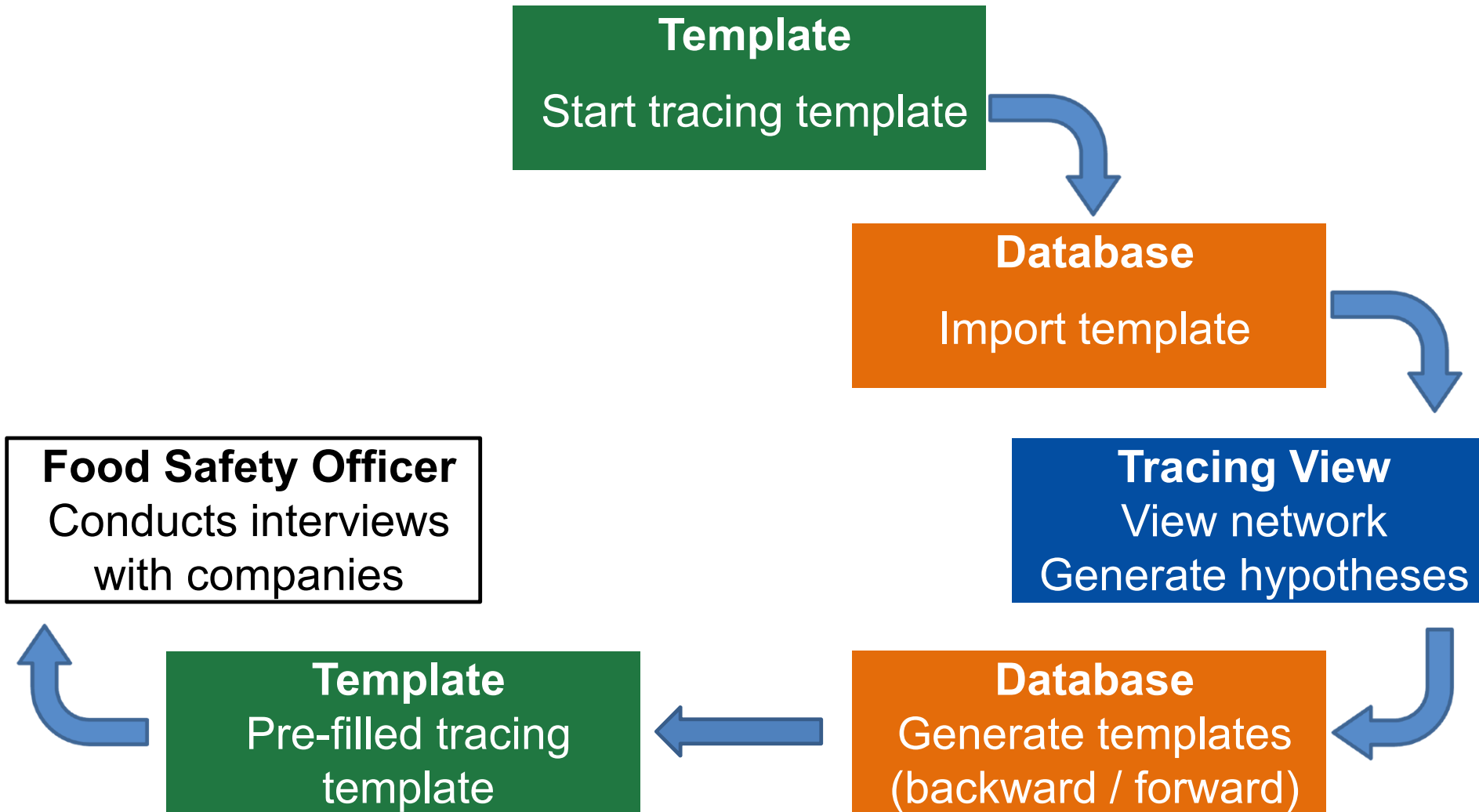


Inquired Company:	Bakersfield Bakery	[Address]	DE	Manufacturer									
For questions please contact the FoodRisk-Labs team, +49 (30) 18412-4444, foodrisklabs@bfr.bund.de													
Outgoing Goods													
	Product		Lot Information		Delivery			Recipient			Comments		
	Name	EAN	Lot Number	Best Before Date or Use-by Date	Delivery Date			Amount	Name	Address		Country	Type of Business
	Summer Cake		SC01		6	11	2017	1 Piece	Patient01		DE	Patient	
	Summer Cake		SC02		6	11	2017	1 Piece	Patient02		DE	Patient	
	Summer Cake		SC03		6	11	2017	1 Piece	Patient03		DE	Patient	
	Summer Cake		SC04		6	11	2017	1 Piece	Patient04		DE	Patient	
	Summer Cake		SC05		6	11	2017	1 Piece	Patient05		DE	Patient	
Information to complete the sheet:													
Fill in outgoing goods which are already known (see grey fields above).													
Please keep track of the ingredients of all sent products - do it in a lot-based manner.													
In Column A starting with Line Number 22 please enter the line number of the outgoing good being the product of this ingredient. Afterwards, enter the ingredient information in													
Please repeat the outgoing good as often as necessary in order to capture all its ingredients.													
Incoming Goods - lot-based Ingredient List													
Line Number or Lot Number from Outgoing Goods	Ingredient		Lot Information		Delivery			Supplier			Comments		
	Name	EAN	Lot Number	Best Before Date or Use-by Date	Delivery Date			Amount	Name	Address		Country	Type of Business
					Day	Month	Year	(e.g. 45 kg)		(e.g. Street, ZIP City)			

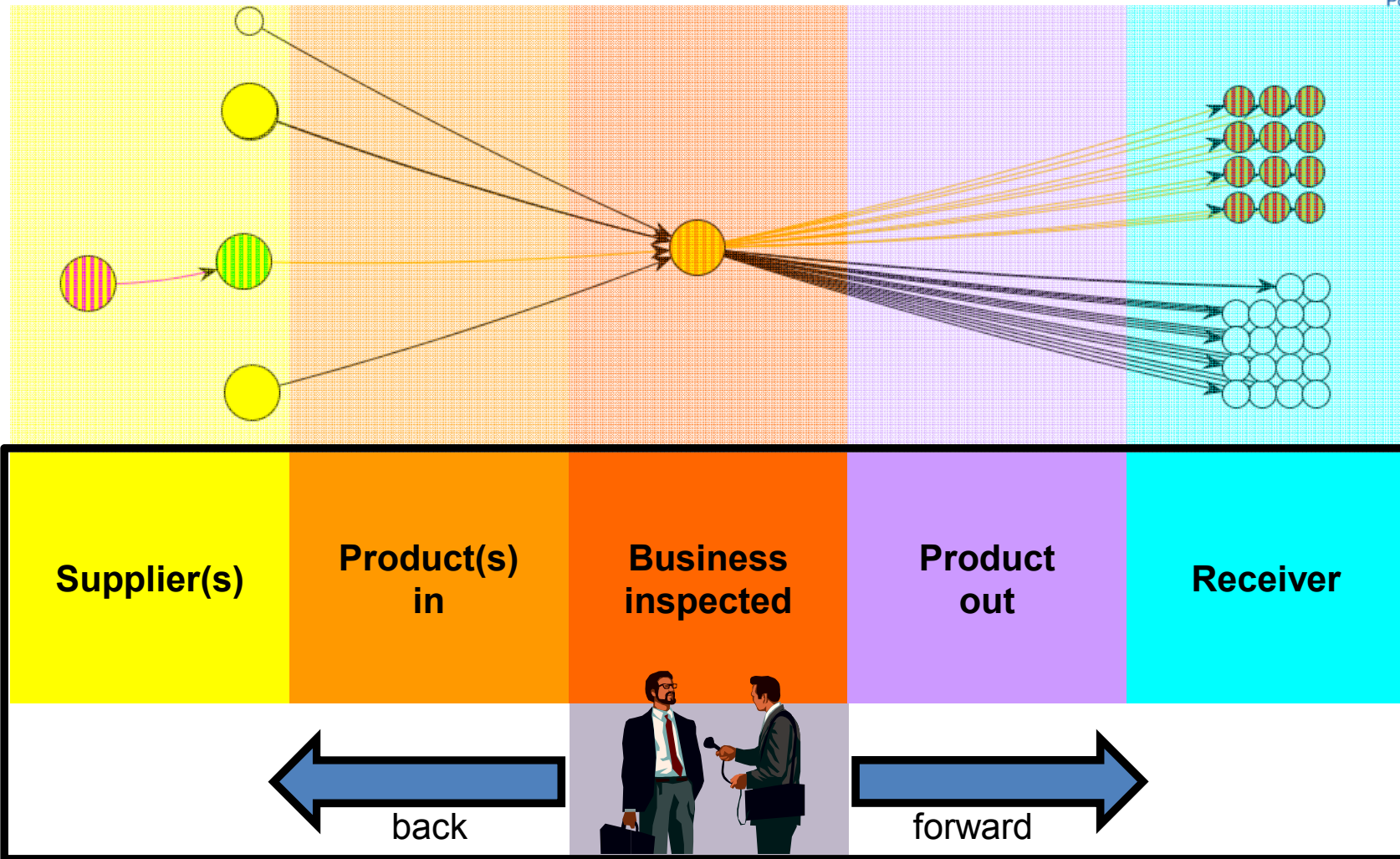
Outbreak: Tracing workflow using FoodChain-Lab IV



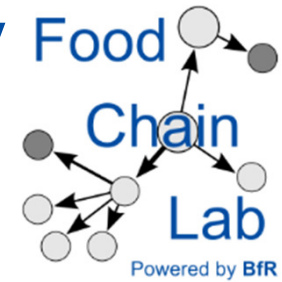
First information on food producing company involved in foodborne disease outbreak



Inquiry at a cake manufacturer



REGULATION (EC) No. 178/2002, Article 18, Traceability

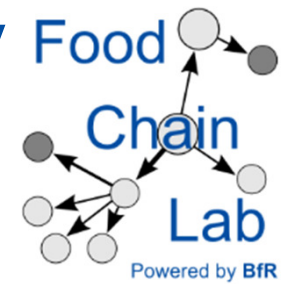


- (1) The **traceability** of food, feed, food-producing animals, and any other substance intended to be, or expected to be, incorporated into a food or feed shall be established **at all stages of production, processing and distribution**.
- (2) **Food and feed business operators** shall be able to **identify any person from** whom they have been **supplied with** a food, a feed, a food-producing animal, or any substance intended to be, or expected to be, incorporated into a food or feed.

To this end, such operators shall have in place systems and procedures which allow for this information to be made available to the competent authorities on demand.

- (3) **Food and feed business operators** shall have in place systems and procedures to **identify the other businesses to** which their products have been **supplied**. This information shall be made available to the competent authorities **on demand**.

REGULATION (EC) No. 178/2002, Article 18, Traceability



(1) **at all stages of production, processing and distribution** of food or feed shall be established at all stages of production, processing and distribution.

(2) **Food and feed business operators** shall be able to **identify any person from whom they have been supplied** with a food, a feed, a food-producing animal, or any substance intended to be, or expected to be, incorporated into a food or feed.

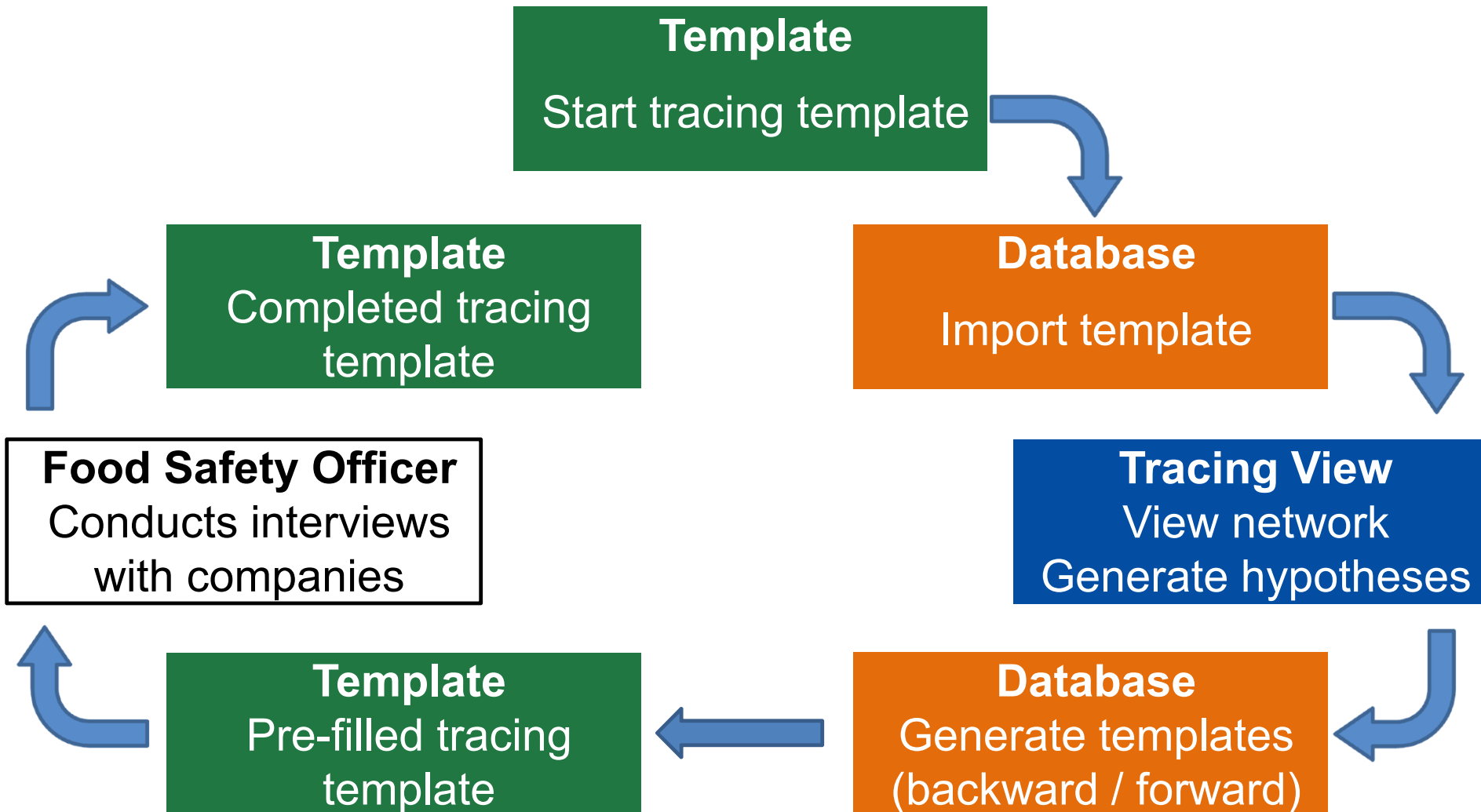
To this end, such operators shall have in place systems and procedures which allow for this information to be made available to the competent authorities on demand.

(3) **Food and feed business operators** shall have in place systems and procedures **to which their products have been supplied** with a food, a feed, a food-producing animal, or any substance intended to be, or expected to be, incorporated into a food or feed. This information shall be made available to the competent authorities on demand.

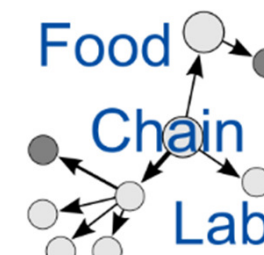
Outbreak: Tracing workflow using FoodChain-Lab V



First information on food producing company involved in foodborne disease outbreak



The pre-filled backtracing template has been completed

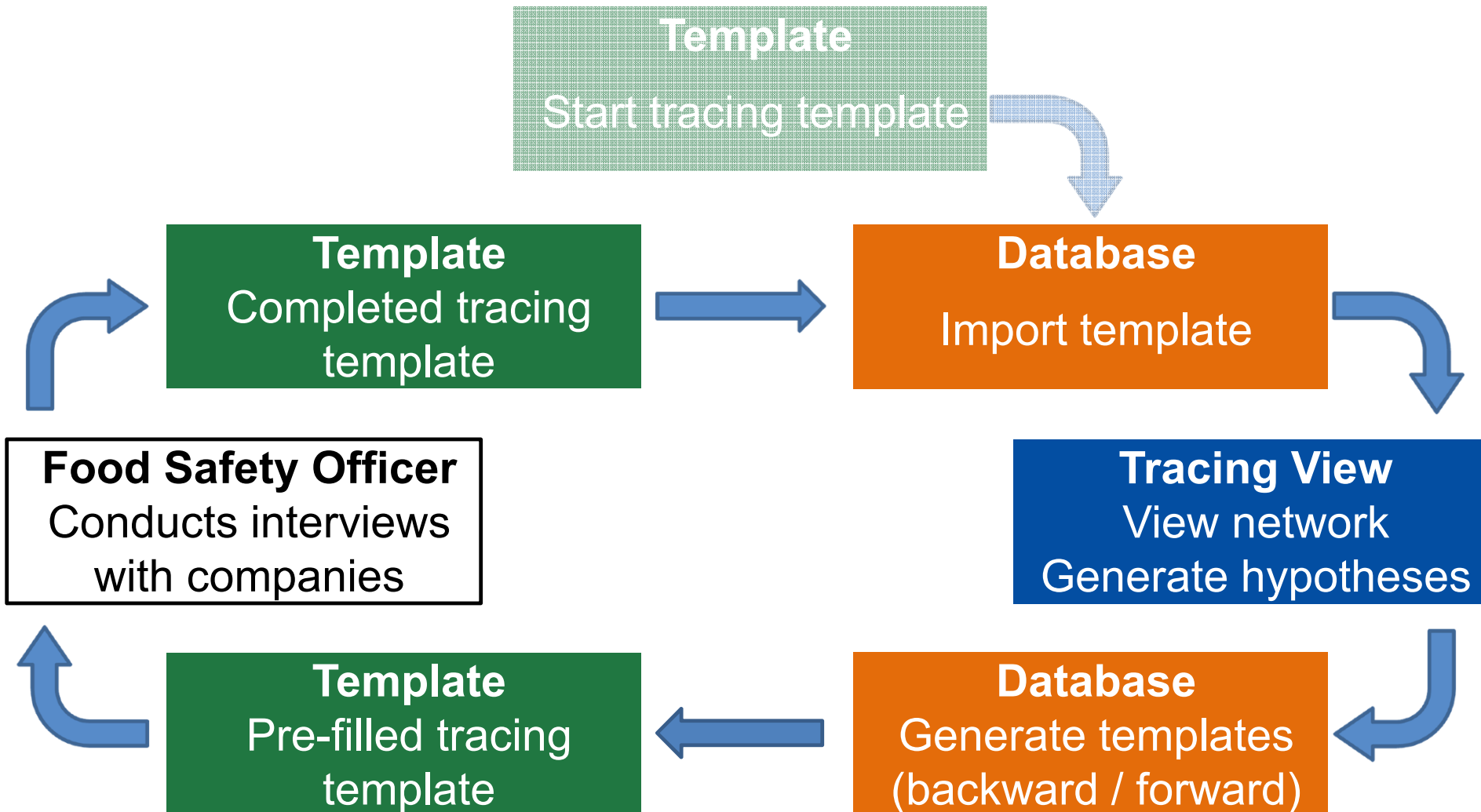


Inquired Company:	Bakersfield Bakery	[Address]	DE	Manufacturer									
For questions please contact the FoodRisk-Labs team, +49 (30) 18412-4444, foodrisklabs@bfr.bund.de													
Outgoing Goods													
	Product		Lot Information		Delivery			Recipient			Comments		
	Name	EAN	Lot Number	Best Before Date or Use-by Date	Delivery Date			Amount (e.g. 45 kg)	Name	Address (e.g. Street, ZIP City)		Country	Type of Business
					Day	Month	Year						
	Summer Cake		SC01		6	11	2017	1 Piece	Patient01		DE	Patient	
	Summer Cake		SC02		6	11	2017	1 Piece	Patient02		DE	Patient	
	Summer Cake		SC03		6	11	2017	1 Piece	Patient03		DE	Patient	
	Summer Cake		SC04		6	11	2017	1 Piece	Patient04		DE	Patient	
	Summer Cake		SC05		6	11	2017	1 Piece	Patient05		DE	Patient	
Information to complete the sheet:													
Fill in outgoing goods which are already known (see grey fields above).													
Please keep track of the ingredients of all sent products - do it in a lot-based manner.													
In Column A starting with Line Number 22 please enter the line number of the outgoing good being the product of this ingredient. Afterwards, enter the ingredient information in columns B													
Please repeat the outgoing good as often as necessary in order to capture all its ingredients.													
Incoming Goods - lot-based Ingredient List													
Line Number or Lot Number from Outgoing Goods	Ingredient		Lot Information		Delivery			Supplier			Comments		
	Name	EAN	Lot Number	Best Before Date or Use-by Date	Delivery Date			Amount (e.g. 45 kg)	Name	Address (e.g. Street, ZIP City)		Country	Type of Business
					Day	Month	Year						
SC01	Butter		Bu100		3	11	2017	6,3 kg	Dairy Products Ltd.		DE	Supplier	
SC01	Sugar		Su200		1	11	2017	12,8 kg	Dry Stuff Inc		DE	Supplier	
SC01	Eggs		Eg220		4	11	2017	90 Piece	Chickens & Eggs Farm		DE	Supplier	
SC01	Flour		Fl101		1	11	2017	11,2 kg	Dry Stuff Inc		DE	Supplier	
SC01	Salt		Sa121		1	11	2017	116 g	Dry Stuff Inc		DE	Supplier	
SC01	Baking Powder		BP001		1	11	2017	368 g	Dry Stuff Inc		DE	Supplier	

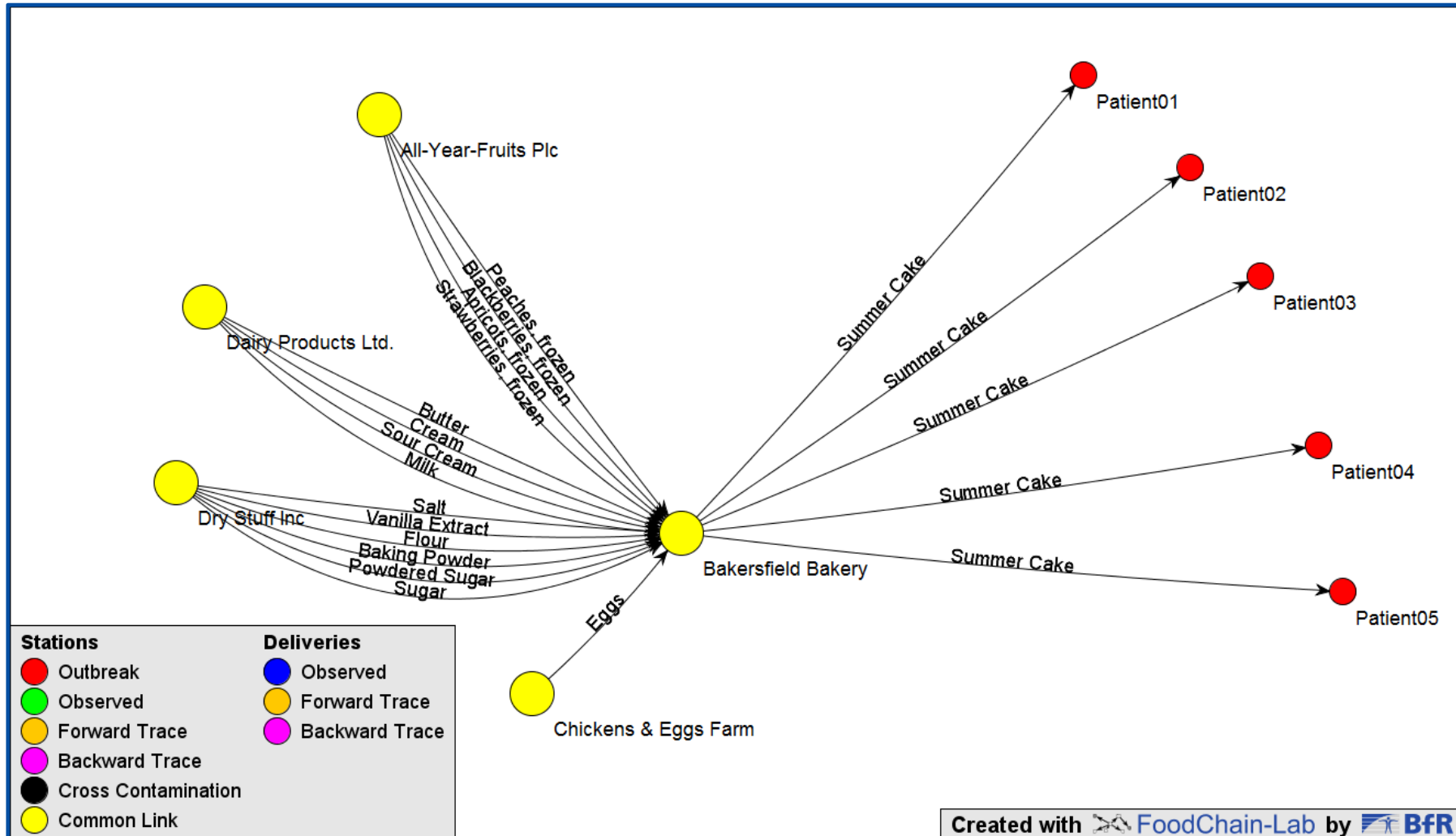
Outbreak: Tracing workflow using FoodChain-Lab VI



First information on food producing company involved in foodborne disease outbreak



Tracing View: Bakery and patients

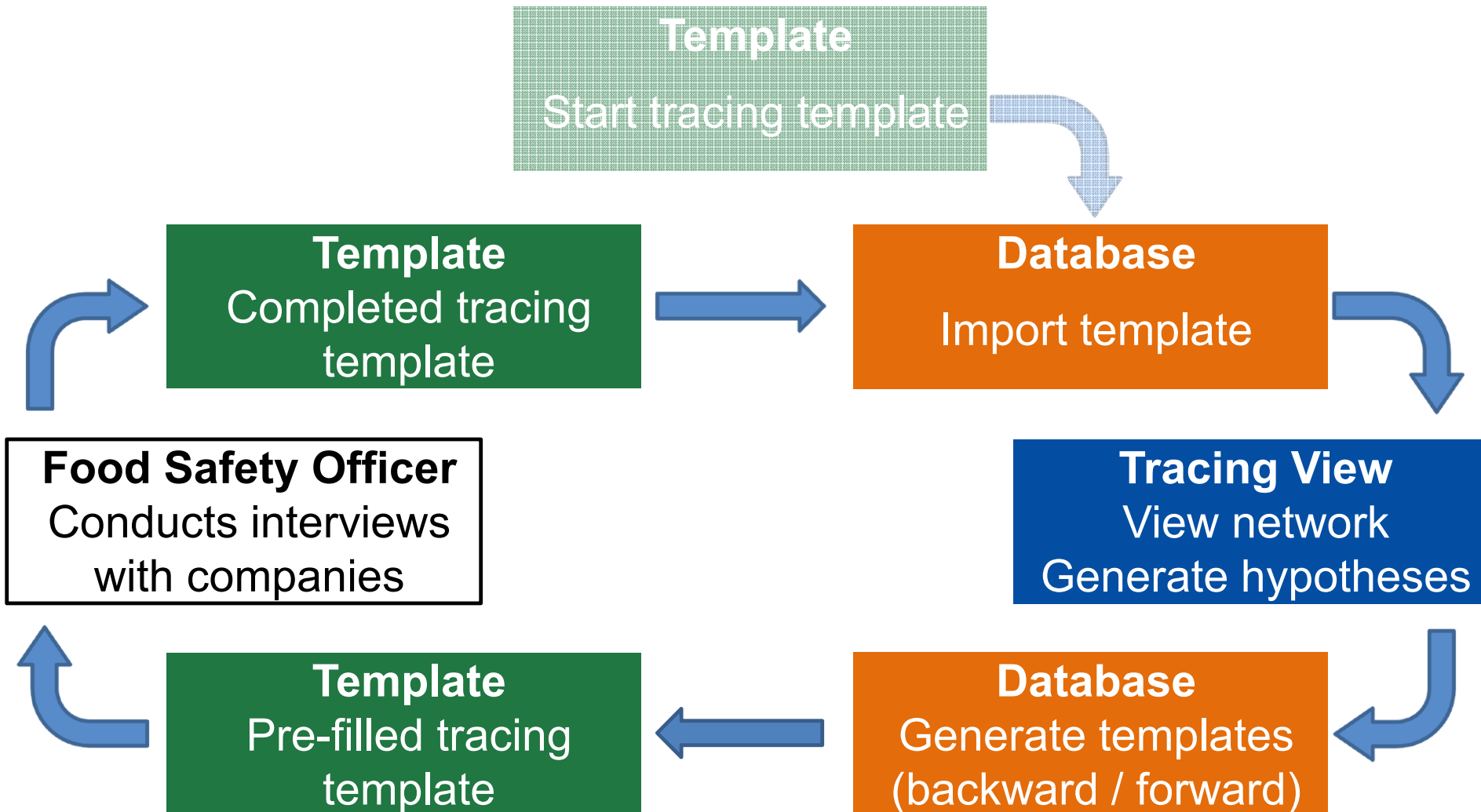


Created with FoodChain-Lab by BfR

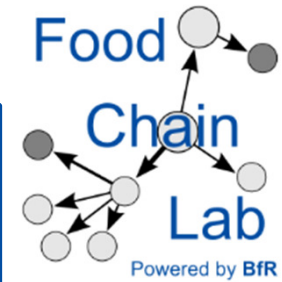
Outbreak: Tracing workflow using FoodChain-Lab VI



First information on food producing company involved in foodborne disease outbreak



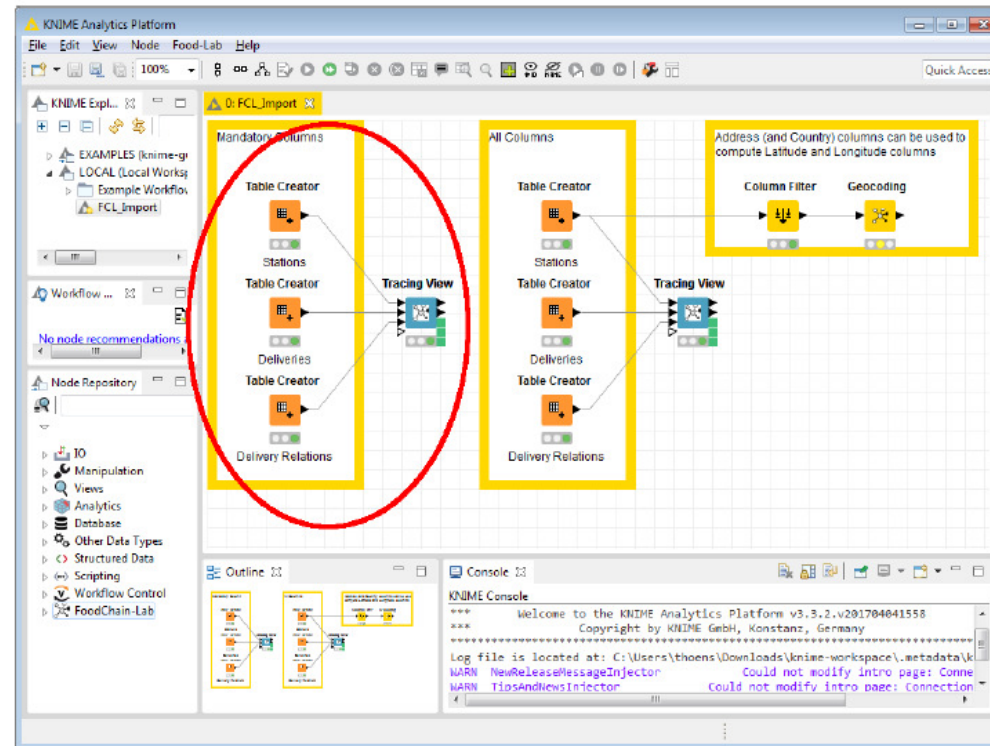
Individual import of data from external sources



Import Data from External Sources

Topics

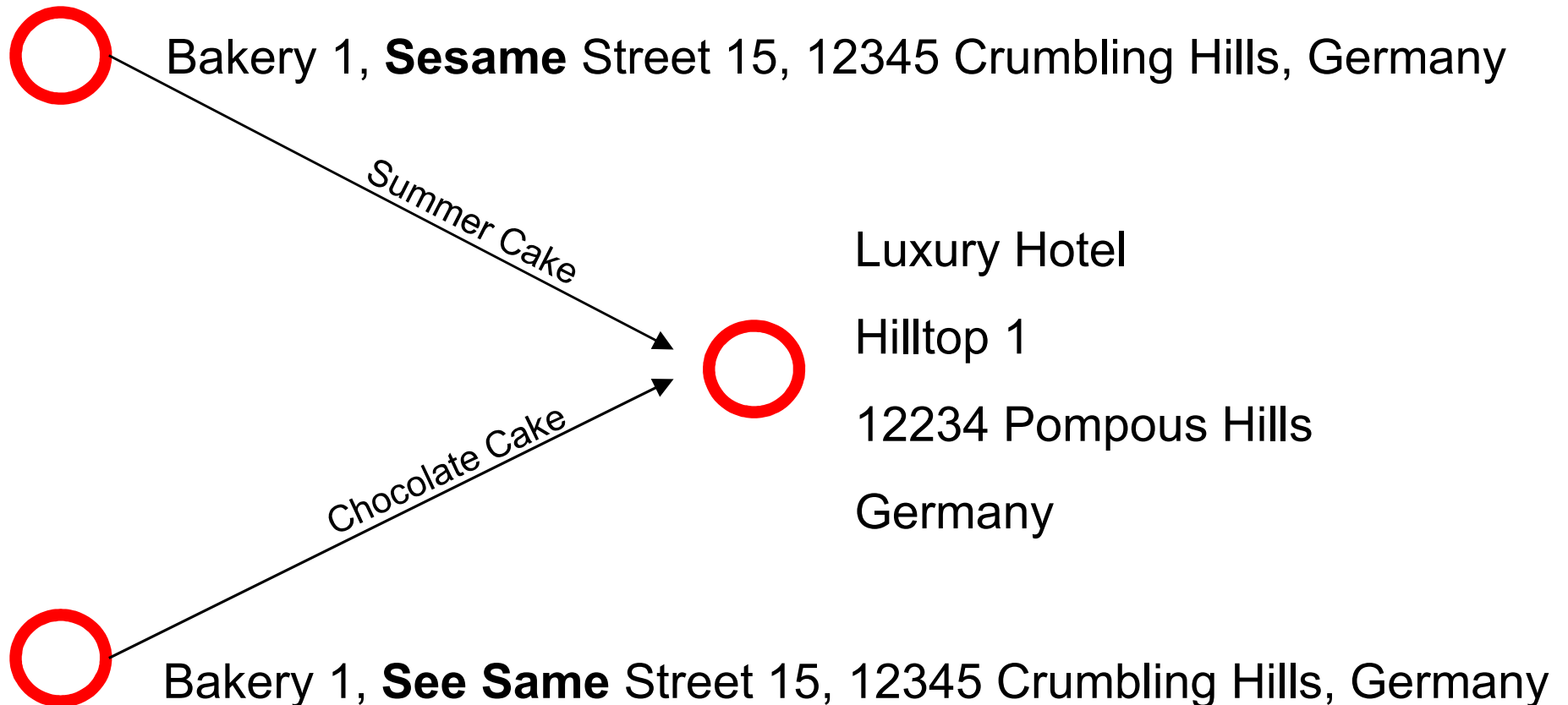
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16



- FoodChain-Lab needs three tables to perform a tracing analysis: **Stations**, **Deliveries** and **Delivery Relations**.
- The **Table Creator** nodes on the left show all mandatory columns for these three tables.

Tutorial: <https://foodrisklabs.bfr.bund.de/data-import-from-external-sources/>

FoodChain-Lab: Data Cleaning



FoodChain-Lab: Data Cleaning



The screenshot shows a database application window titled 'DB' with a sub-window 'Choose [4/268] - Station...'. On the left, a tree view shows 'System tables' and 'Supply Chains', with 'Station' selected. The main area displays a table with columns 'ID' and 'Station'. Two rows are visible, both containing 'Salad harveste', 'Big Street', and 'Hometown'. A 'Similarity Search Settings' dialog box is open, with the 'Station' radio button circled in red. The dialog includes fields for Name, Address, Product, Lot, and Delivery, each with associated dropdown menus. A checkbox 'Also show results previously marked as unique' is at the bottom. Buttons for 'OK', 'Cancel', and 'Help' are at the bottom right.

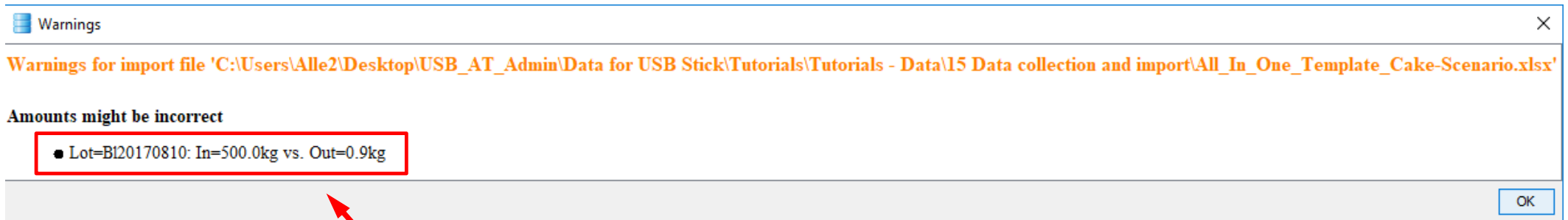
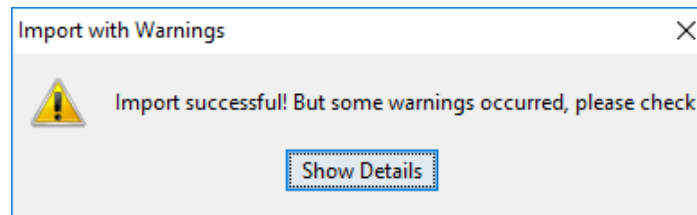
Levenshtein distance

M	A	Y	O	N	N	A	I	S	E
=	=	=	=	=	-	=	=	=	=
M	A	Y	O	N		A	I	S	E

E	L	E	P	H	A	N	T
=	=	=	o	-	=	=	=
E	L	E	F		A	N	T

Works well for finding duplicates

Plausibility checks: Amounts



● Lot=B120170810: In=500.0kg vs. Out=0.9kg

Data – sometimes still analogue...

...luckily often digital

Excel spreadsheet, XLSX



Caterer A

Menu 1 on 1st September

Pasta with ground beef
tomato sauce

Vanilla pudding with straw

Menu 2 on 3rd September

Potato soup with bread
Fruit yoghurt

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
																				Station	Product Name	Lot Number
Quantity	Type / Unit	Day	Month	Year	Day	Month	Year	Quantity	Type / Unit													
6	Blackberries	BB001	500 kg		9	8	2017	10	8	2017	500	kg	36									
1	Butter	Bu100			2	11	2017	3	11	2017	6,3	kg	2									
37	Sugar	Su200			30	10	2017	1	11	2017	12,8	kg	2									
38	Eggs	Eg220			4	11	2017	4	11	2017	90	Piece	2									
37	Flour	Fl101			30	10	2017	1	11	2017	11,2	kg	2									
37	Salt	Sa121			30	10	2017	1	11	2017	116	g	2									
37	Baking Powder	BP001			30	10	2017	1	11	2017	368	g	2									
1	Milk	Mi05			2	11	2017	3	11	2017	8,9	litre	2									
37	Vani												2									
1	Crea												2									
1	Sour												2									
37	Pow												2									
36	Peac												2									
36	Apri												2									
36	Stray												2									
36	Black												2									
39	Dou												2									
2	Sum												3									

Handwritten, sent by fax

```

<Details>
<Reference>2015.1658</Reference>
<Subject>
  Salmonella (presence /25g) in frozen salted chicken breast pieces from Thailand
</Subject>
<DateOfCase>29/12/2015</DateOfCase>
<NotificationType>
  food - alert - border control - consignment released
</NotificationType>
<ActionTaken>informing authorities</ActionTaken>
<NotificationFrom>Netherlands (NL)</NotificationFrom>
<DistributionStatus>distribution to other member countries</DistributionStatus>
<Product>frozen salted chicken breast pieces</Product>
<ProductCategory>poultry meat and poultry meat products</ProductCategory>
<RiskDecision>serious</RiskDecision>
<PublishedInRCP/>
</Details>
  
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RASFF notification, XML

Tracing in foodborne outbreaks – the present...



- Database takes any data format (XLSX, PDF, XML, CSV)

2) Ministry of federal state

- Accesses database
- Reads results
- Describes situation to food safety officer from administrative district in his/her own words



3) Local food safety officer

- Visits food company
- Conducts interviews
- Takes samples
- Fills in FoodChain-Lab templates

1) FoodChain-Lab Team

- Receives supply chain data in an individual data format (e.g. CSV)
- Copies data to FCL templates, adds information (type of business, geolocalisation)
- Analyses
- Sends resulting tracing templates and description to German database

4-6) The same way back

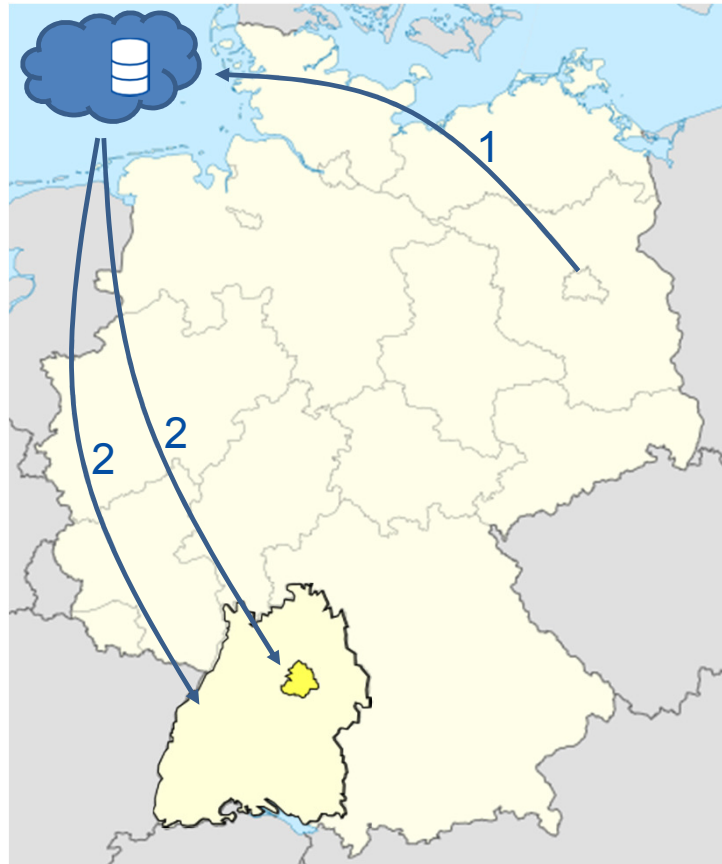
- Time-consuming
 - flow of information
 - re-structuring data
- Information loss

... and (a possible) future

- Database with a harmonised data standard (e.g. XML)

2) Ministry of federal state

- Receives results automatically, no need to actively access the database
- Has a task force which decides immediately whether to block or to forward information



2) Local food safety officer

- Receives original analysis from FoodChain-Lab



1) FoodChain-Lab Team

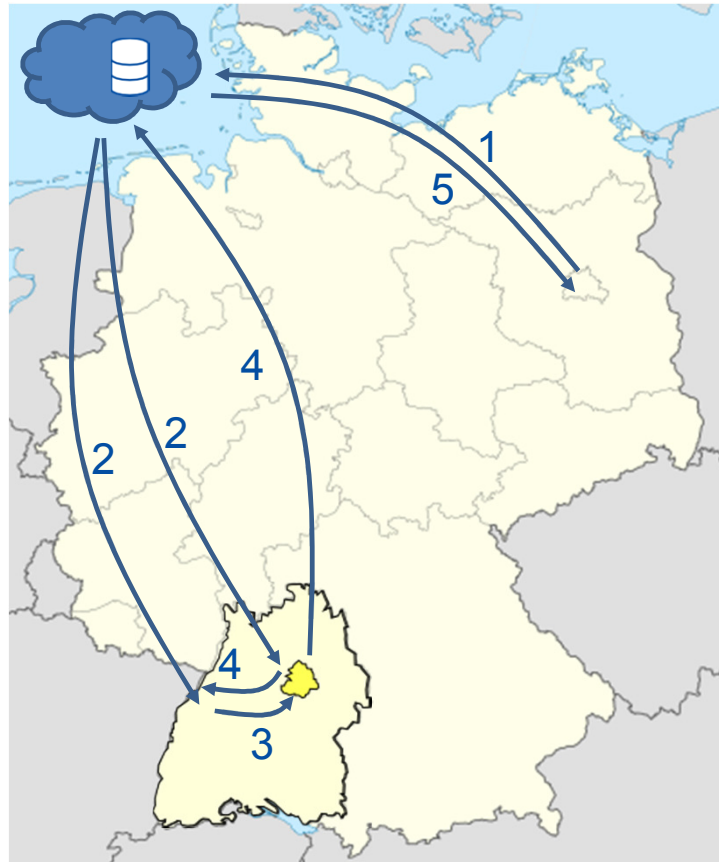
- Receives supply chain data in harmonised data format
- Analyses
- Sends resulting tracing templates and description to German database

... and (a possible) future

- Database with a harmonised data standard (e.g. XML)

2) Ministry of federal state

- Receives results automatically, no need to actively access the database
- Has a task force which decides immediately whether to block or to forward information



2+3) Local food safety officer

- Receives original analysis from FoodChain-Lab
- Receives order from the ministry
- Visits food company
- Conducts interviews and takes samples
- Fills in tracing data in harmonised standard



1) FoodChain-Lab Team

- Receives supply chain data in harmonised data format
- Analyses
- Sends resulting tracing templates and description to German database

4+5) Direct feedback via database

- Fast
- No data loss
- High data quality

COS – a ‘bus stop’ for FoodChain-Lab – as a first approach on the way to a harmonised standard:



COS

- Collects (NRW-) Tracing Data
- Contains a food business database with curated data
- Is doing validation internally based on existing master data
- Outputs data into newly defined xml-structure and sends it into a newly developed webservice

FCL

- Monitors the webservice, awaits new data
- Analyses data (semi)-automatically
- Prepares analysis reports and sends it back to the webservice

COS

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



Thank you for your attention

Alexander Falenski

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