DATA-DRIVEN SURVEILLANCE

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Veterinary Big Data stakeholder forum

June 1st, 2021

Classified as internal by the European Medicines Agency

NATIONAL VETERINARY INSTITUTE

The Economist

Obama the warrior

Misgoverning Argentina

The economic shift from West to East

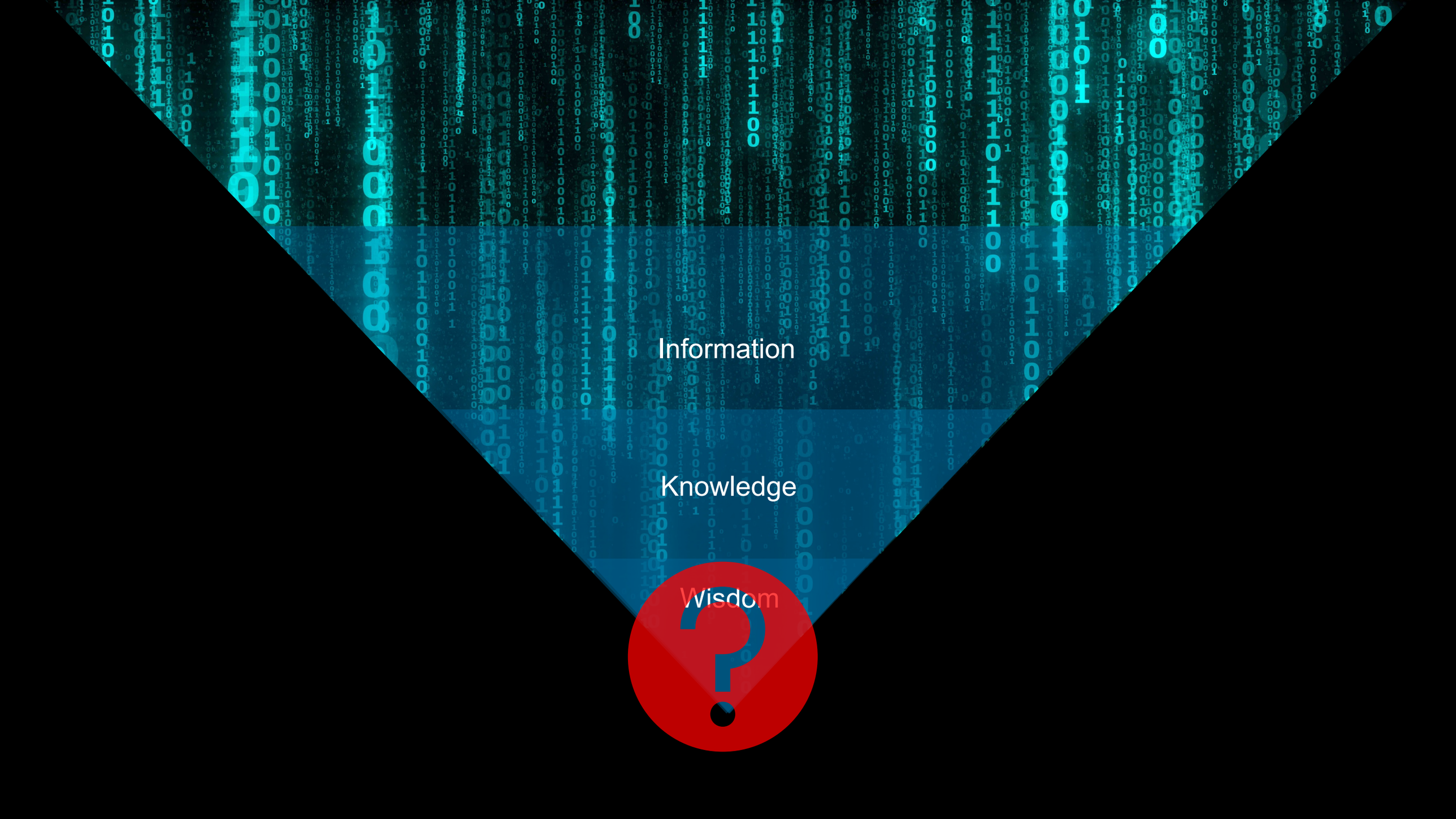
Genetically modified crops blossom

The right to eat cats and dogs

FEBRUARY 27TH–MARCH 5TH 2010 Economist.com

The data deluge

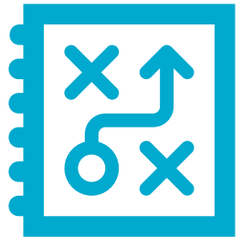
AND HOW TO HANDLE IT: A 14-PAGE SPECIAL REPORT


Information
Knowledge
Wisdom

Goal = Inform action

Data

Information

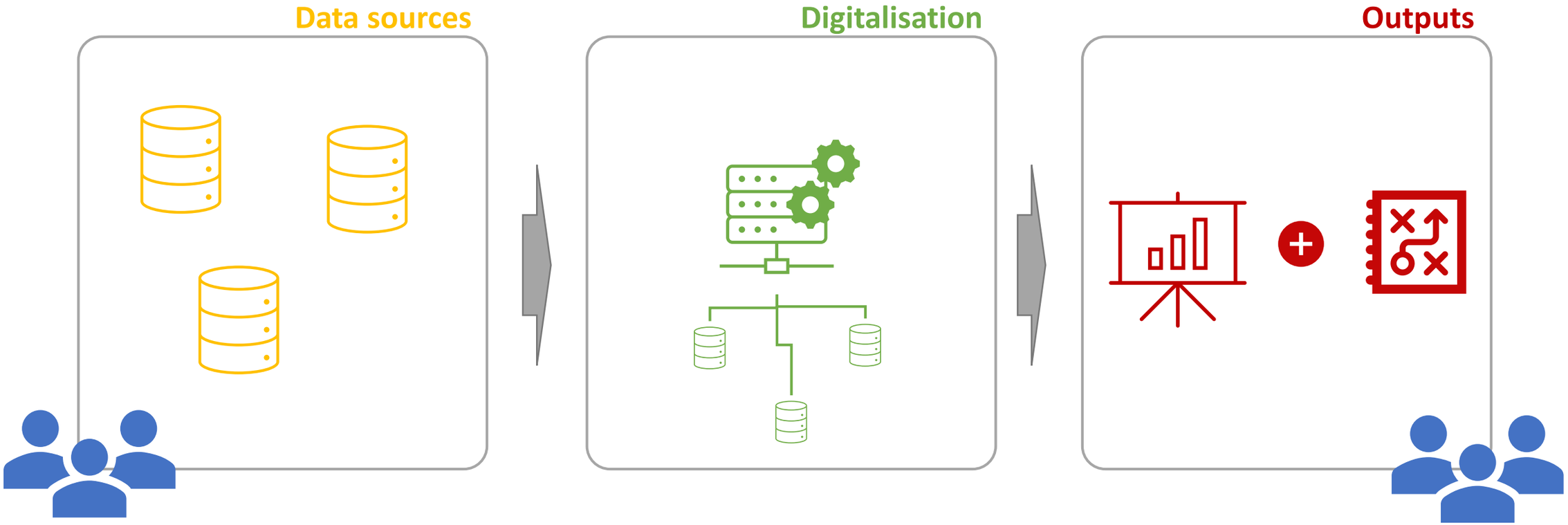


Action

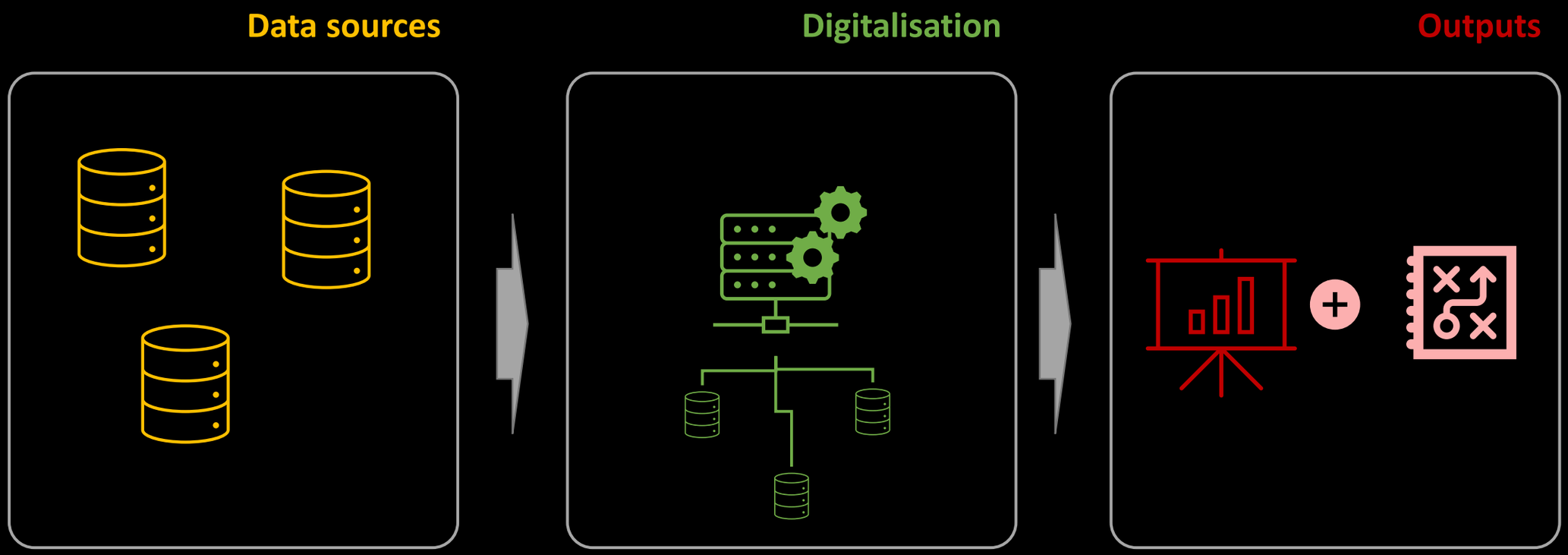
Gather EVIDENCE

Evidence

Decision

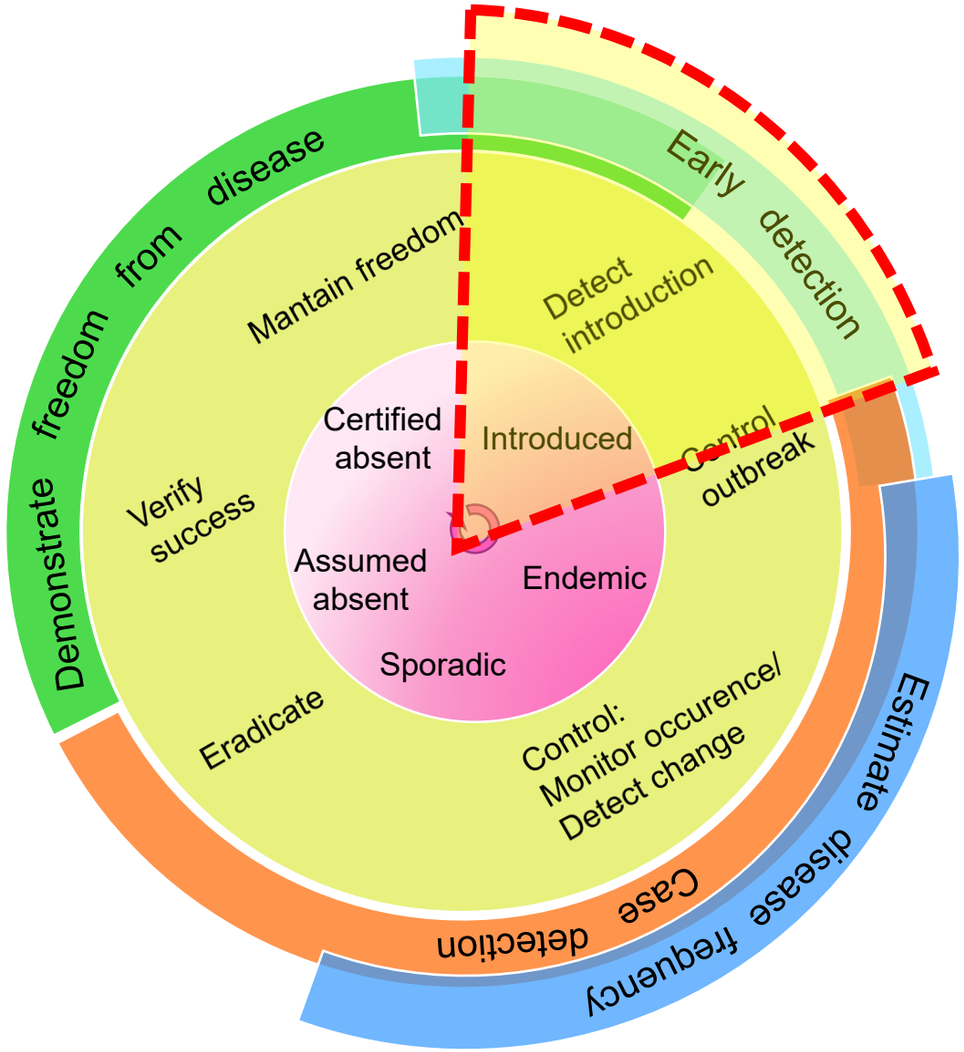

Data sources
Digitalisation
Outputs

Data-driven SURVEILLANCE



My own background/context:
Animal Health (Syndromic) SURVEILLANCE

- Hazard status
- Use of surveillance information
- Surveillance purpose



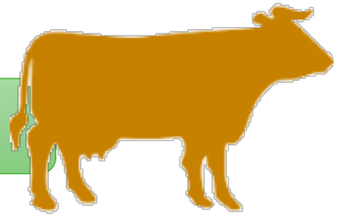
Classified as internal data from the Institute for the European Medicines Agency

www.datadrivensurveillance.org

Geographical data

Environmental and climatic data:
Vector presence, risk areas, seasons and populations

time



Diarrhea

Clinical data: gastrointestinal syndrome

Lab data: gastrointestinal syndrome

Reduced milk yeld

Milk yield records

Failure to conceive

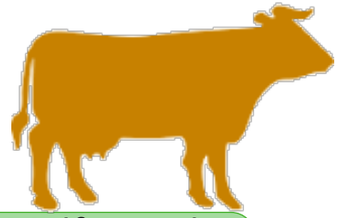
Farmer's / insemination records: repeated inseminations

Farmer's records: conception failure, return to estrus

Semen sales: more doses sold

Cows removed from reproduction

Slaughter records: increased slaughter of older females



Early abortion

Malformed fetuses/ late abortions

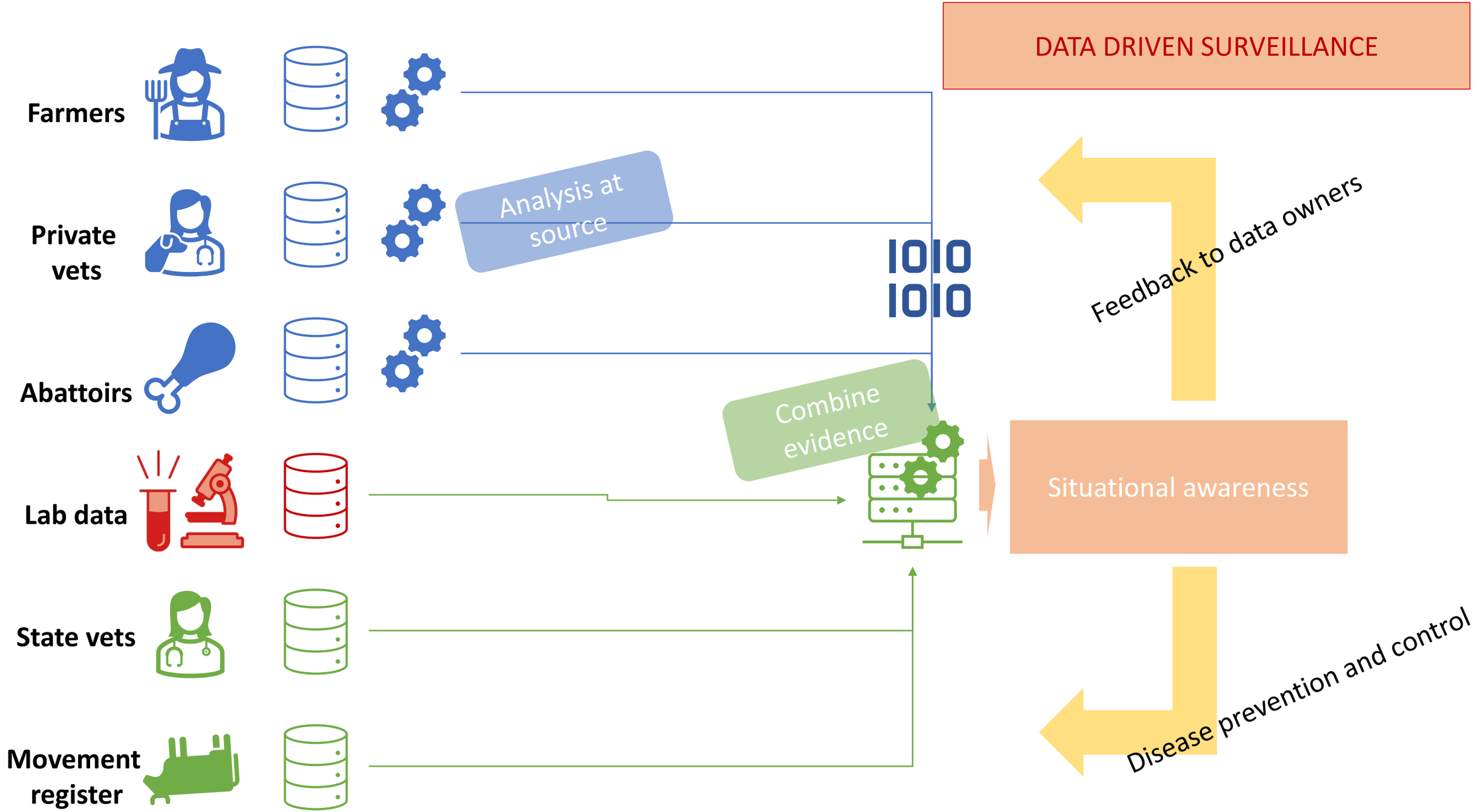
Stillbirths

Lab data: reproductive syndrome / abortions

Clinical data: reproductive syndrome / abortions

Cattle registry: Stillbirths

Cattle registry: reduced number of births



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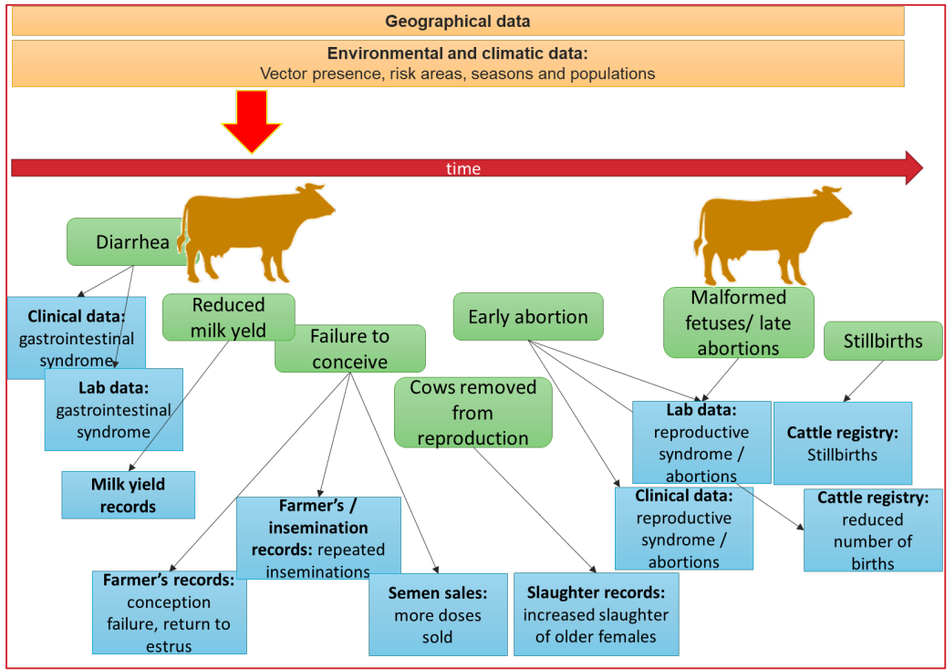

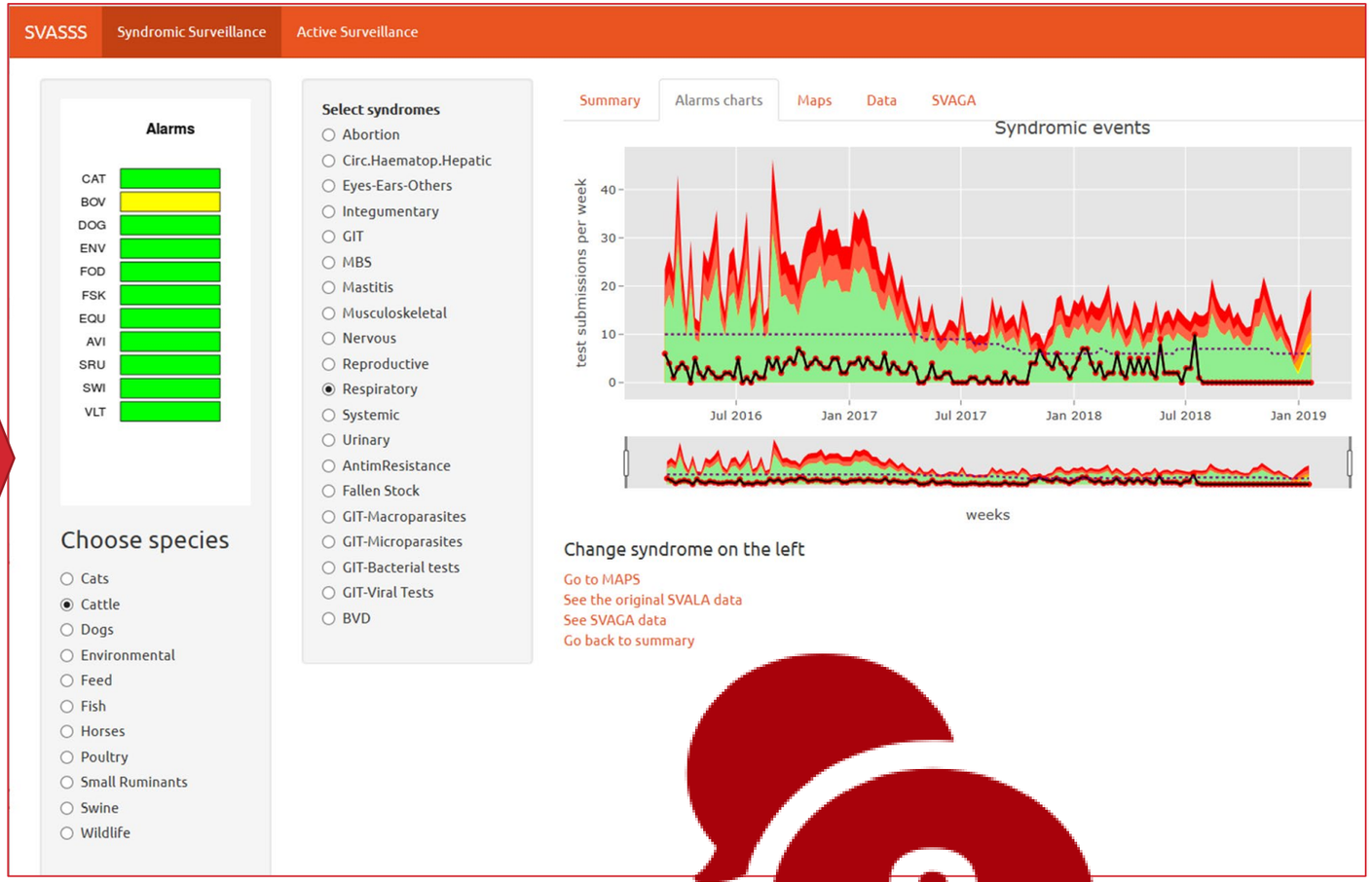

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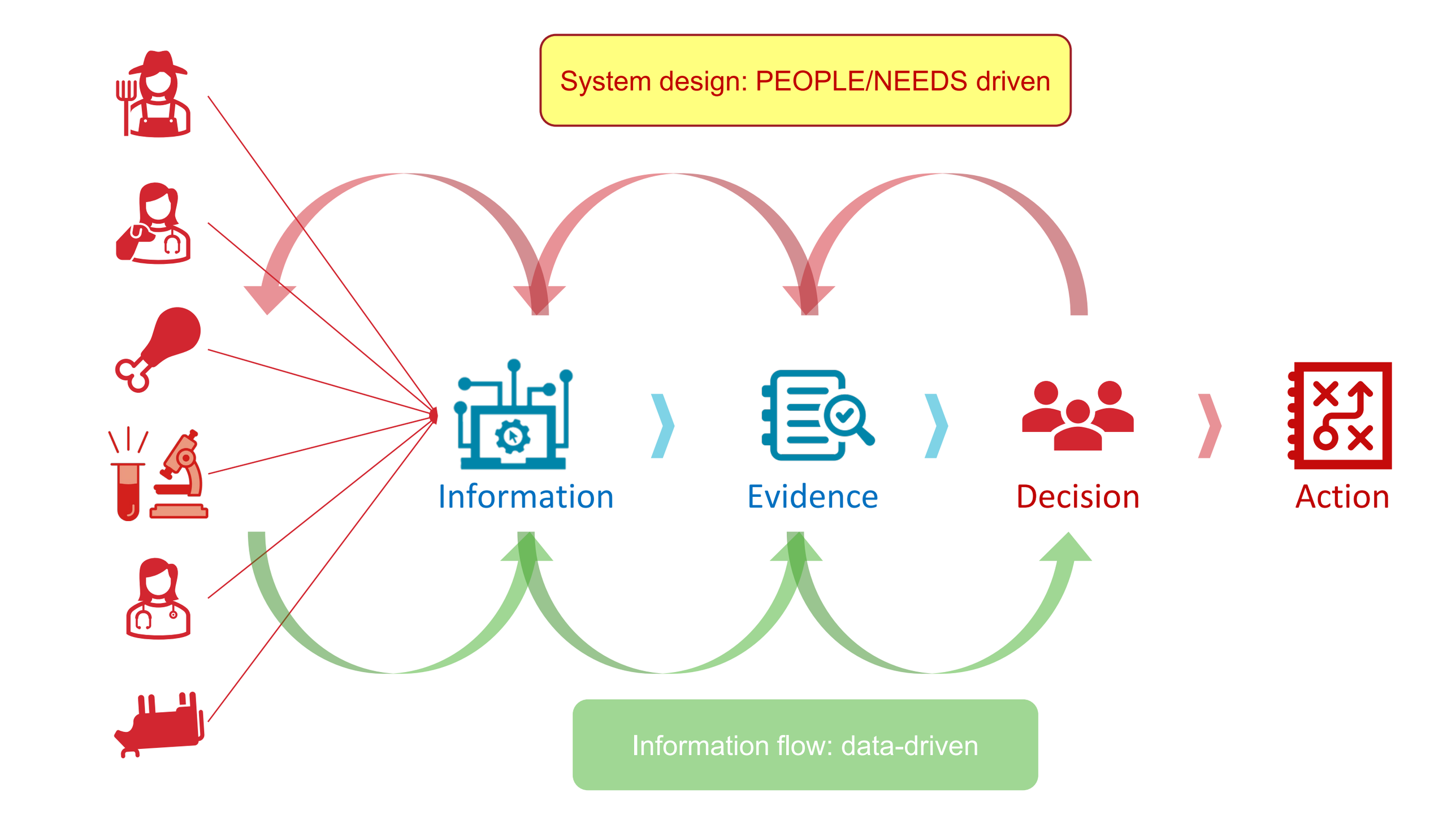
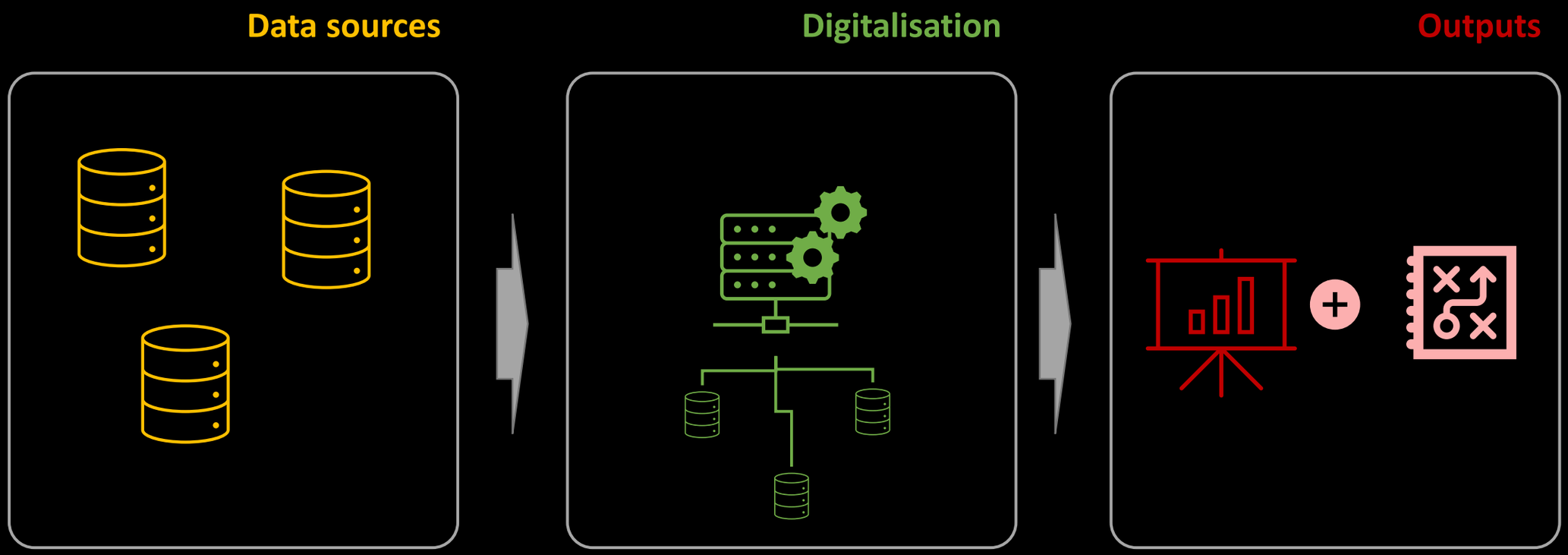
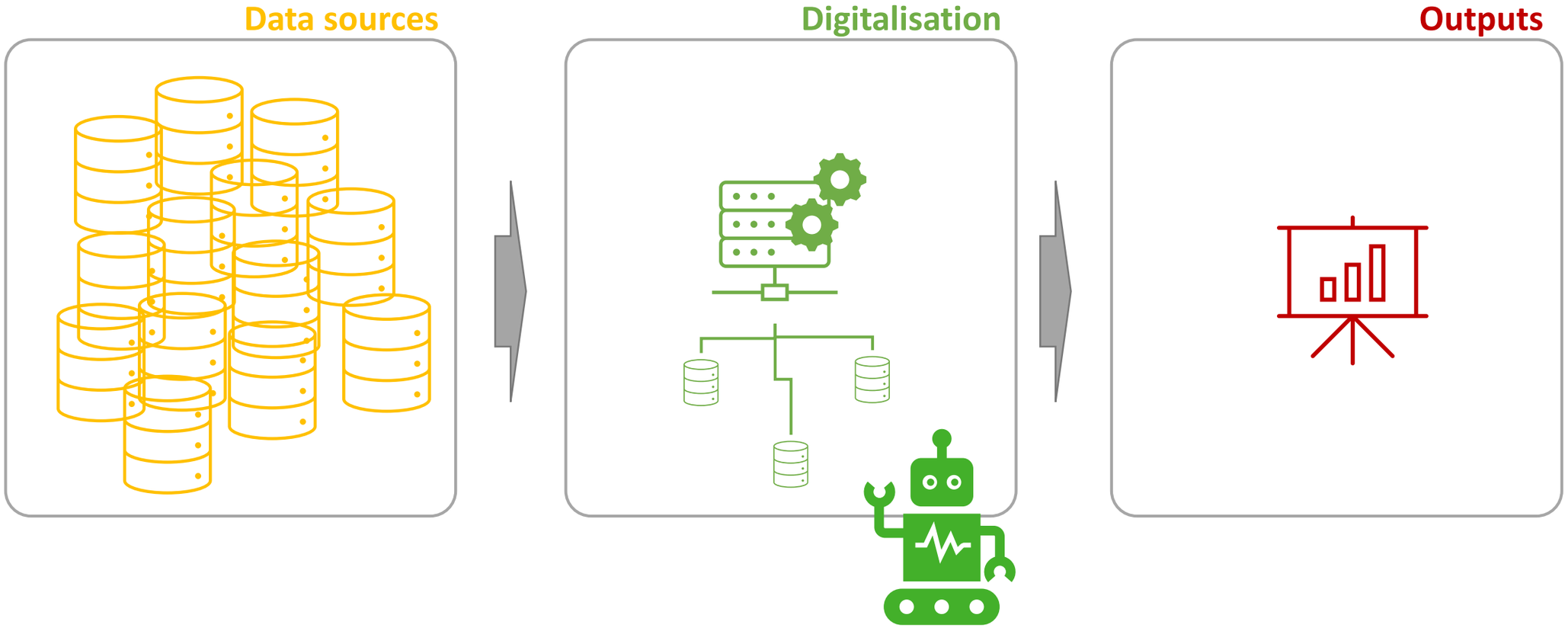

System design: PEOPLE/NEEDS driven
Information
Evidence
Decision
Action
Information flow: data-driven

Data-driven SURVEILLANCE





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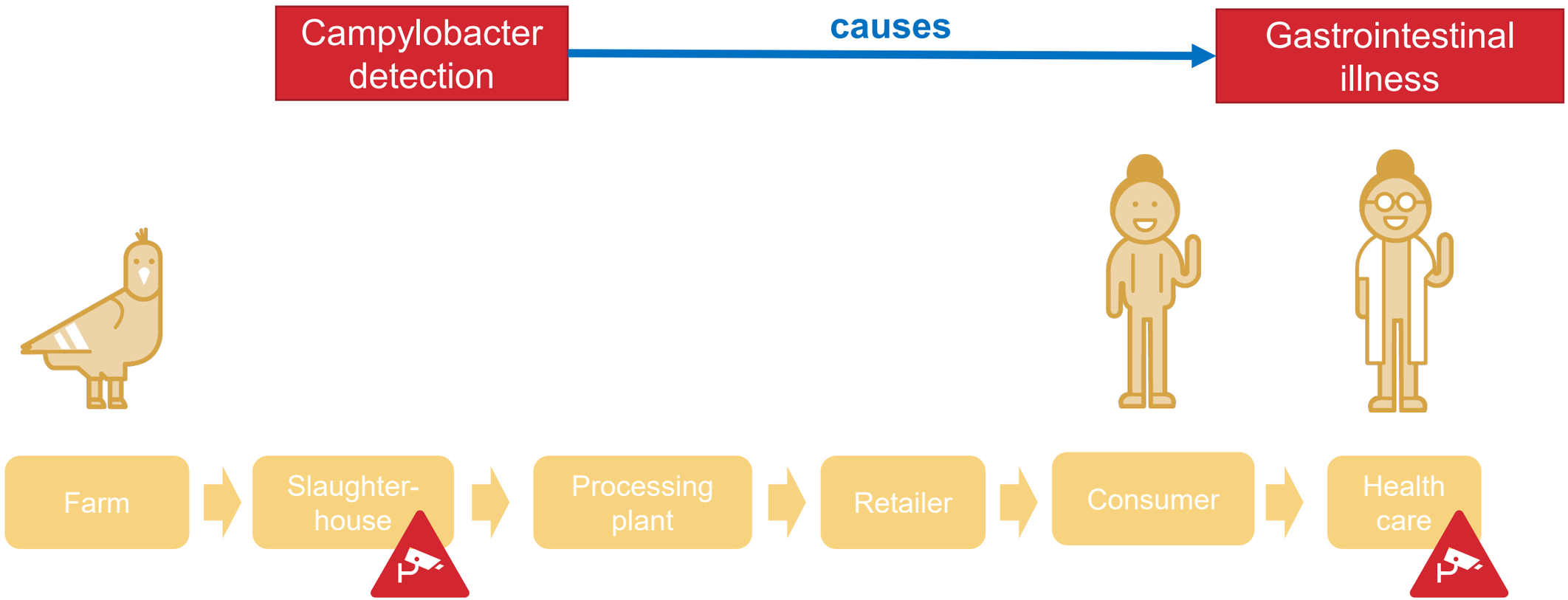
Campylobacter surveillance in Sweden



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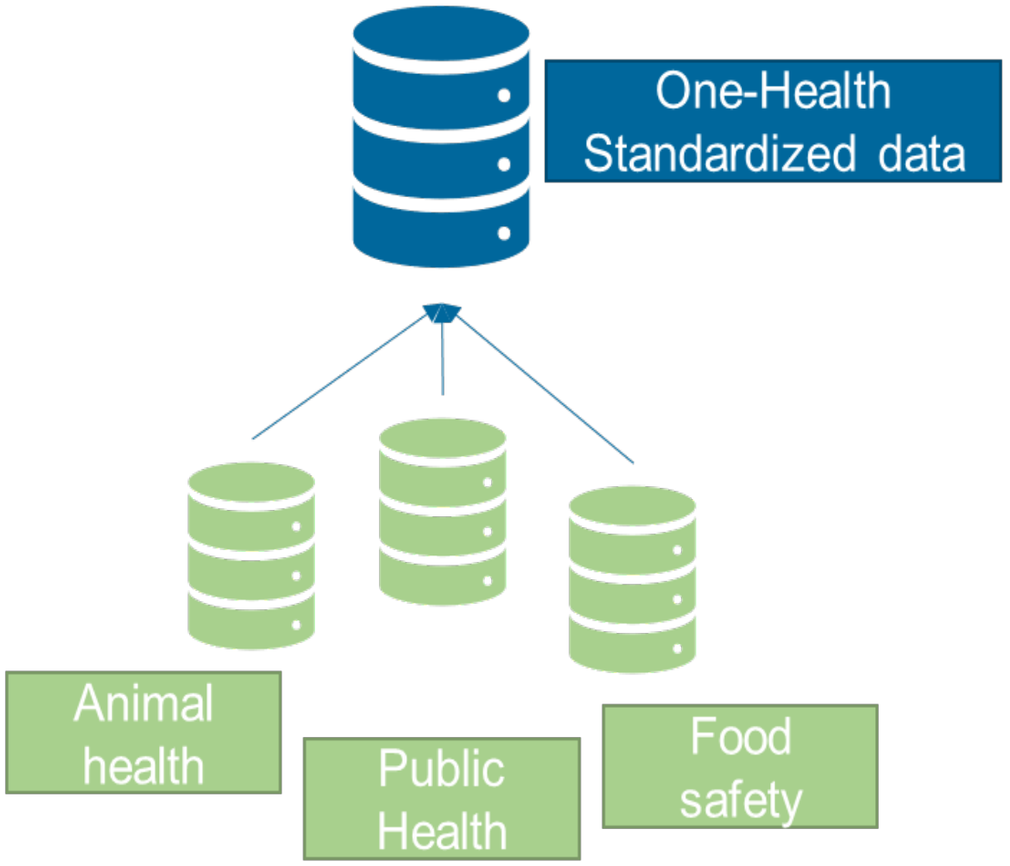
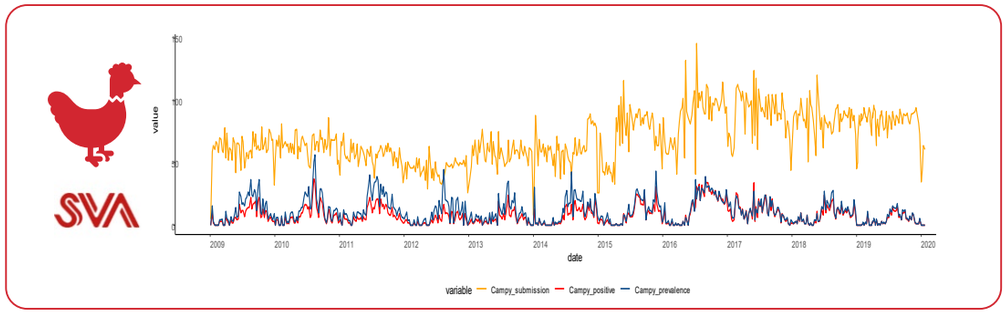


Interoperability based on the use of data standards

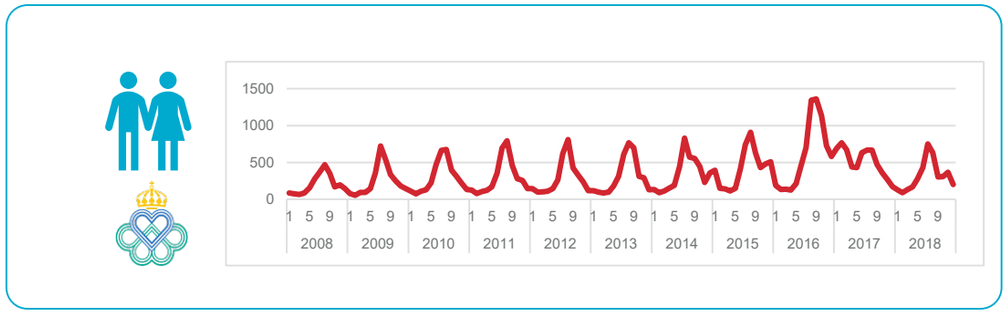
The vision of OH as a knowledge model

Classified as internal/staff & contractors by the European Medicines Agency

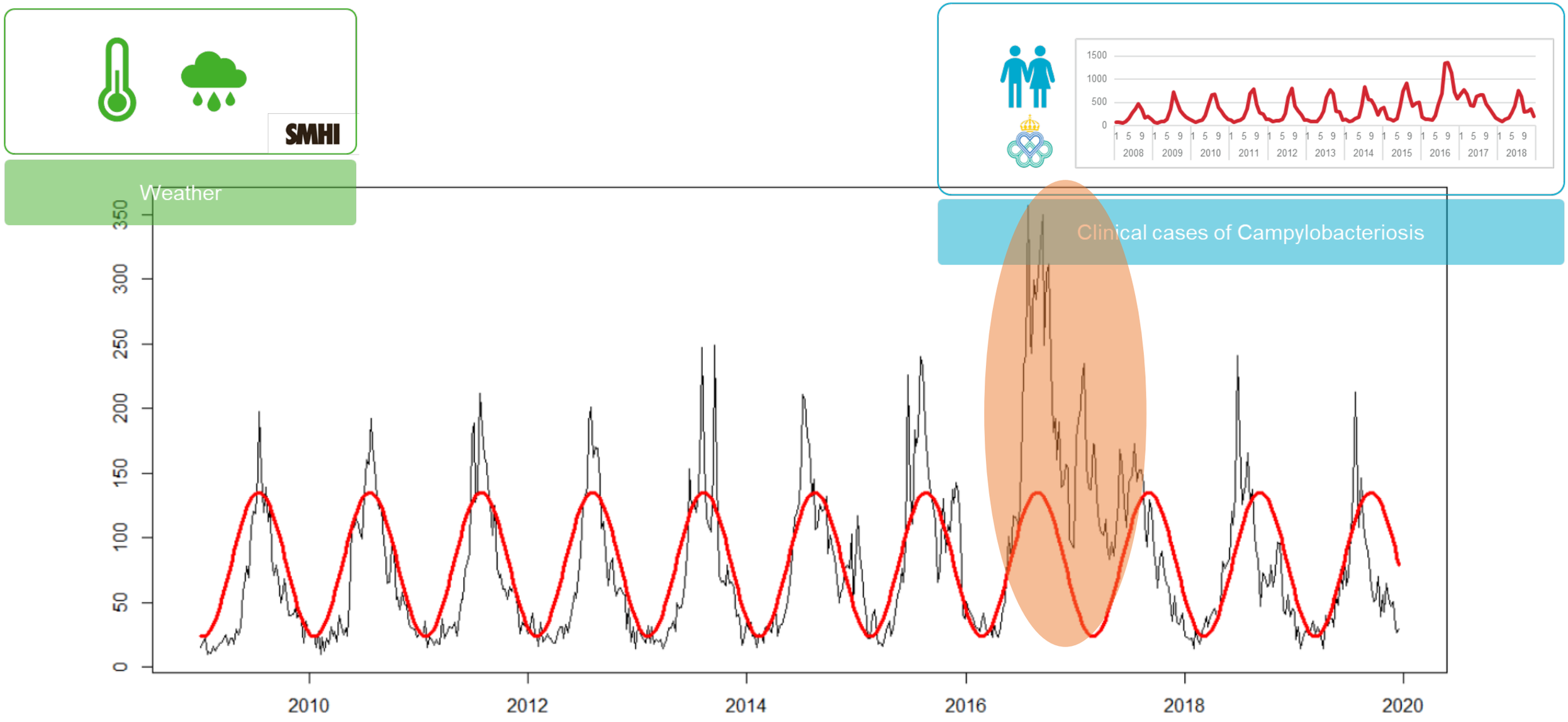
Back to the Campylobacter example:



Slaughter batches positive for Campylobacter



Clinical cases of Campylobacteriosis



Classified as internal staff at the Swedish Medical Medicines Agency
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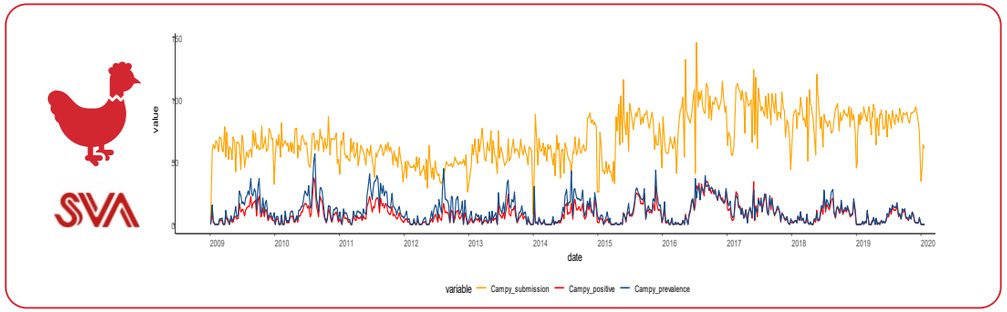
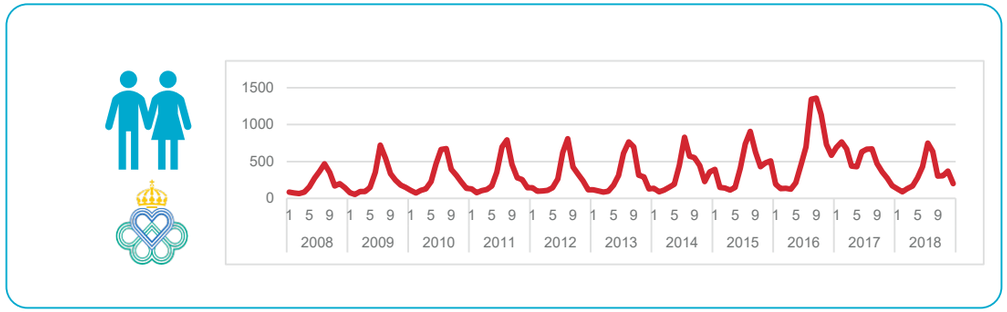


Slaughter batches positive for Campylobacter



Clinical cases of Campylobacteriosis

Monitoring

Prediction and alert

Data availability and communication

Help with decision making

Monitoring

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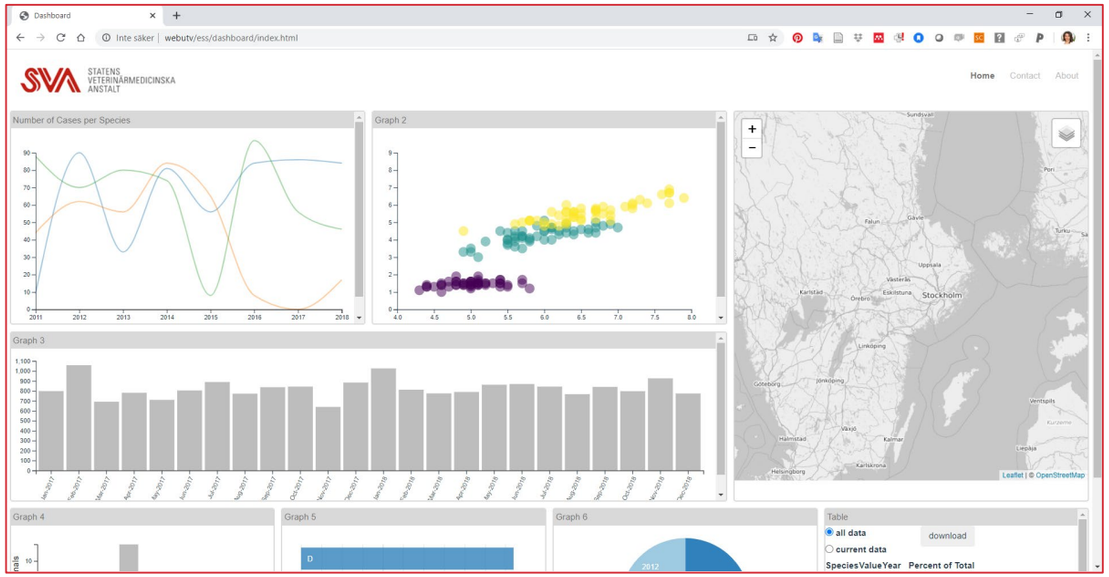
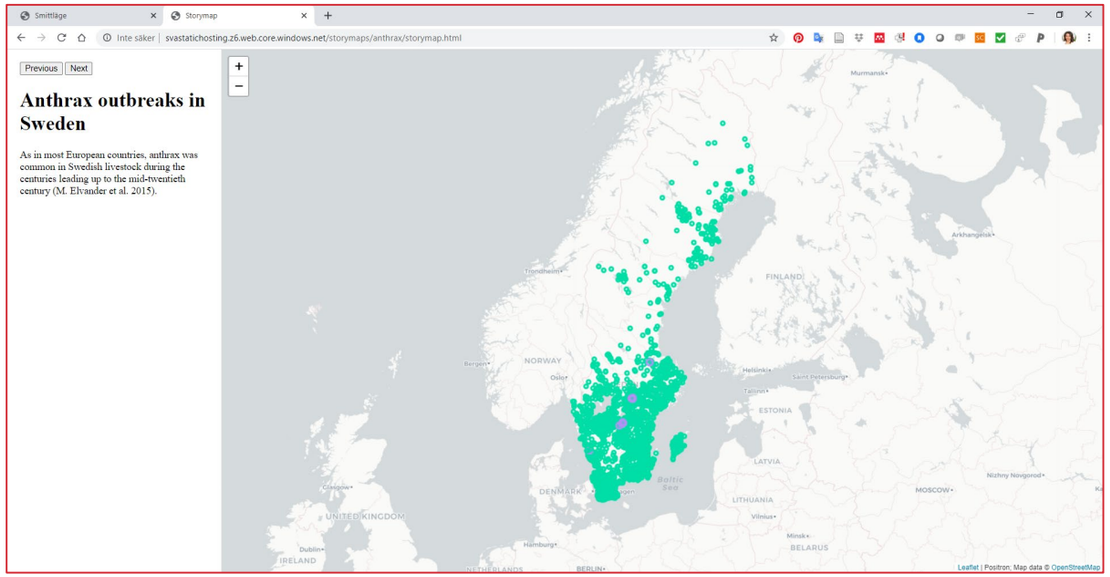
DASHBOARDS

- Context-driven questions
- Data-driven *actionable* information
  - Digestable/usable → insight
  - Placed right → intervention
- Human driven answers





Various levels of information / decision making

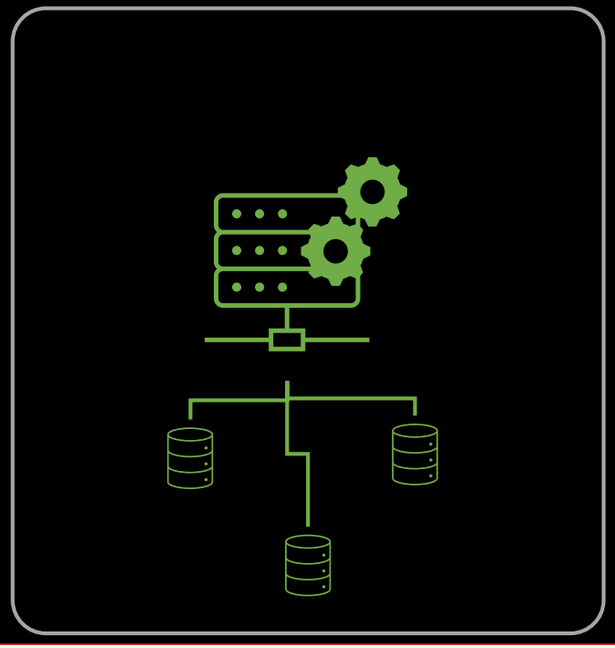
Heatmaps of information availability

Integration into current practices / tools

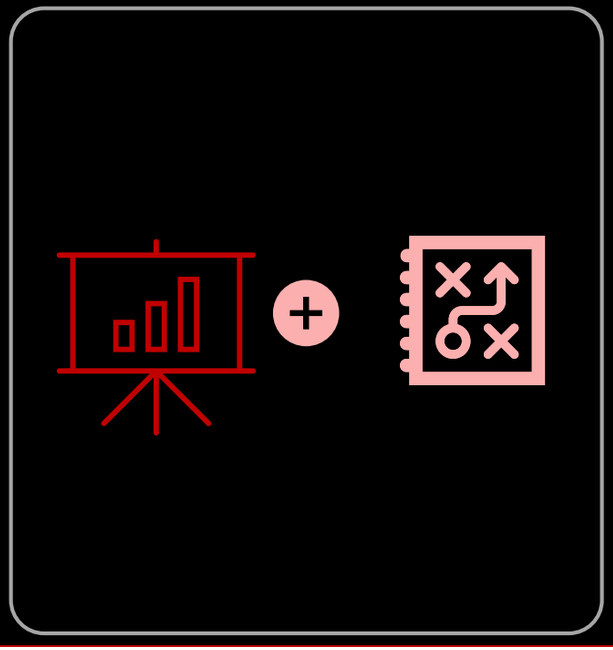
Data-driven SURVEILLANCE

Data sources

Digitalisation

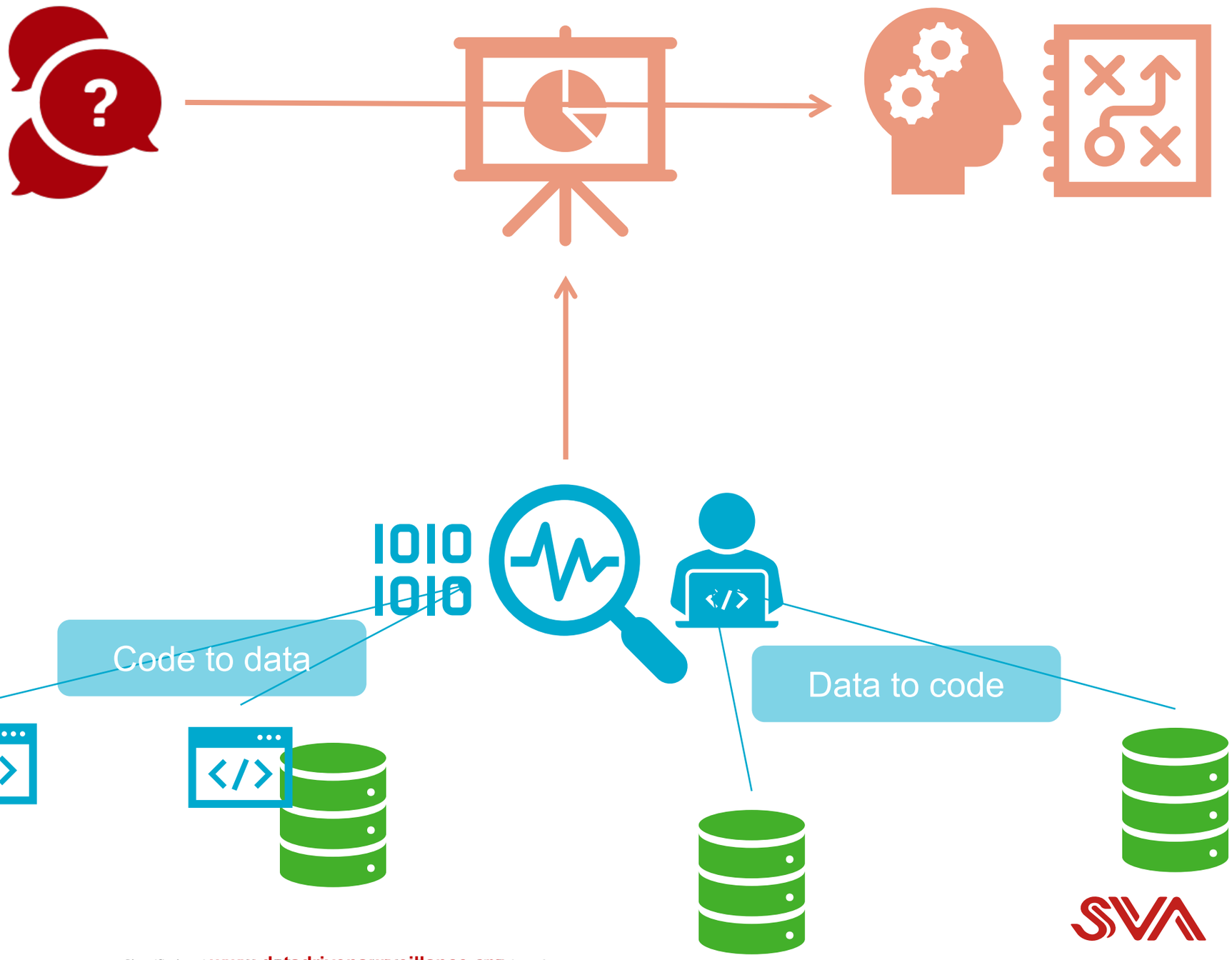


Outputs



Data variety is a bigger challenge than volume	Be aware of what they can and cannot do	Data doesn't always have to come to code, code can go to the data
Harmonisation + Interoperability	Availability of methods is rarely the bottleneck	Consider needs of (ALL) users when presenting results

CURRENT RESEARCH



Delivery

How to integrate

Where

Right analysis

Available data

Ecosystem

of data and solutions

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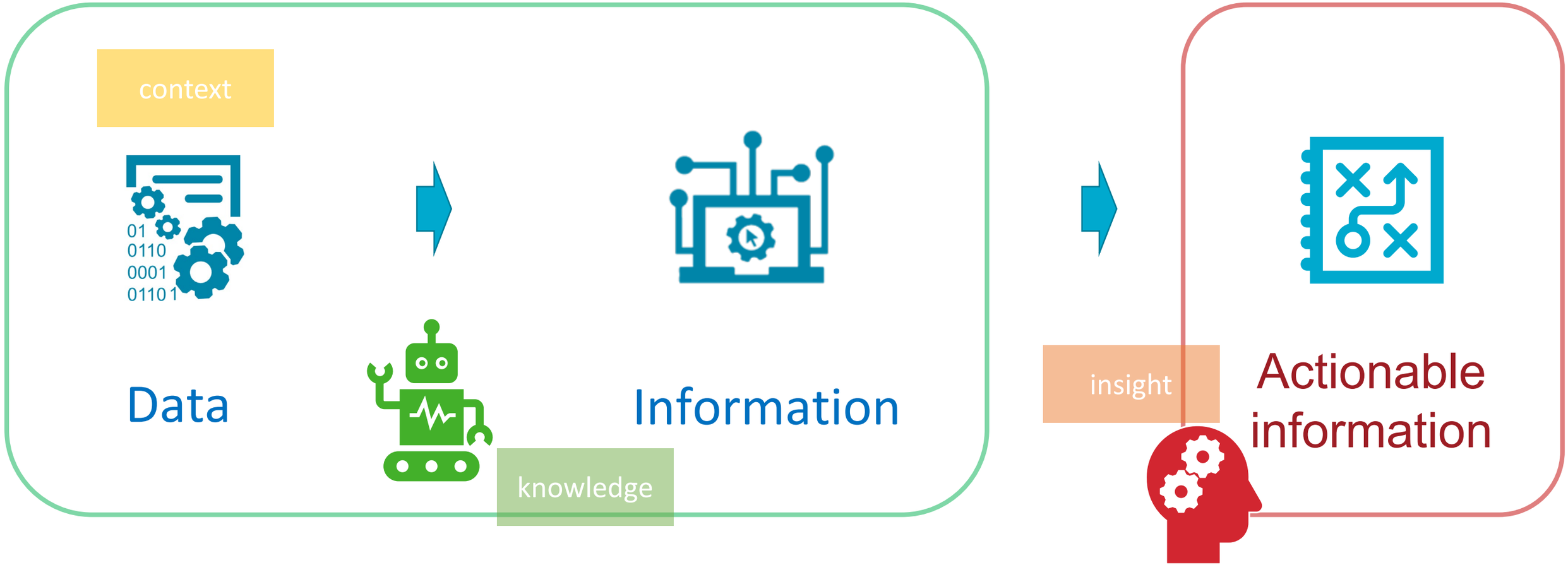
Data providers need to trust the system

Stakeholders in the entire continuum



We can only generate impact if the system is driven by the needs of the users

Data owners don't allow us to use their data, they order their analysis

Mission, Not permission

Healthy animals, safe people

www.sva.se