The value of animal health information: the economic evaluation challenge

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on behalf of the RISKSUR consortium

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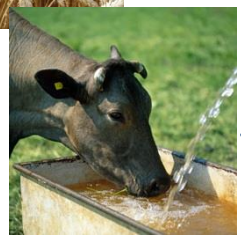
RESOURCES → GOODS & SERVICES

MEANS to create VALUE

VALUE



Water, feed, land

➡ **ANIMALS** ➡

Food

Income

Livelihoods

Ecosystem services

Companionship

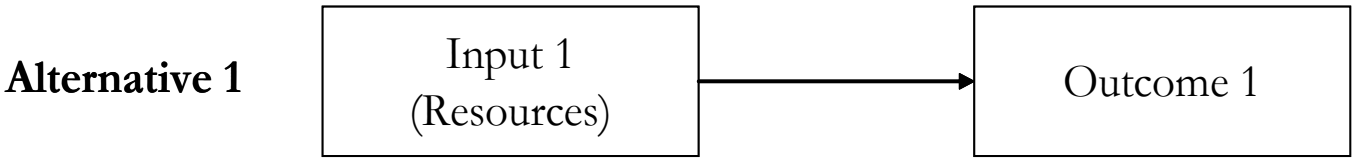
Power

Value for money?

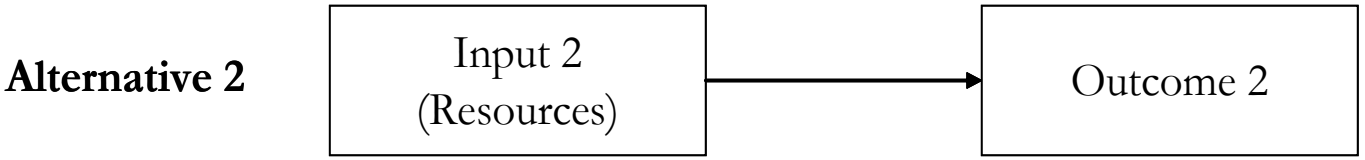
Value Economic cost

Surveillance and intervention res e use to A OID value loss = Economic cost

Economic evaluation



CHOICE **IDENTIFICATION - ANALYSIS - VALUATION**



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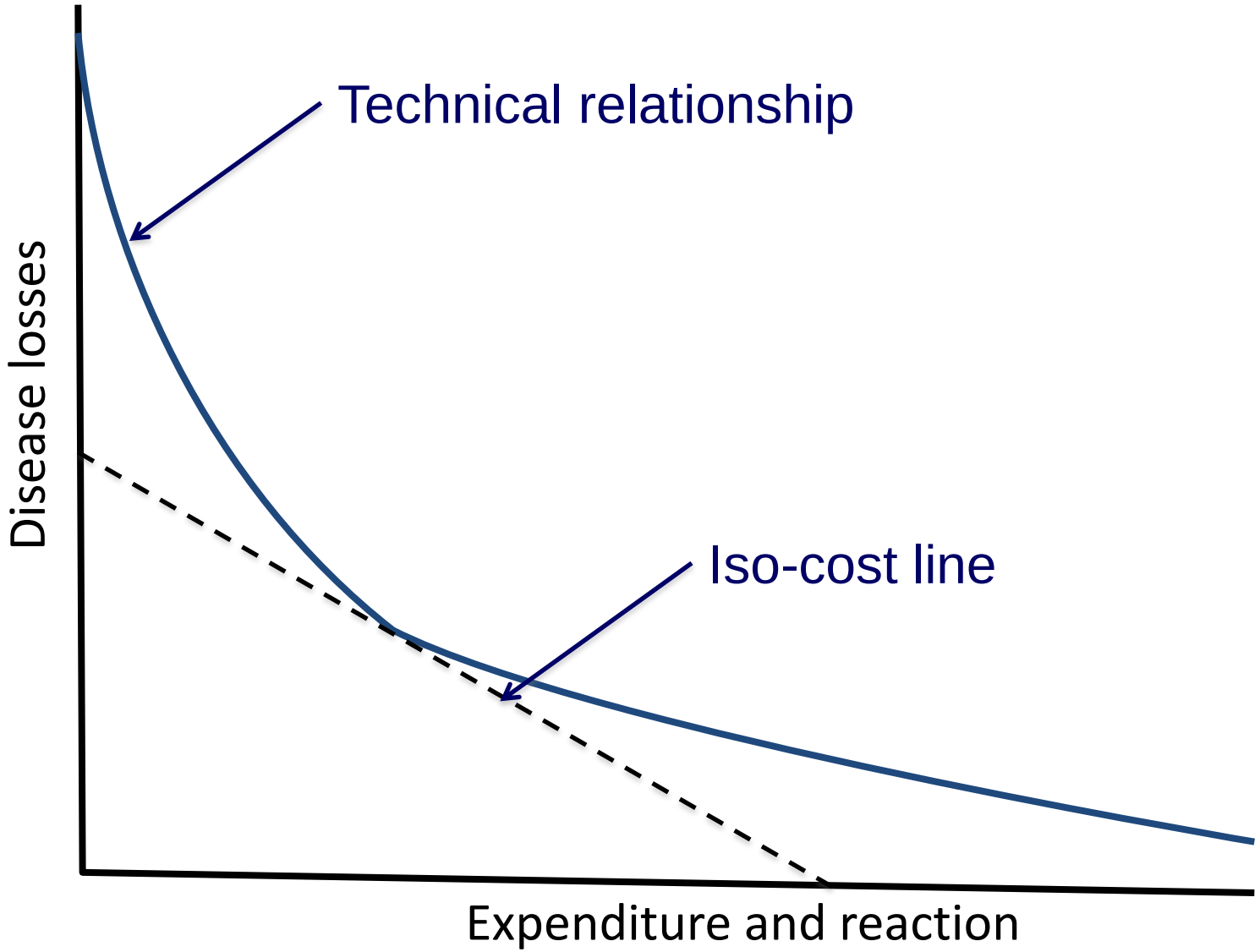
Economic evaluation

Is there a comparison of two or more alternatives?	*Are both costs and consequences of the alternatives determined?*		
	No		**Yes**
No	**Examines only consequences**	**Examines only costs**	
	Outcome description	Cost description	Cost-outcome description
Yes	Effectiveness evaluation	Cost analysis	Cost-effectiveness analysis Cost-utility analysis Cost-benefit analysis Optimisation analysis (Least-cost analysis)

Disease impact

Loss versus Expenditure and Reaction (adapted from McInerney, 1996)



Disease impact

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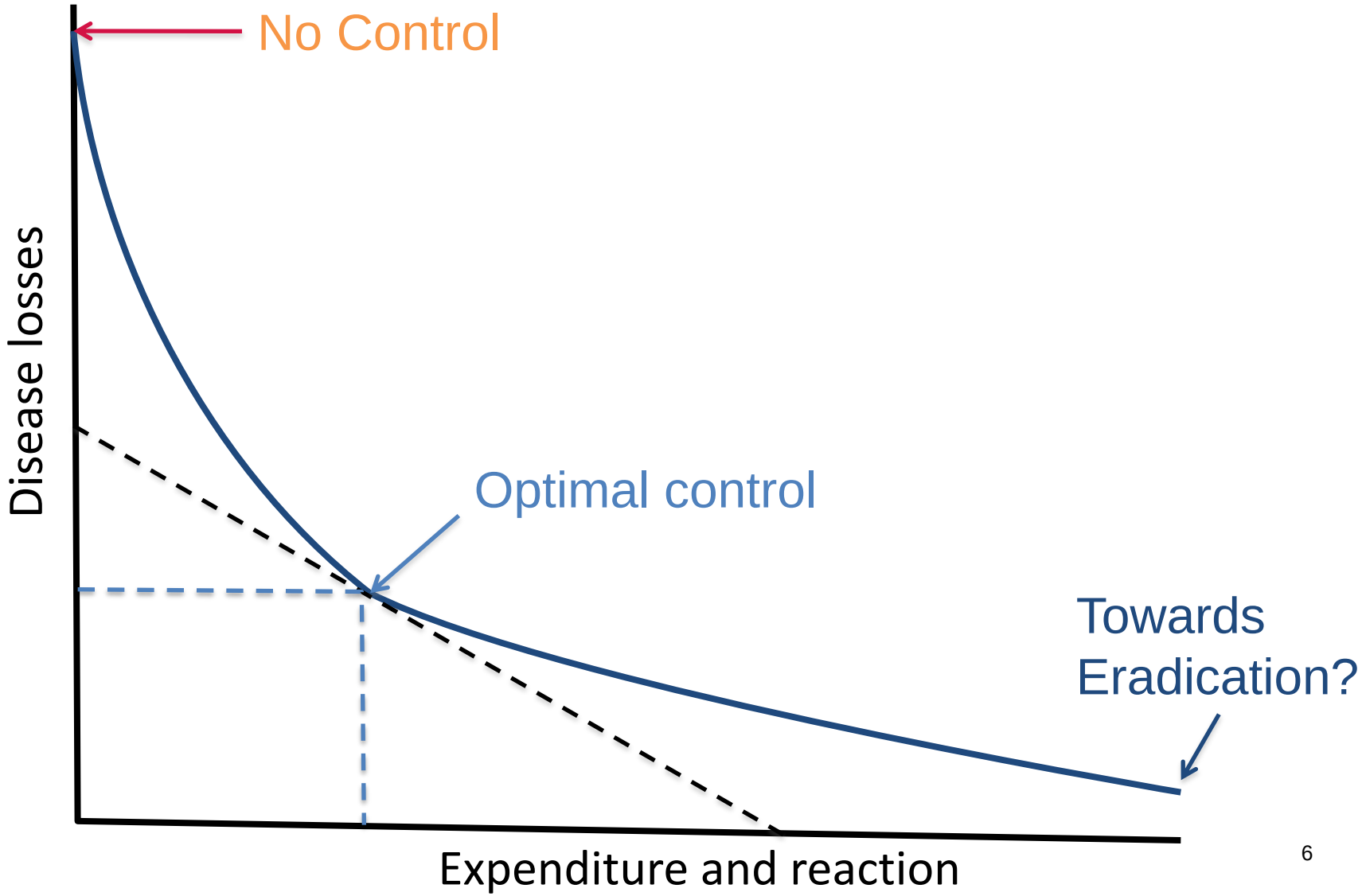

What is special about surveillance?

- No loss avoidance without intervention
- Surveillance provides information for intervention → mitigation
- A three variable relationship:
  - Surveillance plus intervention = Loss avoidance
  - Economic substitutes or complements?
- Value of information is a key aspect in economic evaluation
  - Commonly loss avoidance is considered a key determinant of the value of information

Economic value of surveillance from a national or sectoral viewpoint

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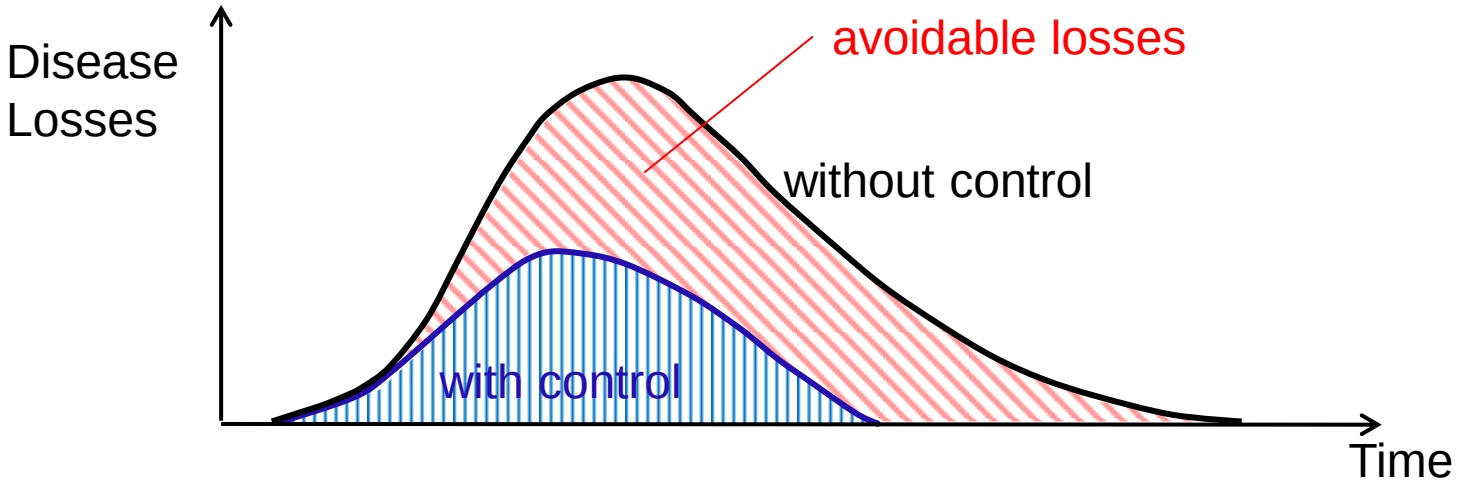
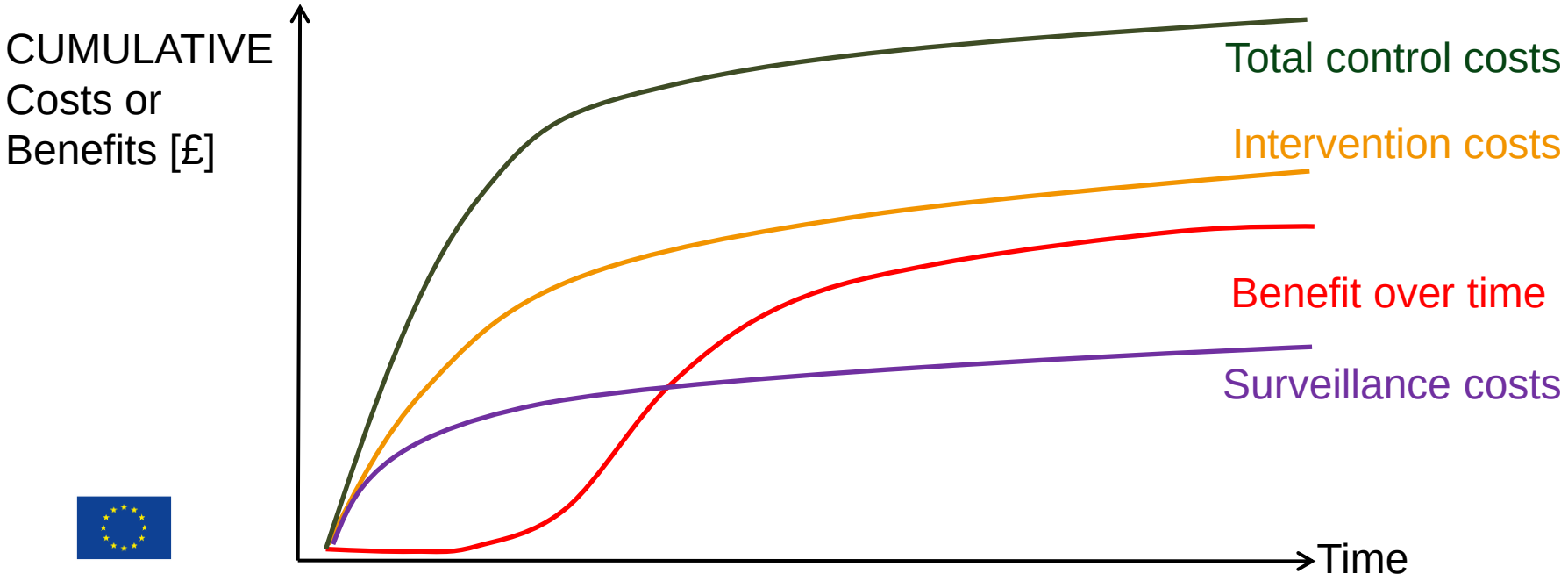
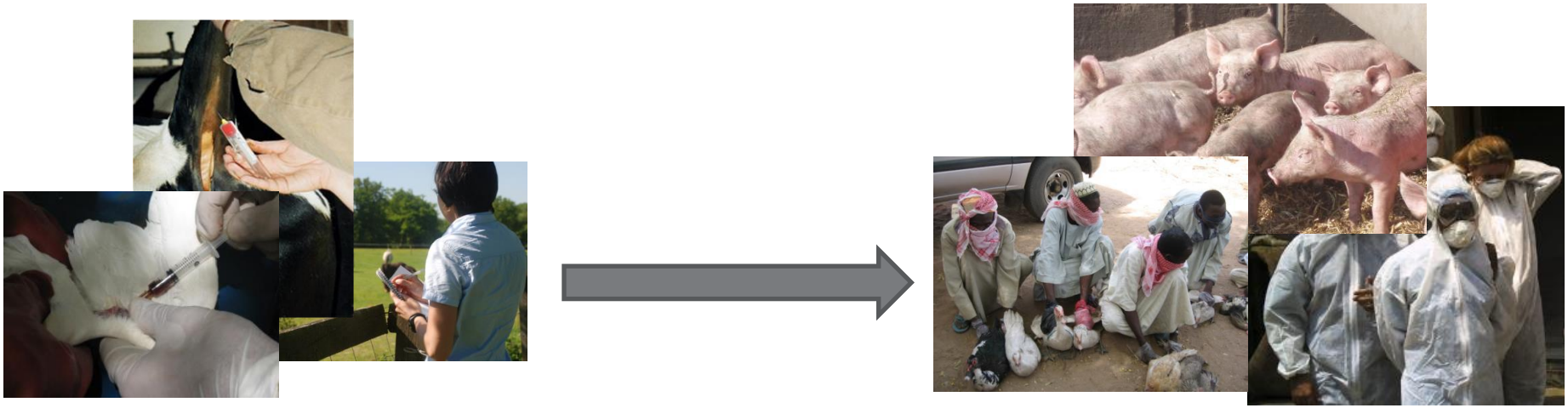

Disease
Losses
avoidable losses
without control
with control
Time


CUMULATIVE
Costs or
Benefits [£]
Total control costs
Intervention costs
Benefit over time
Surveillance costs
Time

<u>Cost-effectiveness analysis</u>: Assessing the surveillance costs in comparison to a (non-monetary) effectiveness measure *that reflects a benefit*

Sensitivity
Timeliness
Probability of detection
Robustness



<u>Cost-benefit analysis</u>: Assessing the surveillance costs, interventions costs and losses avoided in monetary benefits

Cost-effectiveness analysis

- Use of surveillance attributes as a proxy for benefits:
  - Strongly context dependent
  - Cleary suitable for
    - The “big” contagious diseases, such as AI, FMD, CSF, ASF
    - Freedom from disease
    - (Potential) pandemics
    - “Given” surveillance (defined by legislation)
  - Potentially suitable for
    - Technical improvements to surveillance programmes
    - Situations where correlation between proxy and benefit established
    - Situations where a minimum target of the effectiveness is given

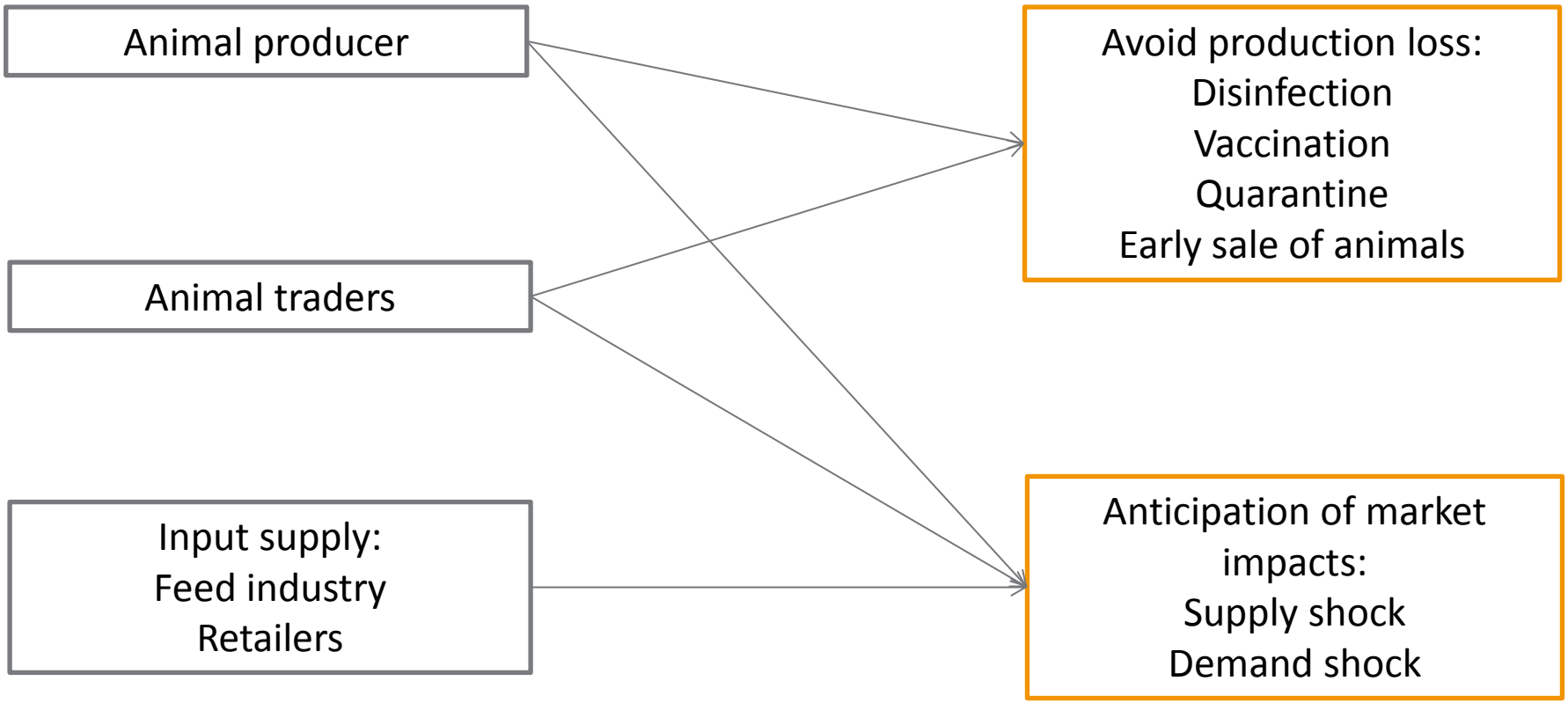
Economic value of surveillance from the end-user's viewpoint

The end-user value

- Who needs information and for what?
- How do end users value information?
- From which sources informaiton is obtained?

Results of a field survey in North Viet Nam (2012 – 2013)

Who needs information and for what?



How end users value information?

Method: Stated preference with contingent valuation method

How much losses producers can avoid with animal health information

↓

Hypothetic scenario: an industry selling animal health information to producers

↓

What price the producer is willing to pay for such a service ?

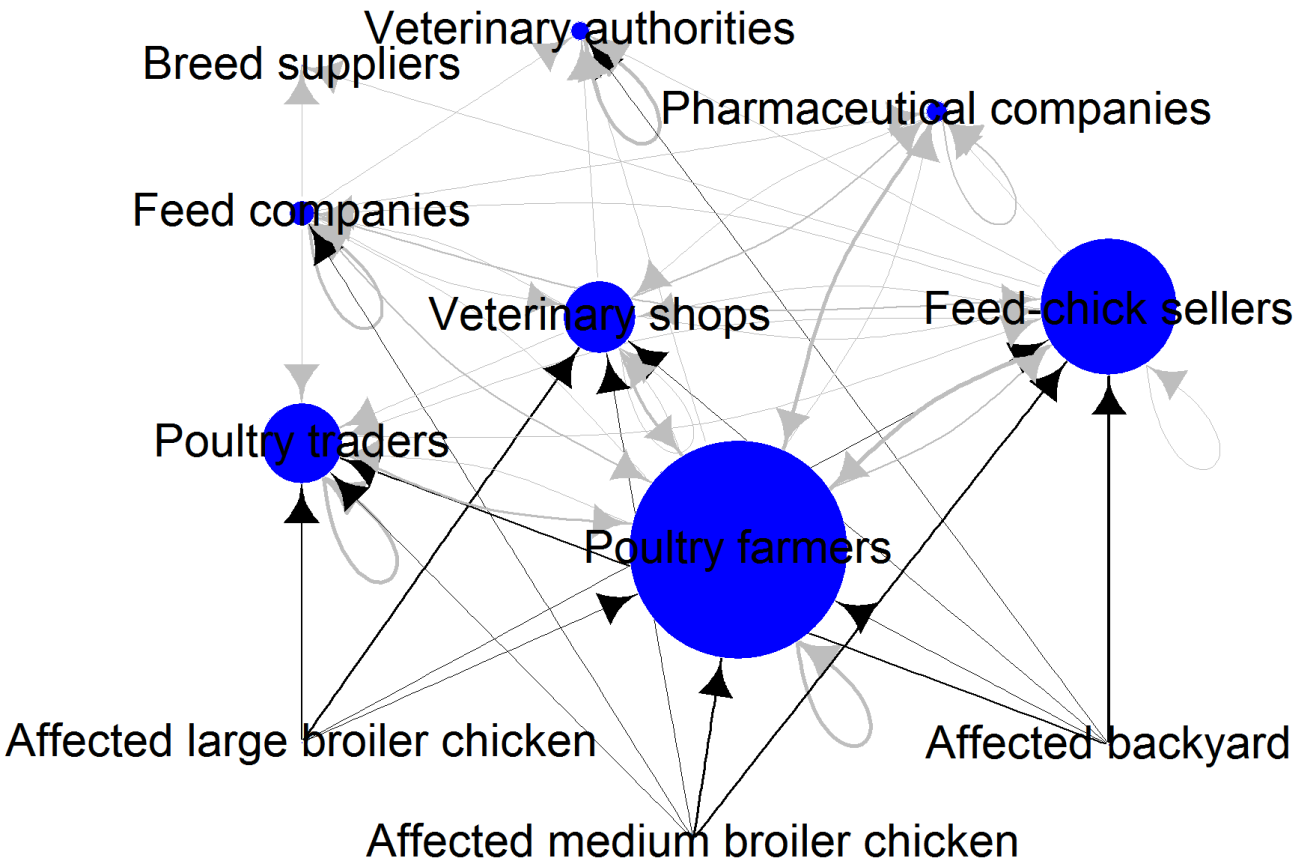
Results (on 21 tests with broiler chicken producers)

Median: 830 VND (0.03 EUR)/chicken/cycle = 1% chicken market price

Max: 1000 VND (0.04 EUR)/chicken/cycle

Min: 100 VND (0.004 EUR)/chicken/cycle

From which sources information is obtained?



- Private sector : substitute to public veterinary authorities in disease management and supply of disease information

- There are disincentives to transmit information to veterinary authorities: transaction costs, market impacts

Discussion

- A full economic evaluation of surveillance requires appropriate protocol, data collection and analysis methods
- Economic evaluation: inform resource allocation - a counterfactual is always needed.
- Difficulties:
  - 3 variables relationship: surveillance, intervention, loss avoidance
  - Modeling the counterfactual: Complexity related to disease dynamics, human behaviour, and potential outcomes.
- Information value:
  - Depends on the viewpoint and socio-epidemiological context
  - Important to assess the existence and level of demand and the implication of private sector

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