

Economic Considerations for Intervention Strategies

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Purposes 1 and 2 in Priority Setting

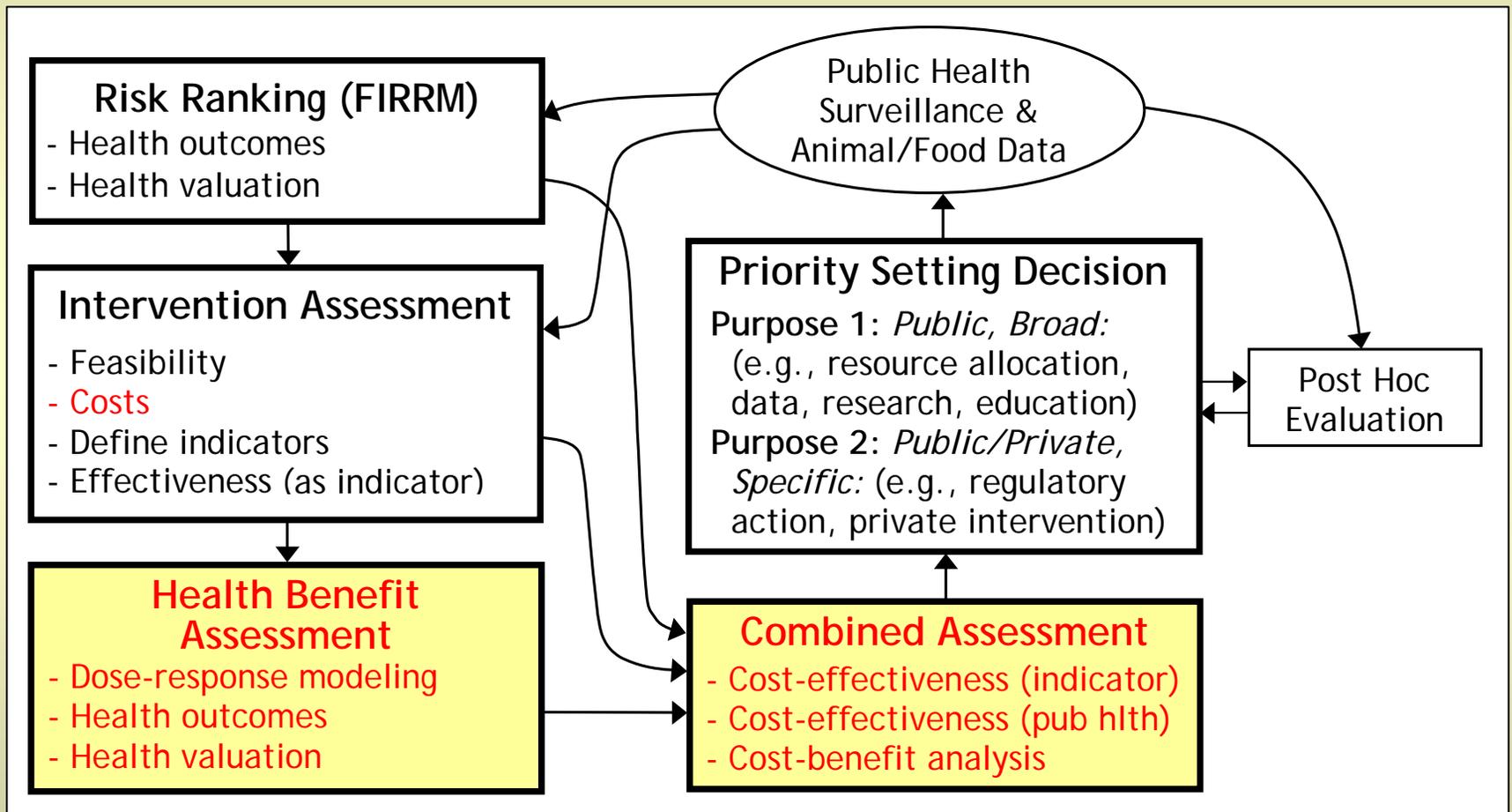
- Purpose 1 - Guides allocation of food safety resources across a **broad range** of opportunities to improve food safety
- Purpose 2 - Guides the choice of risk management actions and interventions with respect to **particular hazards and commodities**

Common Analytical Elements

To varying degrees, Purpose 1 and Purpose 2 priority setting may involve:

- Risk ranking – to identify hazards whose public health impact may deserve priority for action or deeper analysis;
- Intervention assessment – to identify possible risk reduction interventions and, when possible, their feasibility, effectiveness and cost
- Health benefit assessment – to understand, especially in Purpose 2 and post hoc evaluation, the public health benefit of specific interventions
- Combined assessment – integrating data from risk, intervention, and benefit assessments to inform resource allocation and risk management decisions

Conceptual Framework: Costs, Effectiveness, and Benefits



Cost Assessment

- Goal is integrated cost assessment of candidate interventions
 - Choice of risk management strategies depends on effectiveness and cost
 - Effectiveness/cost interactions influence choices
 - Direct costing of interventions is an element of the analysis
 - Cost of inputs, changes in capital, labor, training
 - However, direct costing will not fully capture actual costs of an intervention
 - Market effects
 - Dynamics

Combined Assessment: Ranking Interventions

- Risk reduction
 - measured by indicators or public health outcomes
- Purpose 1 - Broad
 - Costs of alternative interventions to system
 - Changes in production/consumption, costs to industry
 - Cost-benefit analysis
 - Economic valuation (\$) of costs and benefits of intervention
- Purpose 2 - Specific
 - Cost effectiveness of intervention in process
 - Cost of attaining x% reduction in contamination levels in raw product

Underlying Economic Forces in the Food System

- Commingling of products in agriculture
- Strong dependencies between agent decisions in food supply chains

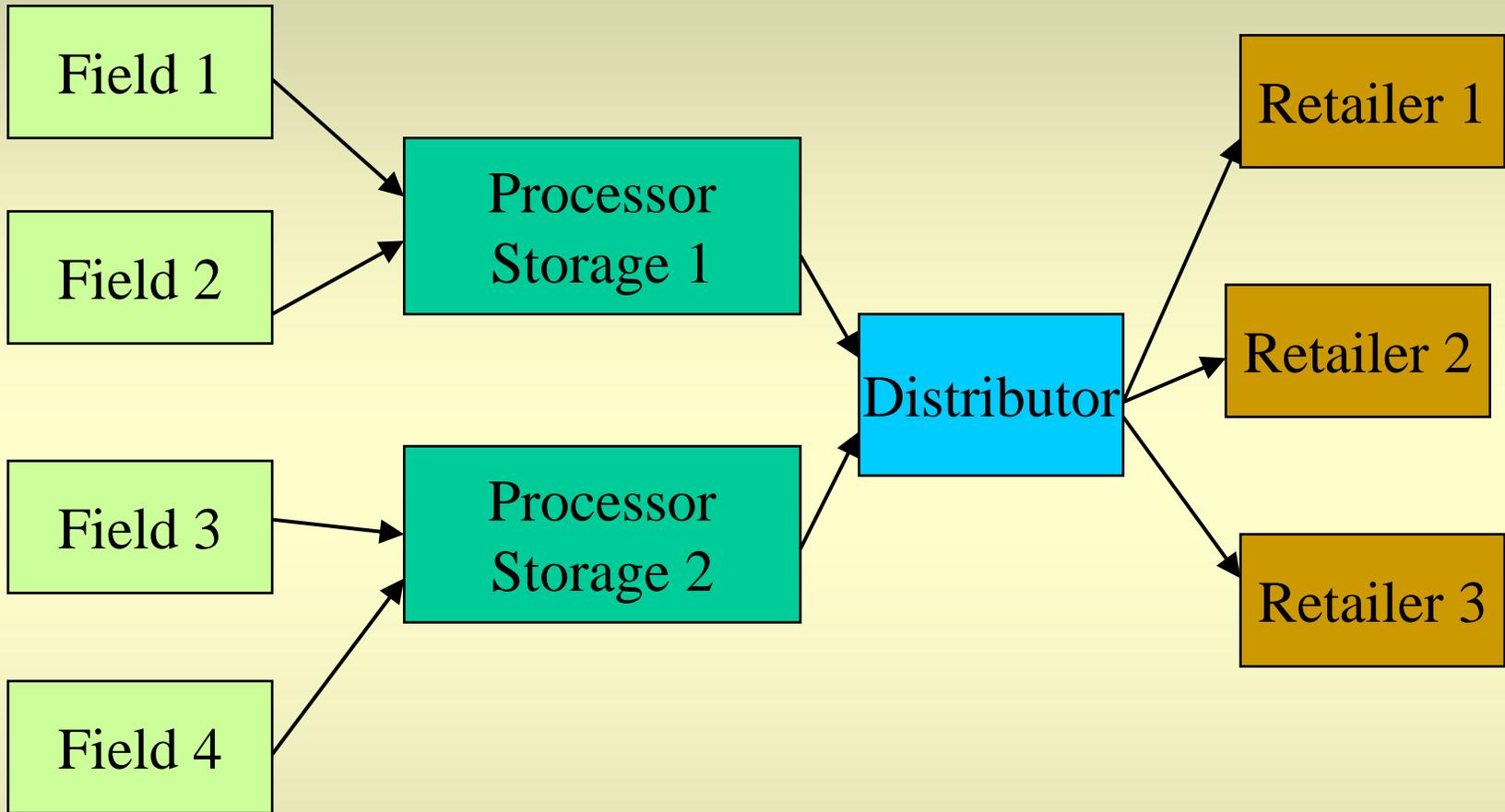
And...

- *Increased consumer demand for differentiated products and quality assurance*
- *Nature of food system presents the challenge for allocating public and private resources to assure safer food*

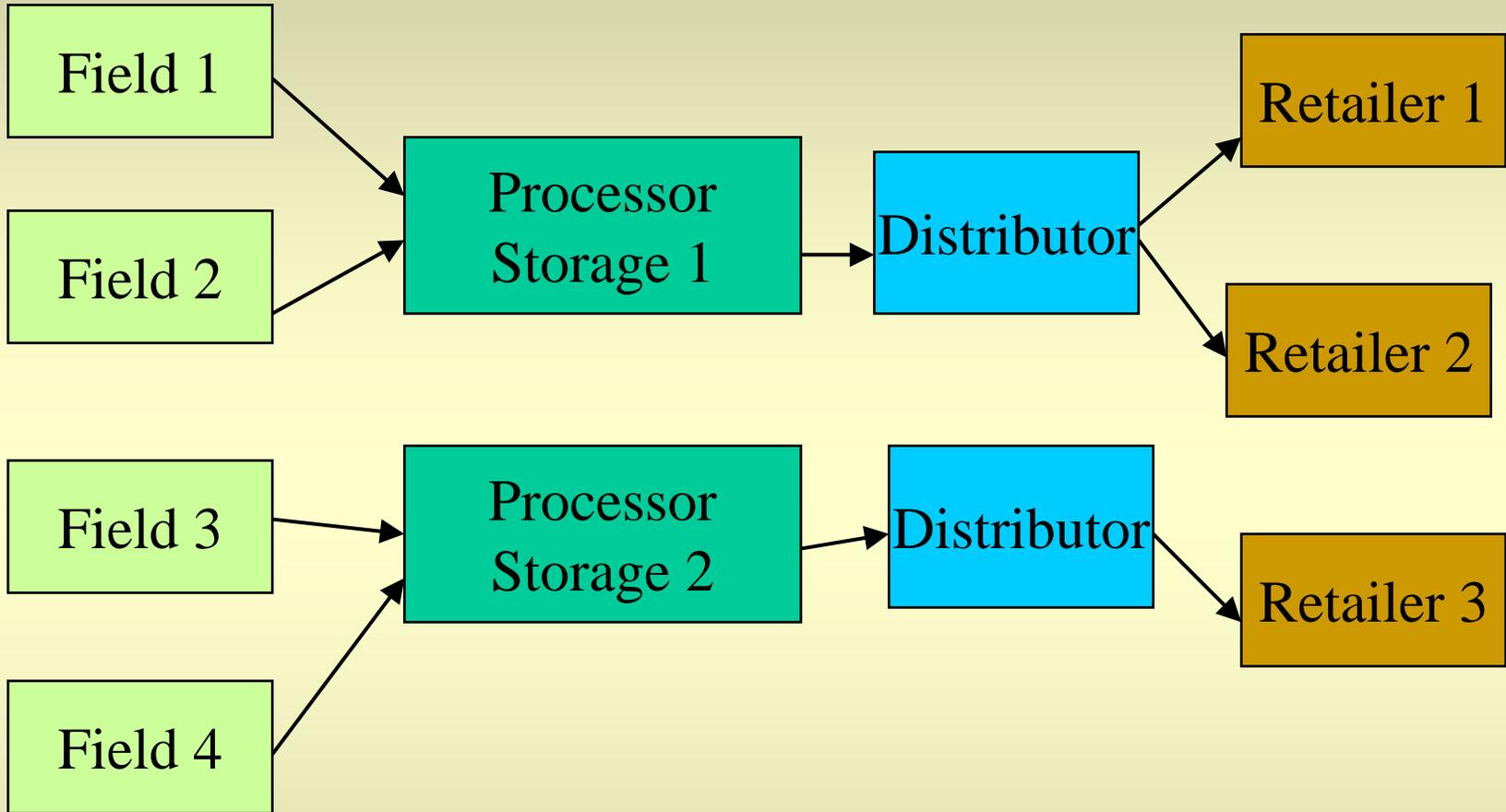
Systemic interactions and market failure

- Interconnected stages in food production systems can lead to failures
 - Consequences are known but cause is not
 - Cause is known but mixing occurs
- Consequences:
 - Losses spread through much of the system

Example: Distribution System



Example: Distribution System



System interconnectivity

Interconnections in system create potential for failures and reduce firms' incentives

Potential approaches and policies (interventions) to reduce interconnectedness

- Improve product traceability
- Close the system, strengthen contracts
- Invest in information management, audit infrastructure
- Improve detection methods and technologies

Lessons from other sectors

- Firms face private incentives to improve food safety (e.g., branding)
- Private actions have a large influence on food safety – may be greater than required by public regulation
- Costs may vary by size of firm or plant
- Distributional effects may be relatively large
- Short run vs. long run
- System linkages means improvements in one activity or level may improve product at other levels

Challenge Areas

- Setting priorities involves:
 - Ranking risks, predicting food safety outcomes, and other modeling issues
 - Evaluating the effectiveness of interventions
 - Assessing costs and valuing product improvements or health benefits of interventions
- Striking the right balance:
 - Enough analysis to support effective policy making and timely decision making
 - Both for broad (Purpose 1) and specific (Purpose 2)
 - Not so much analysis that decisions are stymied