THE UNIVERSITY of ADELAIDE

Capacity building for research: promoting inclusive development of agricultural value-chains, 1-3 September 2014

Upgrading Opportunities

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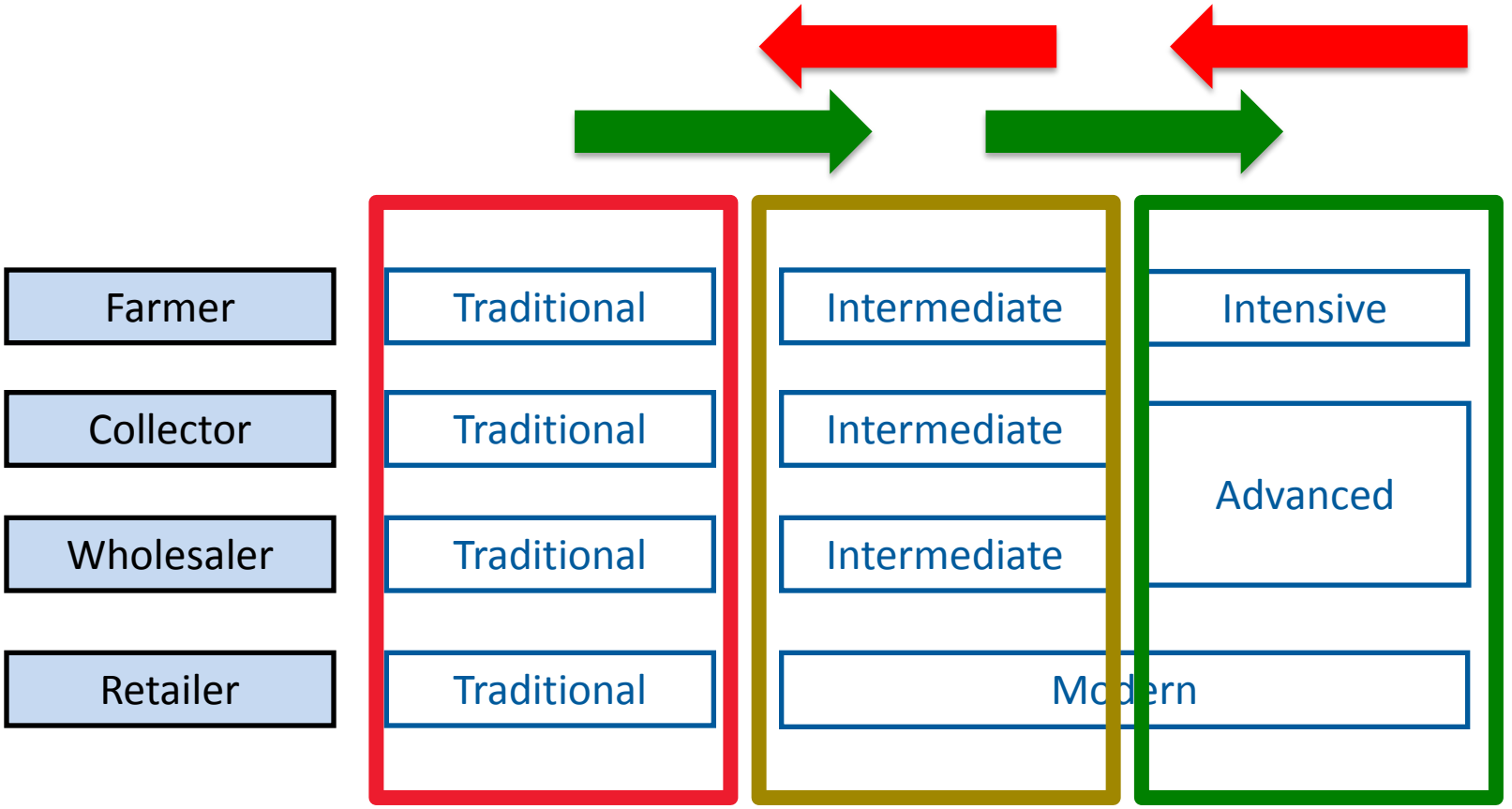
IFE IMPACT

Objectives

1) Analyze variation in technology & capacity in the VCs
2) Assess upgrading opportunities in the VCs
3) Understand constraints to upgrading
4) Formulate recommendations for intervention (training, technology) or policy change

Objectives


Farmer
Collector
Wholesaler
Retailer
Traditional
Traditional
Traditional
Traditional
Intermediate
Intermediate
Intermediate
Modern
Intensive
Advanced

Steps

1) Analyze variation in technology and capacity
2) Identify standards & grades for product
3) Map VC based on technology & capacity of actors
4) Identify opportunities to upgrade
5) Identify the best upgrading option
6) Recommend Policy or programming intervention

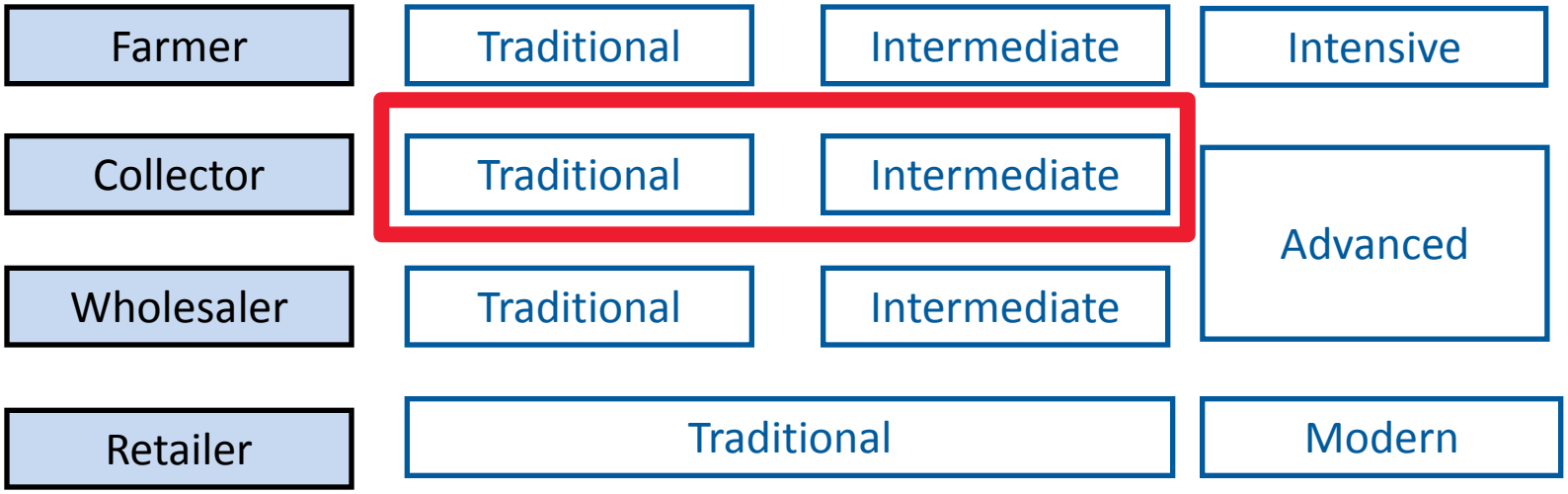
Step 1: Analyze Variation

- Objective
  - Identify the different technologies used in the VC
  - Categorize technologies in each segment for comparison

- Research questions
  - What are the outputs produced?
    - Commodities; Varieties
  - What are the variable inputs used in production?
    - Labor; Chemicals; Seed; Fuel
  - What are the investments needed to start operation?
    - Land; Capital; Training

Step 1: Analyze Variation

- For each segment
  - Function (activities: production, collection, retail, etc.)
  - Technology (variable inputs, fixed inputs)
  - Capacity (skills, knowledge)



Step 1: Analyze Variation

Mango Collectors

	Traditional	Intermediate
Technology (Fixed inputs)	Stand, Vehicle	Vehicle Power-sprayer
Outputs	Mix of many fruits	Specialized
Primary Functions	Collection	Production Collection
Sells to	Wholesalers Retailers Consumers	Wholesalers Retailers
Institutional arrangement	Spot-market	Contracts

Step 2: Standards & Grades

- Objective
  - Identify different quality standards supplied by the VCs
  - Assess supply and demand conditions for qualities

- Research questions
  - What attributes are measured in the VC?
    - Size, color, smell, shape
  - What attributes are producers supplying?
  - What attributes are consumers demanding?

Step 2: Standards & Grades

- Search attributes (specific to product)
  - Size
  - Shape
  - Color
  - Smell

- Other attributes
  - Experience (taste)
  - Credence attributes (social welfare, animal welfare, sustainability, origin, etc.)

Step 2: Standards & Grades

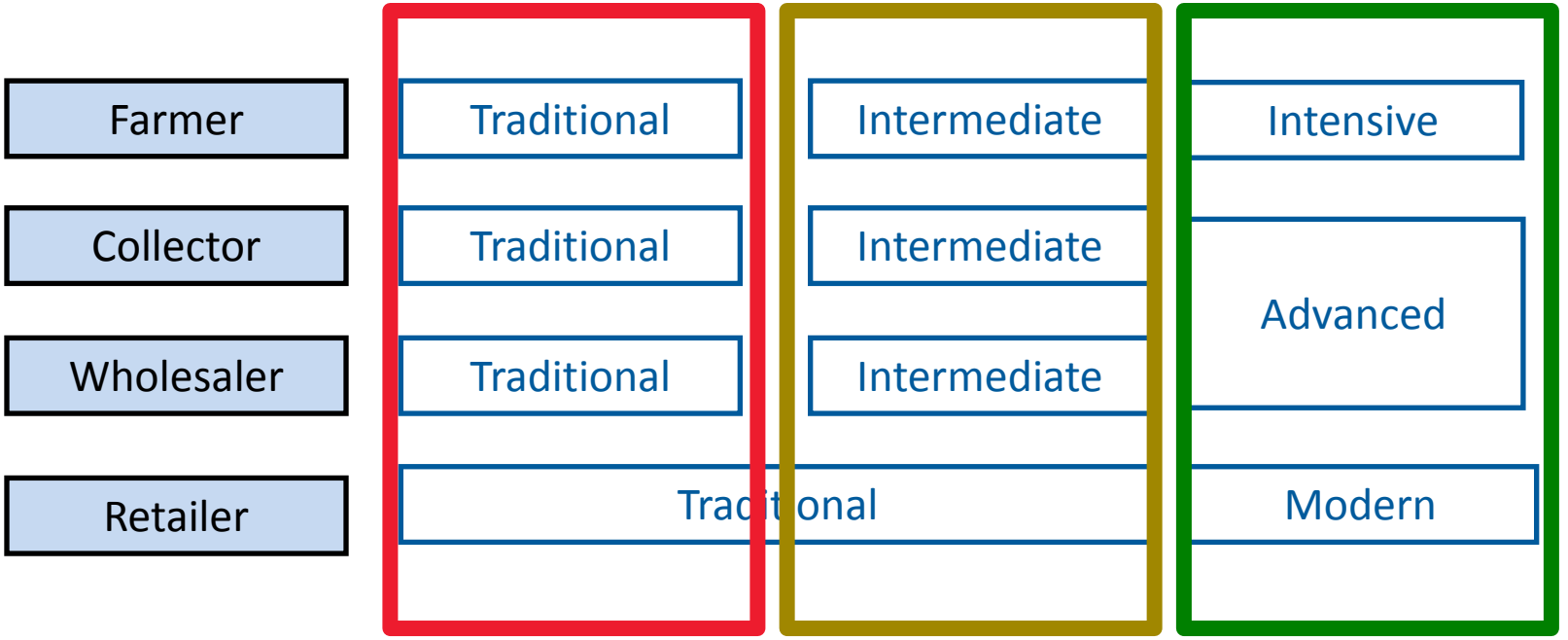
GRADE	Harumanis	Gedong Gincu
A	2-3 Mango/Kg	2-3 Mango/Kg
B	4-5 Mango/Kg	5 Mango/Kg
Ungraded	Assorted	Assorted
Demand	Commodity	High-value
Supply	Large	Moderate

Step 3: Map VC

- Objective
  - To understand VC structure
  - To understand the outputs of each VC

- Research Questions
  - What are the different value chains?
  - What type of output is produced by each VC?

Step 3: Map VC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Modern

Step 4: Identify opportunities for upgrades

- Objective
  - Analyze possibilities to upgrade VC
  - Identify constraints to upgrade options

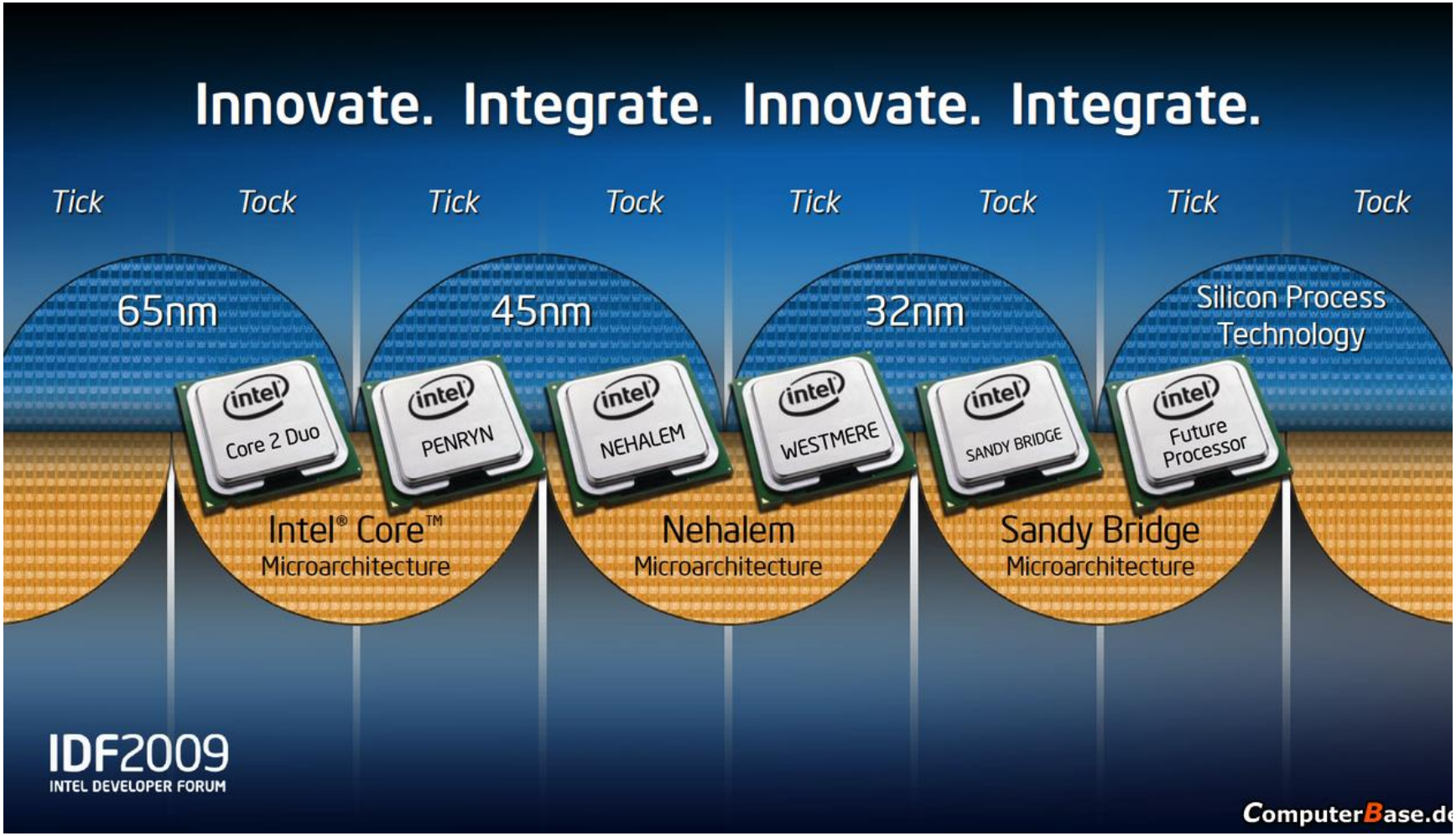
- Research questions:
  - What technologies can be adopted?
  - How can efficiency be improved?
  - What is preventing upgrades from taking place?

Step 4: Identify opportunities for upgrades

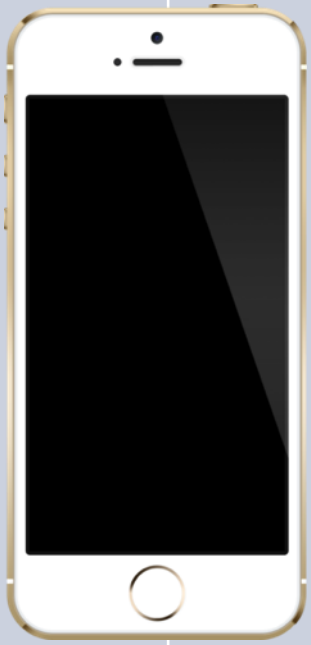
- Upgrading

- Technological innovation (Tick)
  - Variety (high-yielding, shock resistant, sweeter, etc.)
  - Input (chemicals, fertilizer, hormones, etc.)
  - Logistics (cold-chain, assembly, storage)
  - Processing (dried, canned, cooked, etc.)
- Institutional & Organizational innovation (Tock)
  - Vertical coordination (integration, contracts, spot-market)
  - Grades, Standards, Certification (measurement systems)

Intel: Tick-Tock Model



Apple iPhone models

	3G	3GS	4	4S	5	5S
						

Vietnam Susu Case

	Local	Local (s)	Inputs	Inputs (s)	Transport	Transport (s)

Step 4: Identify opportunities for upgrades

- Where in the chain?
  - Single segment upgrade
  - Coordinated upgrade

- Constraints to upgrade
  - Labor constraint
  - Credit constraint
  - Human capital constraint (knowledge, skills)
  - Transaction costs
    - Search, Measurement, Bargain, Enforcement

Vietnam Susu Case - continued

Step 5: Identify most feasible options

- Objective
  - To choose the most feasible upgrade option to promote

- Research questions
  - What constraints are most binding?
  - What constraints can be addressed by program/policy?

Step 6: Recommend intervention / policy

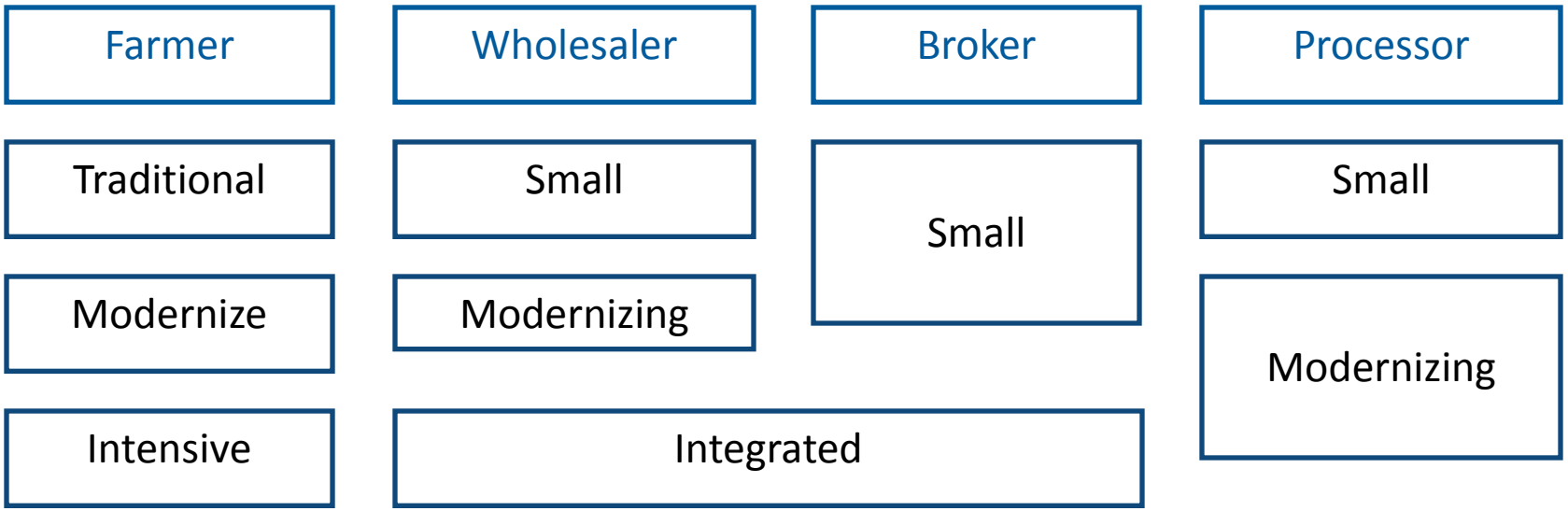
- Objective
  - Identify a program or policy to promote upgrade

- Research Questions
  - Who has an interest to execute intervention?
  - How will it be funded?
  - How sustainable is the intervention/policy change?

VC case

Step 1 & 2

- Step 1: Analyze Variation
- Step 2: Standards & Grades



Farm

	Small	Modernizing	Intensive
Area of operation	1.8 ha	2.5 ha	10+ ha
Yield / Cycle	0.2 MT	0.5 – 1 MT	10 MT +
Variety produced	Traditional	HYV	HYV
Output Channel Choice	Small wholesaler	Large Wholesaler, Broker	Processor, broker

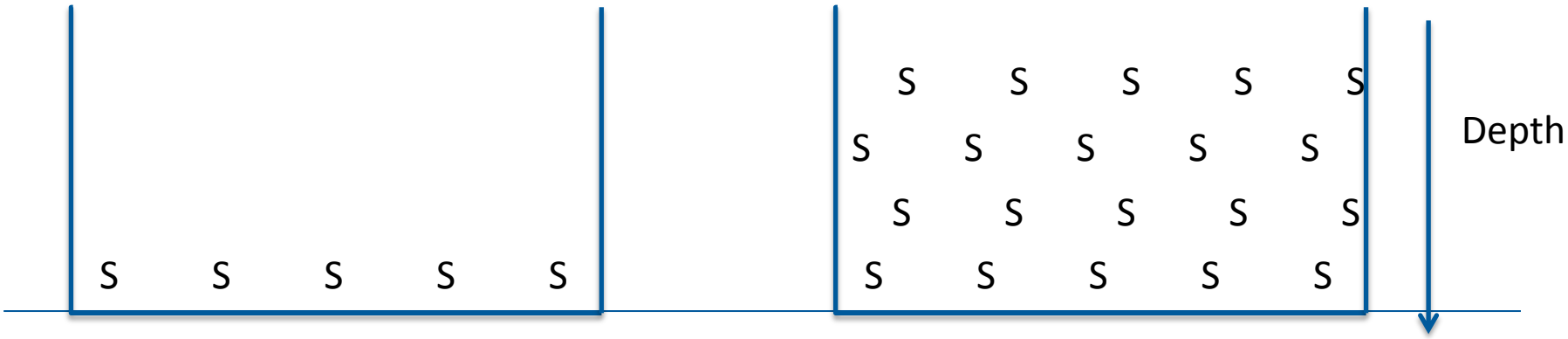
Varietal Shift

Traditional Variety (*Penaeus monodon*)

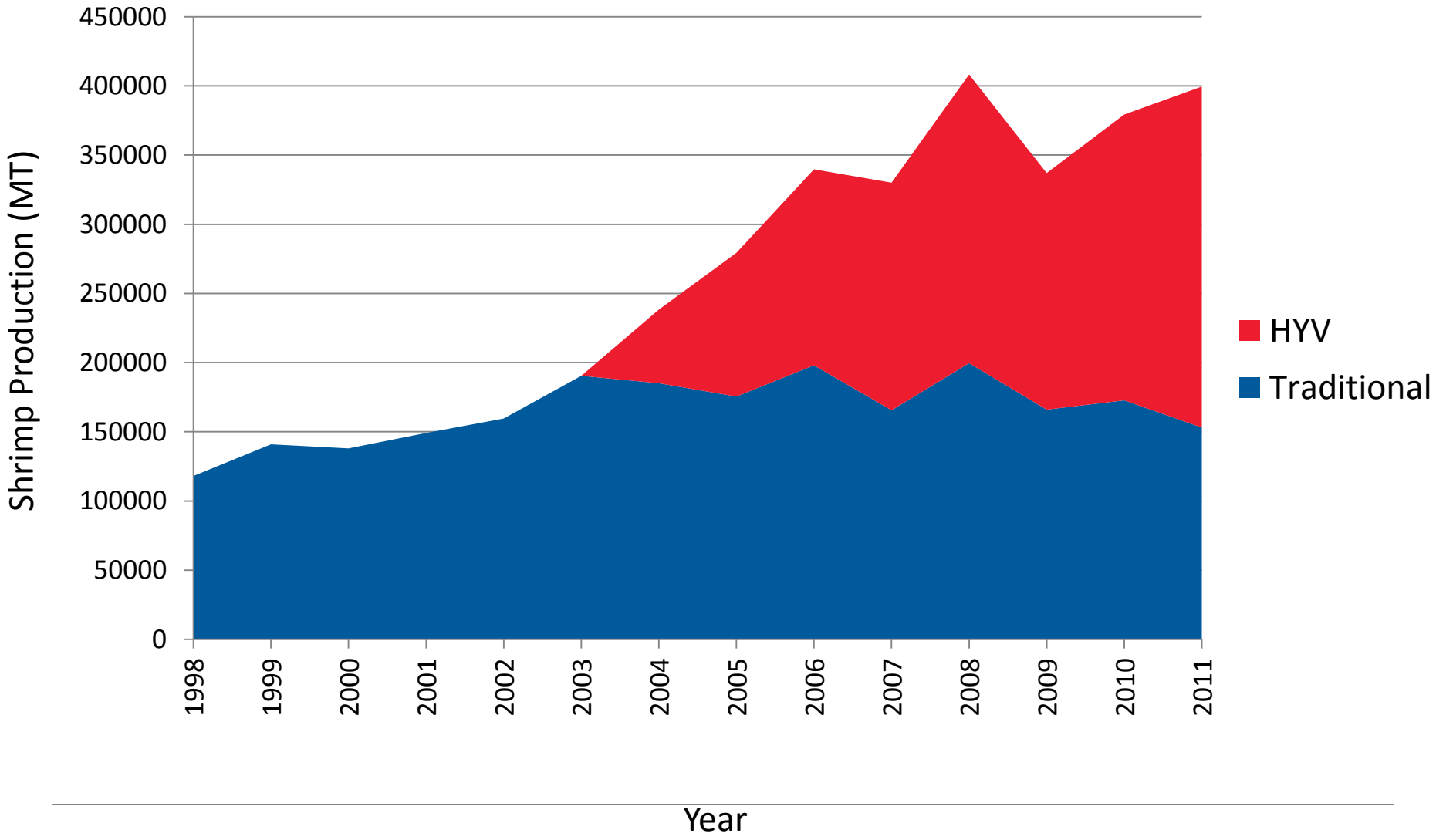
- Wild caught broodstock (local)
- Prone to disease
- Inhabits only the bottom of the pond

HYV (*Litopenaeus vannamei*)

- Specially bred broodstock (imported)
- Disease resistant/free
- Inhabits the pond volumetrically
- *Increased growth response to feed input*



Varietal Shift



Farms

Traditional Farm

Modernizing Farm

Farms

Intensive Farm

“Traders”

	Small	Modernizing	Integrated
Area of operation	Village	District	Province
Scale / yr	50 MT	500 MT	4,000 MT
Buys from	Many farms	Few farms	Own farm
Variety traded	Traditional	Traditional & HYV	HYV
Other activities	Input/credit provision	Specialized (none)	Vertically integrated
Output Channel Choice	Dependent on same broker	Large set of brokers and markets	Processors, Supermarkets

Traders

Small wholesaler

Modernizing / Integrated

Processors / Exporters

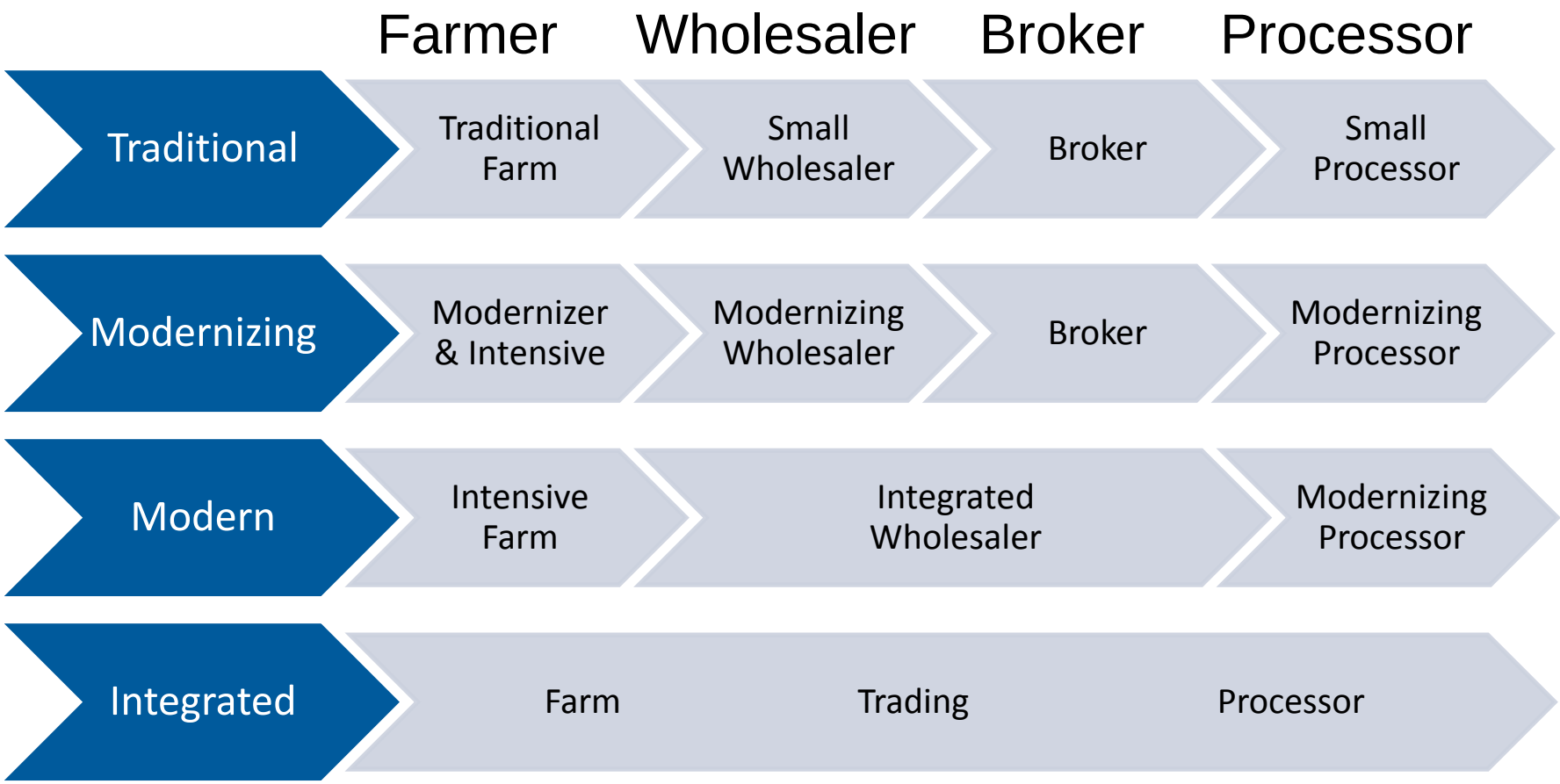
	Small	Modernizing
Scale / yr	1,500 MT	6,000 MT
Buys from	Brokers	Brokers, Integrated Wholesalers, Own farms
Variety processed	Traditional	Traditional & HYV
Processing activities	1st stage only (grading, cleaning, packaging, freezing)	1st & 2nd stage (1st + cooking)
Output Channel Choice	Low traceability standards Higher quality standards	High traceability standards Low quality standards

Processors

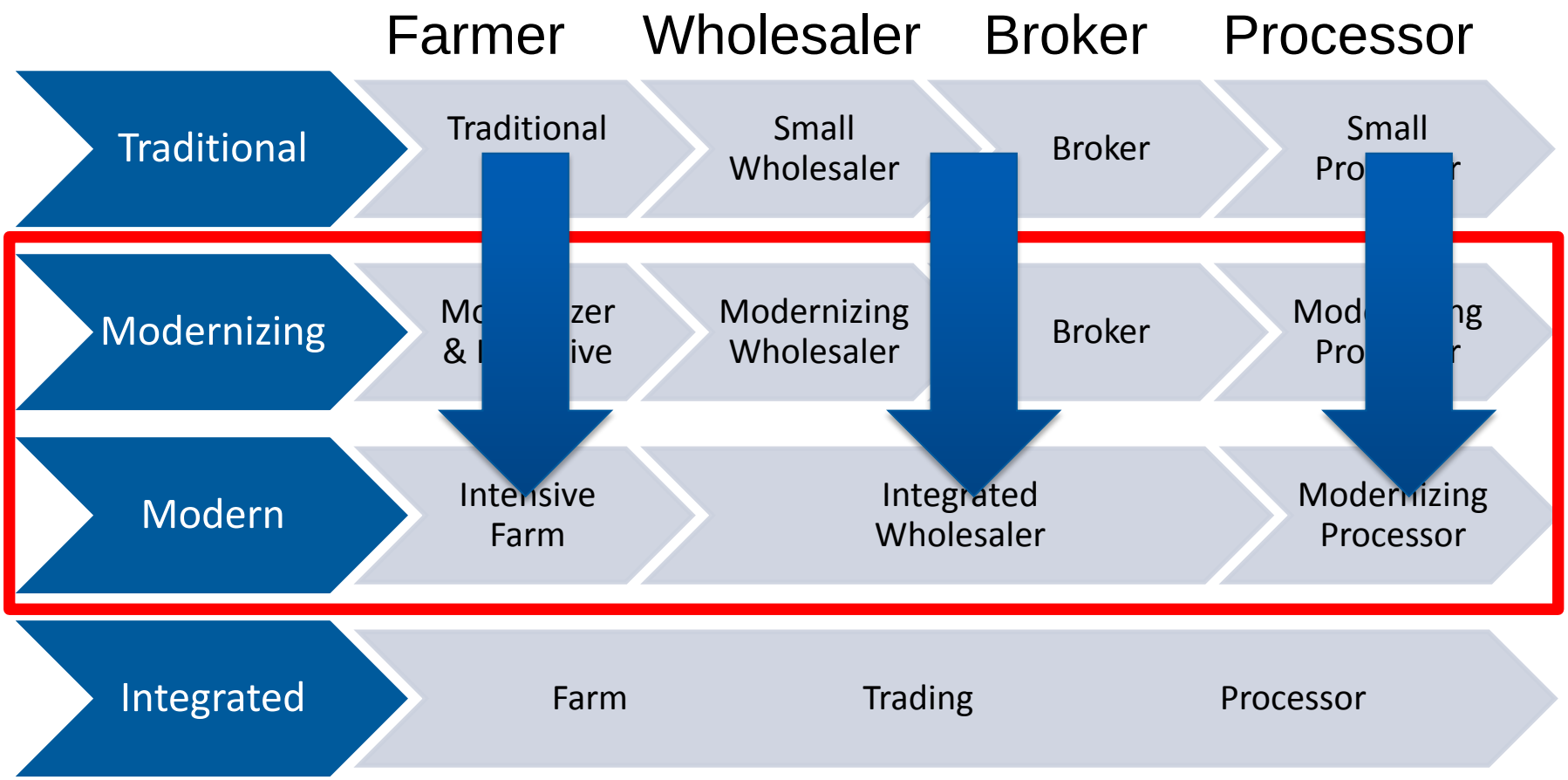
Conventional Processor

Modernizing Processor

Step 3: Map VCs (Stylized)



Step 4: Identify opportunities for upgrades



Step 4: Identify opportunities for upgrades

	Traditional	Modernizing	Modern
Growth	Stagnant	Taking off	Fast
Variety	Traditional	HYV	HYV
Assembly / Transport Cost	High	Moderate	Low
Processing	1st Stage	1st & 2nd	1st & 2nd
Profits / volume	High Margin Low Volume	Medium Margin Medium Volume	Low Margin High Volume

Step 5: Identify most feasible options

- Public Intervention
  - Extension
  - Input subsidy / transfer
  - Cooperative formation

- Private
  - Feed industry intervention
  - Processor contracting schemes

Outcomes