

Business Responses to Food Supply Chain Dynamics

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Agenda

- ❖ Cascading events that foster dynamics in the food supply chain
- ❖ Examine some business responses to these dynamics
- ❖ Characterize commodity markets so as to better understand business responses
- ❖ Examine strategic partnering alternatives
- ❖ Implications and conclusions

Recent Cascading Events Resulting in Chain Dynamics

- ❖ Biotechnology
- ❖ Food safety
- ❖ Animal welfare
- ❖ IT: dramatically decreased costs of information flow



*Results in
a shift in
the basis
of rivalry*

Technological Advances: Information Technology

- ❖ Rapid advances in IT
- ❖ Puts premium on strategy development and implementation that includes the management of knowledge



Intellectual Property

- ❖ Rights to commercial biotechnology are firm specific intangible assets
- ❖ Significant increases in intellectual property resulting from the science of biotechnology



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Food Processing Industry Dynamics

Traditional

Undifferentiated
Farm Products



Commodity
Manufacturers



Branded and
Commodity
Products

Manufacturer
R&D

The Future

Customized Raw Materials

- Variety
- Source of genetics
- Harvest & storage
- Traceability
- Cultural practices



Food Processing

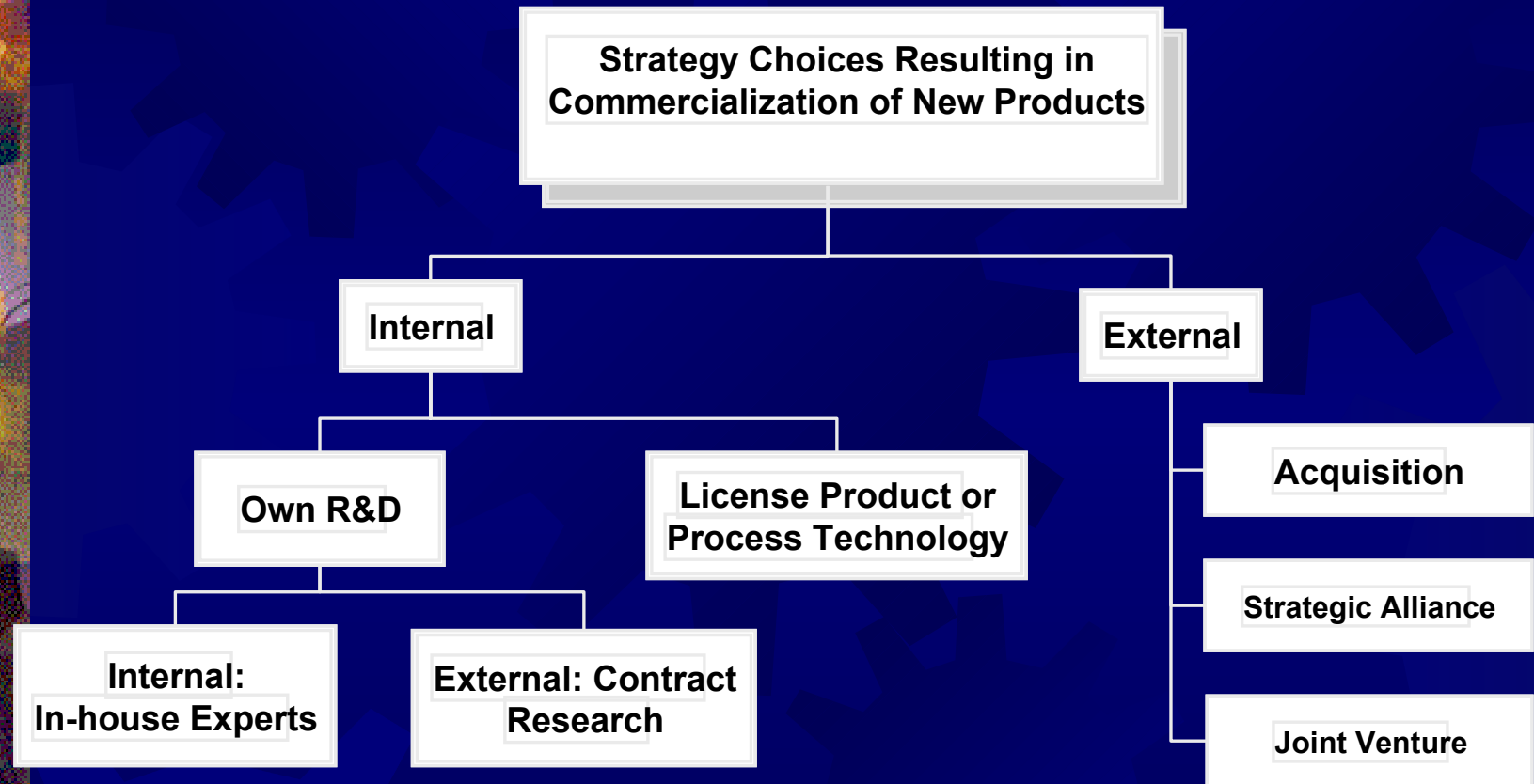
Processing
Efficiency

Safer
Products

Enhanced
Product

- Genetics
- Sanitation
- Contamination
- Healthy
- Nutritional
- Flavorful
- Stable

Firm Responses to GFS Dynamics



Characteristics of New Rivalry in Global Food System

Old

- ❖ Tangible Assets
- ❖ Manufacture
- ❖ Build/Acquire Key Manufacturing Facilities
- ❖ Achieve Scale Economies

New

- ❖ Intangible Assets
- ❖ Create/Add Value
- ❖ Quickly Out-source and Partner with Other Firms
- ❖ Excel in Low-volume Target Markets

Characteristics of New Rivalry in Global Food System

Old

- ❖ Reward Individuals
- ❖ Fix Quality Problems When They Occur
- ❖ Rivalry Based on Cost

New

- ❖ Utilize Teams
- ❖ HACCP
- ❖ Rivalry Based on Product Differentiation

Characteristics of New Rivalry in Global Food System

Old

- ❖ Have Many Competitive Suppliers
- ❖ Secret Strategic Plans

New

- ❖ Limit Suppliers to One or a Few
- ❖ Vertical System Goals; Off-load Some R&D to Upstream Suppliers

Characteristics of New Rivalry in Global Food System

Old

- ❖ Rivals are Other Firms in the Same Industry
- ❖ Operating Income and Return on Invested Capital

New

- ❖ Rivals are Other Vertical Network Alliances (**Chain-on-Chain Rivalry**)
- ❖ *Controllable Earnings--
Operating Income minus Capital Usage Charge*

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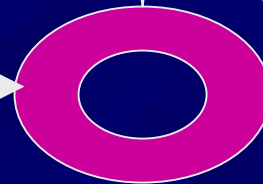
Market Alternatives Continuum: Commodities and the Identity Preservation



**Mass Markets:
undifferentiated and
commingled commodities**

**Differentiated
Commodities**

**Numerous
small
specialized
end-use niche
markets with
branding or
differentiation**



Sequential and Reciprocal Dependency in Commodity Marketing Channels

Sequential
Dependency

Reciprocal
Dependency

Food Grains

Fruits and vegetables for
processing

Feed Grains

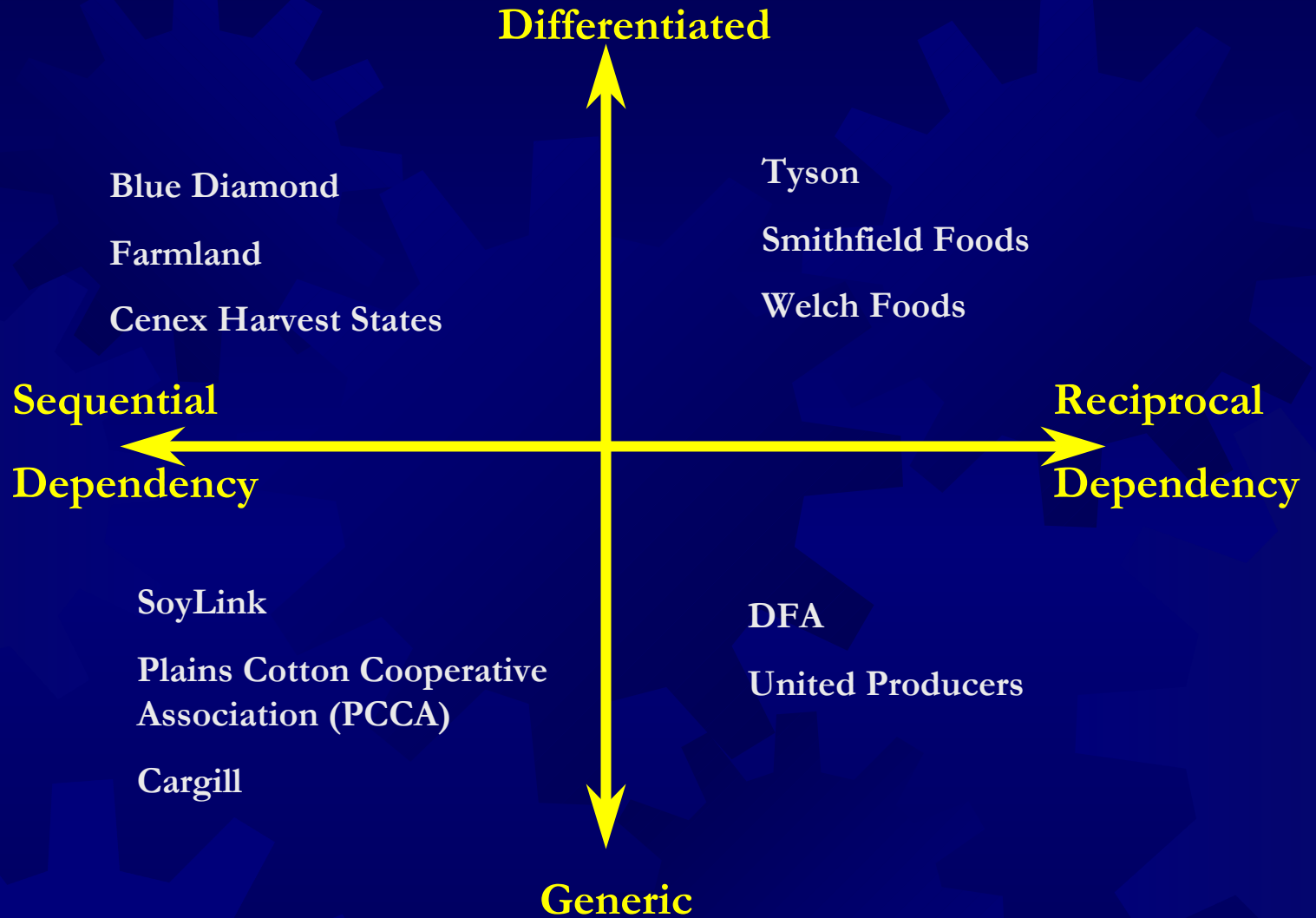
Milk

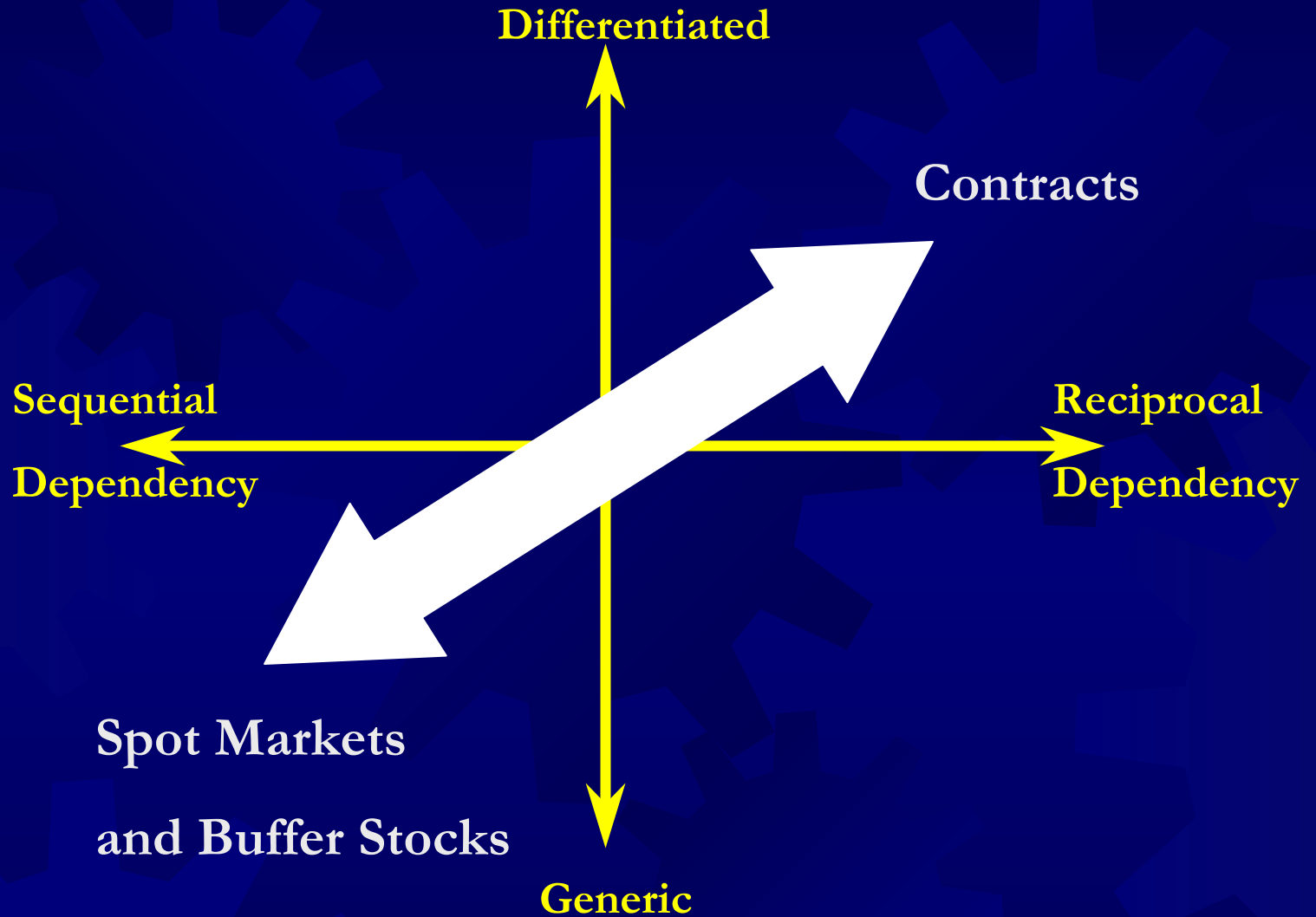
Semi-processed products

Broilers

Cotton/wool

Eggs





Alternative Supply Chains

- ❖ Based on work by Rice and Hoppe; Peterson; Sporleder and Peterson on future of chain-on-chain competition.
- ❖ As adapted here:
 - **Chain master:** supply chain managed by a domain firm
 - **Chain web:** individual firms move in and out of multiple chains as needed
 - **Chain organism:** the chain competes as one entity without a dominant member.

Characteristics of SC

❖ Chain Master

- Dominant agrifood model
- Strong in generating chain efficiency
- Weak on incentives for innovation by suppliers, KM and learning

❖ Chain Web

- Computer industry & smaller food firms
- Strong when firms must compete in multiple chains
- Weak on incentives for KM and learning

Most Sophisticated SC

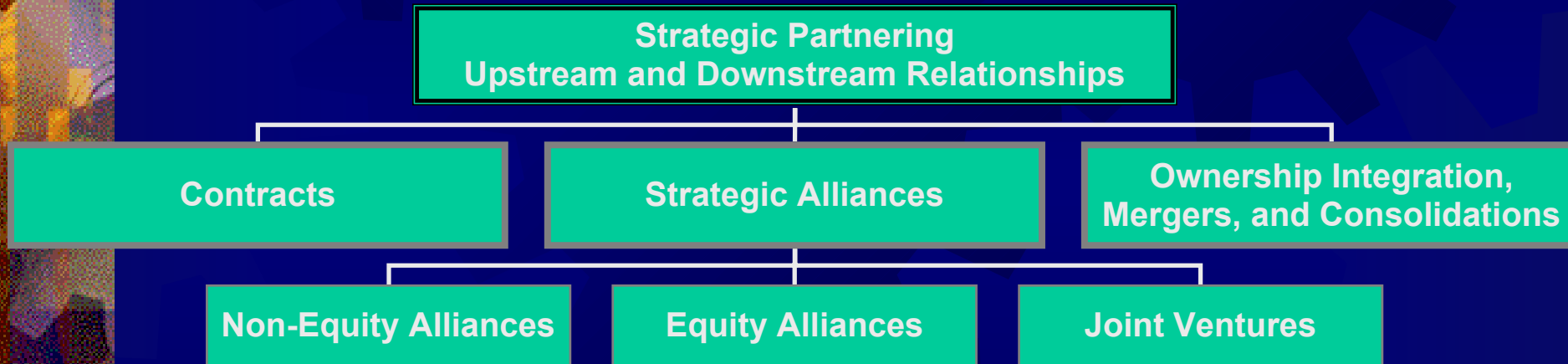
❖ Chain Organism

- Strong in creating chain efficiency
- Strong in creating incentives
- Toyota supply system as key example (Dyer and Nobeoka)
 - Network-level KM systems exist.
 - Intellectual property rights reside at the network level and not at the firm level.
 - The “creator” of knowledge appropriates 100% of benefits in the short run.

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Strategic Partnering Alternatives



Strategic Alliance

- ❖ What is it?
- ❖ How does it differ from other arrangements?
- ❖ What are the economic factors driving choice of a strategic alliance compared to alternative arrangements?

Strategic Alliance

❖ Is it just another contract?



Strategic Alliances

Definitional Considerations

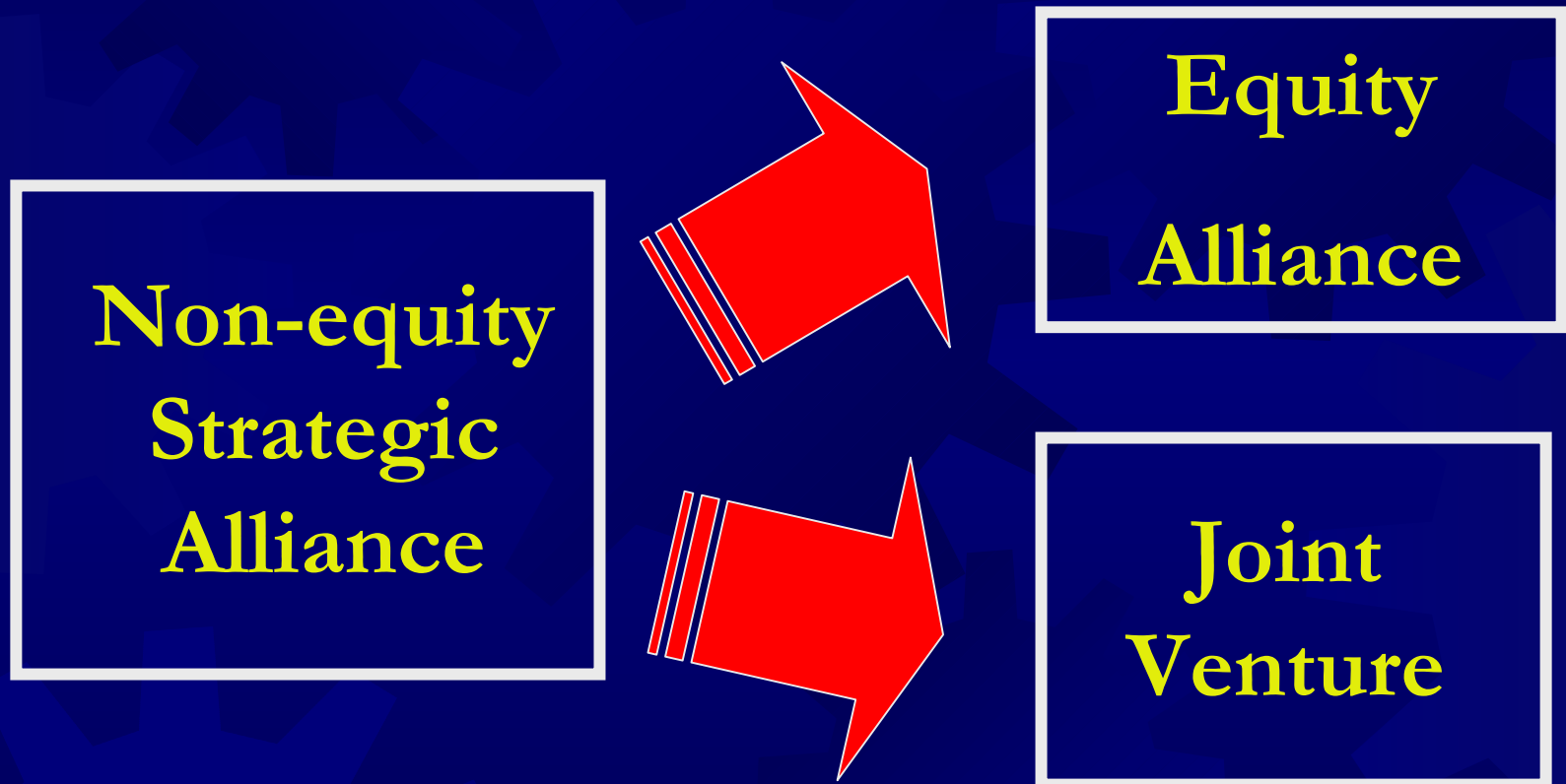
- ❖ Strategic alliance is a general class of several alternative interfirm arrangements
- ❖ Equity and the nature of trust are important distinctions

Strategic Alliances

Alternative Arrangements

- ❖ Joint venture
- ❖ Minority equity agreement
- ❖ Consortia
- ❖ Non-equity agreement

Dynamics of Strategic Alliances

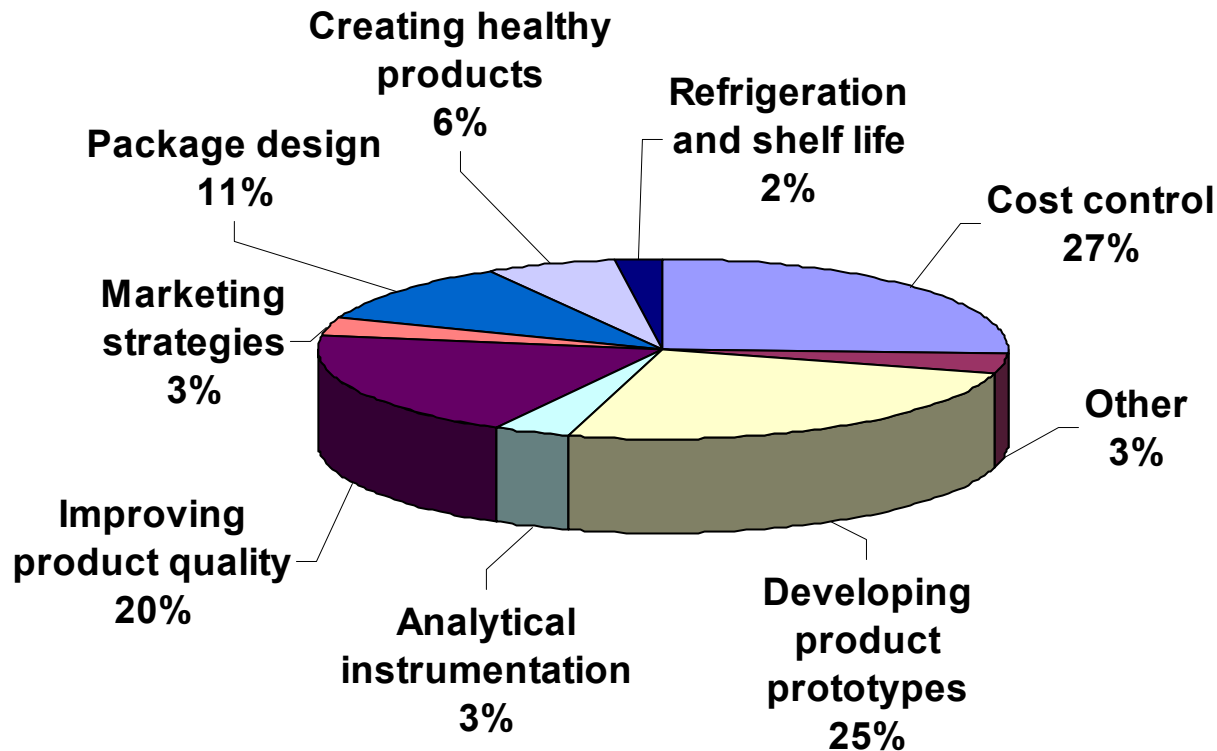


Time

Food Processor: Strategic Alliances with Suppliers

- ❖ Most common reason is **cost control**
- ❖ Second most common reason is **R&D**
 - **developing prototype products**
 - **improving product formulations**

Reasons for Food Processor Strategic Alliances with Suppliers in the Food Supply Chain, 2001



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- ❖ Characterize commodity markets so as to better understand business responses
- ❖ Examine alternative vertical interfirm cooperation mechanisms, especially contracts and strategic alliances
- ❖ Implications and conclusions

Some Conclusions

- ❖ Buffer stocks, especially for storable commodities, are a substitute for contracting
- ❖ The extent of perishability helps determine the governance structure (spot & contract)
- ❖ Firms, as economic agents in the agrifood supply chain, think of IP as a signaling problem

Some Conclusions

- ❖ Intellectual property increases the intangible assets portion of a firm's balance sheet– this has many implications for firm strategy
- ❖ Private firms increasingly rely on strategic alliances as a tactic which supports or may even replace contracting

Some Conclusions

- ❖ Chain master model is the most common SC type— implies dominant firm with substantial influence over contract terms employed
- ❖ Motives for strategic alliances by food processors mostly to **gain efficiencies** and share **R&D expenses** with upstream suppliers



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