

The Business of Aquaculture

Carole R. Engle



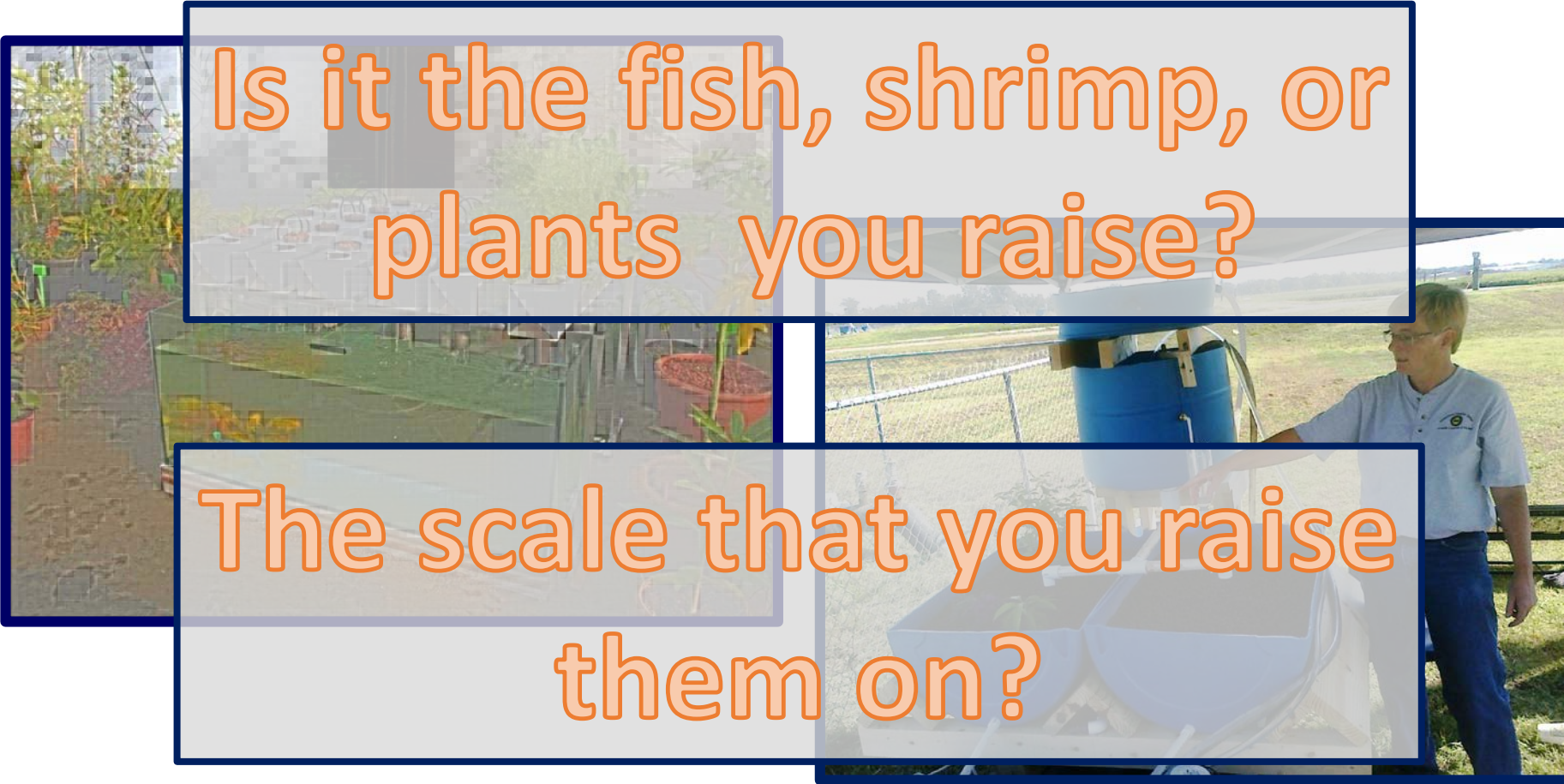
ENGLE-STONE
Aquatic\$ LLC

Iowa Aquaculture Conference
March 22, 2019

Structure of this talk

- Business models for aquaculture
 - Questions
- Is it profitable and, if not what to do? - Questions
- Financial risk – Questions
- Cash flow risk - Questions

What's the difference between a business and a hobby?

A collage of images. On the left, a vertical strip shows various potted plants and seedlings. On the right, a man in a light blue polo shirt and dark pants is standing next to a large blue barrel, which is part of a hydroponic or aquaponic system. The system includes a white bucket and some tubing. The background shows a grassy field and a fence.

Is it the fish, shrimp, or plants you raise?

The scale that you raise them on?

What's the difference between a business and a hobby?

NO !



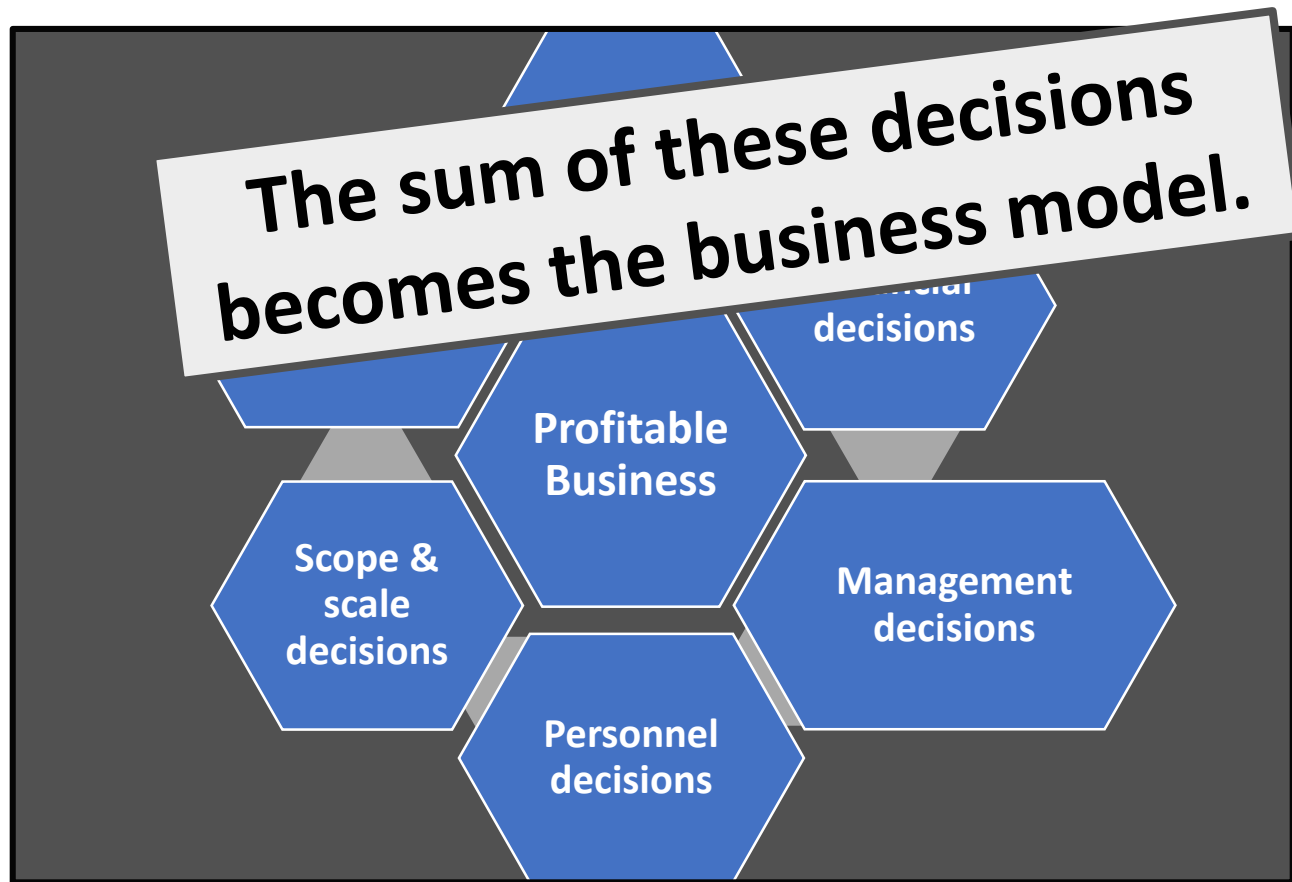
It's the customers !

What's the difference between a business and a hobby?

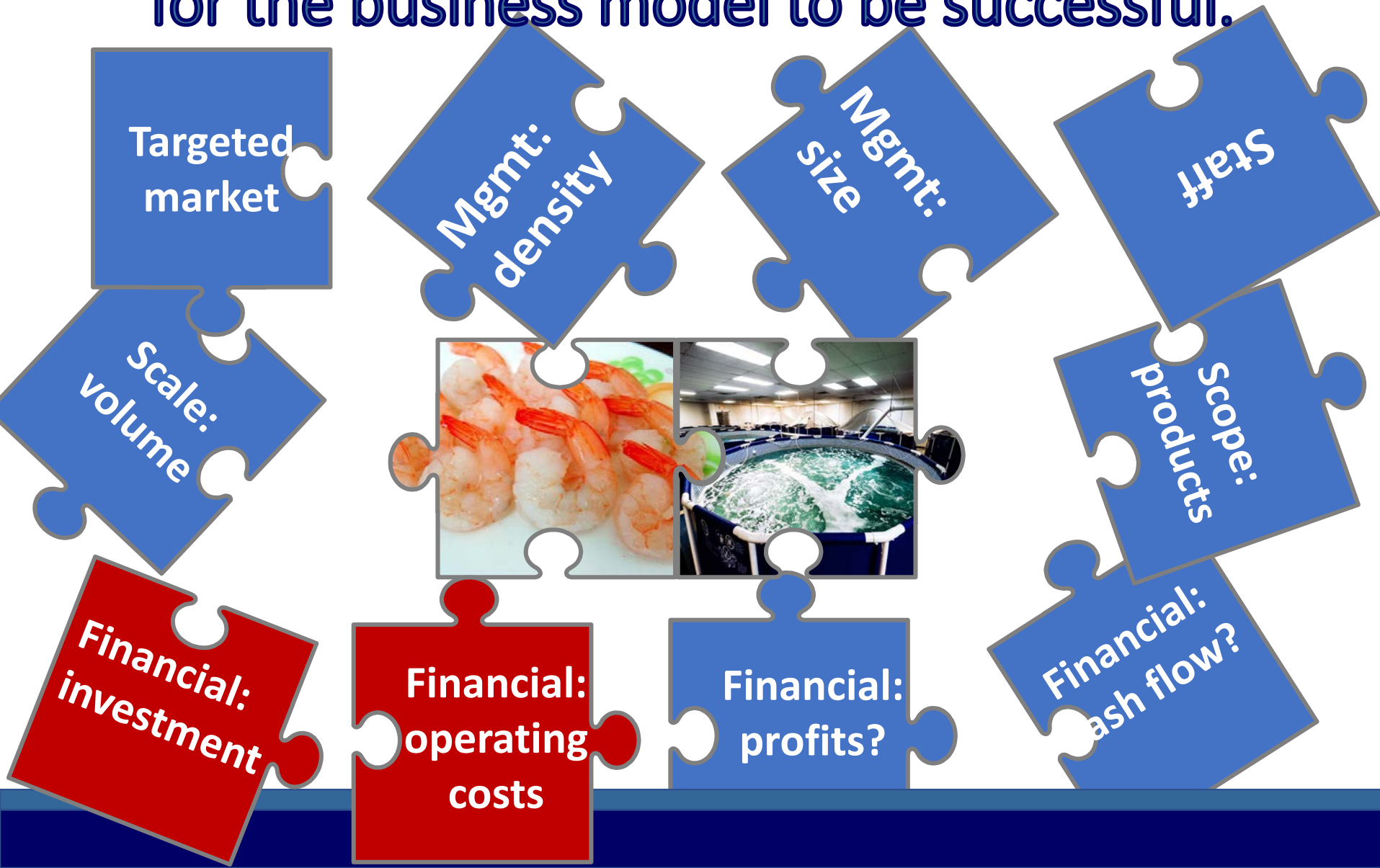


There are tax differences, too, but that's not the point of this talk.

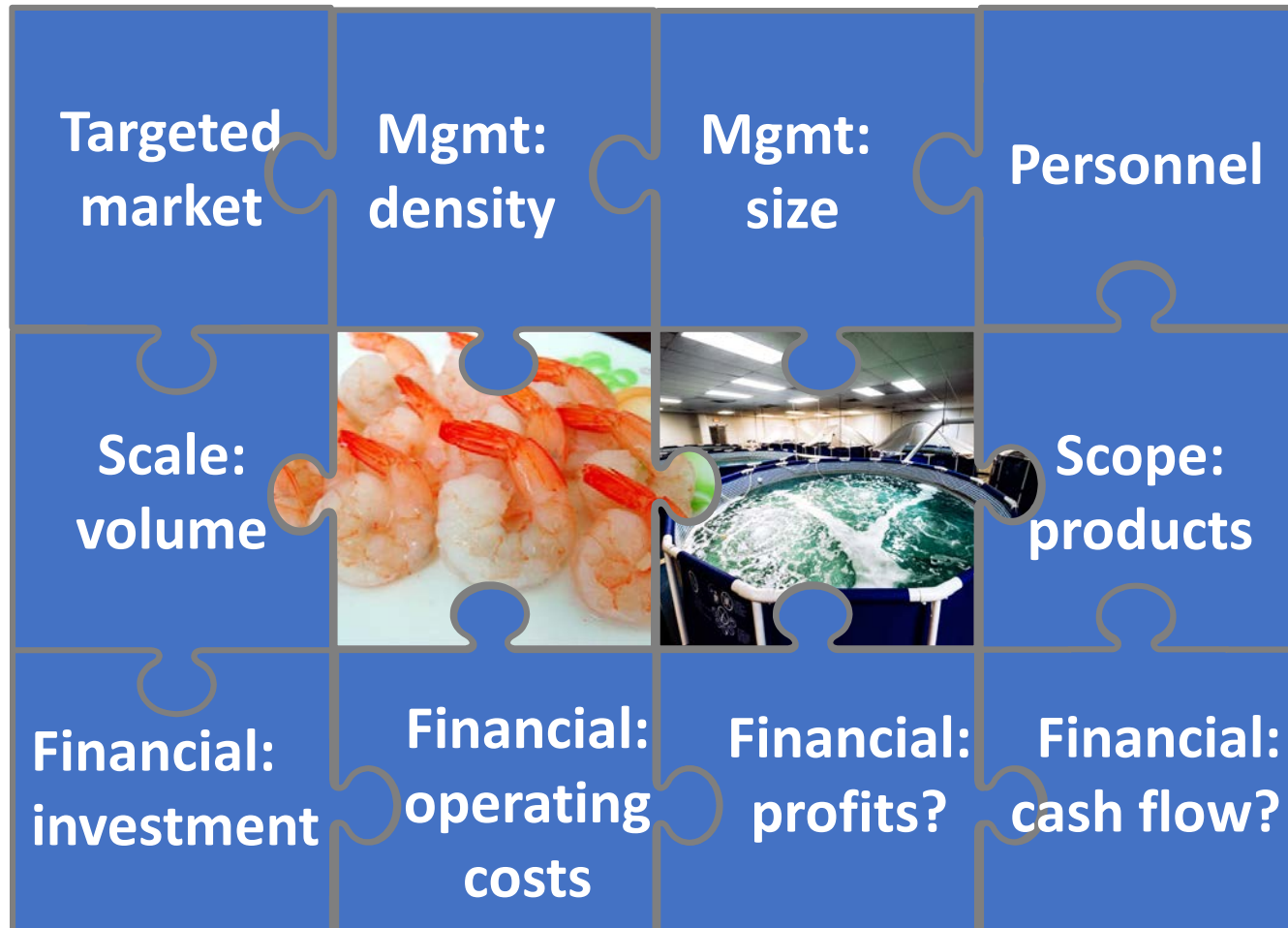
Successful businesses are complex & require many good decisions.



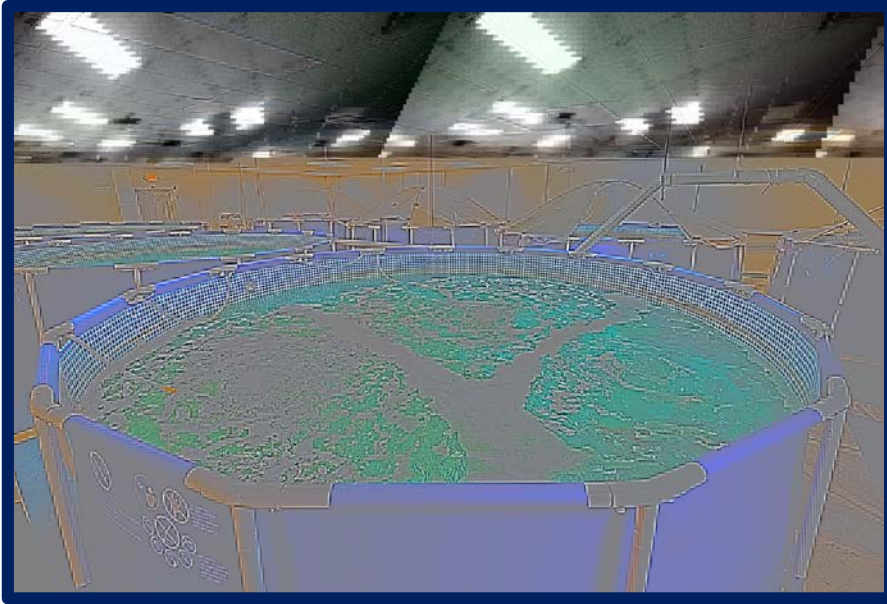
All decision pieces must fit together seamlessly for the business model to be successful.



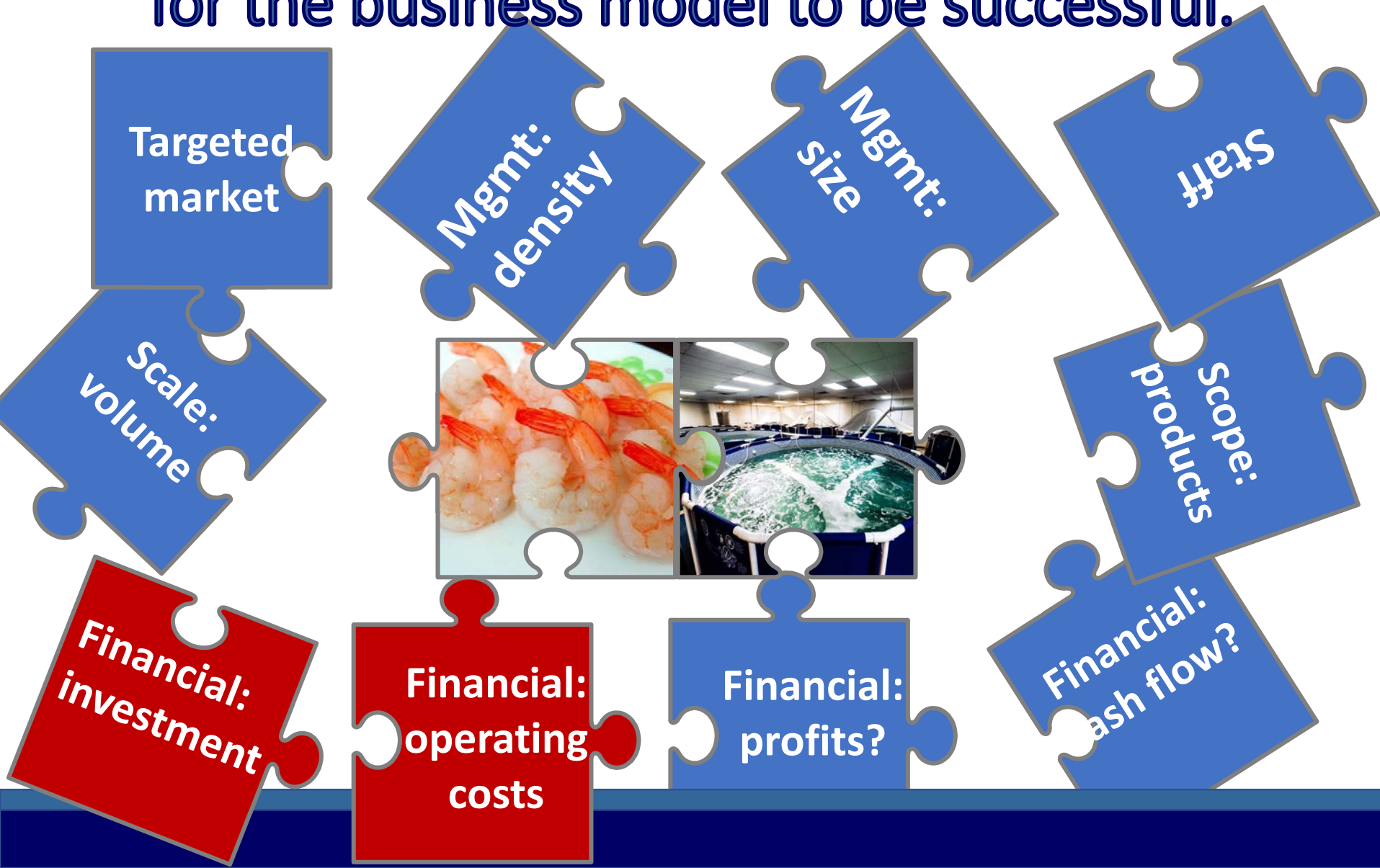
All decision pieces must fit together seamlessly for the business model to be successful.



What business model is likely to work for: indoor shrimp production in the midwest



All decision pieces must fit together seamlessly for the business model to be successful.



All decision pieces must fit together seamlessly for the business model to be successful.

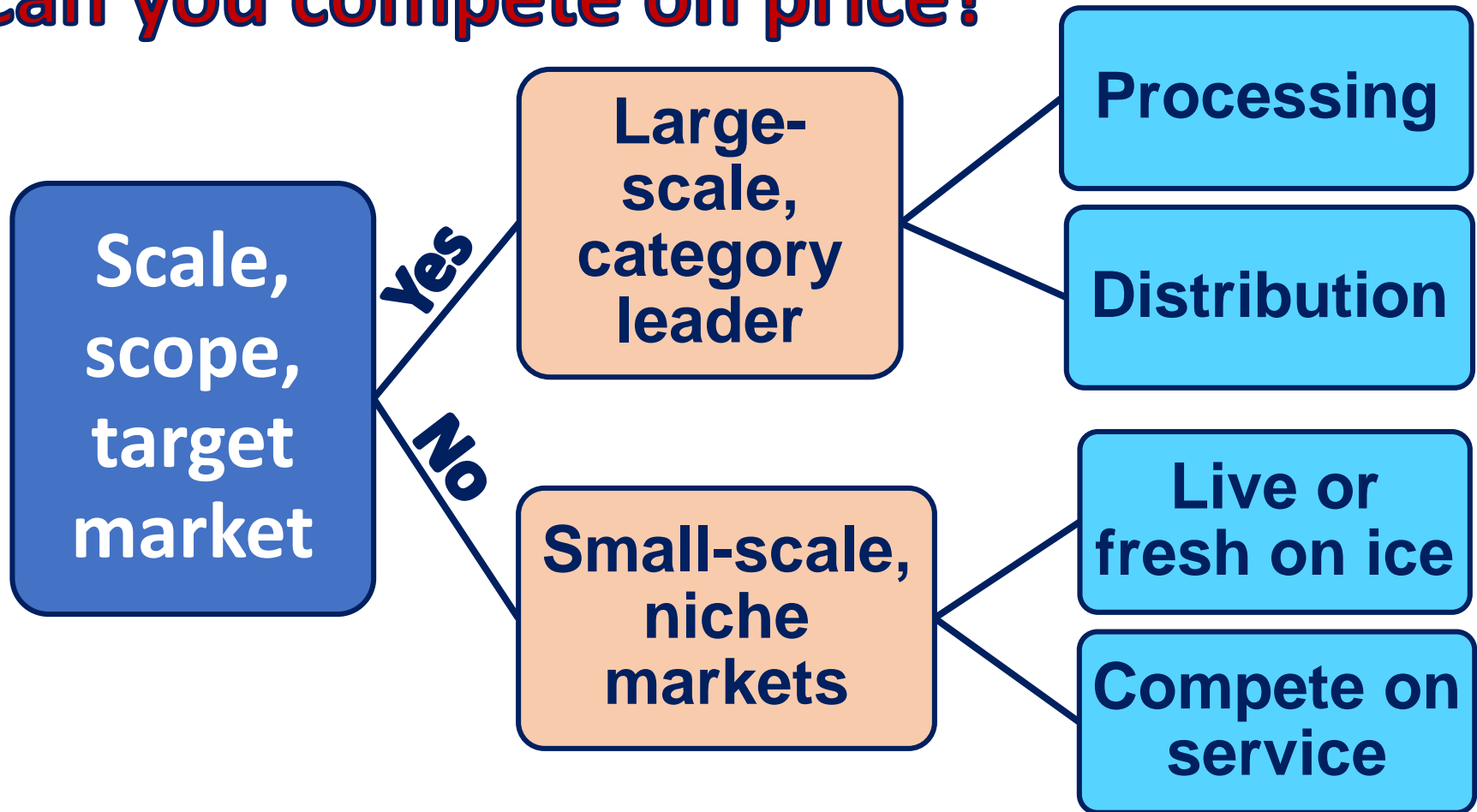
Targeted
market

Scale:
volume



Business model: indoor midwest shrimp

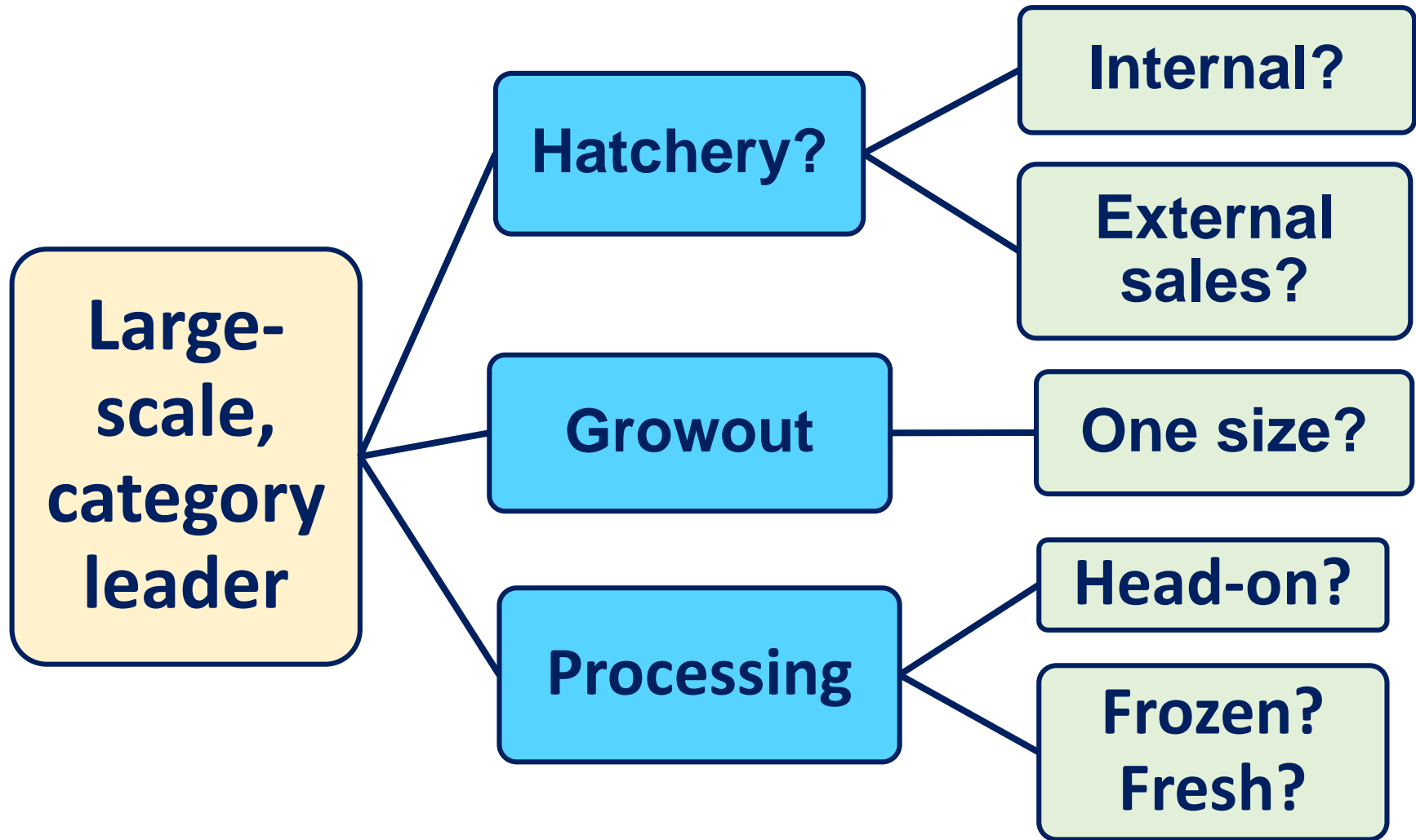
Can you compete on price?



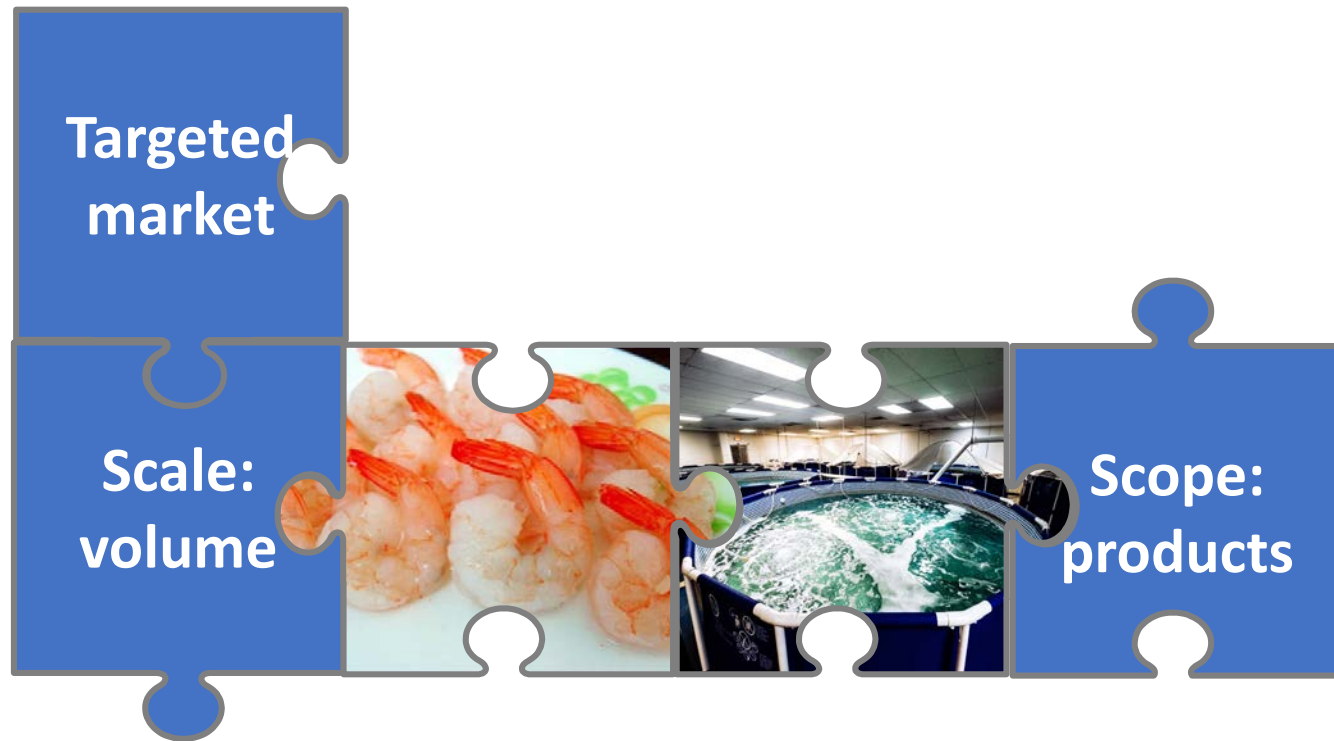
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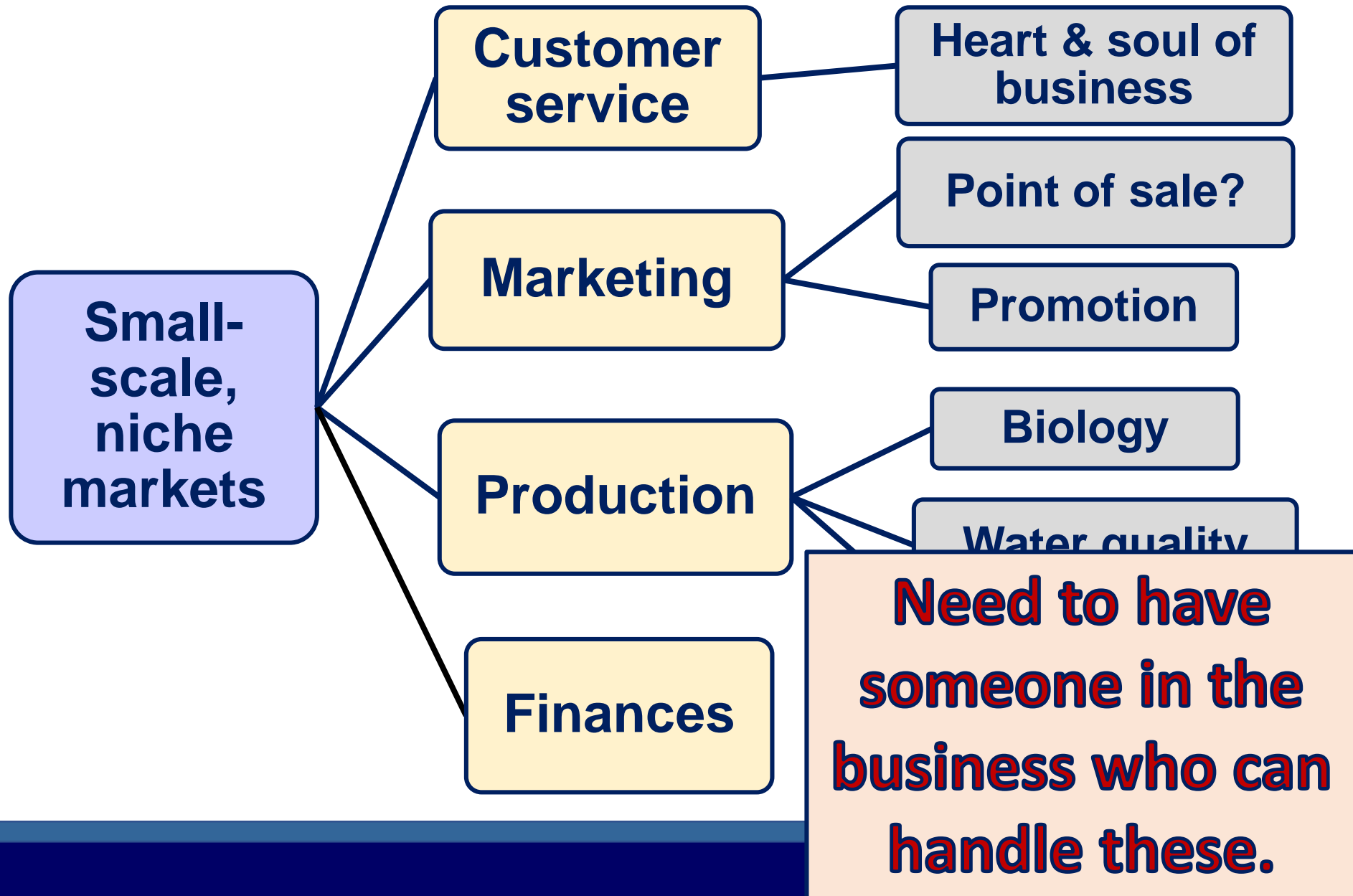
Let's talk about scope of the business:



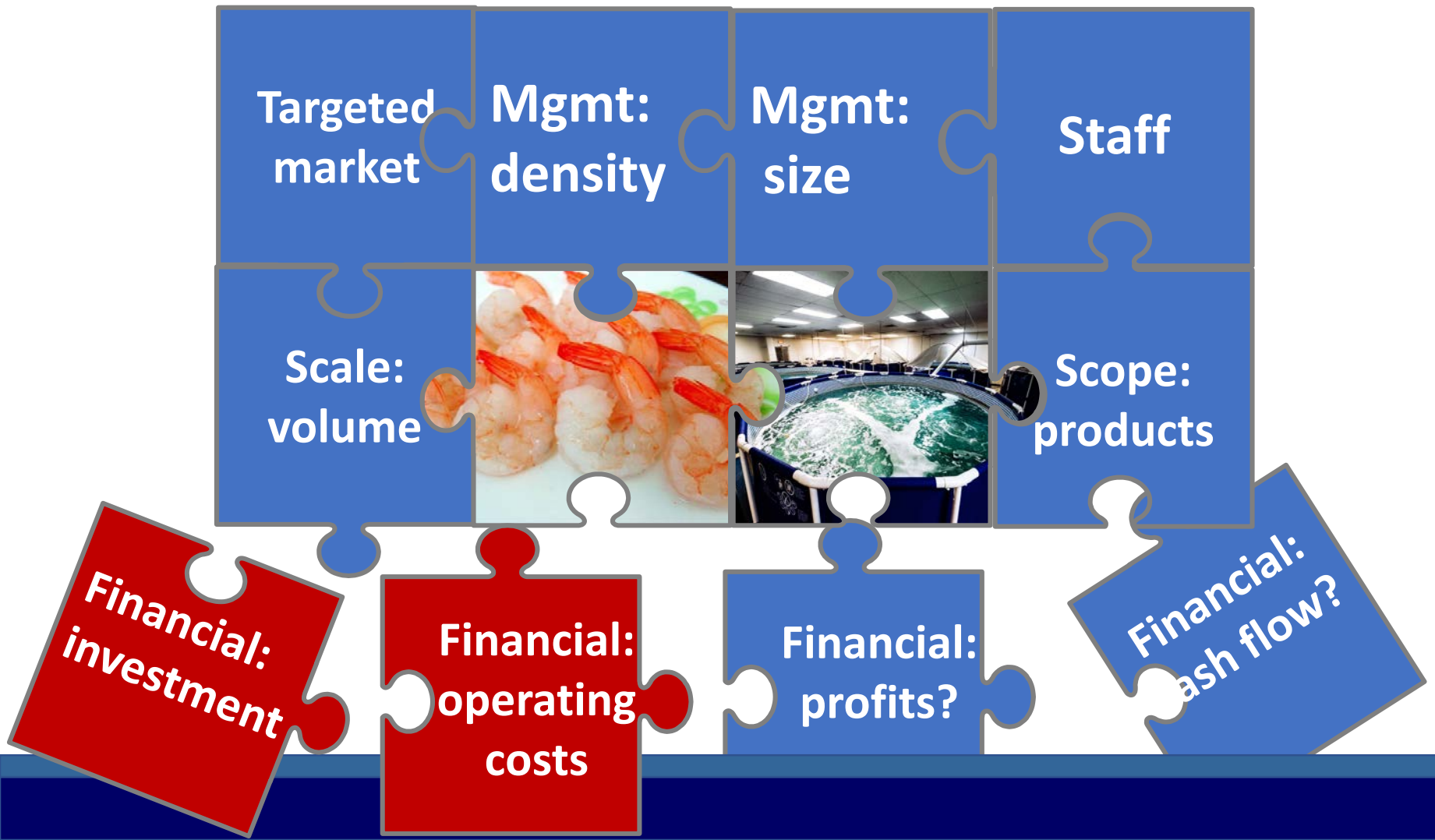
All decision pieces must fit together seamlessly for the business model to be successful.



Personnel & staffing



All decision pieces must fit together seamlessly for the business model to be successful.



Fitting the decision pieces together seamlessly
requires intensive planning, monitoring, and
continuous adjustment.



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FREE!

Questions?

Financial Analysis

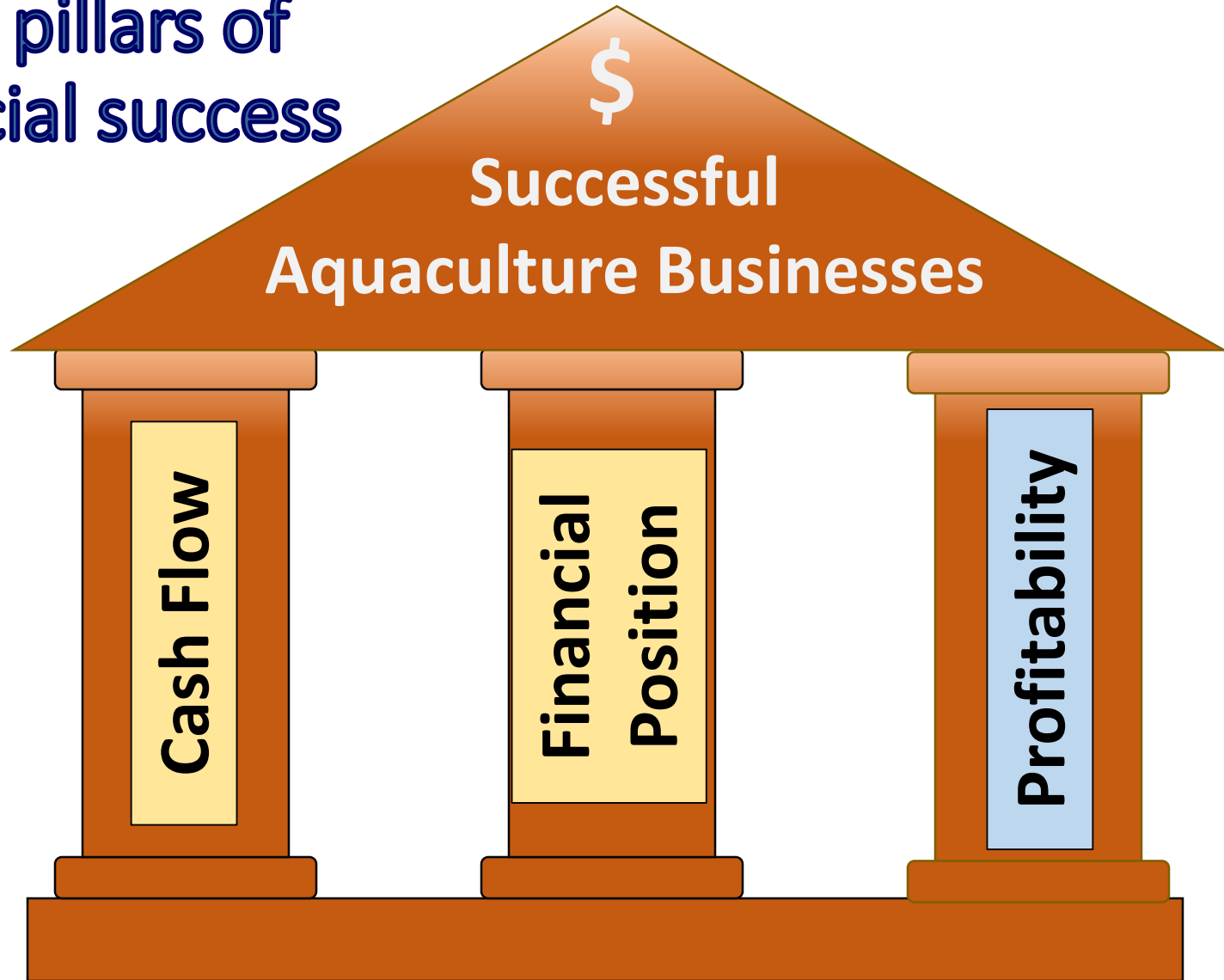
**Financial:
investment**

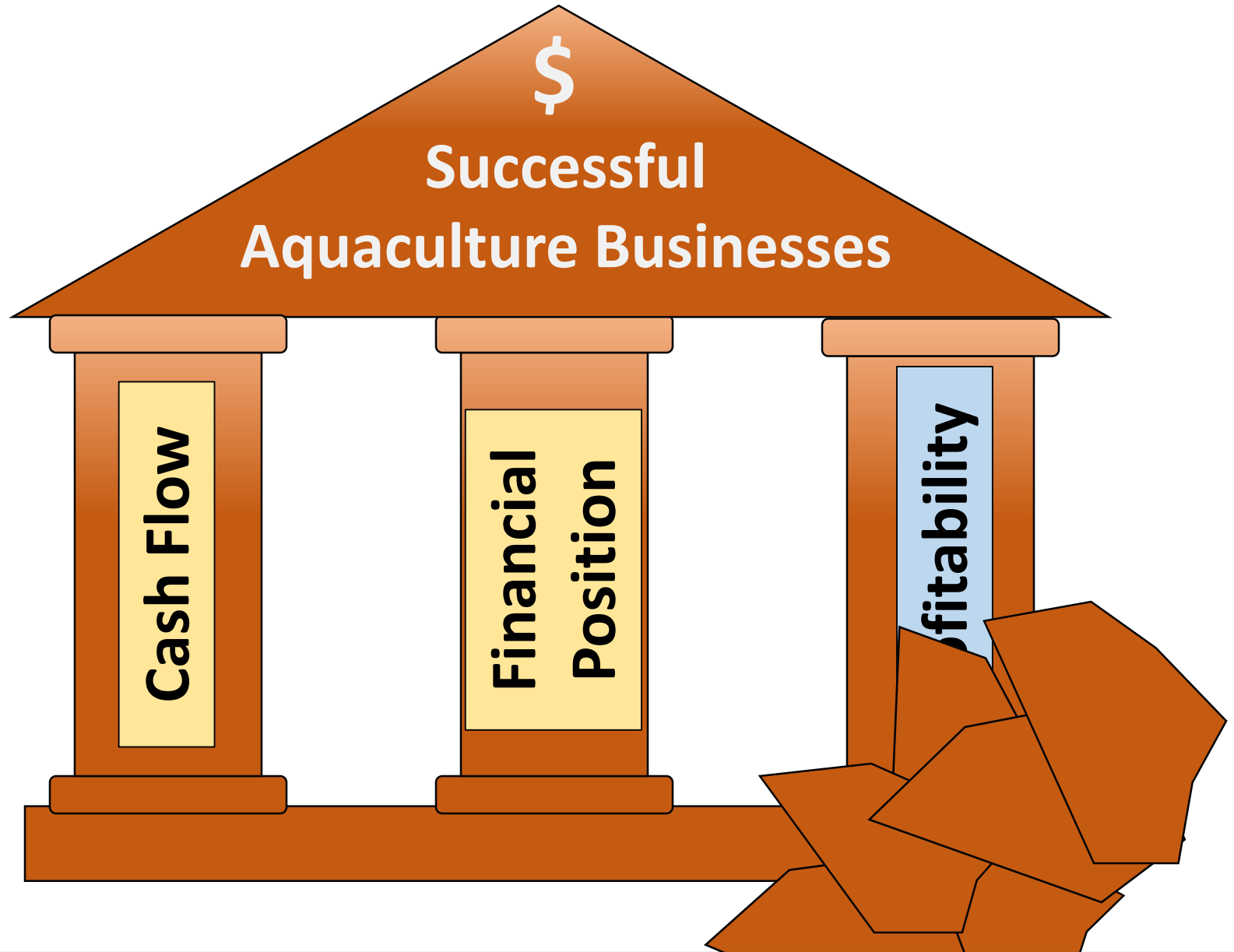
**Financial:
operating
costs**

**Financial:
profits?**

**Financial:
cash
flow?**

Three pillars of financial success





How do I know if the business is profitable?

- ❑ Really need to study the P & L.
- ❑ Really need to include depreciation.
- ❑ Really need to include opportunity costs.

Profitability: Checklist

Indicator	Interpretation	Good	Marginal	Problem
Net farm income	Positive or negative?			

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Opportunity Costs



Equipment already owned by farmer has an opportunity cost.



How will equipment be replaced if the business does not generate enough money for its replacement?



Business must be adequately capitalized.

Opportunity Costs



Where will \$\$\$ come from for rebuilding?

Opportunity Costs



Farmer's labor

What is your time worth?

Opportunity Costs



Indoor
production
requires 24/7
constant
attention.

What is the value of a
vacation?

Why is the business not profitable?

**Business model
pieces no longer fit**

**Market issues,
changes**

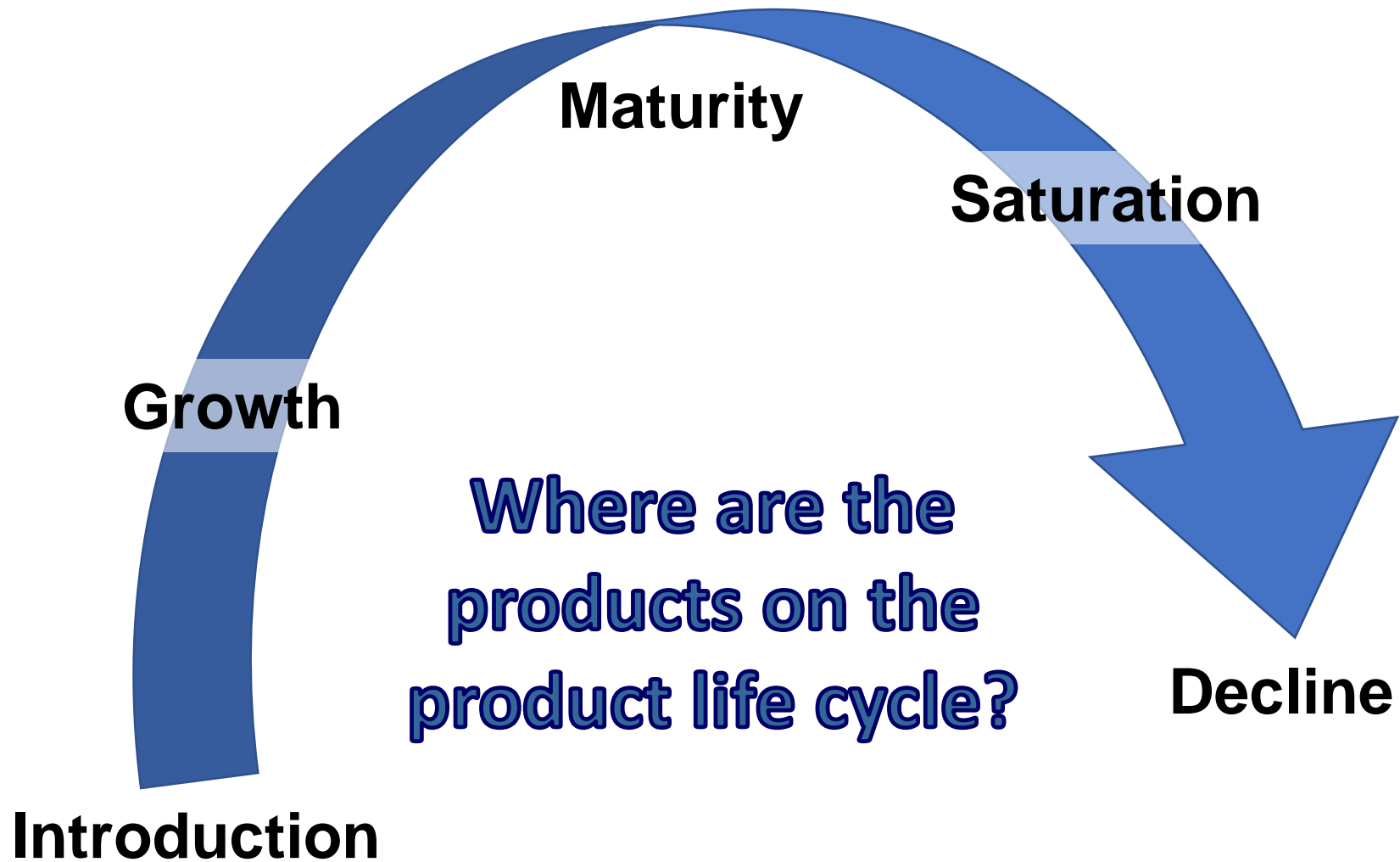
**Production
inefficiencies that
increase costs**

Why is the business not profitable?

Market issues, changes

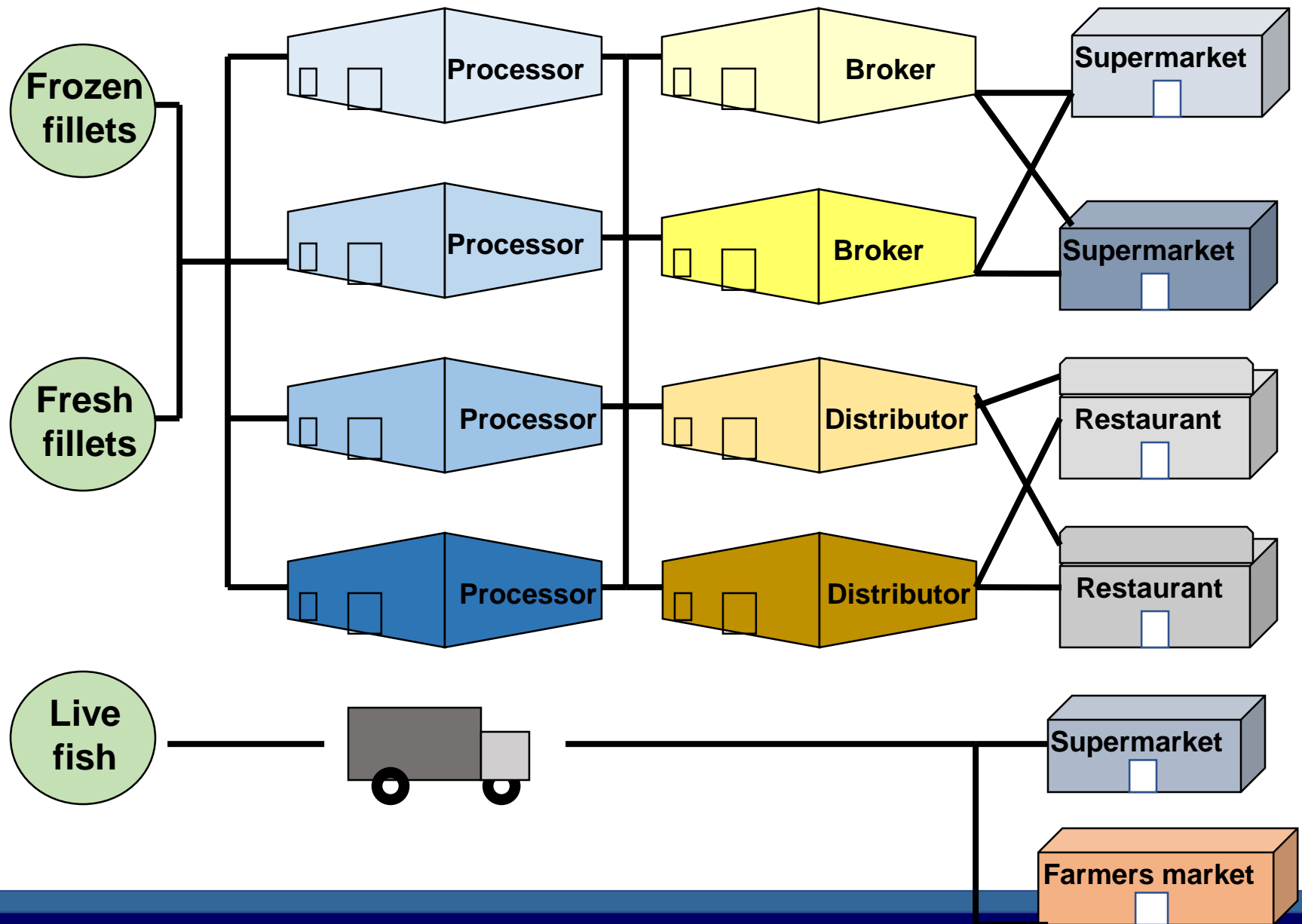
- ❑ **Competition**
- ❑ **Changing consumer demand**
- ❑ **Changing regulatory standards**

Why is the business not profitable?

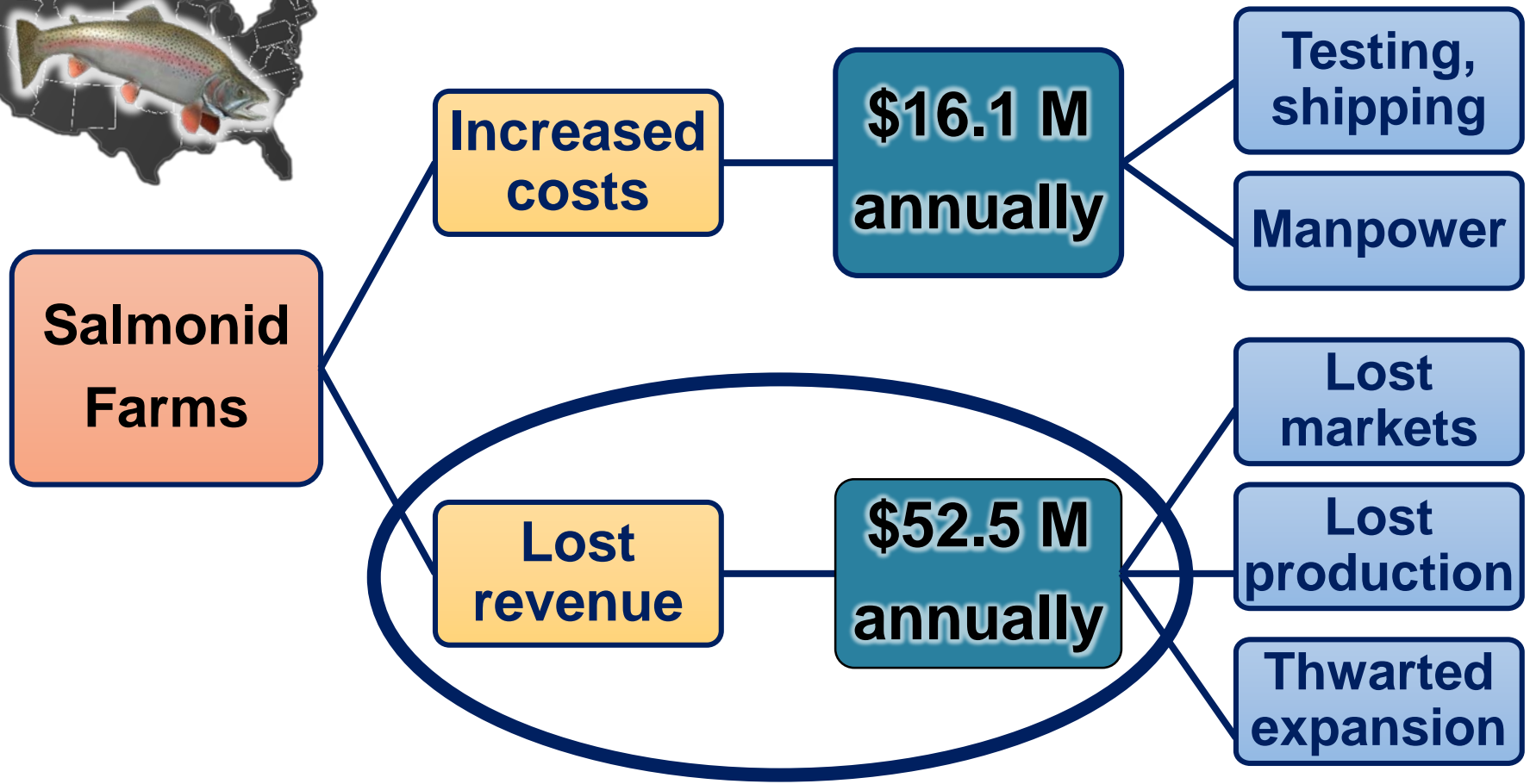


Maybe need to re-think supply chain relationships

Maybe need to re-think supply chain relationships



National Regulatory Costs: U.S. Trout & Salmon Farms



Revisit the Marketing Strategy

Who wants what you can uniquely provide?

Where are they?

H

At What Price?

?

How many will purchase your product?

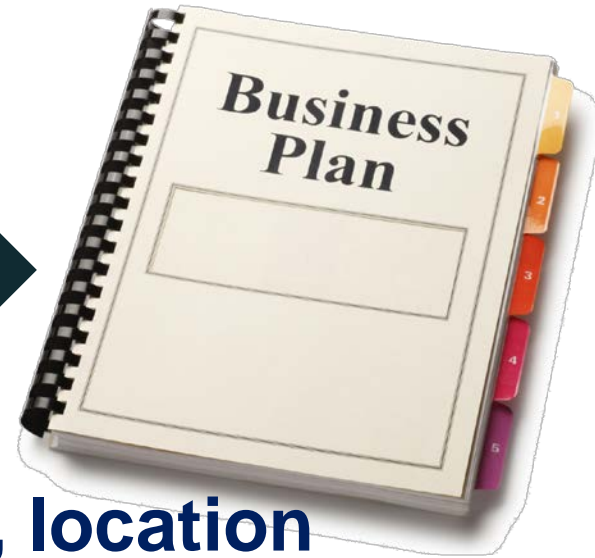
How often will they buy it?

How much will they buy at each purchase?

Revisit the Marketing Strategy: Differentiate products & services?

- **What size?**
- **Different color, pattern?**
- **When do they want to buy it?**
 - **Weekends, holidays?**
- **Do they want it live? Filleted?**
- **How can you provide better service than anyone else?**

Use marketing plan to inform overall business plan



**Revise annually
& keep business
fresh!**

- **Facilities, location**
- **Production system**
- **Permits, licenses**
- **Customer service**
- **Risk management**
- **Financial plan**



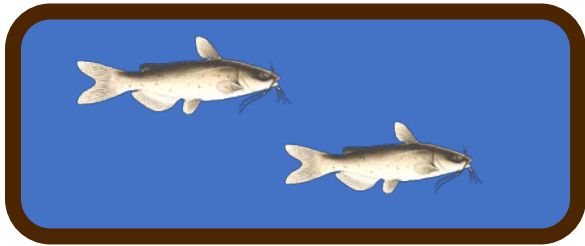
Understanding your costs

Most aquaculture is capital intensive

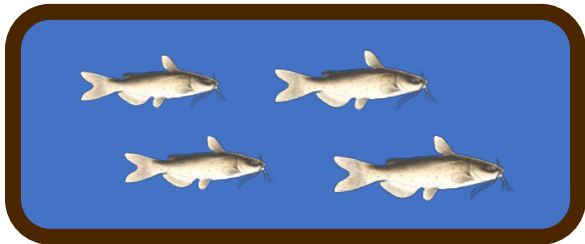


High capital costs mean high annual fixed costs

If facility costs \$25,000 to build & lasts 10 years, annual fixed cost = \$2,500.



If production = 5,000 lb,
annual fixed cost = **\$0.50/lb.**



If production = 10,000 lb,
Annual fixed cost = **\$0.25/lb.**

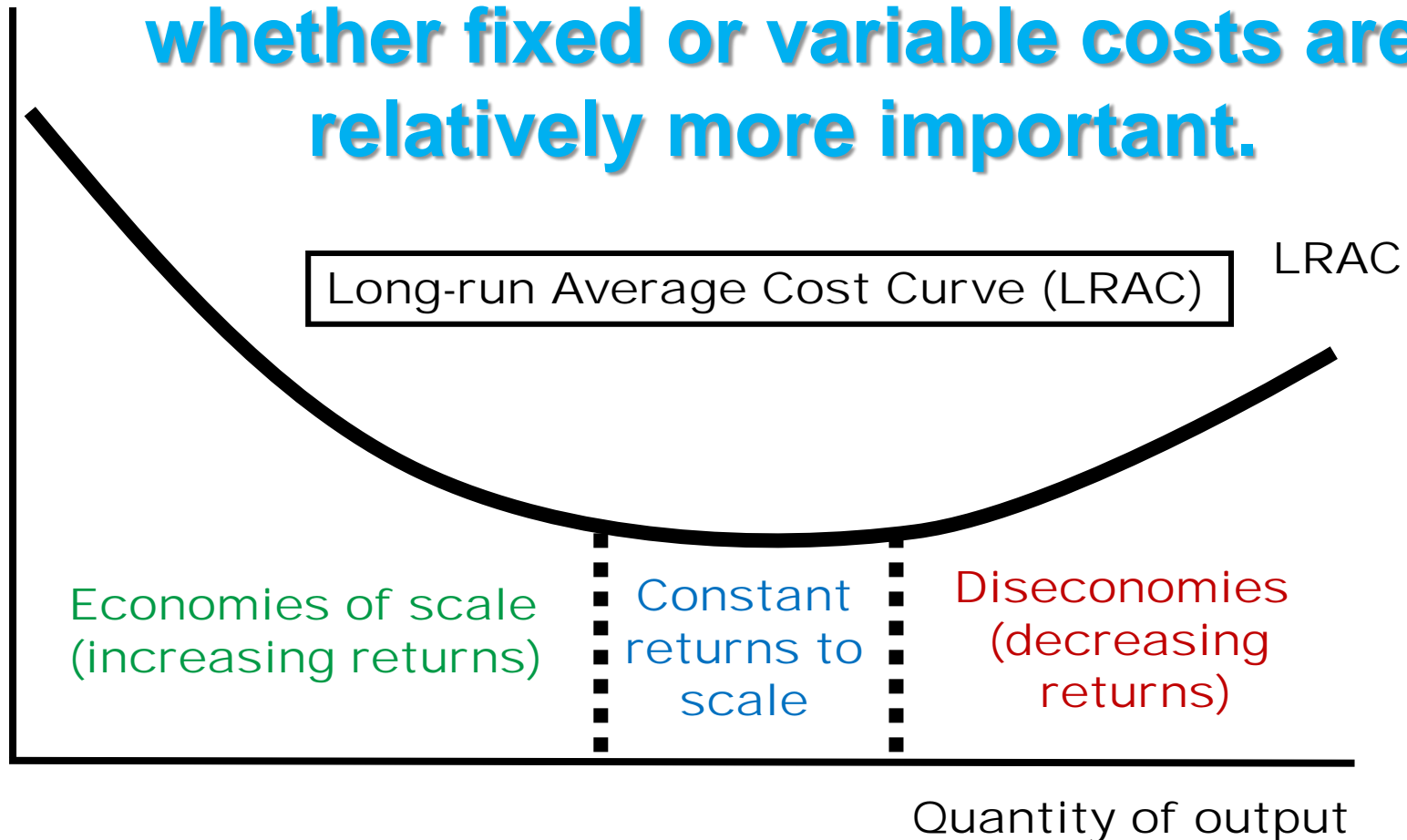


More cost efficient..

Economies & diseconomies of scale

Cost
(\$/lb)

**Need to know, for your operation,
whether fixed or variable costs are
relatively more important.**



So, in many cases, costs per pound go down with greater yields

But not always.....



Only when fixed costs are high.

Study	% of Total Costs
Total Variable Costs	88% to 95%
Total Fixed Costs	4% to 9%

Production inefficiencies that lead to cost increases



Study	% of Total Costs
Feed	13% to 47%
Fingerlings	29% to 66%

Would it be feasible to raise one's own largemouth bass fingerlings?

Not on a small-scale, 80-ac farm.

Production stage	Area
Holding broodstock	3 ac
Spawning	20 ac
5-cm fish for feed training	14 ac
15-cm fingerlings	20 ac
Growout	23 ac



Production Efficiencies that Affect Cost Efficiencies

- **Production efficiencies**
 - **Stocking rates**
 - **Feed formulations**
 - **Feed conversion**
 - **Vaccination**
- **Quality control**
- **Inventory management**
- **Implementation timelines**



Production inefficiencies that lead to cost increases: Poor feed conversions

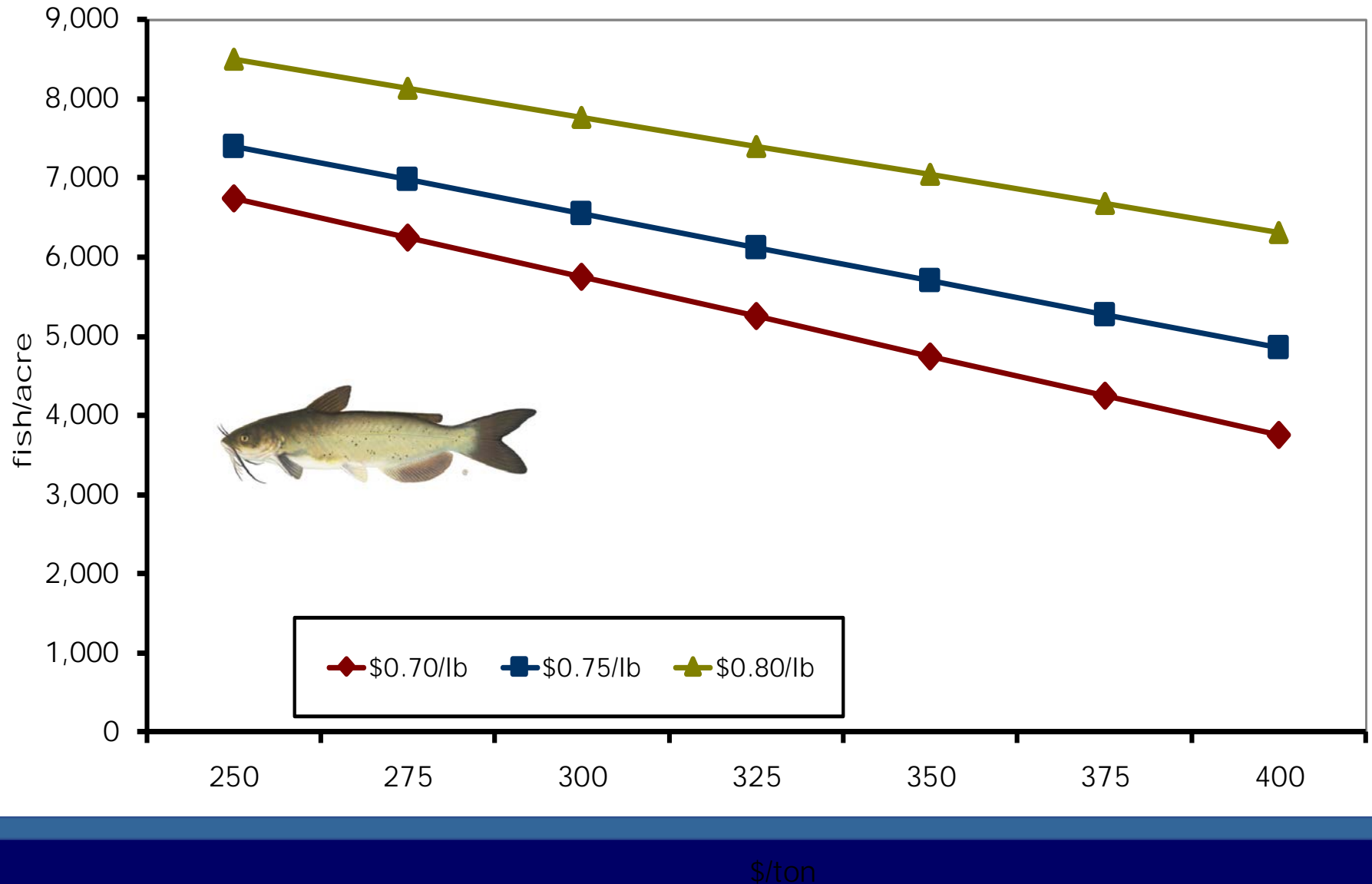


As FCR goes up, so do costs/lb.

Takes more feed to produce a lb of fish = more cost/lb.

Careless feeding & not observing fish reactions = poor FCR

Profit-maximizing stocking densities at different fish & feed prices



Breakeven prices as feed price increases 431-acre catfish farm



\$/ton	Total Costs	Variable Costs
250	0.72	0.58
300	0.78	0.64
350	0.84	0.70
400	0.90	0.75
450	0.95	0.81
500	1.01	0.87
550	1.07	0.93

Transitioning to another production system



Split ponds

**More intensive
aeration**



Major Cost Effects

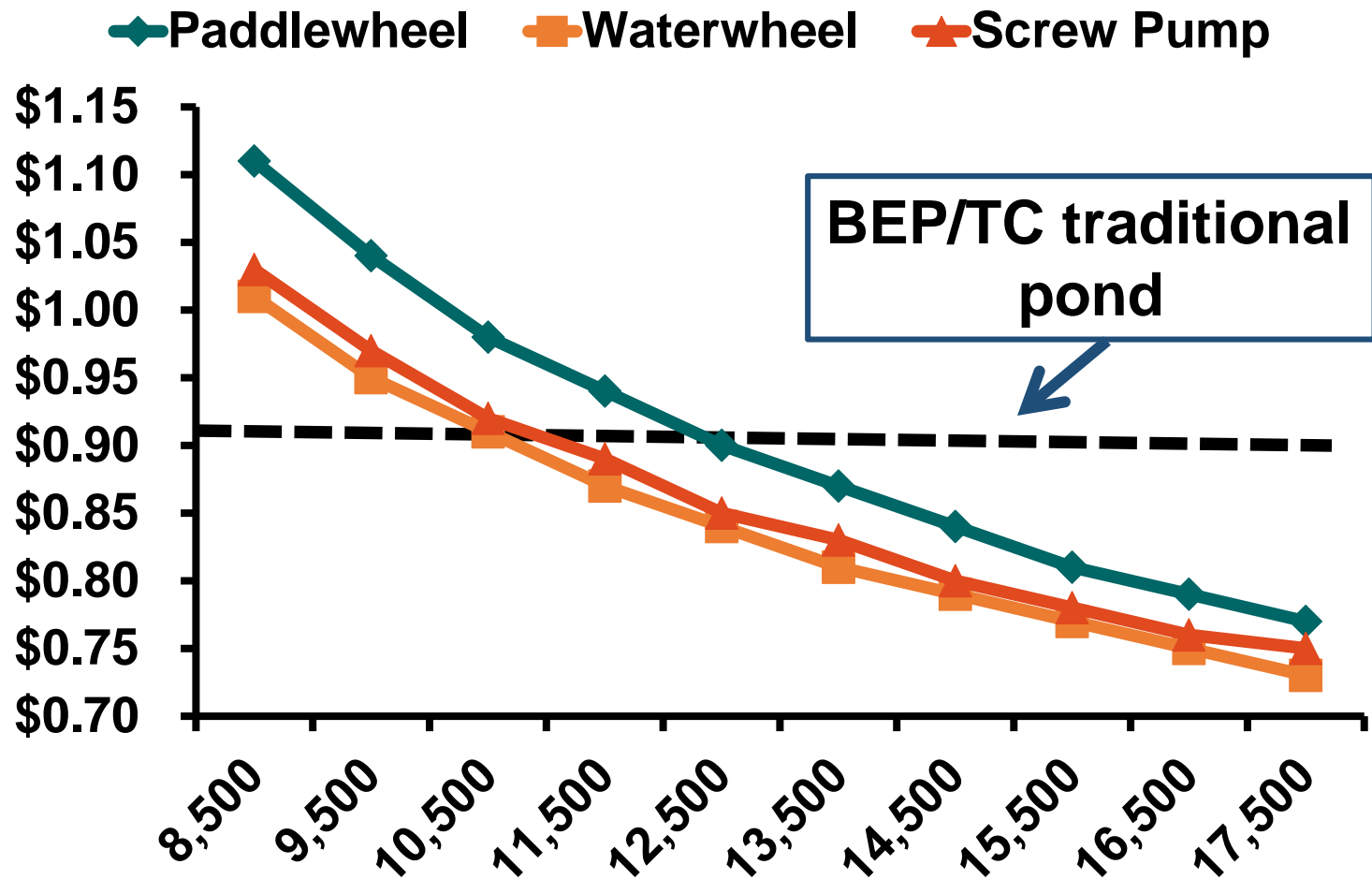
Additional Investment Costs

- **Increases annual fixed costs**
- **Will need higher yields!**

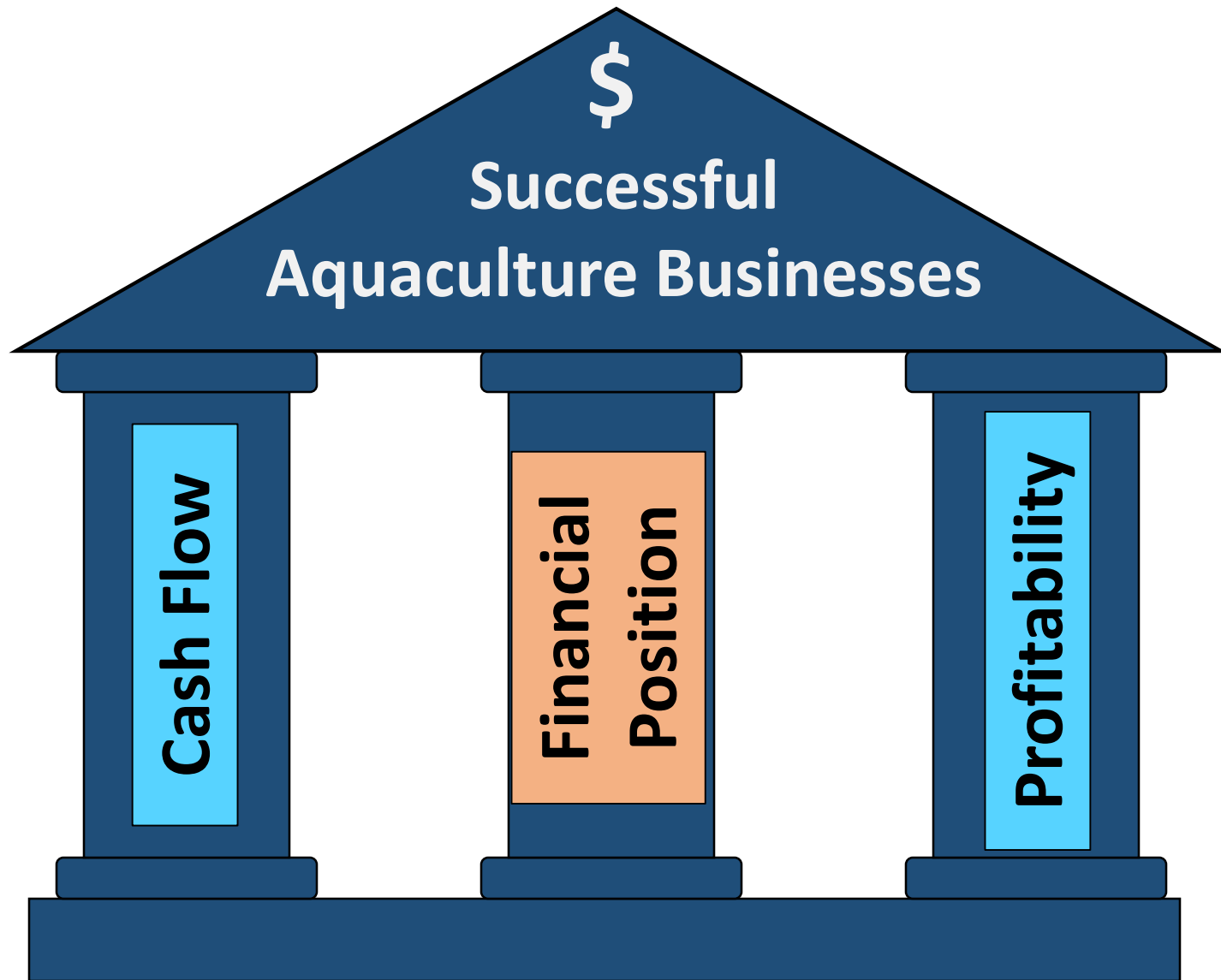
Effects on variable costs:

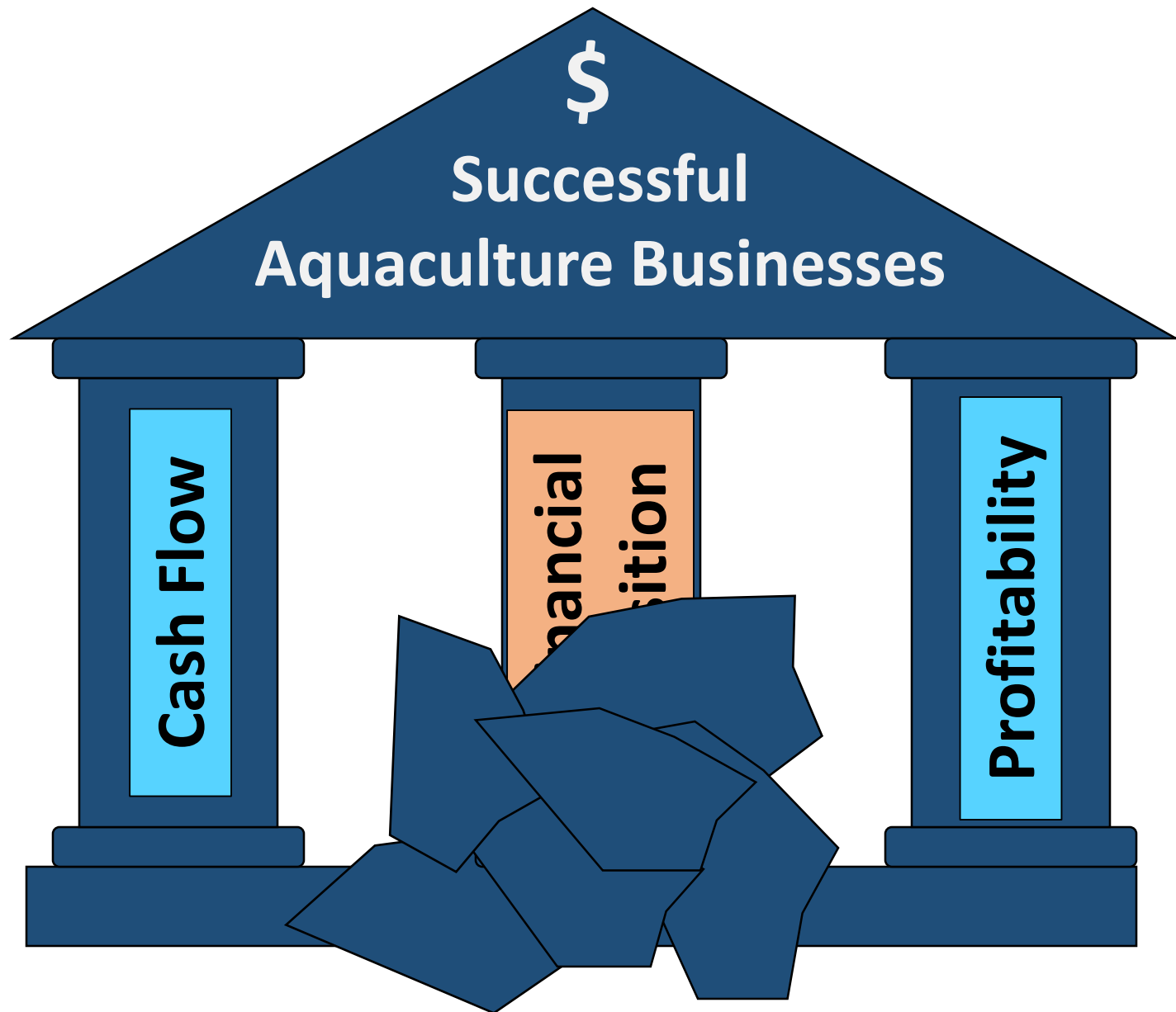
- **FCR?**
- **Energy costs?**
- **Repairs & maintenance?**

Effect of Yield on BEP/Total Costs



Questions?





Hold'em or Fold'em?



How much debt is too much?

This question can be answered by the balance sheet (also called Statement of Finances).

Assets and Liabilities

Critical Warning Sign From Balance Sheet (Statement of Finances)

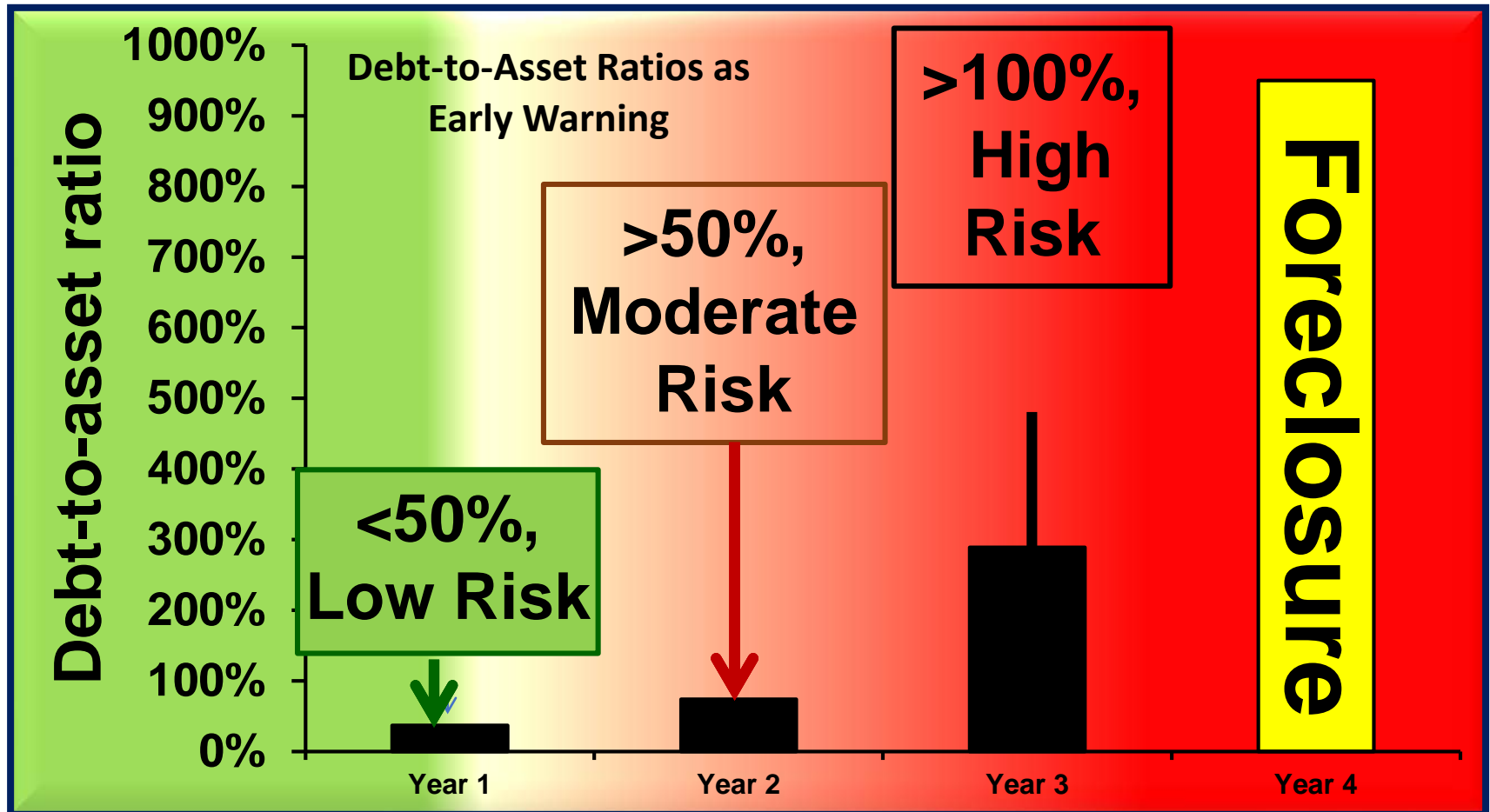
**D/A Ratio = Total Liabilities
(debt) divided by Total Assets**

**D/A Ratio greater than
40% merits attention.**

**D/A Ratio greater than 100%
requires action.**



Debt-to-Asset Ratio & Financial Risk Effects



What specifically can be done to reduce D/A Ratio?

Need to concentrate on paying off principal on loans

- **Use savings**
- **Sell off non-farm assets**
- **Use off-farm income**

Financial Position: Checklist

Indicator	Interpretation	Good	Marginal	Problem
Current ratio	Greater than 1.5; lower than 1?			
Debt-to-asset ratio	< 40%; > 65%?			
Net worth	Positive? Increasing?			

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The point of doing this is to find small ways to improve the business every year.

- 1% reduction in costs
- 5% reduction in debt burden
- 2% increase in revenue

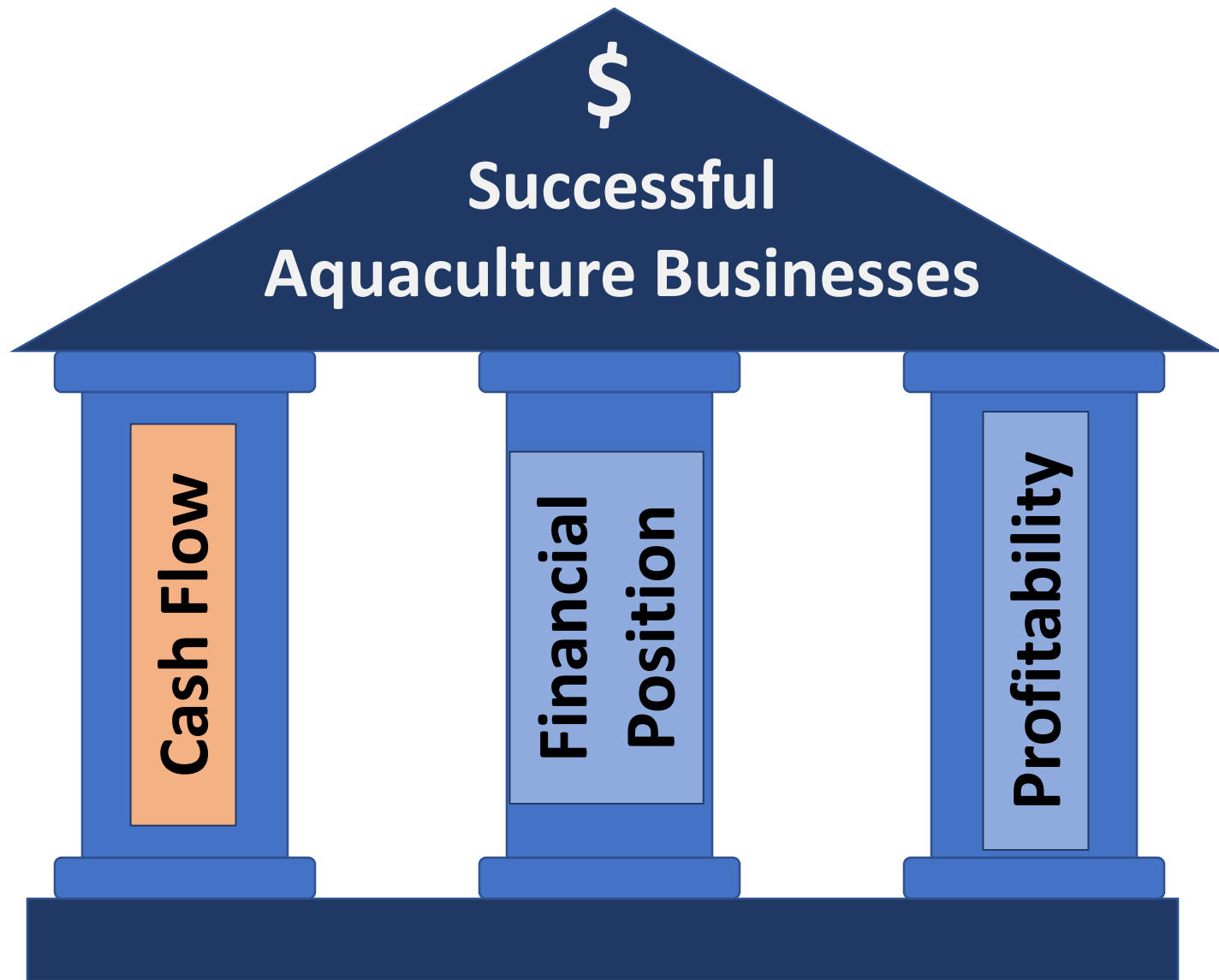
Success Stories



- Farms that made adjustments every year.
- Farms that did not let themselves get too far into debt before taking action.



Questions?





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Successful Aquaculture Businesses

Cash Flow

**Financial
Position**

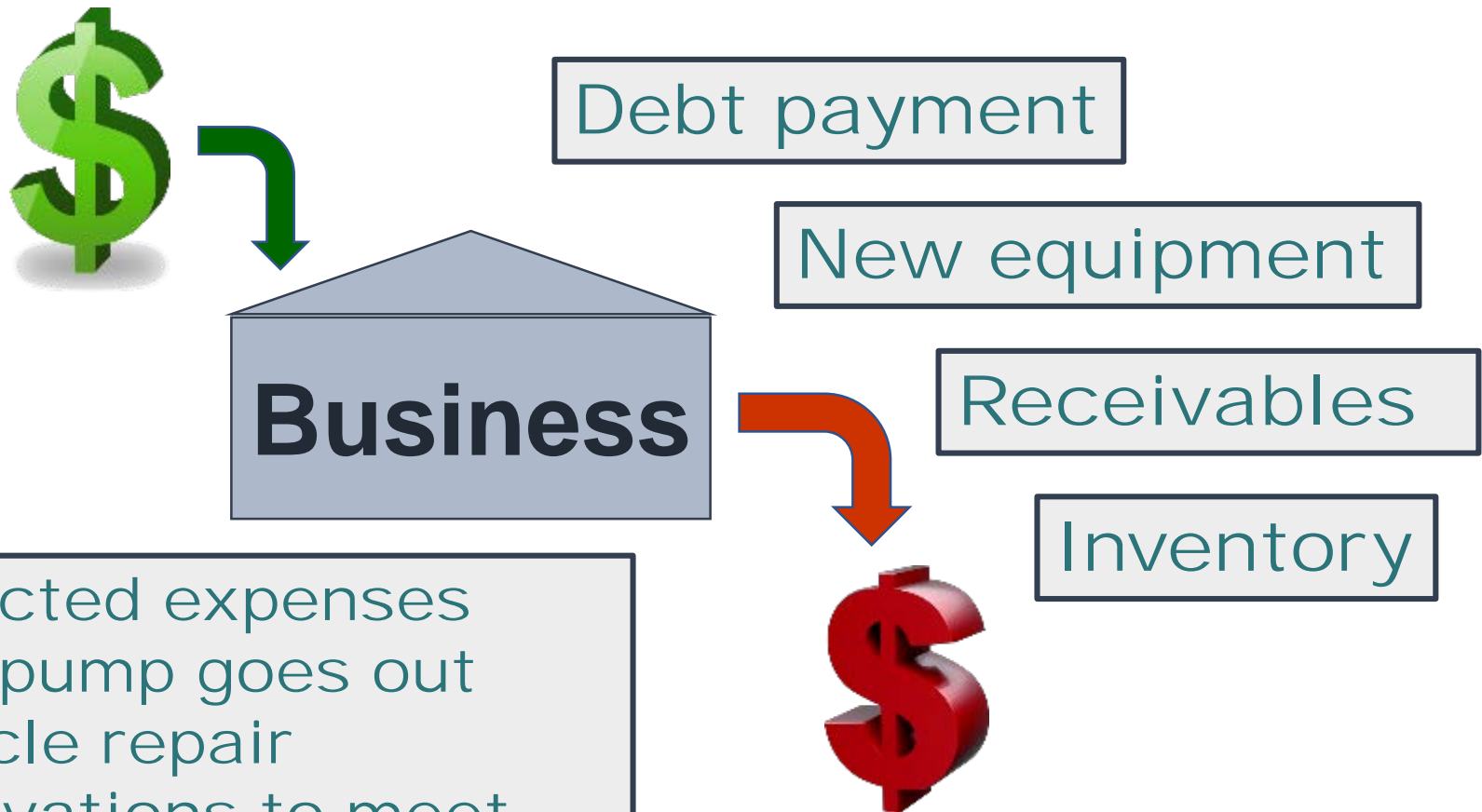
Profitability

Initial Symptoms: Simply run out of cash.



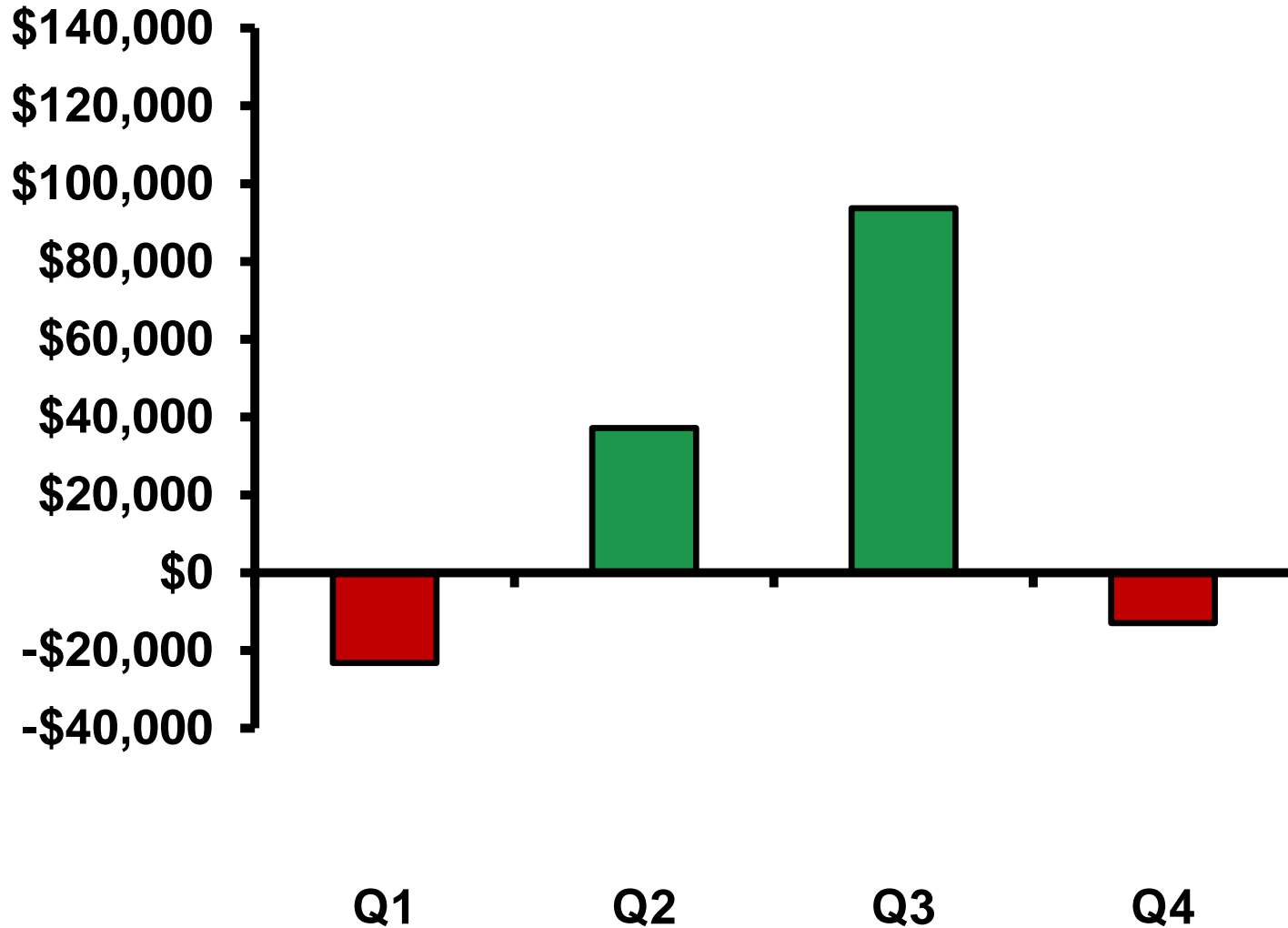
Where does cash go?

(why are cash flow problems so common?)

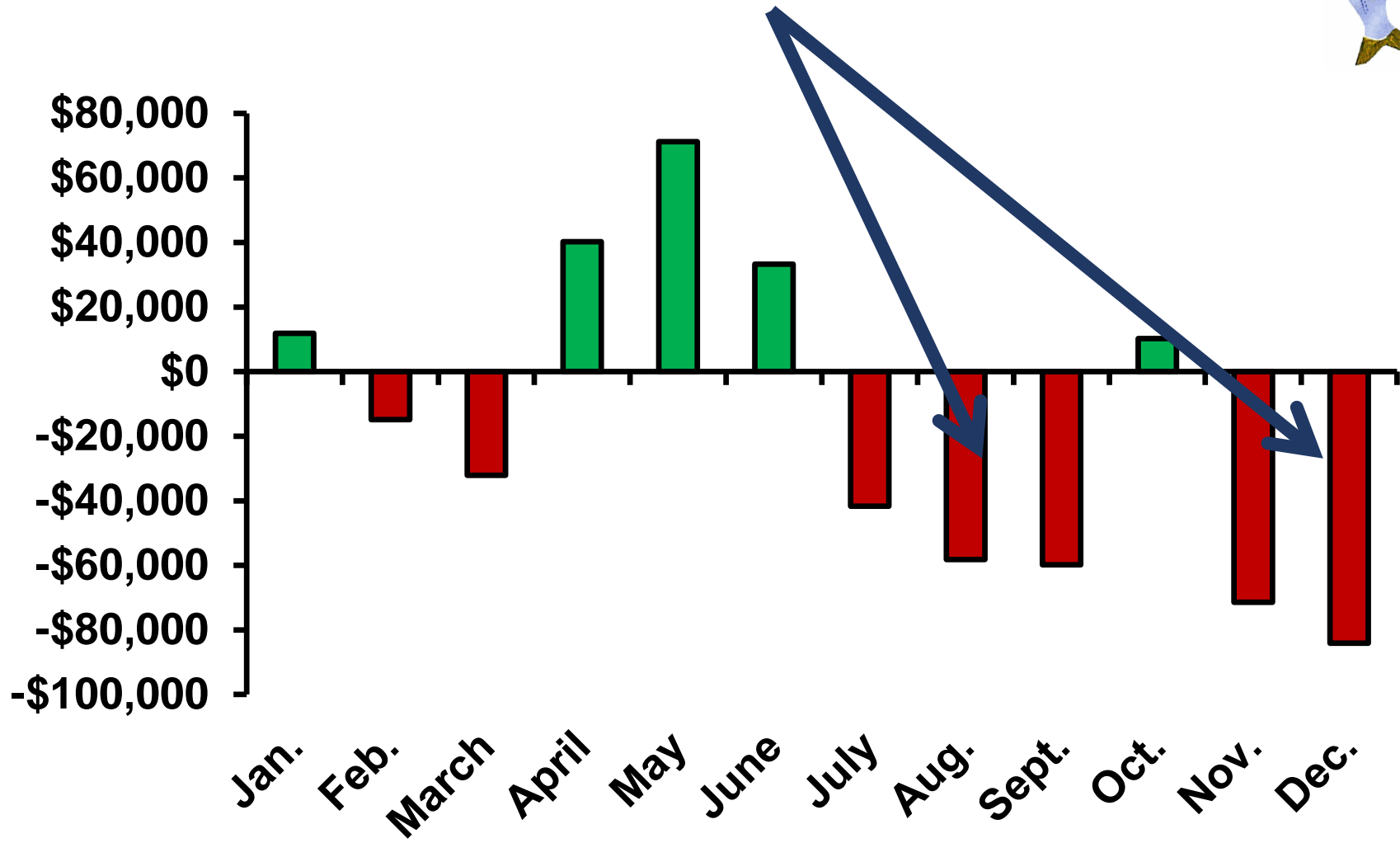


- Unexpected expenses
- Well pump goes out
 - Vehicle repair
 - Renovations to meet codes

Cash Flow Budget for "Typical" Year



Cash Flow Problems



*How often should cash flow
be measured?*



Monthly!

Cash Flow: Checklist

Indicator	Interpretation	Good	Marginal	Problem
Ending cash balance	Higher or lower than beginning balance?	Green	Red	Red
Outstanding oper. loan	Higher or lower than beginning of year?	Green	Red	Red

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Cash Flow: Checklist (Cont.)

Indicator	Interpretation	Good	Marginal	Problem
Cash flow risk				
% revenue can decline & meet cash flow	Higher or lower than 10-25%			
% op. expenses can increase & cash flow	Higher or lower than 10-25%			

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Common Cash Flow Planning Mistakes

Overly optimistic yields



Overly optimistic sales

Under-estimating expenses

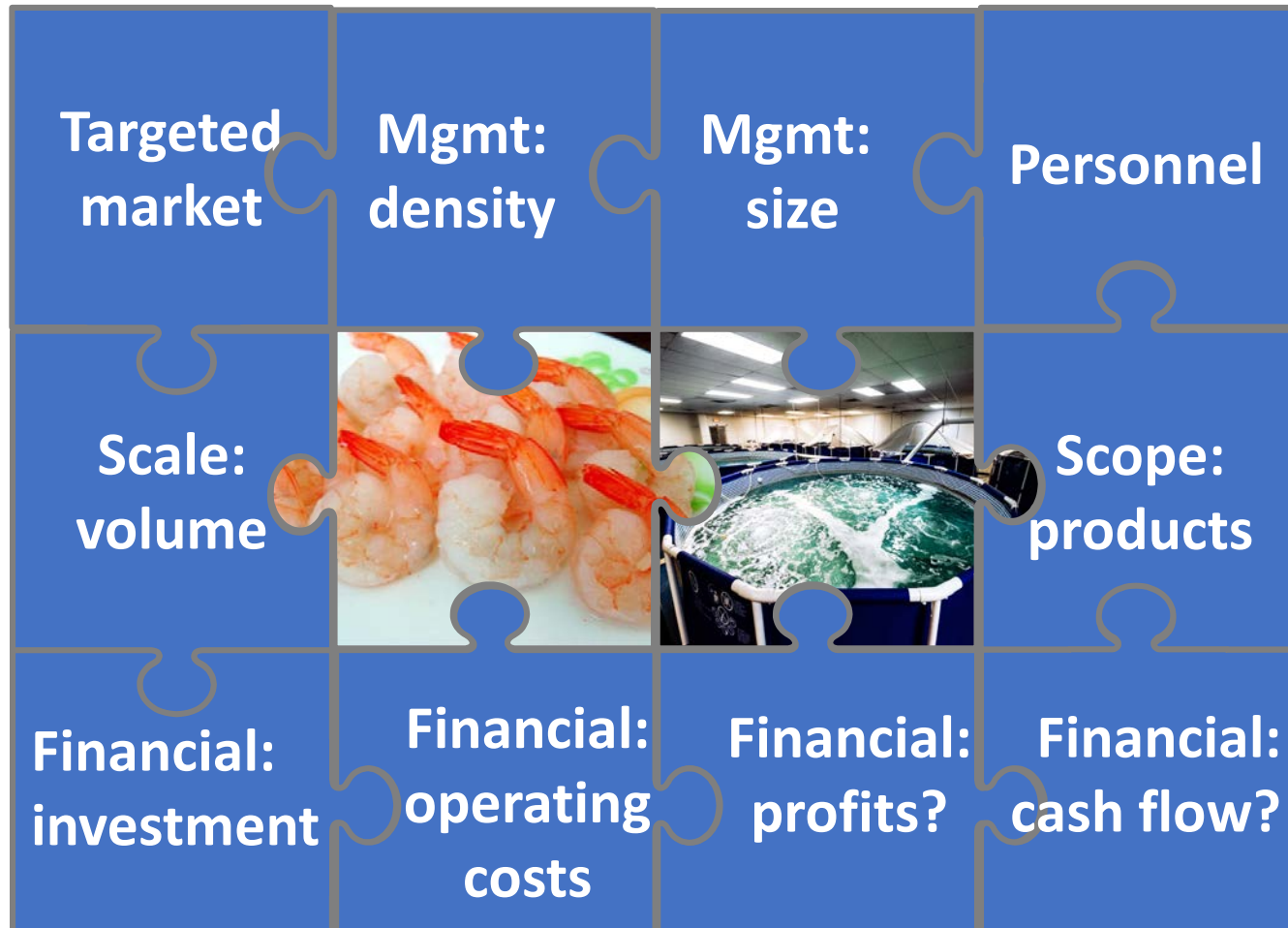
Omitting capital replacement items

Omitting loan interest & principal payments

Conclusions

- **Plan for adequate capitalization.**
- **Monitor cash flow monthly!**
- **Do a Financial Checkup at the end of every year.**
- **Identify & prioritize weaknesses**
- **Set goals & plans to improve weaknesses.**
- **Make adjustments every year.**

The business of aquaculture requires continuous monitoring, assessment, and analysis.



Questions?

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