

# Biomarint industriseminar 2007

---

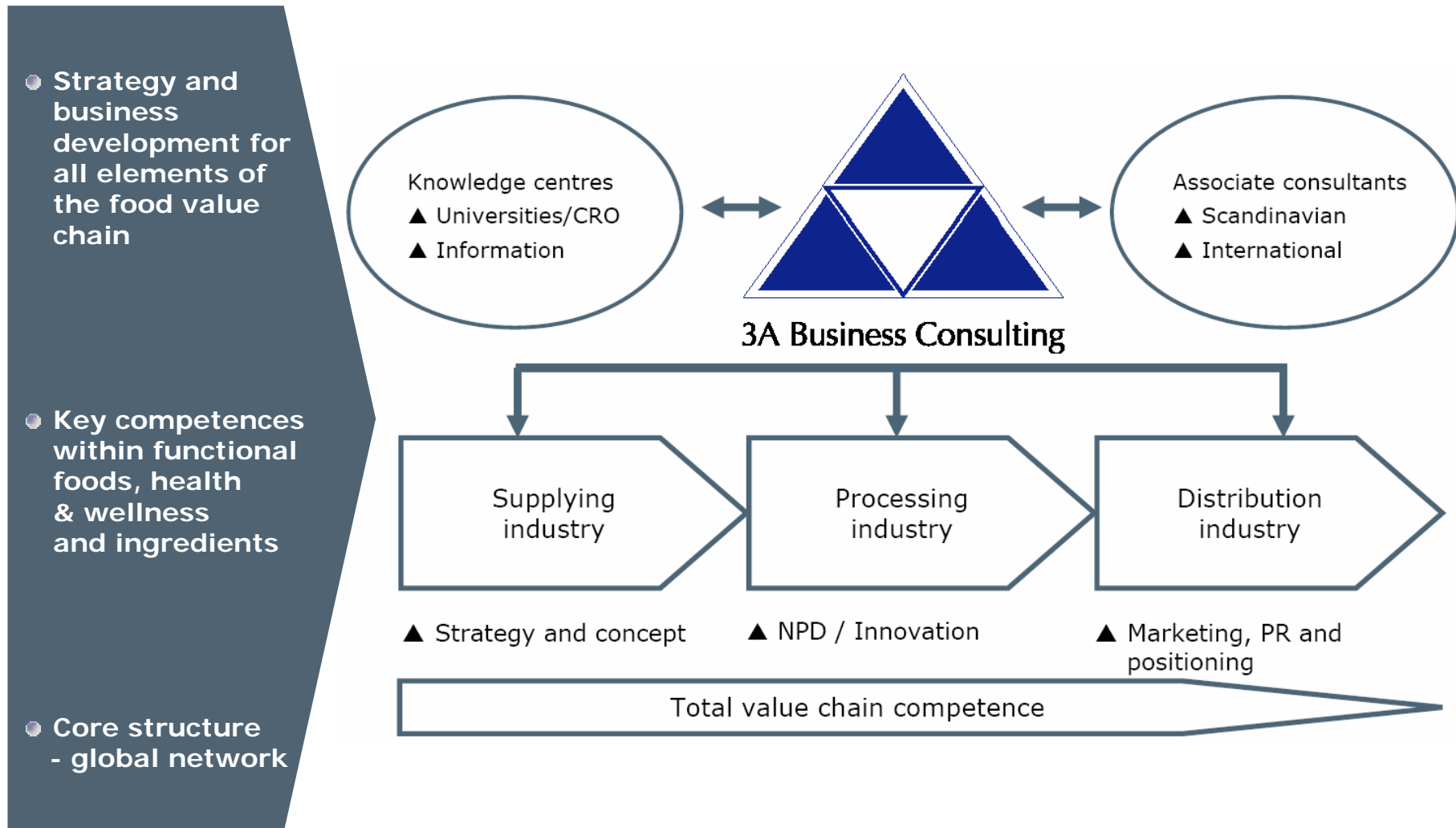
## International trends for ingredients, fishmeal and fish oil



December 4, 2007



# 3A Business model



# Biomarint industriseminar 2007

---

International trends for ingredients,  
fishmeal and fish oil



European Dairy Association  
Statement September 2007



“The issue of health and nutrition is a particular important area for future focus and growth”

...but taste is king



***Going to market with anything less than a great-tasting product isn't going to cut it. Shoppers expect healthy foods not just to deliver nutritionally, but with great taste as well.***

Source: HealthFocus



# Consumer health concerns

- Heart health and cancer are key health concerns for consumers all over the world

SUMMARY	USA	Central Asia	China	Mex/LA
MOST COMMON HEALTH CONCERNS	Heart disease Cancer Tiredness	Cancer Heart disease Eye health	Cancer Heart disease Osteoporosis	Cancer Heart disease High blood pressure
SUMMARY	W Europe	N Europe	S Europe	E Europe
MOST COMMON HEALTH CONCERNS	Cancer Heart disease Alzheimer's Eye health	Cancer Heart disease Other allergies Tiredness	Cancer Heart disease Tiredness	Tiredness Heart disease Eye health

Source: HealthFocus

# Consumer health problems

- Overweight, tiredness and stress are key health problems for consumers all over the world

SUMMARY	USA	Central Asia	China	Mex/LA	Europe
MOST COMMON HEALTH PROBLEMS	<b>Overweight</b> <b>Tiredness</b> <b>Stress</b> Allergies	<b>Overweight</b> Cosmetic signs of aging <b>Tiredness</b> Freq. colds/flu	Freq. colds/flu Osteoporosis <b>Tiredness</b> Arthritis	<b>Overweight</b> <b>Stress</b> Freq. colds/flu <b>Tiredness</b>	<b>Overweight</b> <b>Tiredness</b> <b>Stress</b> Freq. colds/flu

Source: HealthFocus



# Different product groups within the overall Health & Wellness category

---

## H&W Foods

- Organic
- Fortified / functional
- Better-for-you
  - Reduced sugar/ sugar-free
  - Low fat/ fat-free
  - Low carb
- Food intolerance products
  - Diabetic
  - Gluten-free
  - Lactose-free
- Naturally healthier

## H&W Beverages

- Organic
- Fortified / functional
- Better-for-you
  - Reduced sugar/ sugar-free
  - Low fat/ fat-free
  - Reduced caffeine
  - Combination
- Naturally healthier

## Vitamins/ Dietary supplements

- Vitamins
- Dietary supplements
- Tonics and bottled nutritive drinks

- Slimming tablets
- Slimming teas
- Meal replacement slimming products
- Other slimming products

Source: Euromonitor

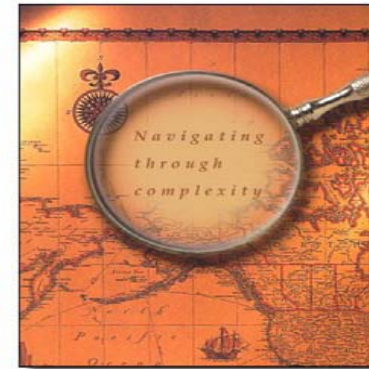
# Key trends and challenges within Health & Wellness market

Health & Wellness market

- **Consumers**
  - Cash rich, time poor
  - Insufficient exercise
  - Obesity and obesity-related chronic diseases
  - Desire to improve health & appearance
  - Shift from cure to prevention
  - Ageing demographics – “Gray market”
  - Media exposure
- **Industry**
  - Maturity of packaged food market & fierce competition
  - Pressure to tackle obesity by “being part of the solution”
  - Avoid tighter regulations
  - R&D/Food science / Nutrition research

Also...

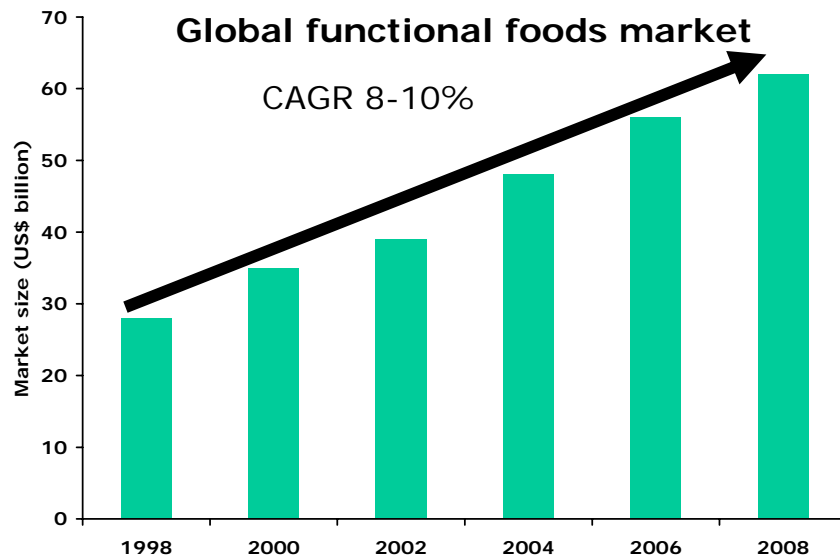
- **Governmental health initiatives**



- **Media, celebrity culture**

Source: Euromonitor

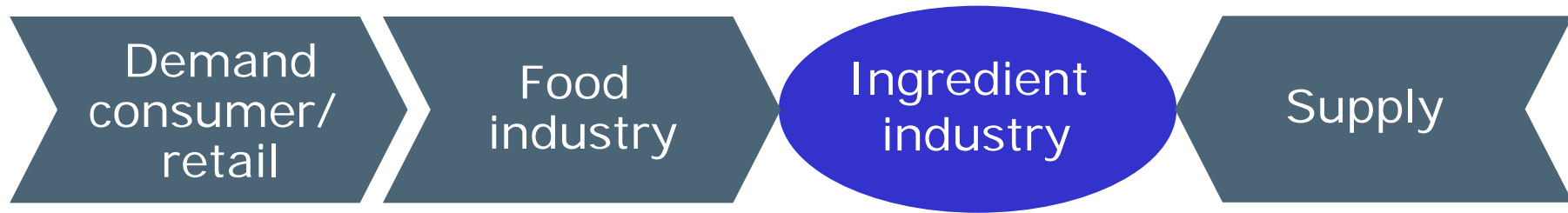
# Significant market growth for functional foods



Source: Mintel & Euromonitor

- Japan, US and Europe are the biggest markets comprising approx. 85% of global functional foods market 2006
- Definition of functional foods makes it difficult to estimate the size of the market
- The growth rate of functional foods is certain to outperform the foods and drinks market as a whole

# Food and Ingredients industry – key drivers and trends



- Taste
- “Consumer on the move”
- Health/safety – awareness
- Convenience
- Demand more service
- Pressure for innovation/NPD
- Retail concentration - M&A
- Retail globalisation

- Industry concentration
- Globalisation
- Functional foods
- Fast NPD
- Shorter PLC
- Mass customisation
- Outsourcing (demand ingredient convenience)
- Critical R&D requirements

- Globalisation
- Higher transparency in the markets
- Harmonisation
- Consolidation
- Emerging markets
- Portfolio players
- Specialised players

- E-Market place
- Reduced market protection
- Lack of raw materials
- Price volatile commodities

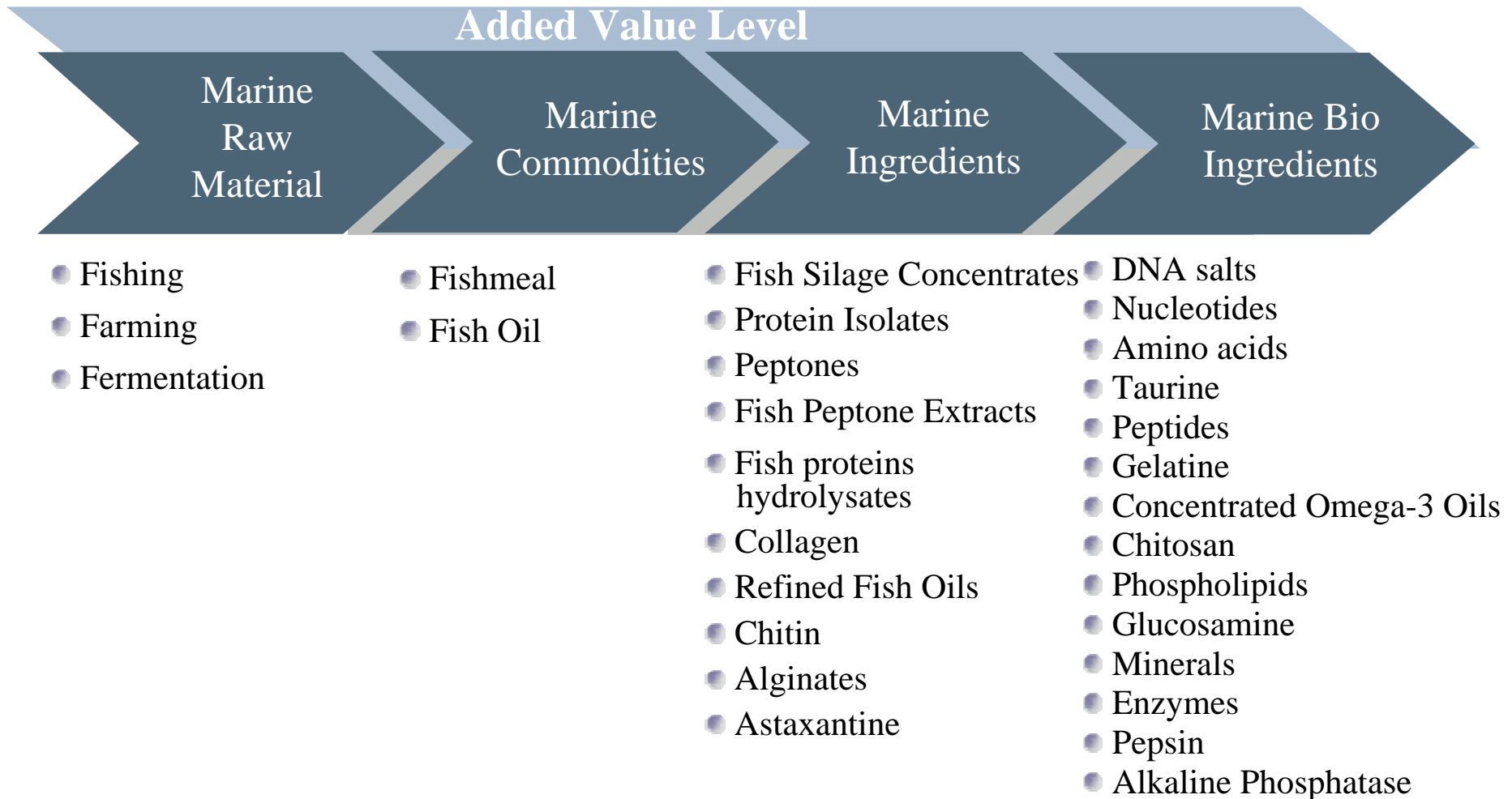
# Biomarint industriseminar 2007

---

International trends for ingredients,  
fishmeal and fish oil

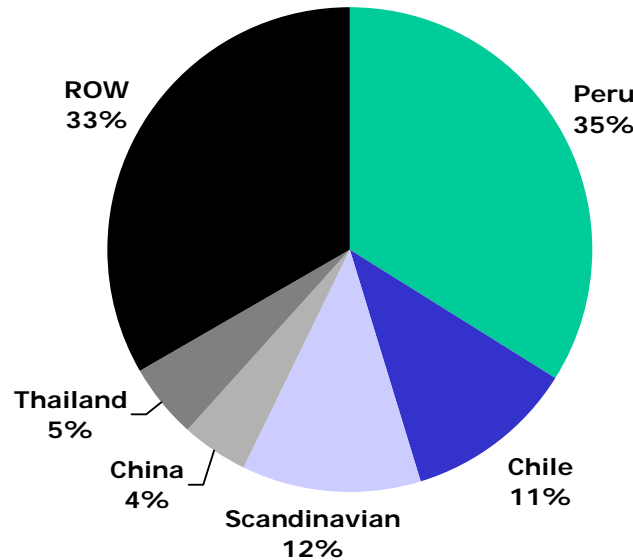


# Marine commodities / ingredients segments by value creation

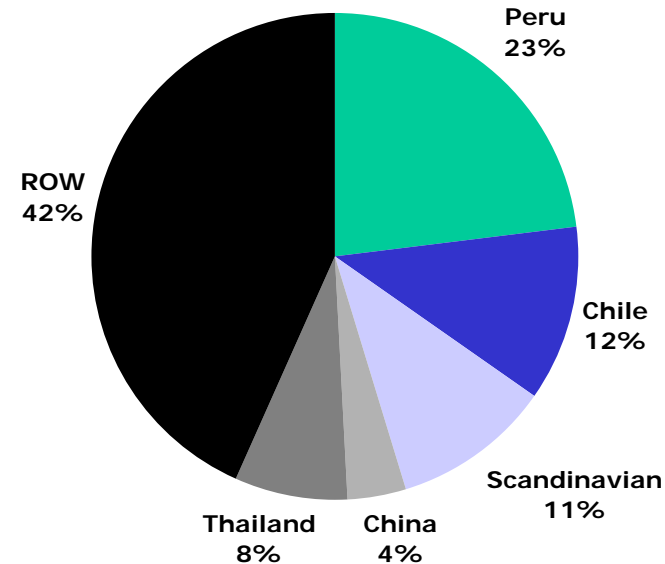


# Global production of fishmeal has declined over the last six years

2000 CAGR: approx. -4% 2006



Global production: 6,7 million MT  
Market value: ~ USD 2,680 mil



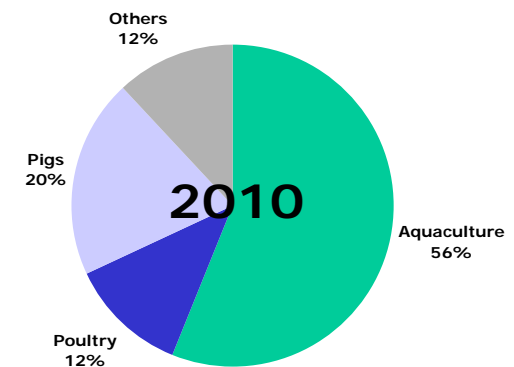
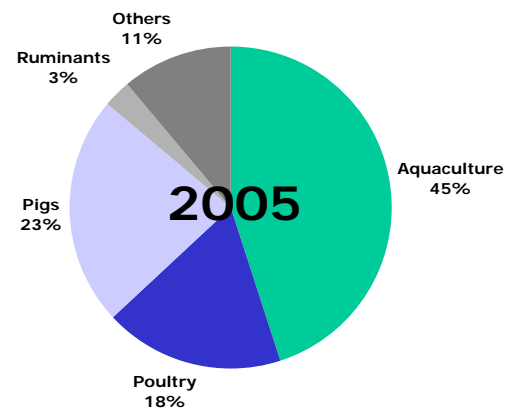
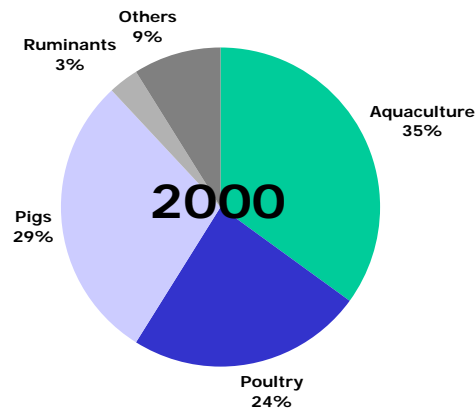
Global production: 5,7 million MT  
Market value: ~ USD 6,270 mil

- World fishmeal production continue to decline by 4%, annually. This decline is caused by sharp drops in production in Peru and in the Scandiavian countries. Among top 5 fishmeal producers only Thailand has increased their production of fishmeal during the last six years

Source: IFFO and FAO

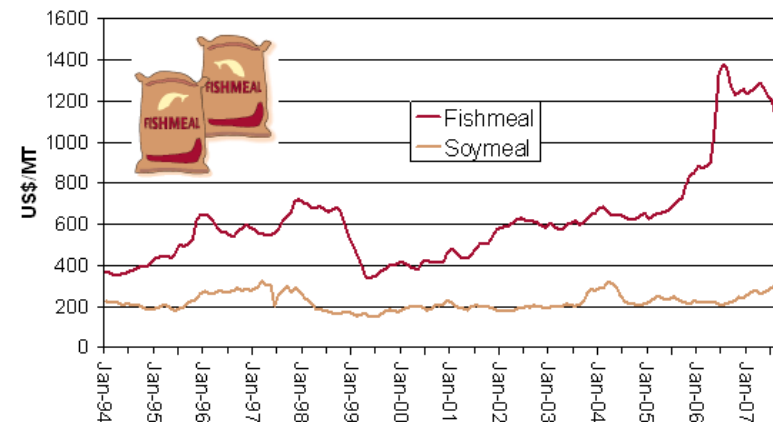
# Fishmeal consumption strongly influenced by rise in Aquaculture

## Fishmeal consumption



- Use of fishmeal in aquaculture is increasing both in absolute and relative terms
- Use of fishmeal in pigs and poultry is declining
- Fishmeal prices up particularly in 2006/07

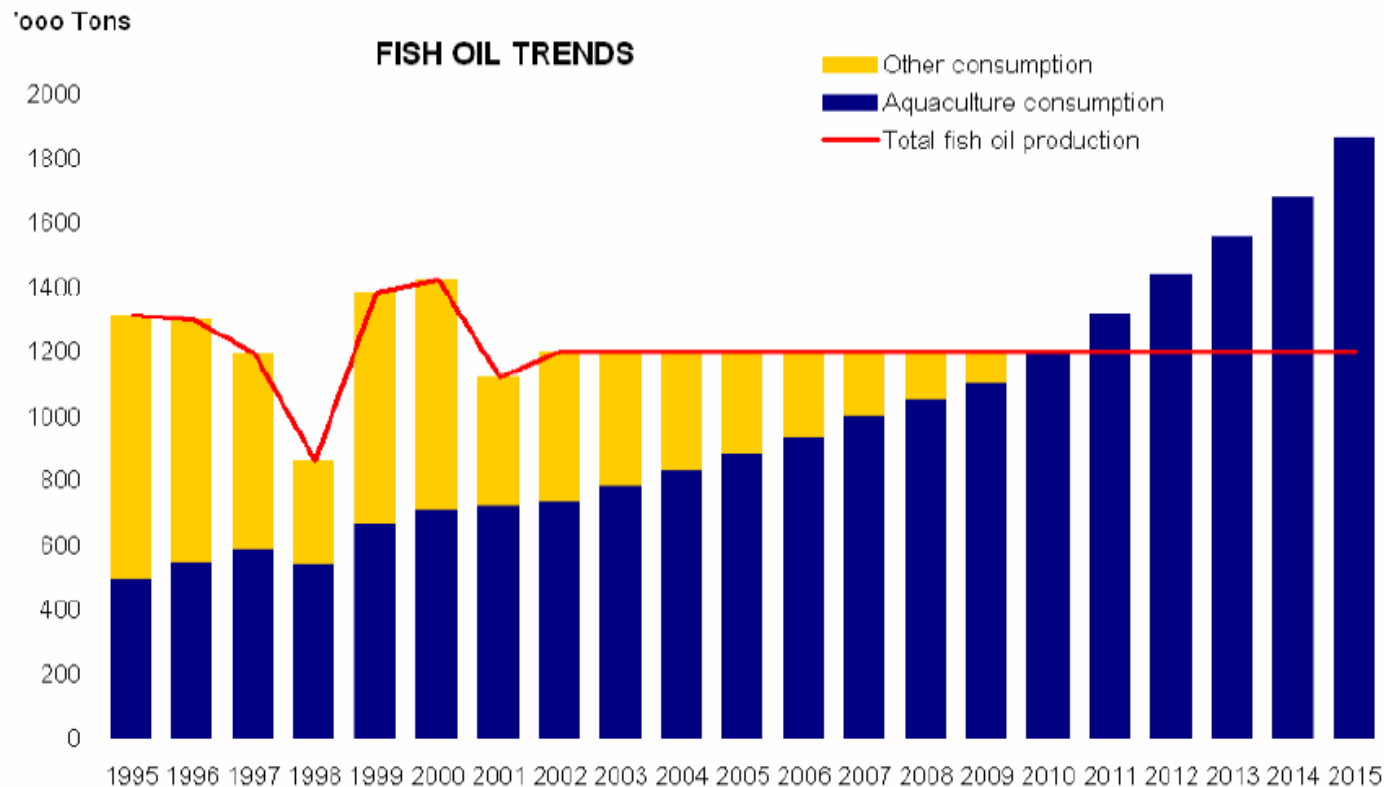
Fishmeal and soymeal prices



Source: IFFO, FIN and McKinsey

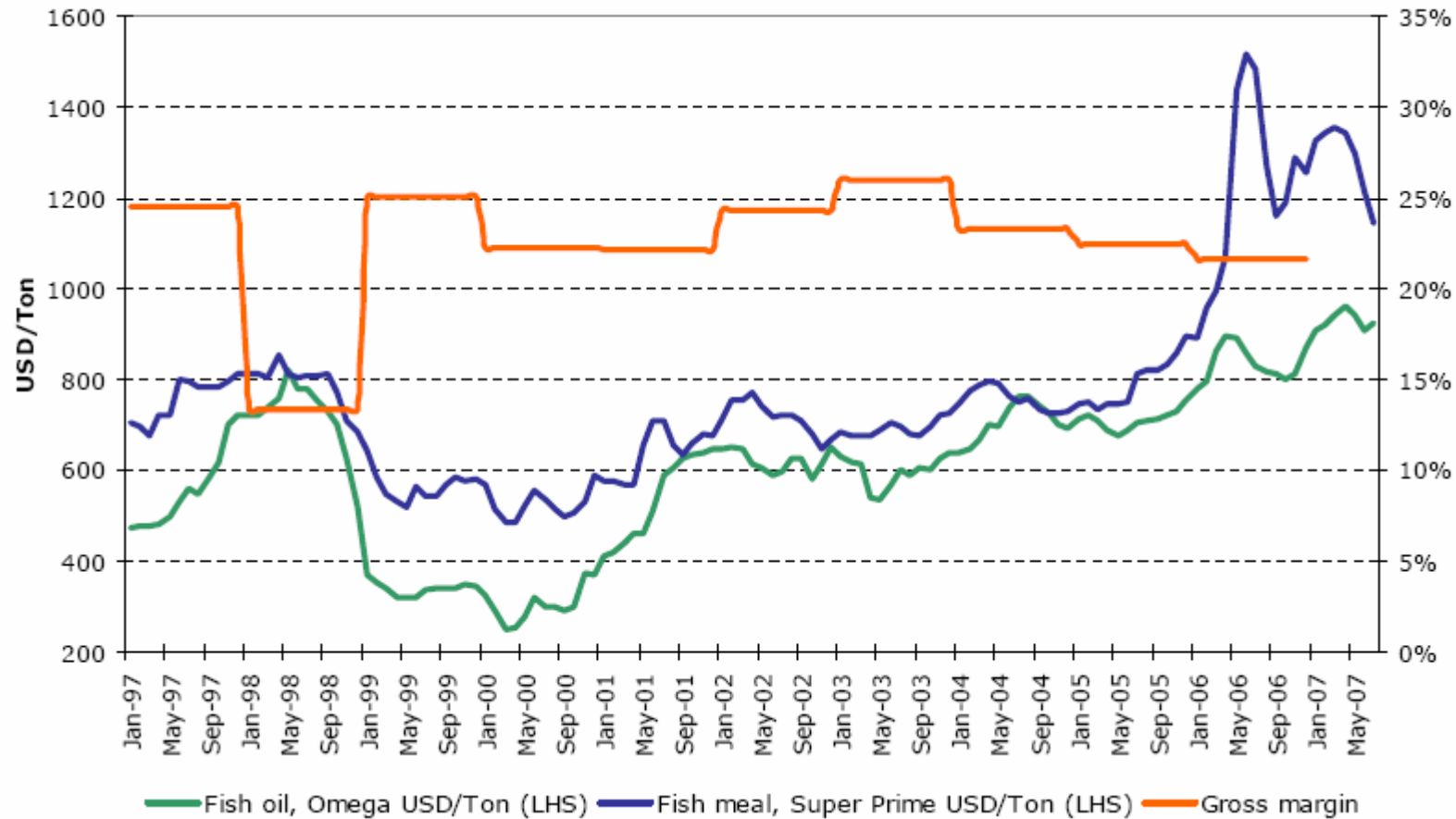


# The production of fish oil can not keep up with aquaculture consumption



Source: WWF-Norway

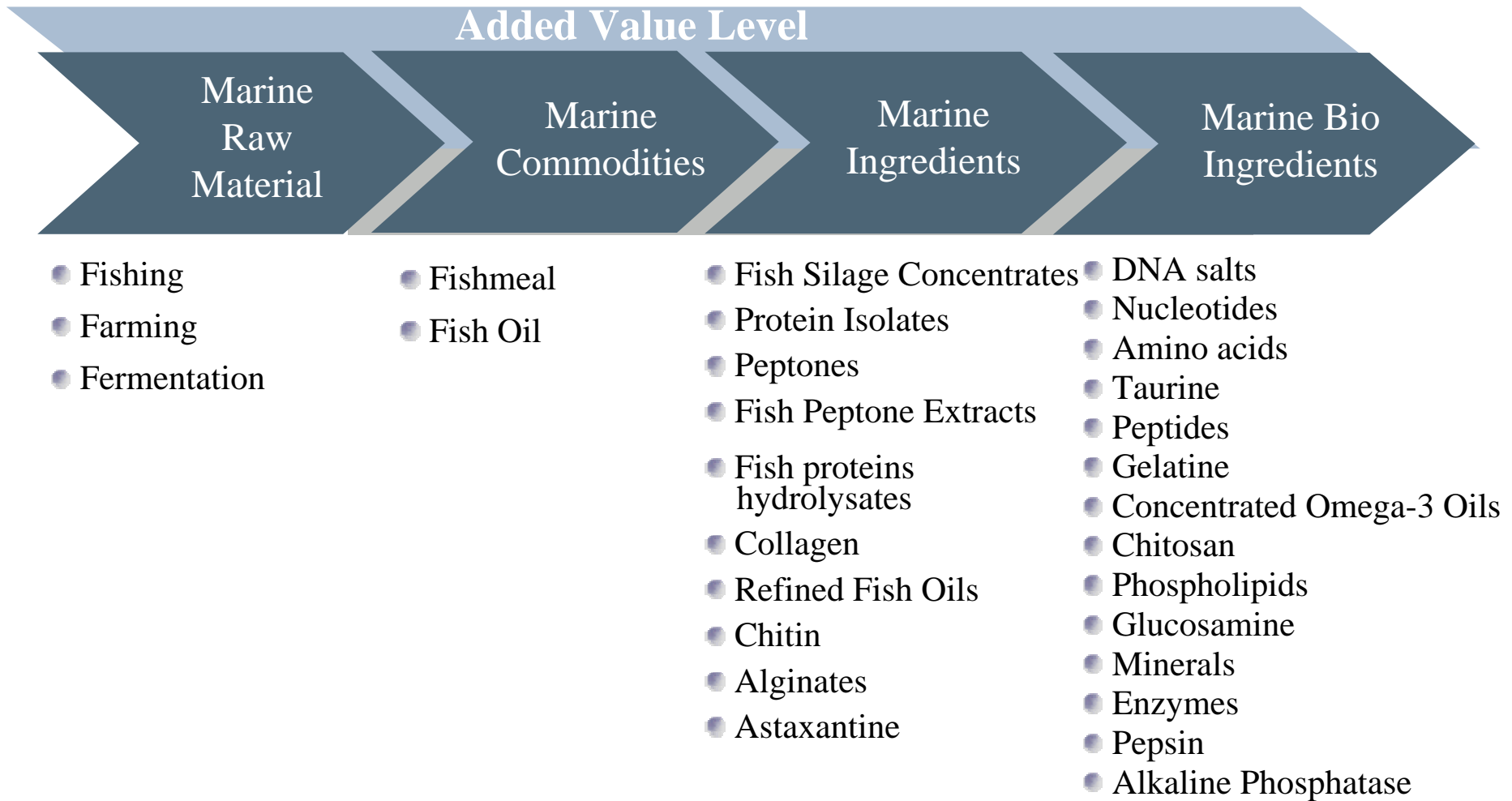
# Price development of fishmeal & fish oil makes it difficult for several players in the value chain



- The volatile price development in fishmeal will be a challenge for the producers
- BioMar has “price review mechanisms” in contracts with large consumers

Source: BioMar

# Marine commodities / ingredients segments by value creation

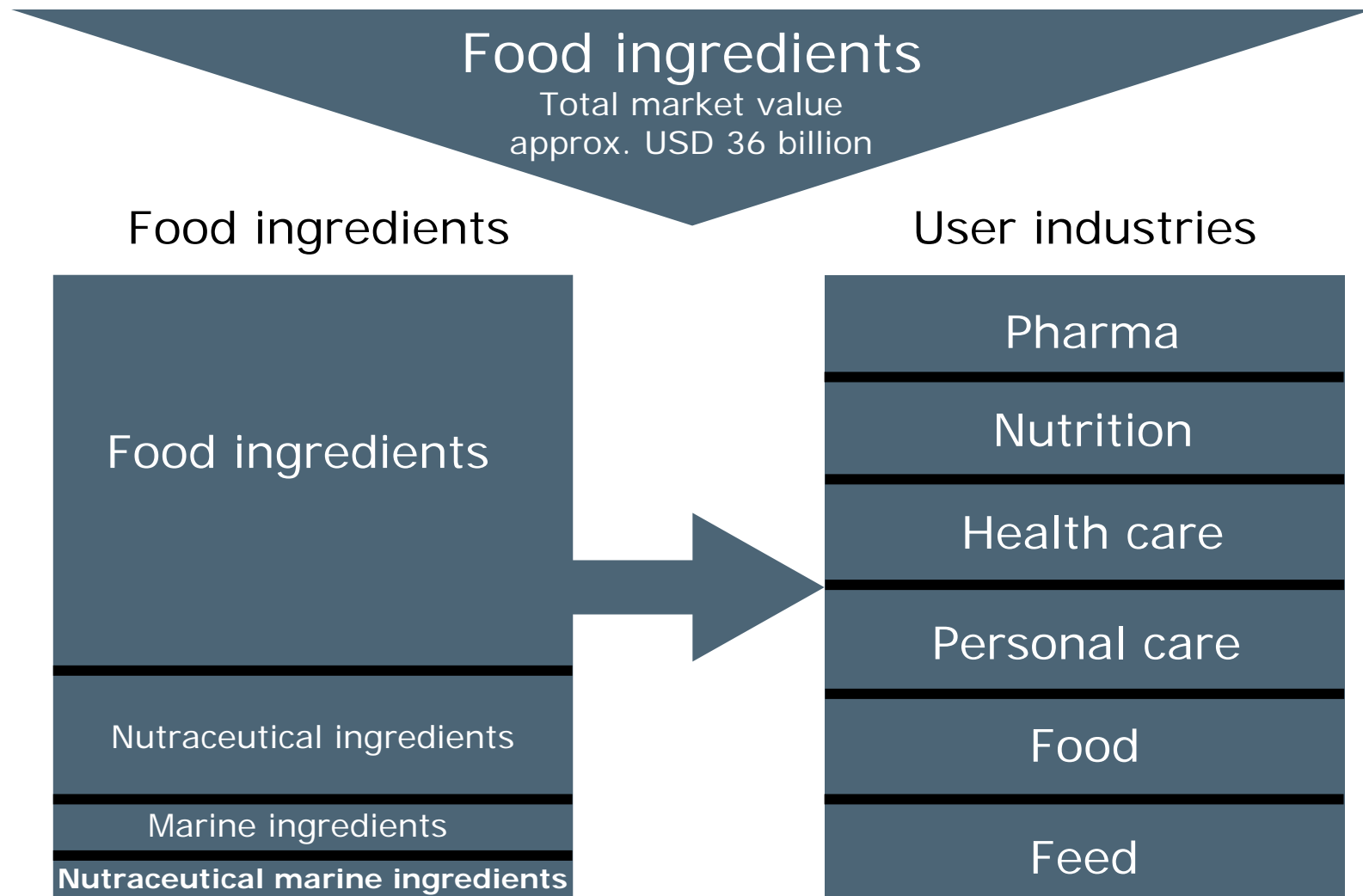


# Global market for marine ingredients

Marine Ingredients	Market Segments						
	Feed	Food	Functional Food	Dietary Supplements	Sports Nutrition	Cosmetics	Other
Protein concentrate	●	◐					
Protein Isolate							◑
Peptones							◑
Fish Peptones Extracts		◐					
Collagen							◑
Refined Fish Oils/ Omega			◐	◐	◑		◐
Chitin		●		◐			
Alginates						◐	●
Astaxantine							

- more than 100 M US \$ year
- ◐ 10-100 M US \$ year
- ◑ Less than 10 M US\$ year

# Marine ingredients is a minor product category within food ingredients

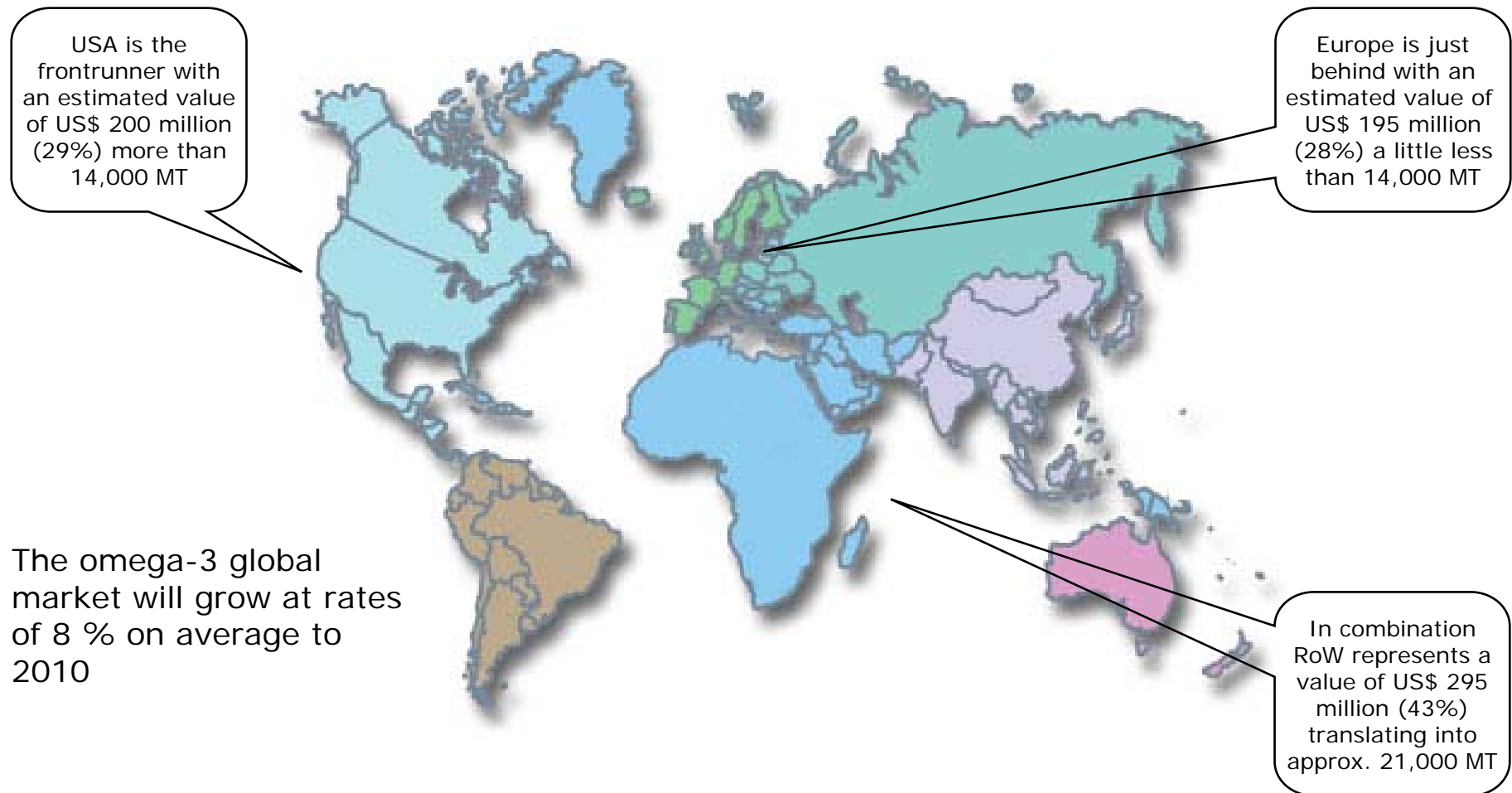


# Characteristics of the food / marine ingredient industry

---

- Technological platforms are essential for core competence
- The big global food ingredients companies are adopting a portfolio product strategy and are therefore also active in nutraceutical and marine ingredients
- The ingredient industry is spending more resources on R&D than any other sectors of the food industry and is frequently involved in R&D projects with universities and private research organisations
- Focused companies with outstanding expertise are playing an important role in specific market segments, e.g. Chr. Hansen in cultures, Orafti in prebiotics, Ocean Nutrition, Denomega and Martek in Omega-3 etc.

# The global market for omega-3 can be estimated at US\$ 690 million in 2005



Volume figures are estimated on the basis of an average price of US\$ 14 per kg of omega-3 PUFA (source: Frost & Sullivan & Euromonitor International)

# New product launches with omega-3 - globally



In 2006, omega-3 was the most frequent nutraceutical ingredient used in new product launches

Puleva Biotech a probiotic drink rich on omega-3

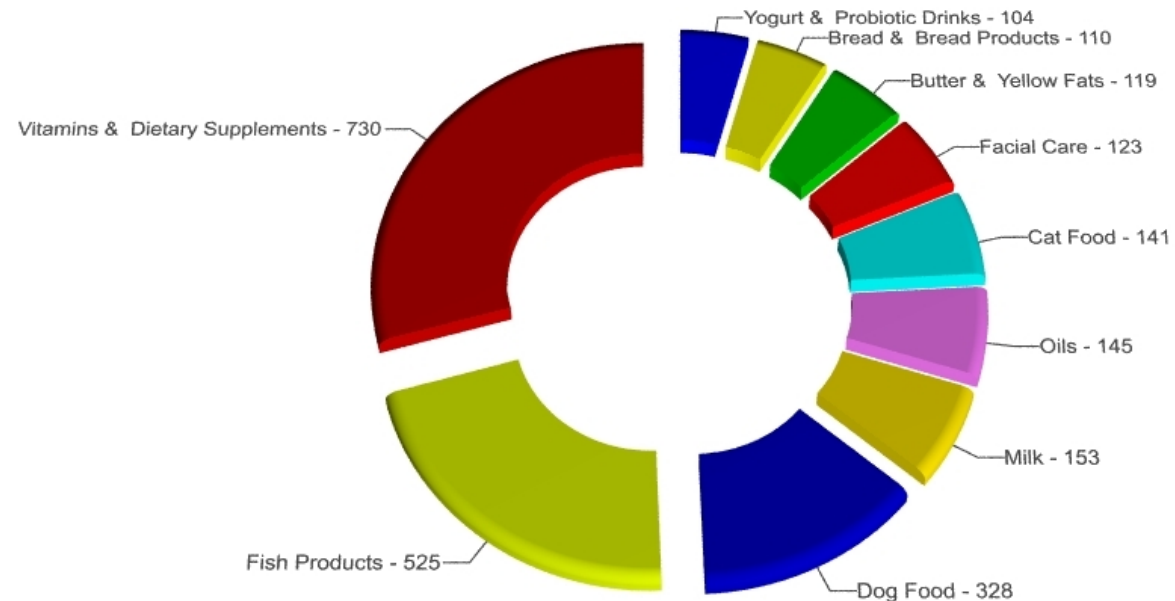


Fjordland a fish cutlet fortified with fish oil



Galleta, Omega-3 and calcium enriched biscuits

Number of New Products by Sub-Category



Total number of products: 2475

Source: Mintel 2000-2006



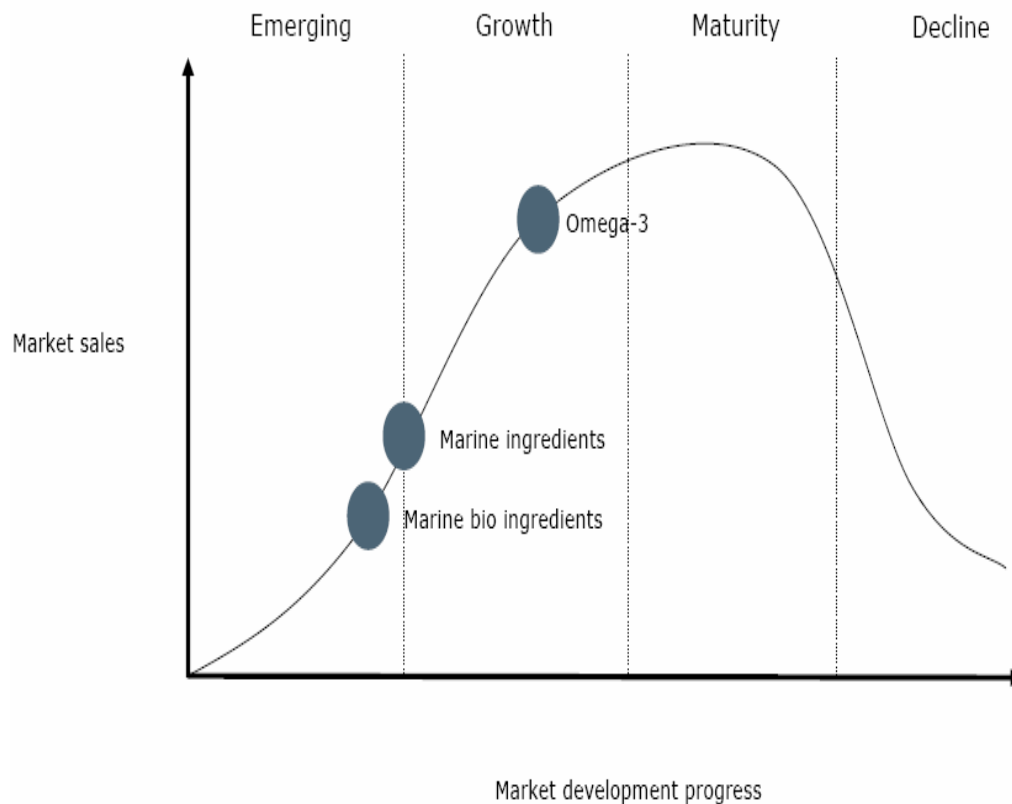
## Omega-3 is ranked top 3 among functional ingredients in the world by consumers

Increased use over the past two years	North America	Western Europe	South Europe	South America	Nordic Europe
Calcium	25%	14%	11%	9%	12%
Vitamin C	21%	17%	11%	13%	14%
Omega-3 fatty acids	21%	15%	7%	7%	20%
Vitamin E	17%	11%	8%	9%	11%
B vitamins	14%	8%	8%	7%	13%
Vitamin D	13%	8%	6%	8%	12%
Folic acid or folate	12%	6%	5%	5%	16%
Iron	12%	11%	6%	9%	11%
Potassium	9%	6%	5%	5%	10%
Magnesium	6%	9%	5%	4%	14%
Beta carotene or vitamin A	5%	5%	4%	4%	16%
Selenium	5%	3%	4%	4%	16%
Antioxidants	---	---	---	---	8%
Vitamin K	---	---	---	---	13%

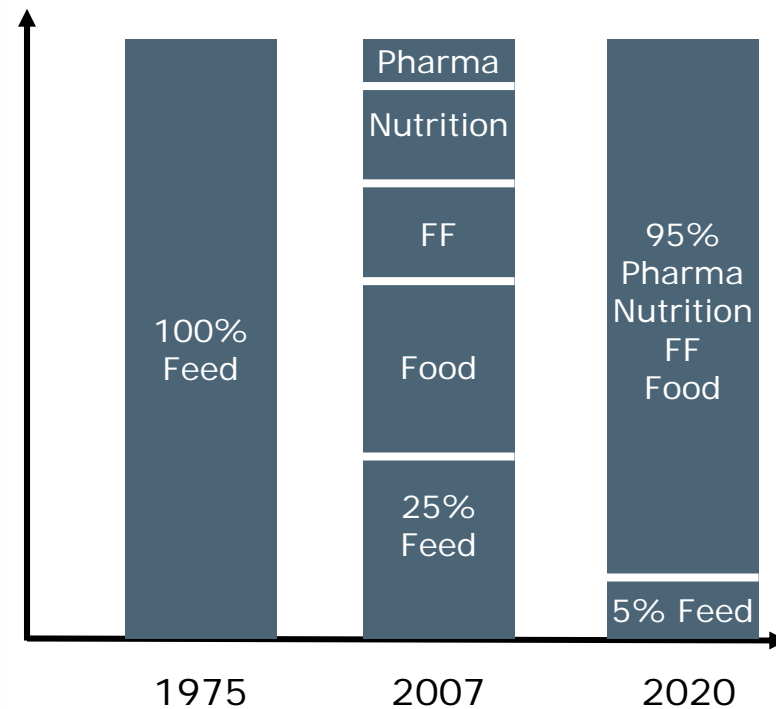
Source: HealthFocus, 2007 survey

# Marine ingredients industry versus whey/whey ingredients industry

The marine ingredients industry example:  
Market development progress

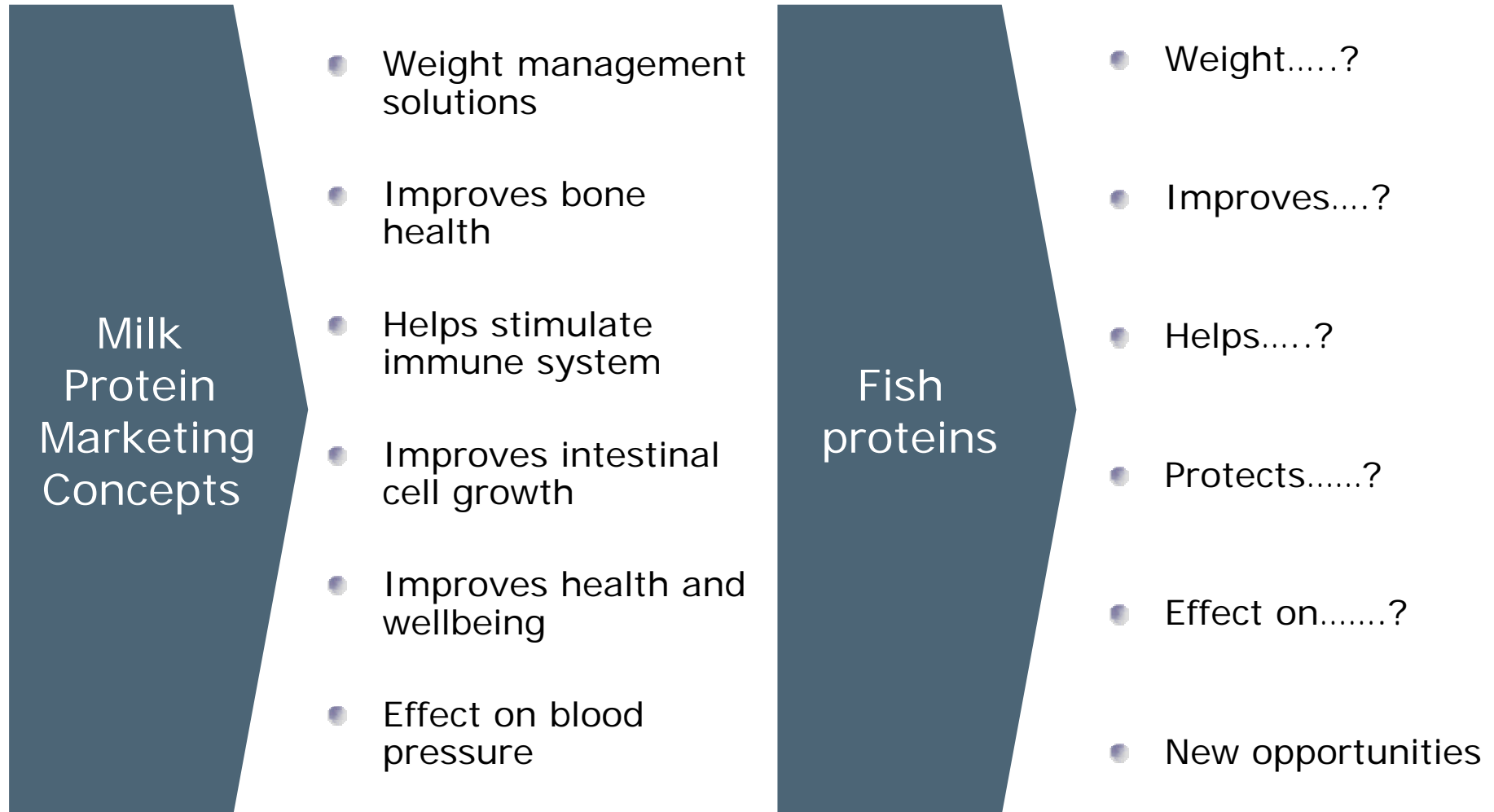


The dairy industry example:  
Whey / whey ingredients universe



Source: 3A Business Consulting

# Marine ingredients is a underdeveloped R&D area



Source: Matis presentation 2007: "Hvordan går utviklingen på Island?"

# The Irish example: Skill transfer from dairy to marine ingredients

---

- The ambition is to leverage acquired dairy ingredients R&D, processing and marketing skills to the marine sector
  - In 2007 a new marine functional foods research programme has been launched with a EUR 5.2 Mio budget following recommendations from the Marine Institute
  - Focus will be on ingredients from the sea such as omega-3, minerals and vitamins, antioxidants, peptides, proteins and enzymes

**“Marine functional foods and ingredients are key elements in our strategy to brand this country as the Seafood Island of Europe”**

Minister for marine communications and natural resources

Source: Marine Institute: “Sea Change”, 2006

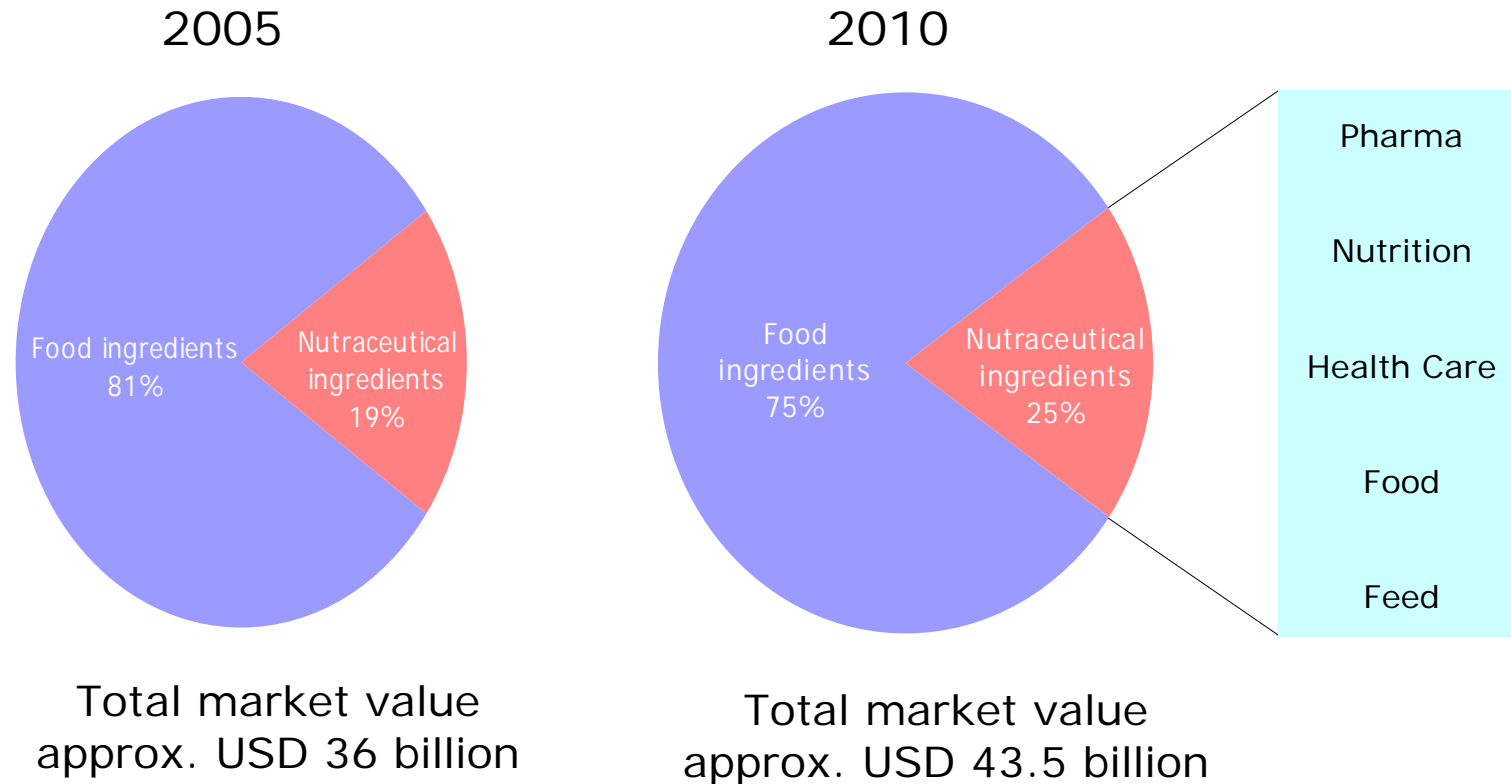
# Biomarint industriseminar 2007

---

International trends for ingredients,  
fishmeal and fish oil



# Marine ingredients is forecasted a higher growth rate than food ingredients in general



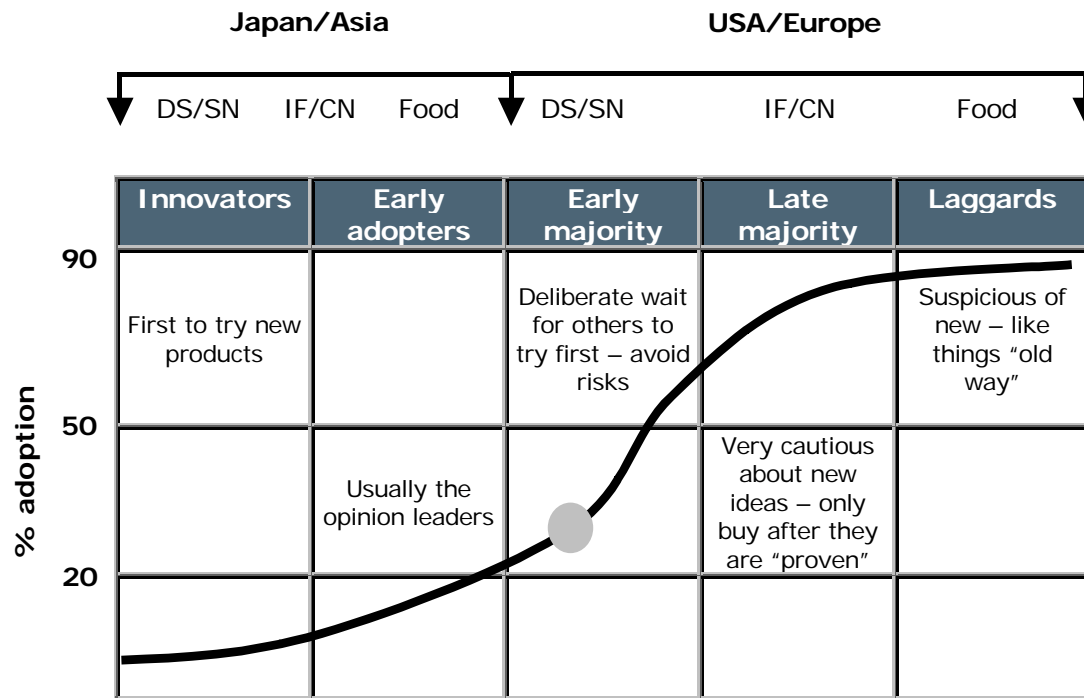
Food ingredients CAGR 2005-2010 2-3%

Nutraceutical ingredients CAGR 2005-2010 8-10%

Marine ingredients CAGR 2005-2010 8-12%

Source: Nutrition Business Journal/3A Business Consulting

# Nutraceutical/marine ingredients are generally taking off in supplements



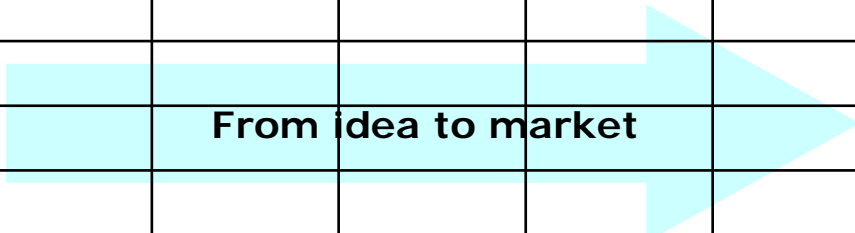
DS: Dietary supplements; SN: Sports nutrition; IF: Infant formula; CN: Clinical nutrition

Source: 3A Business Consulting

# A long way to market for nutraceutical / marine ingredients

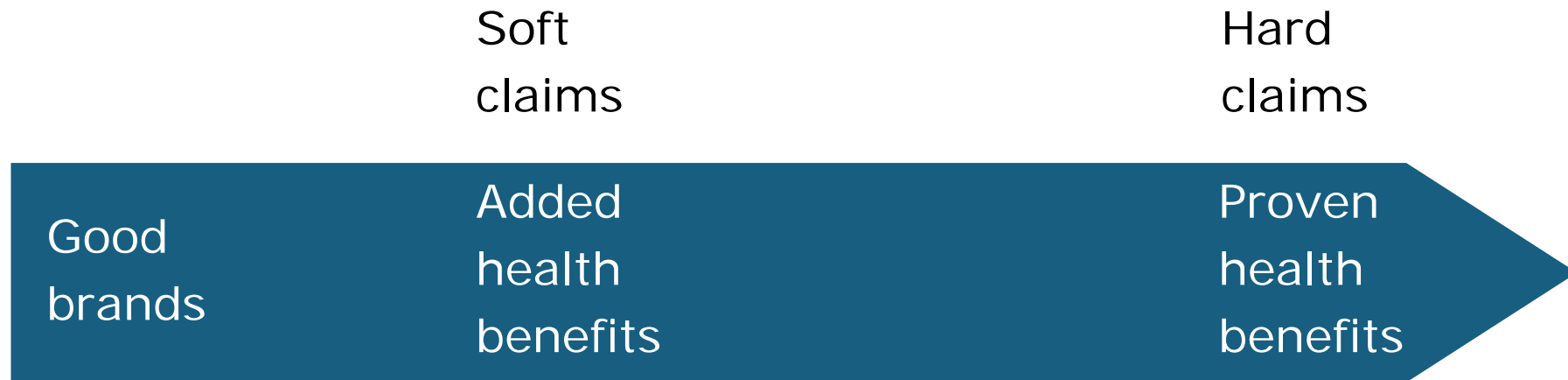
- Complete feasibility study could easily cost EUR 5 million and take 5 years

Activities	Technical feasibility	Safety	Efficacy	Regulatory	Launch	Market place	Total cost
Sourcing							
Production							
Science							
Food concept							
IPR issues							
Partners							
Competition							
Marketing/ claims							
Total Cost							

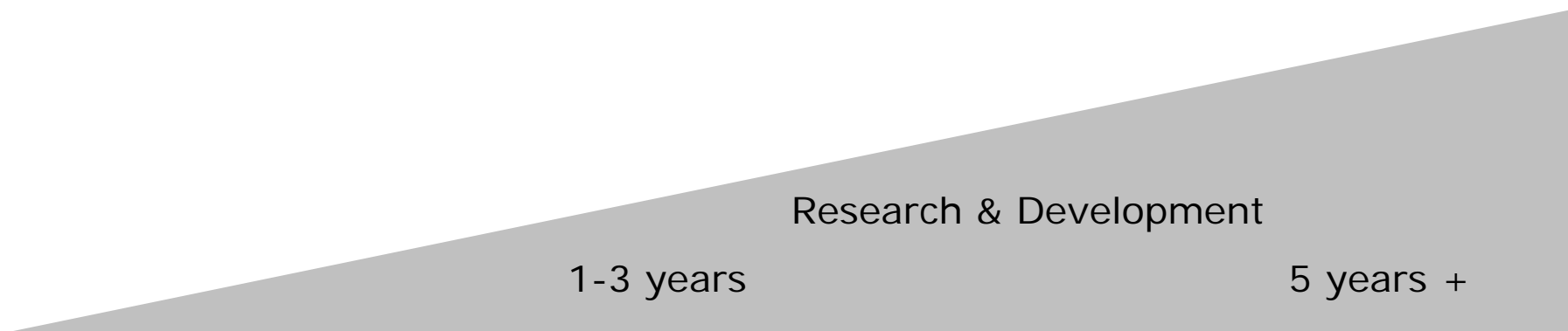




# Ingredient industry challenge: Aligning science and consumer benefits

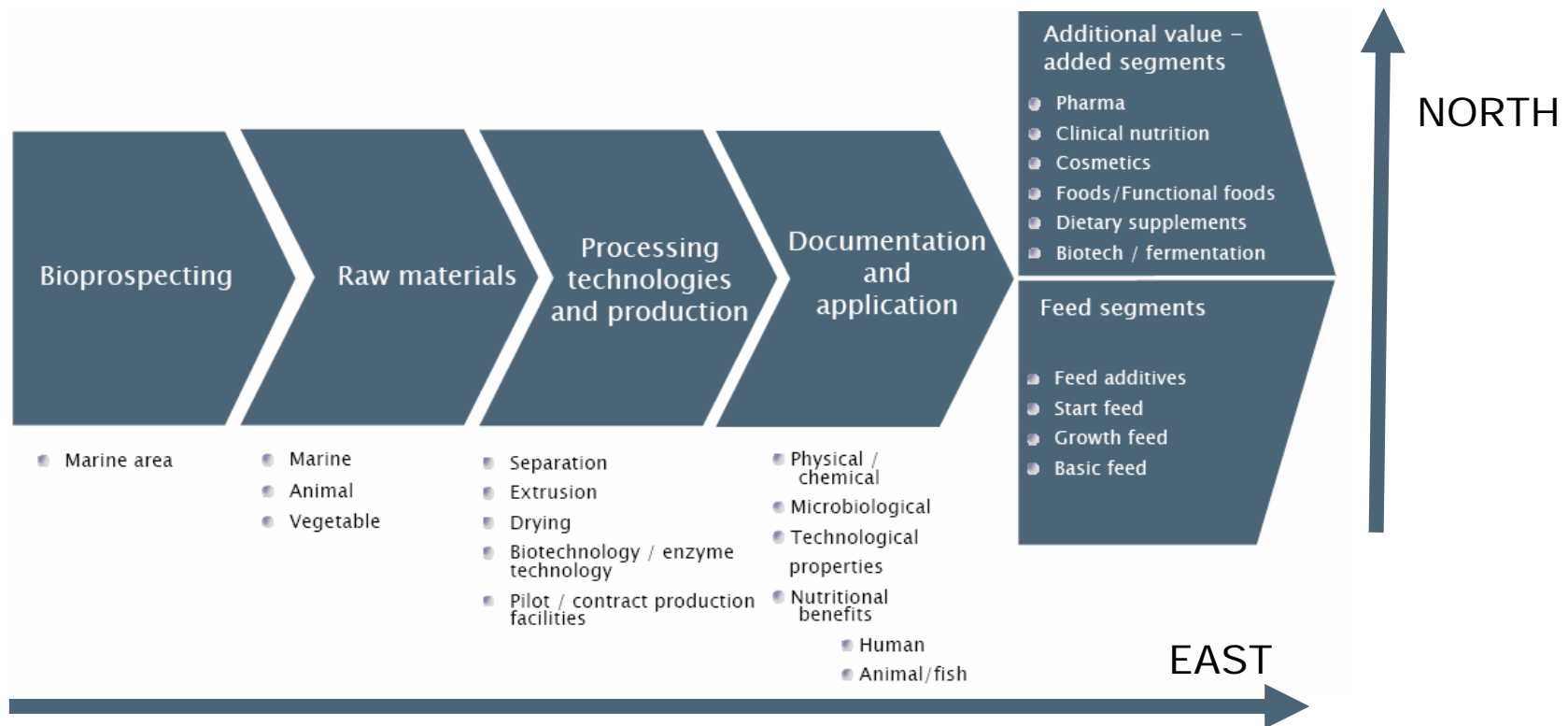


- Nutritional claims
- Generic health claims
- Risk reduction health claims



# The Norwegian marine ingredients industry - challenge and vision

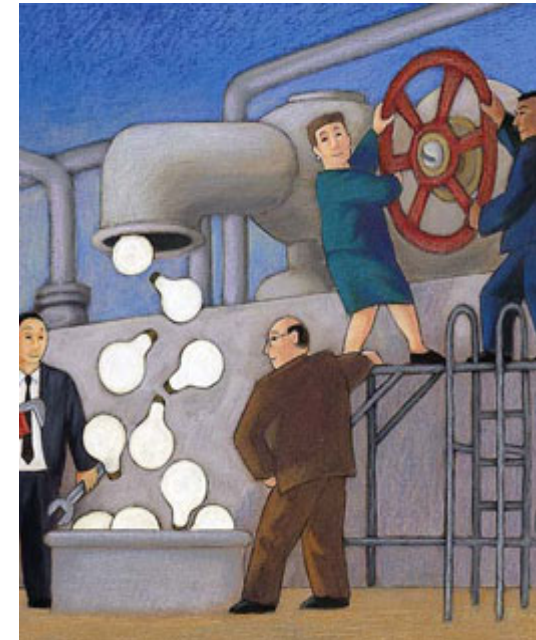
- Norway has the 3 main building blocks for a “blue ocean strategy” in place:
  - Raw materials
  - Emerging industry
  - Fairly strong R&D
- To take the global leading position, Norway needs to go “East and North”



Source: 3A Business Consulting



“INNOVATION  
is now  
recognised as  
the single  
most  
important  
ingredient in  
any modern  
economy”



*The Economist*



Thank you for your attention  
ta@3abc.dk