

Biomarint industriseminar 2007

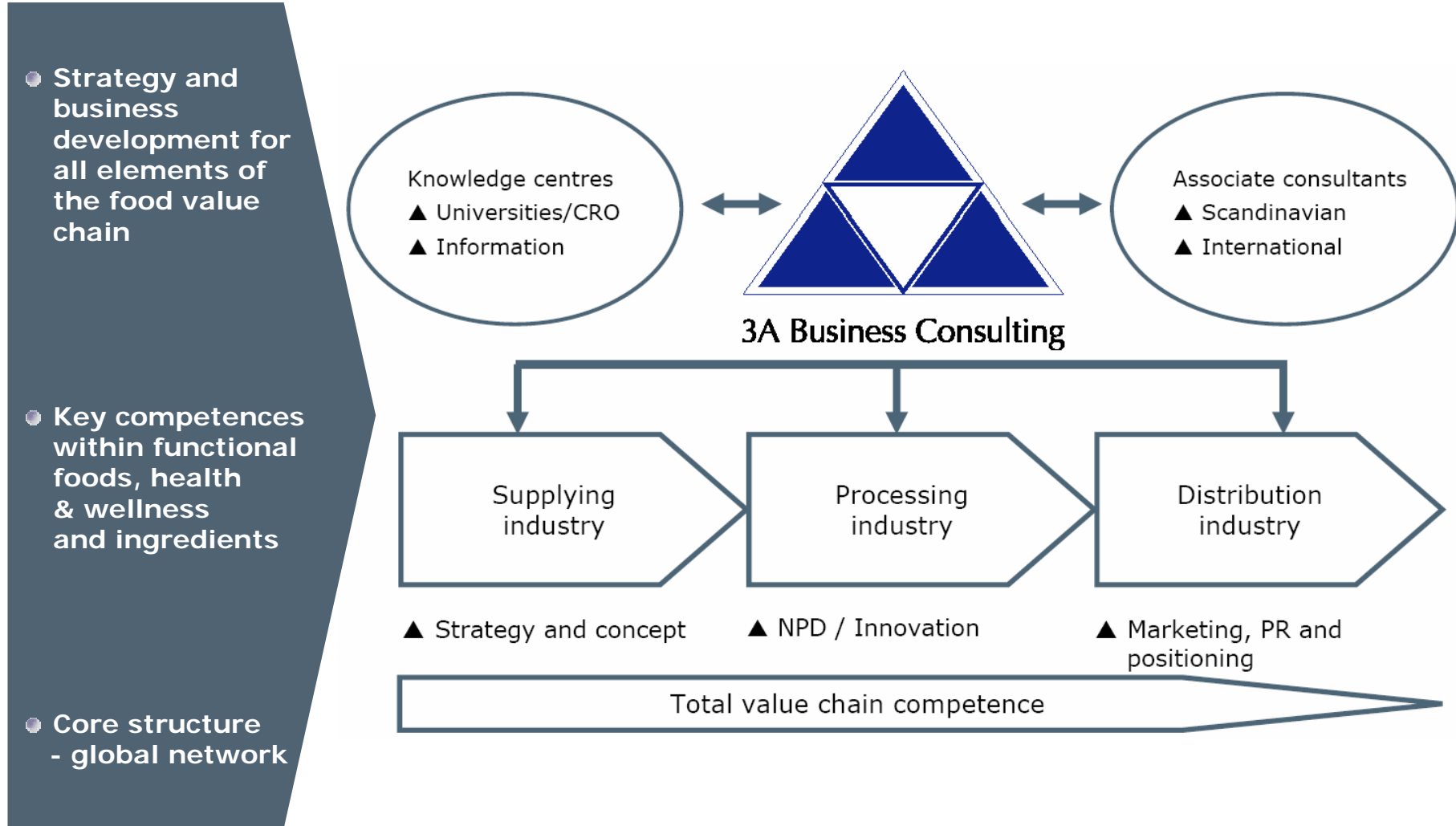
International trends for ingredients, fishmeal and fish oil



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

The value chain starts in the mind of the consumer...

MICRO LEVEL



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	Overweight Tiredness Stress Allergies	Overweight Cosmetic signs of aging Tiredness Freq. colds/flu	Freq. colds/flu Osteoporosis Tiredness Arthritis	Overweight Stress Freq. colds/flu Tiredness	Overweight Tiredness Stress 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

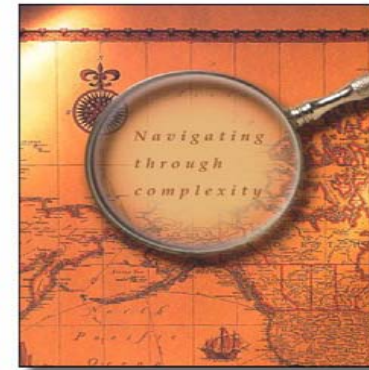
Key trends and challenges within Health & Wellness market

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...

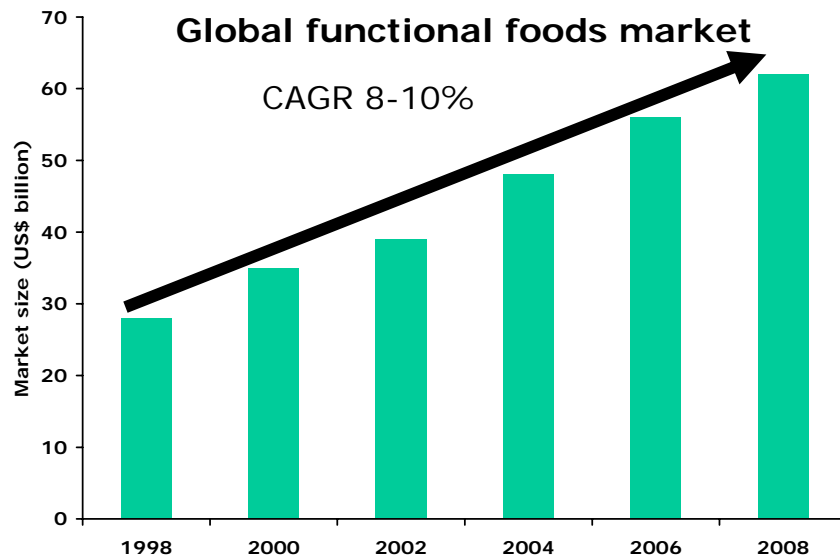
- **Governmental health initiatives**



- **Media, celebrity culture**

Source: Euromonitor

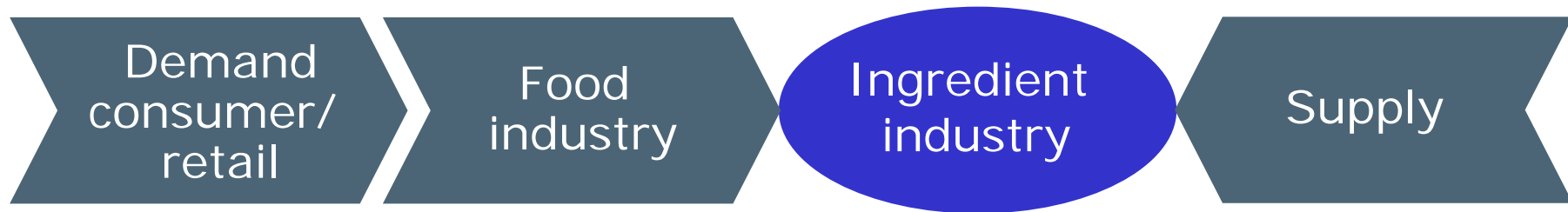
Significant market growth for functional foods



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

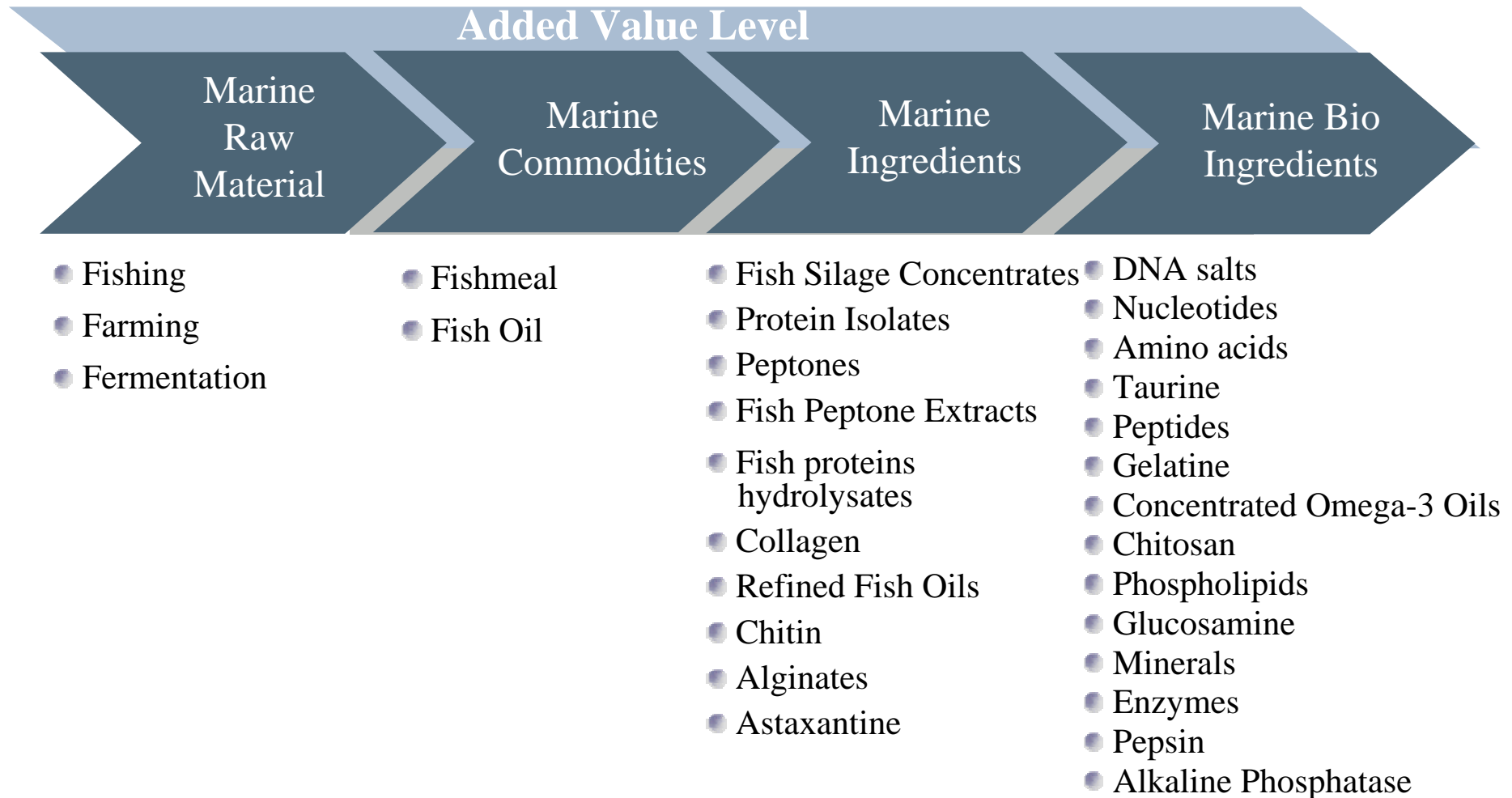
- E-Market place
- Reduced market protection
- Lack of raw materials
- Price volatile commodities

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International trends for ingredients,
fishmeal and fish oil

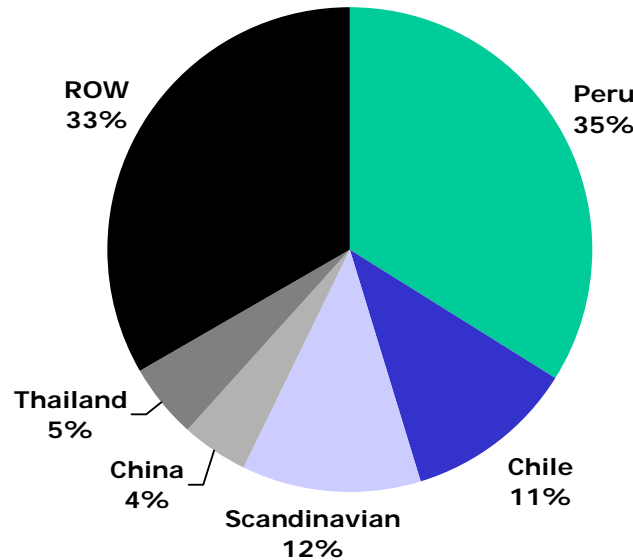


Marine commodities / ingredients segments by value creation

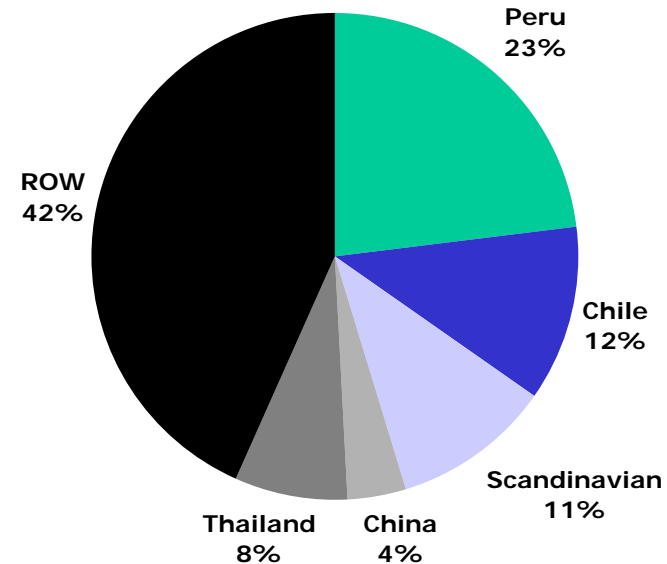


Global production of fishmeal has declined over the last six years

2000 CAGR: approx. -4% 2006



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



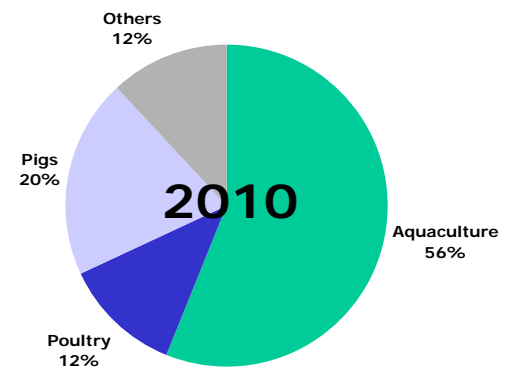
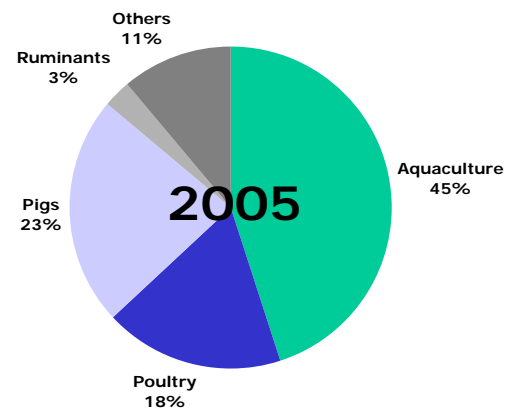
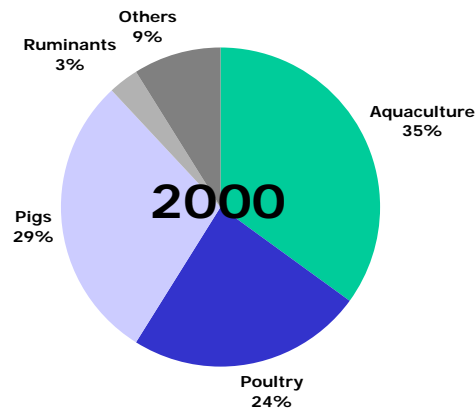
Global production: 5,7 million MT
Market value: ~ USD 6,270 mil

- 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

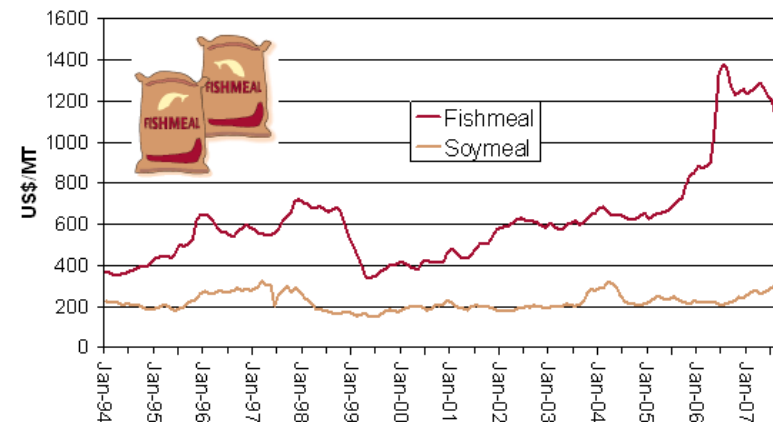
Fishmeal consumption strongly influenced by rise in Aquaculture

Fishmeal consumption



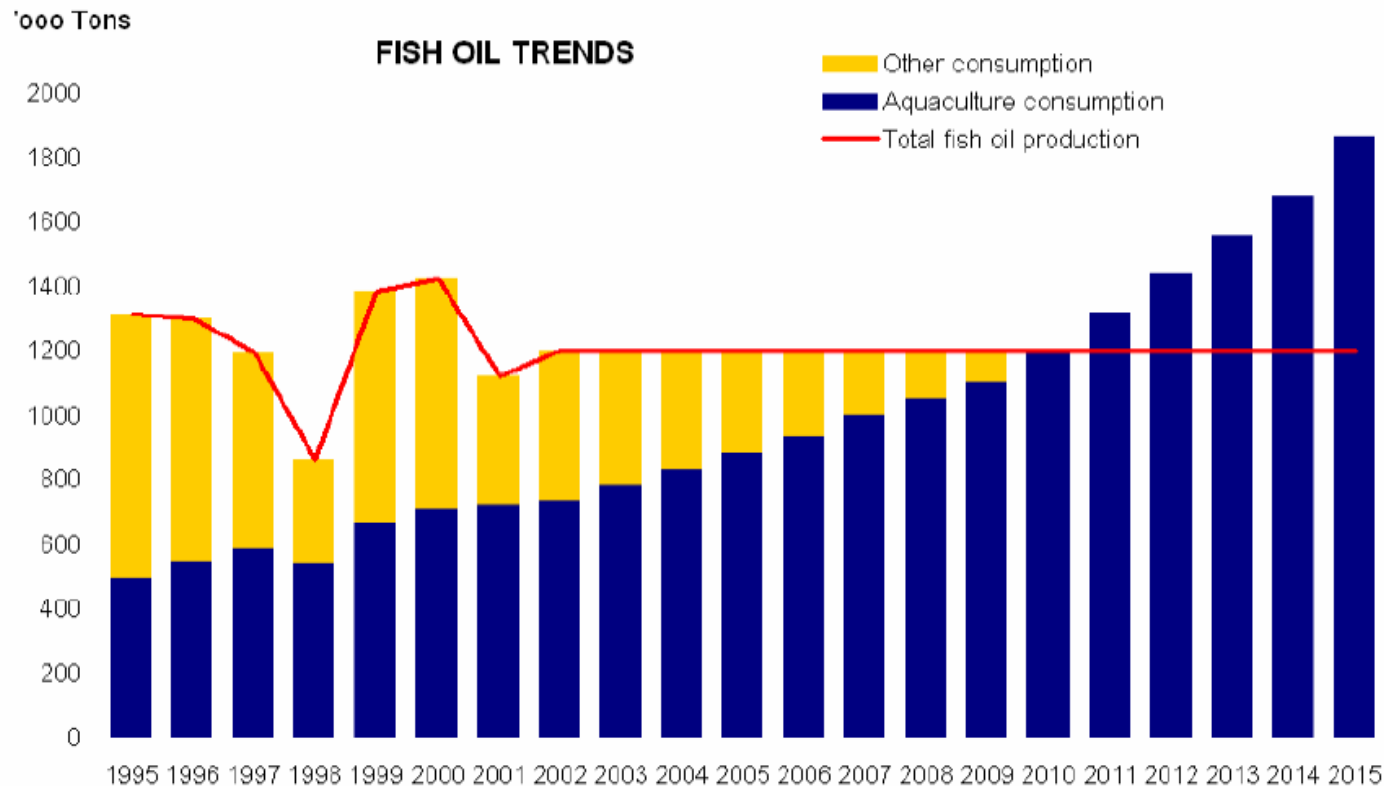
- Use of fishmeal in aquaculture is increasing both in absolute and relative terms
- Use of fishmeal in pigs and poultry is declining
- Fishmeal prices up particularly in 2006/07

Fishmeal and soymeal prices



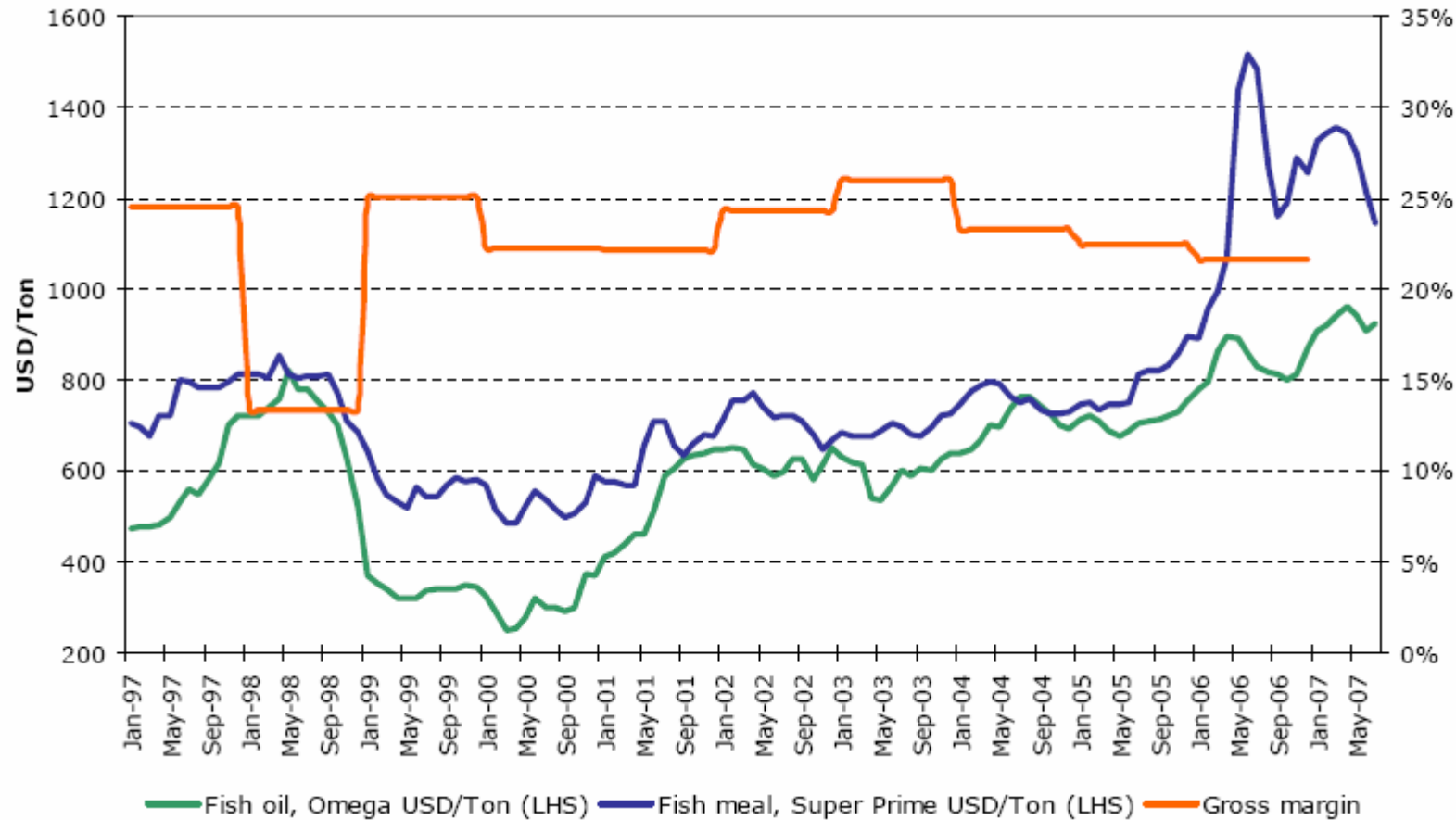
Source: IFFO, FIN and McKinsey

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



Source: WWF-Norway

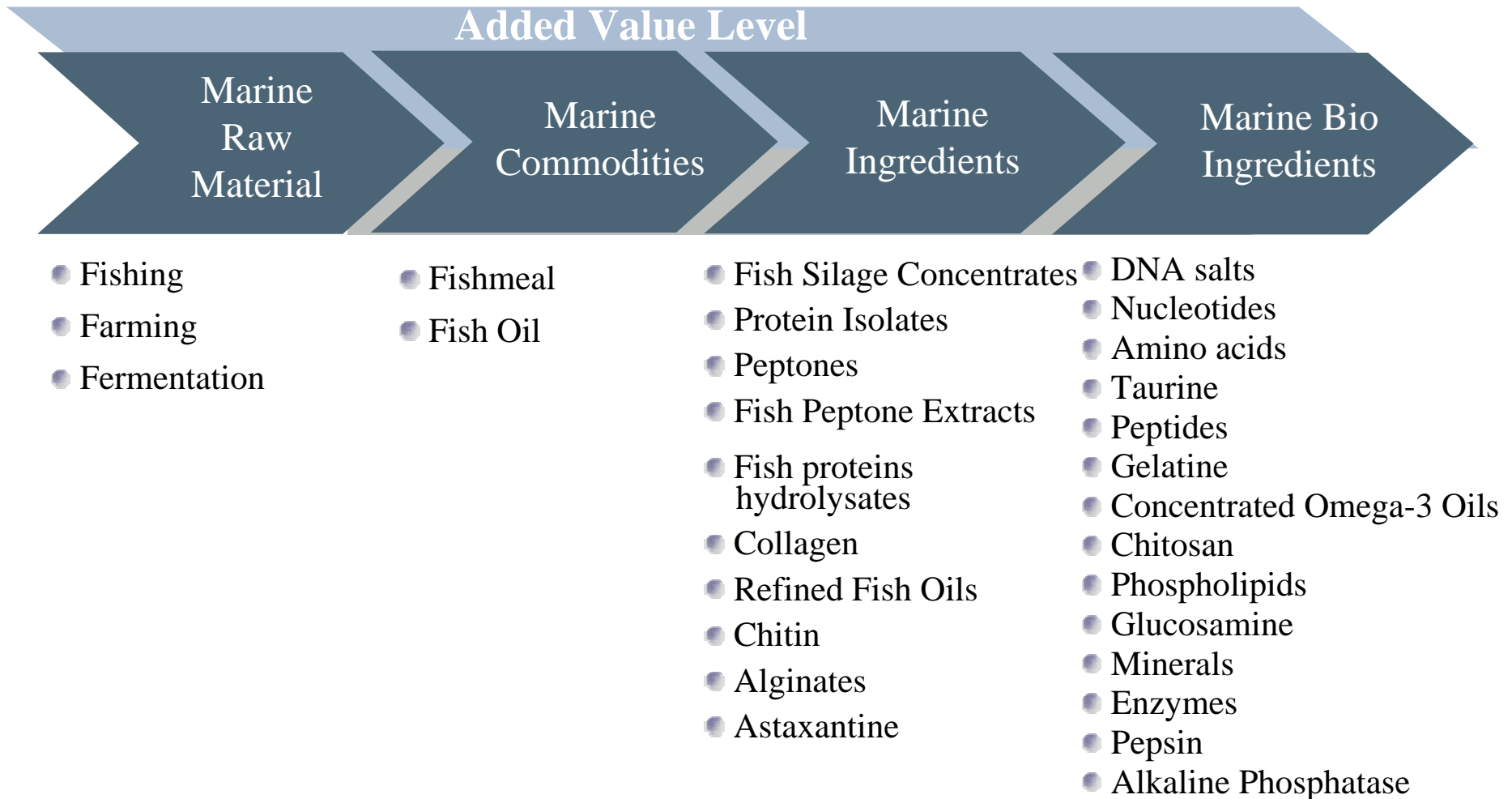
Price development of fishmeal & fish oil makes it difficult for several players in the value chain



- 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

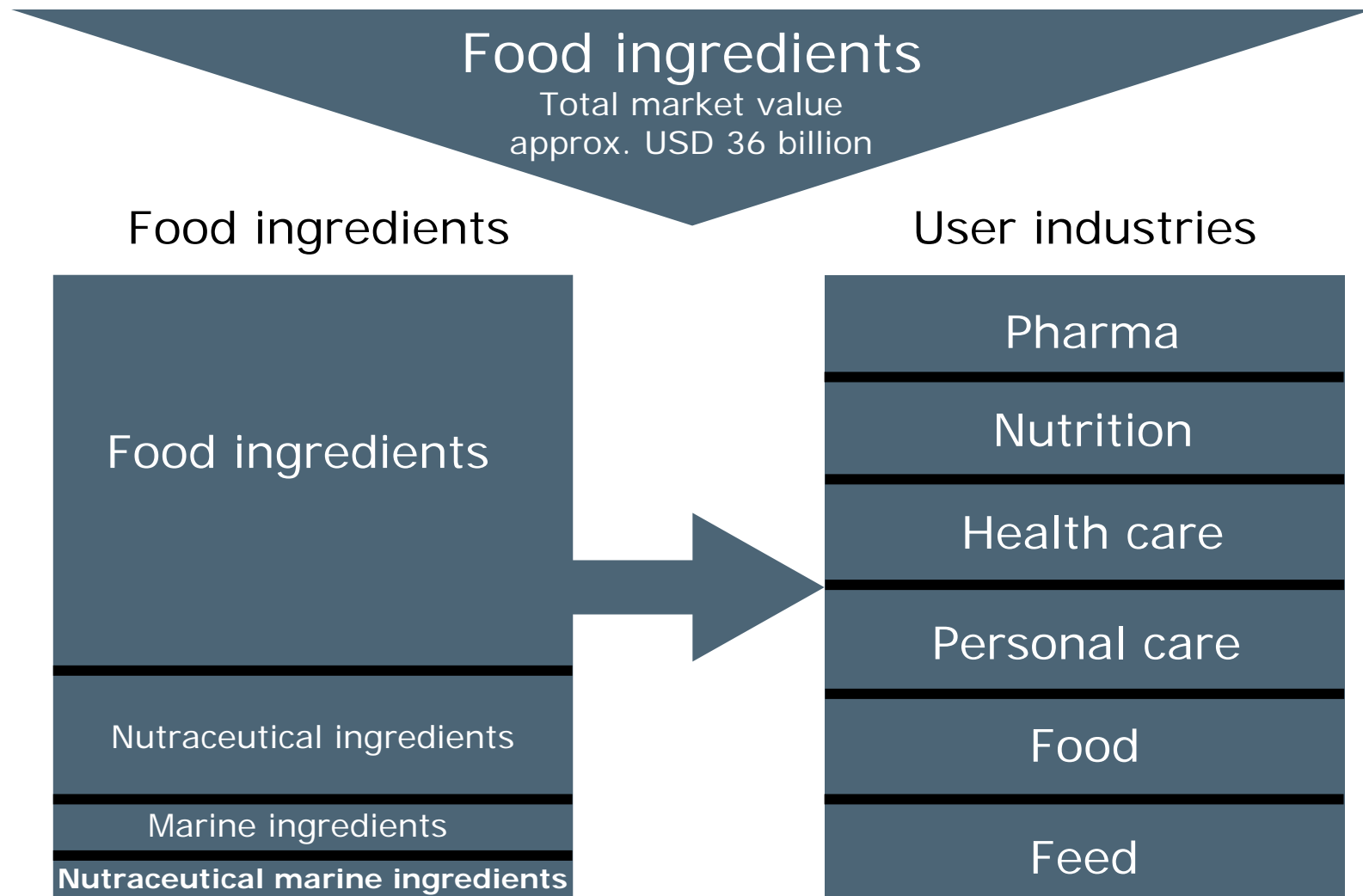


Global market for marine ingredients

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

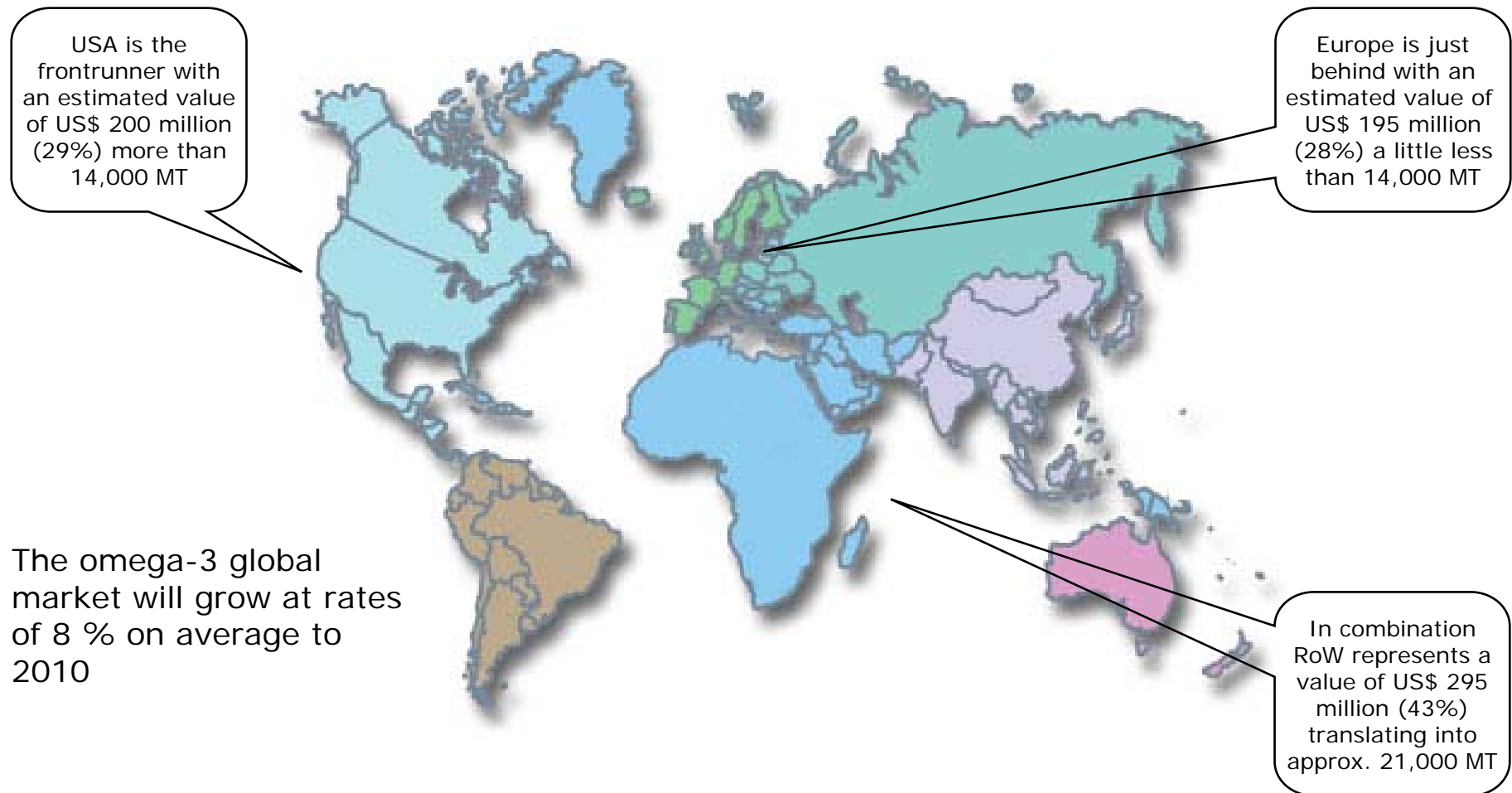
Marine ingredients is a minor product category within food ingredients



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

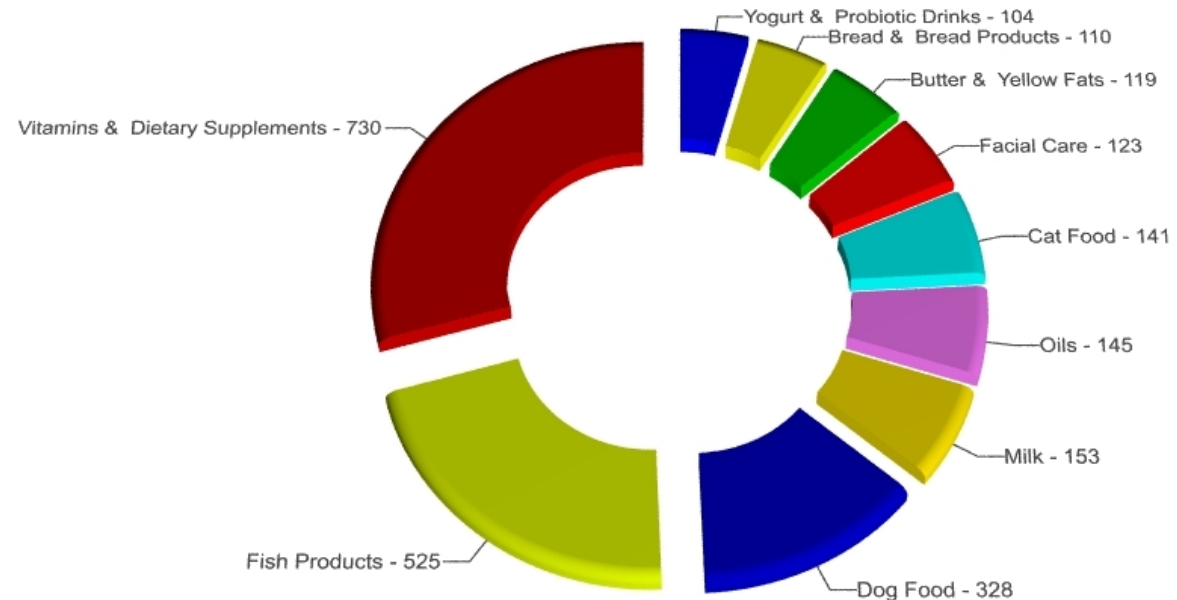


Fjordland a fish cutlet fortified with fish oil



Galleta, Omega-3 and calcium enriched biscuits

Number of New Products by Sub-Category



Total number of products: 2475

Source: Mintel 2000-2006

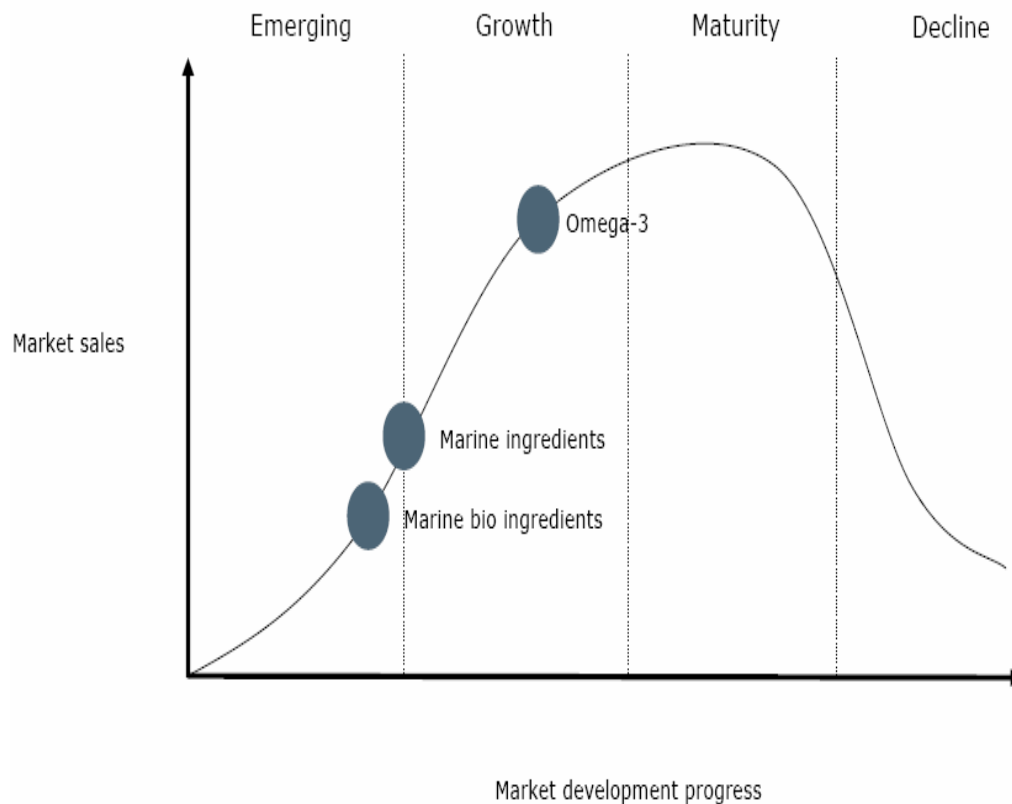
Omega-3 is ranked top 3 among functional ingredients in the world by consumers

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%

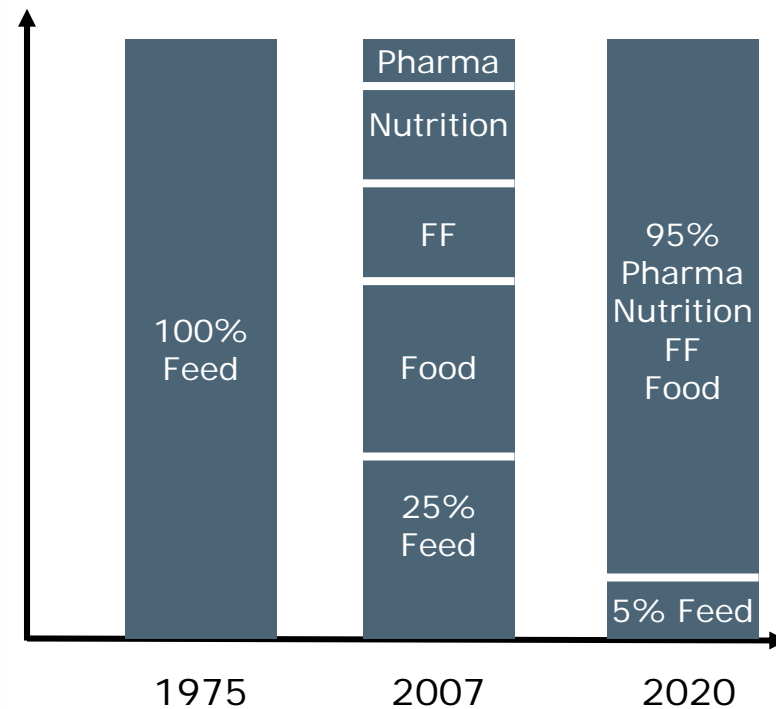
Source: HealthFocus, 2007 survey

Marine ingredients industry versus whey/whey ingredients industry

The marine ingredients industry example:
Market development progress

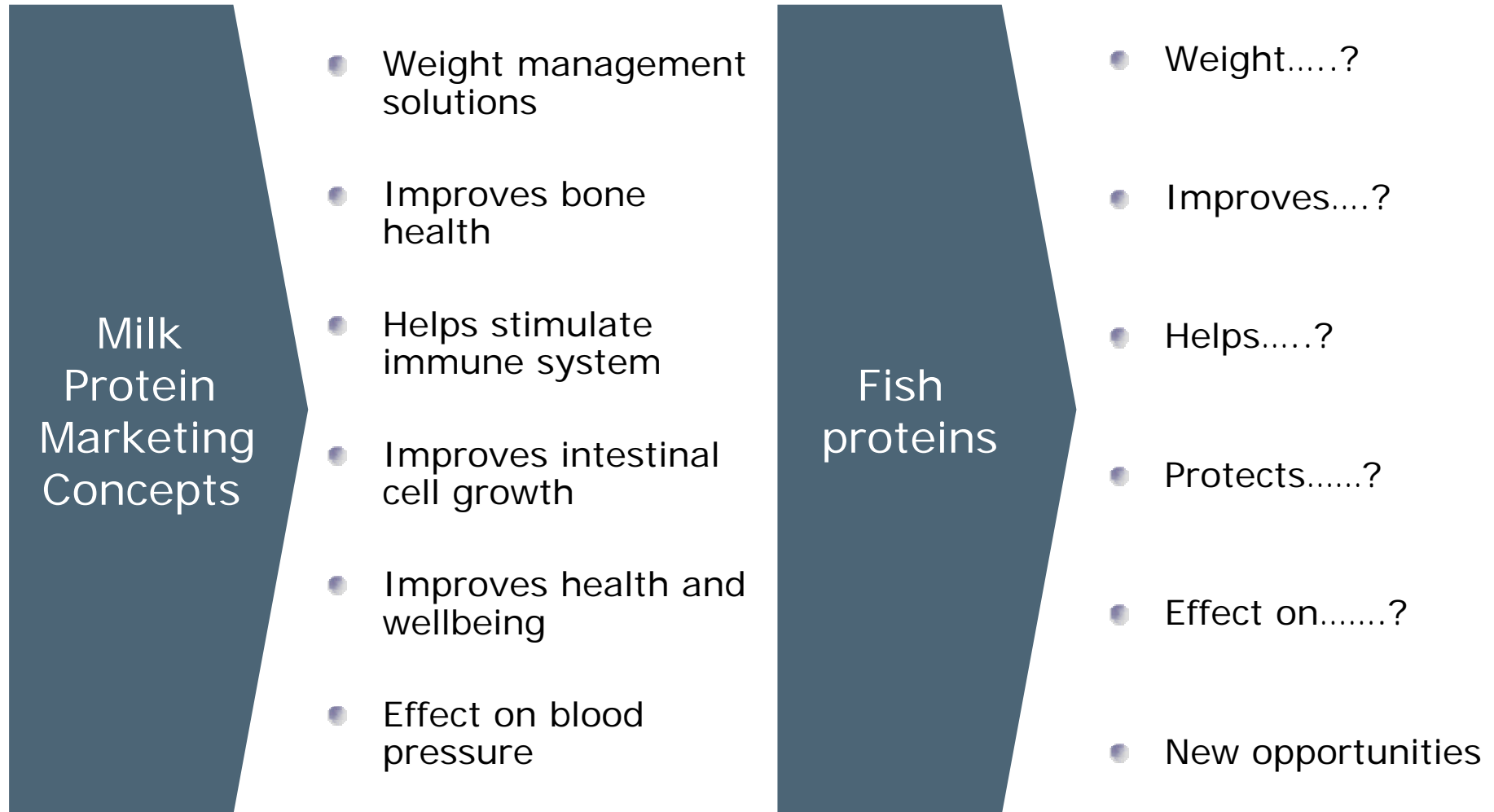


The dairy industry example:
Whey / whey ingredients universe



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

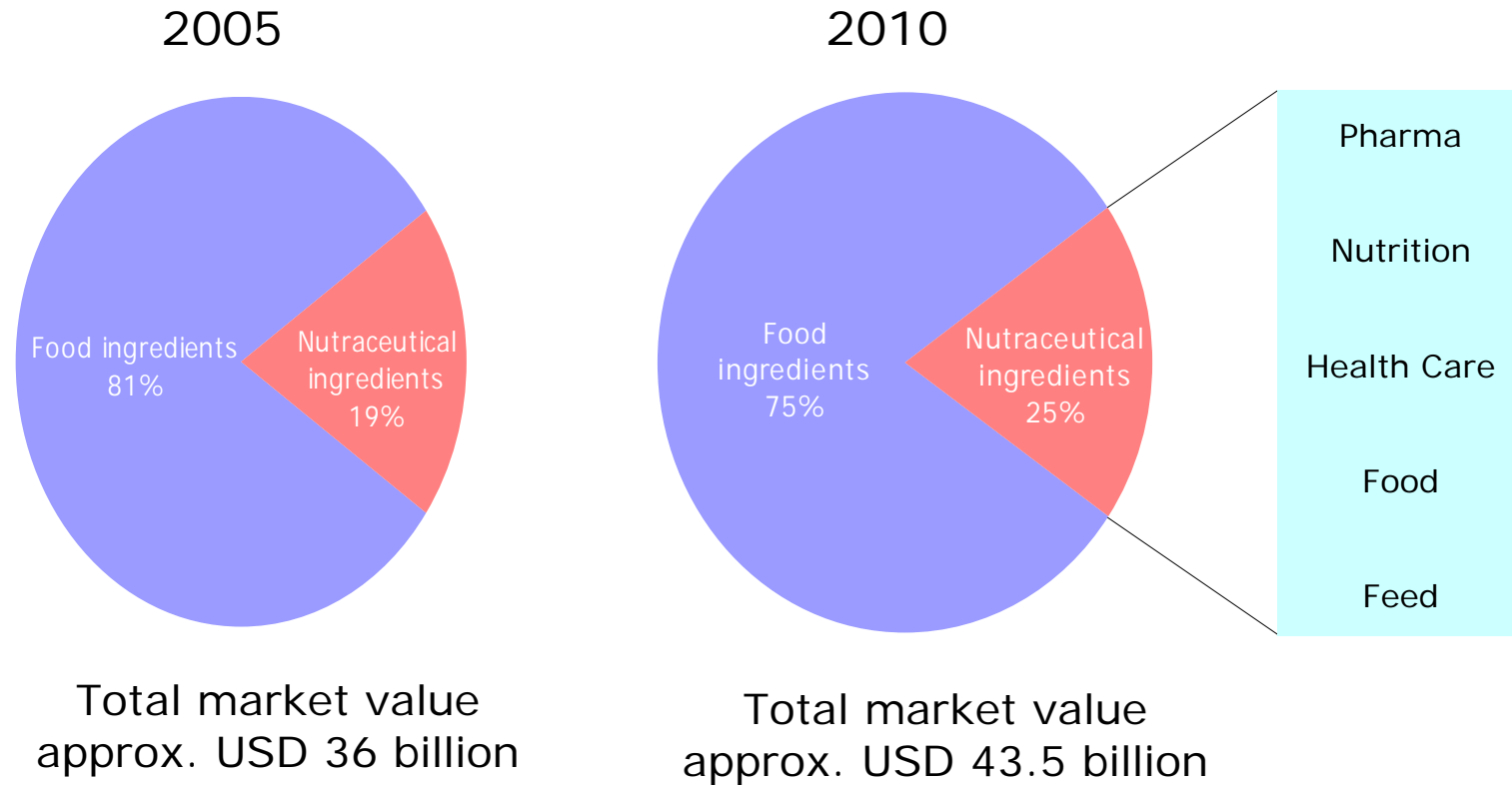
Source: Marine Institute: “Sea Change”, 2006

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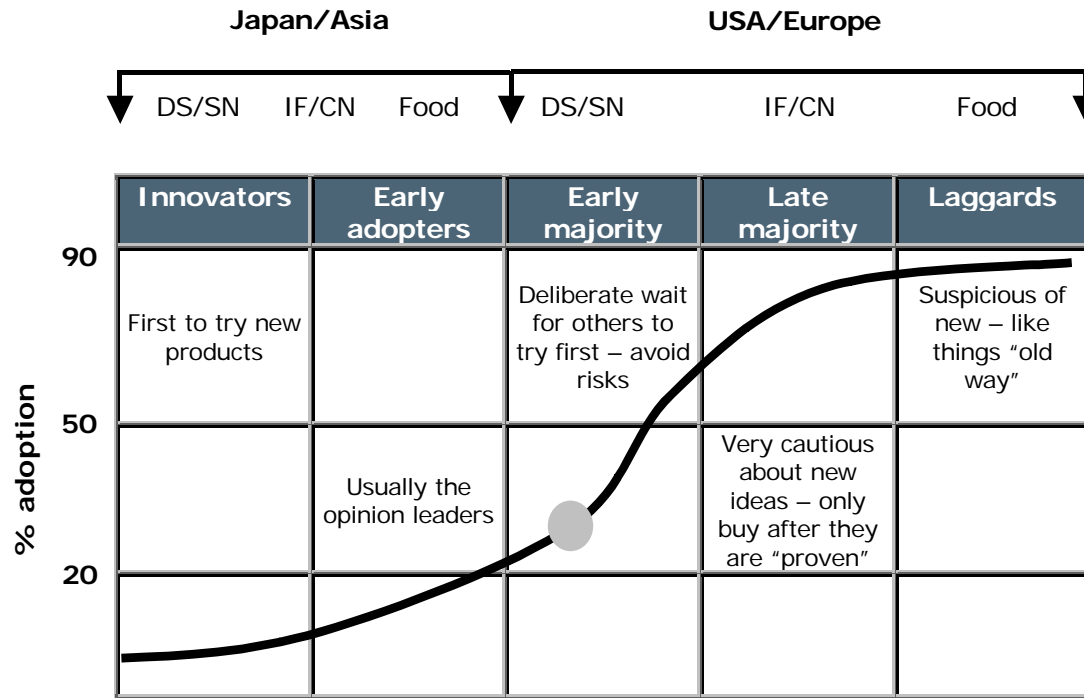


Marine ingredients is forecasted a higher growth rate than food ingredients in general



Source: Nutrition Business Journal/3A Business Consulting

Nutraceutical/marine ingredients are generally taking off in supplements



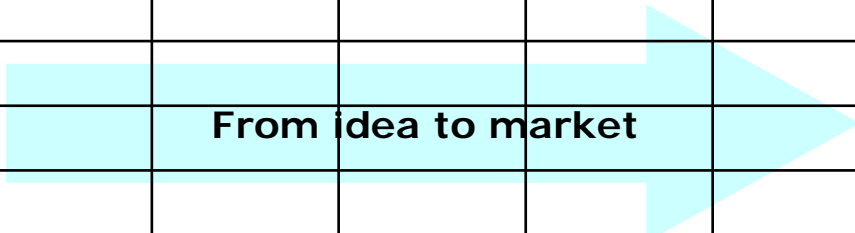
DS: Dietary supplements; SN: Sports nutrition; IF: Infant formula; CN: Clinical nutrition

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

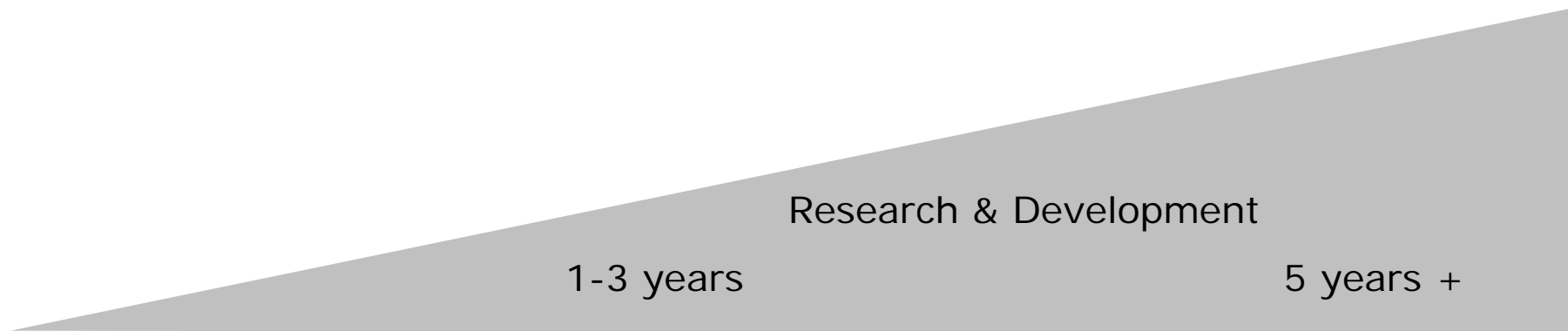
Activities	Technical feasibility	Safety	Efficacy	Regulatory	Launch	Market place	Total cost
Sourcing							
Production							
Science							
Food concept							
IPR issues							
Partners							
Competition							
Marketing/ claims							
Total Cost							



Ingredient industry challenge: Aligning science and consumer benefits

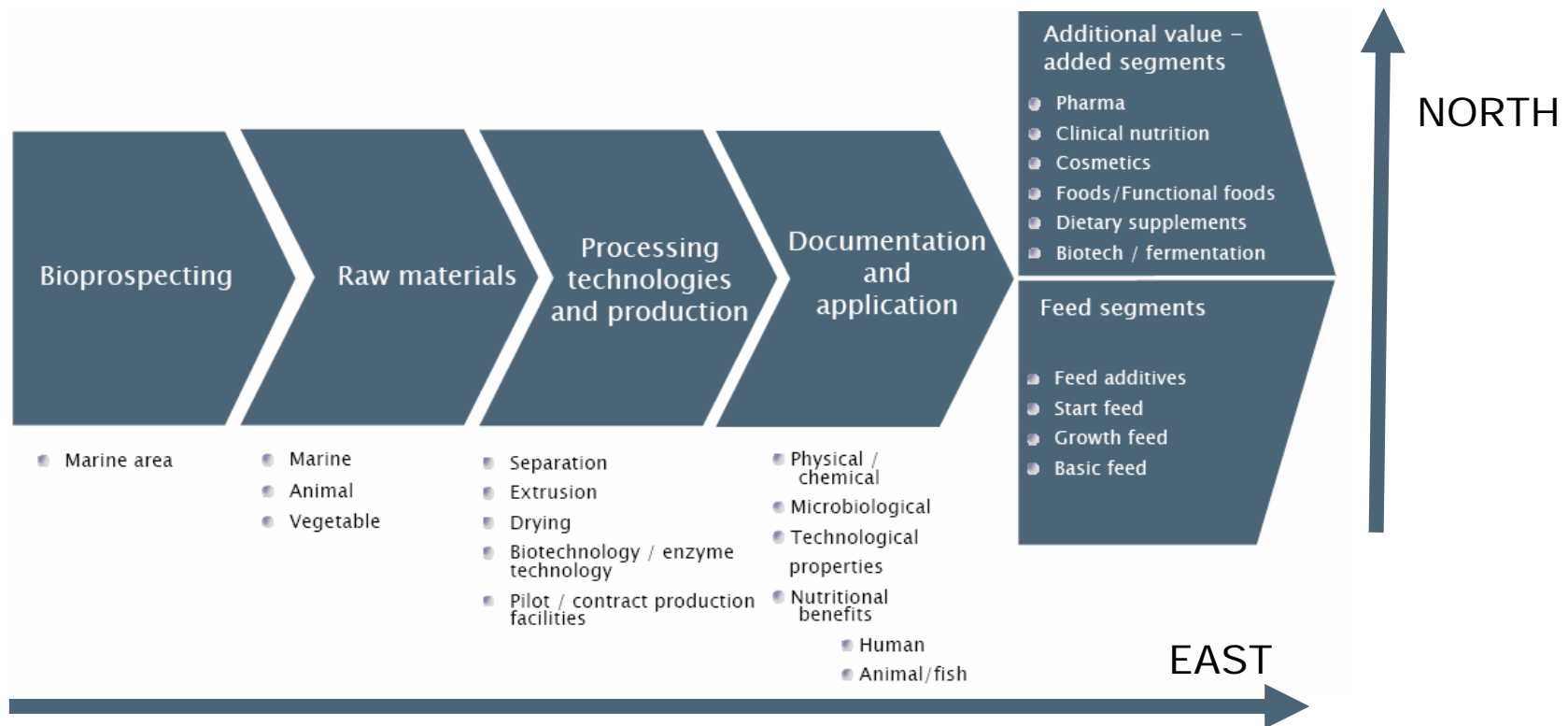


- Nutritional claims
- Generic health claims
- Risk reduction health claims



The Norwegian marine ingredients industry - challenge and vision

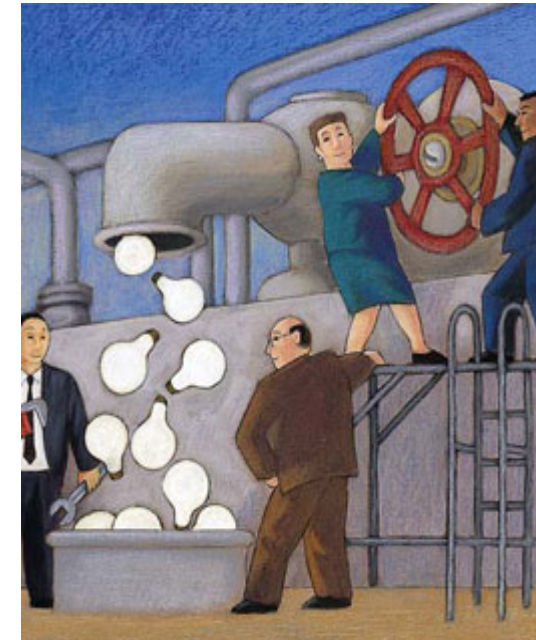
- Norway has the 3 main building blocks for a “blue ocean strategy” in place:
 - Raw materials
 - Emerging industry
 - Fairly strong R&D
- To take the global leading position, Norway needs to go “East and North”



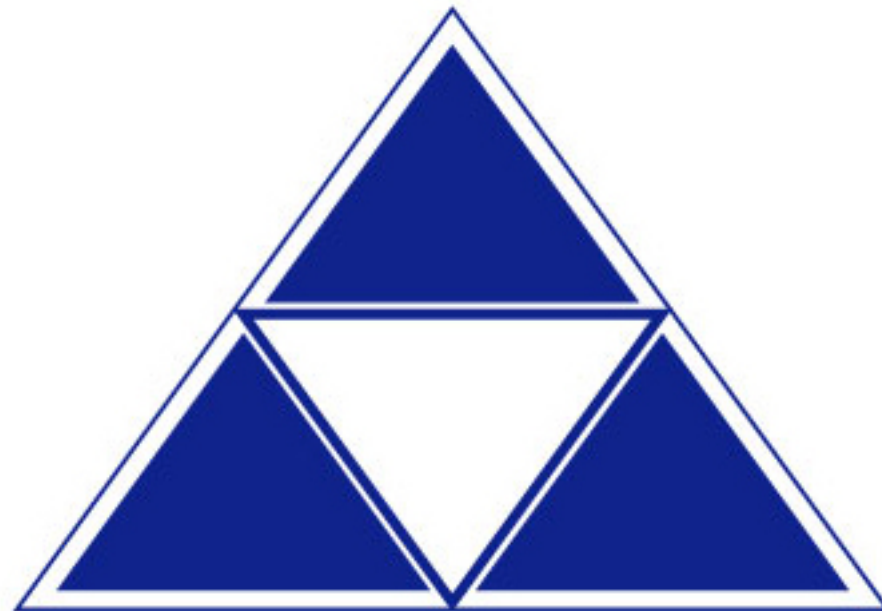
Source: 3A Business Consulting



“INNOVATION
is now
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The Economist



Thank you for your attention
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