

OVERVIEW OF CONSUMER BEHAVIOR-RELATED AFFAIRS IN THE FRAME OF “DIVERSIFY” - KEY-FINDINGS

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A BIG 'THANK YOU' MUST GO TO:

Marija & Karen (DK)

Lluis et al. & Roccio et al. (E)

Machiel (NL)

Kriton, Kostas & Hellas (GR)

THE 'DIVERSIFY' PROJECT

...came as an attempt to direct emphasis of **innovation** at the fish production system / farm level R&D, by **introducing fish species that could be used as a basis to produce high added-value fish end-products in a market-oriented manner.**



FROM INNOVATION TO NEW FOOD PRODUCTS

- › **Radical innovation** in the European F&D industry (i.e. patents turned into commercial products) is limited
 - › ... since not only is **food product innovation costly and risky**, but it is **often met**
with opposition on behalf of the consumer
- › **Incremental innovation** however (i.e. number of new food products launched with various **position claims**) is spectacularly widespread!!

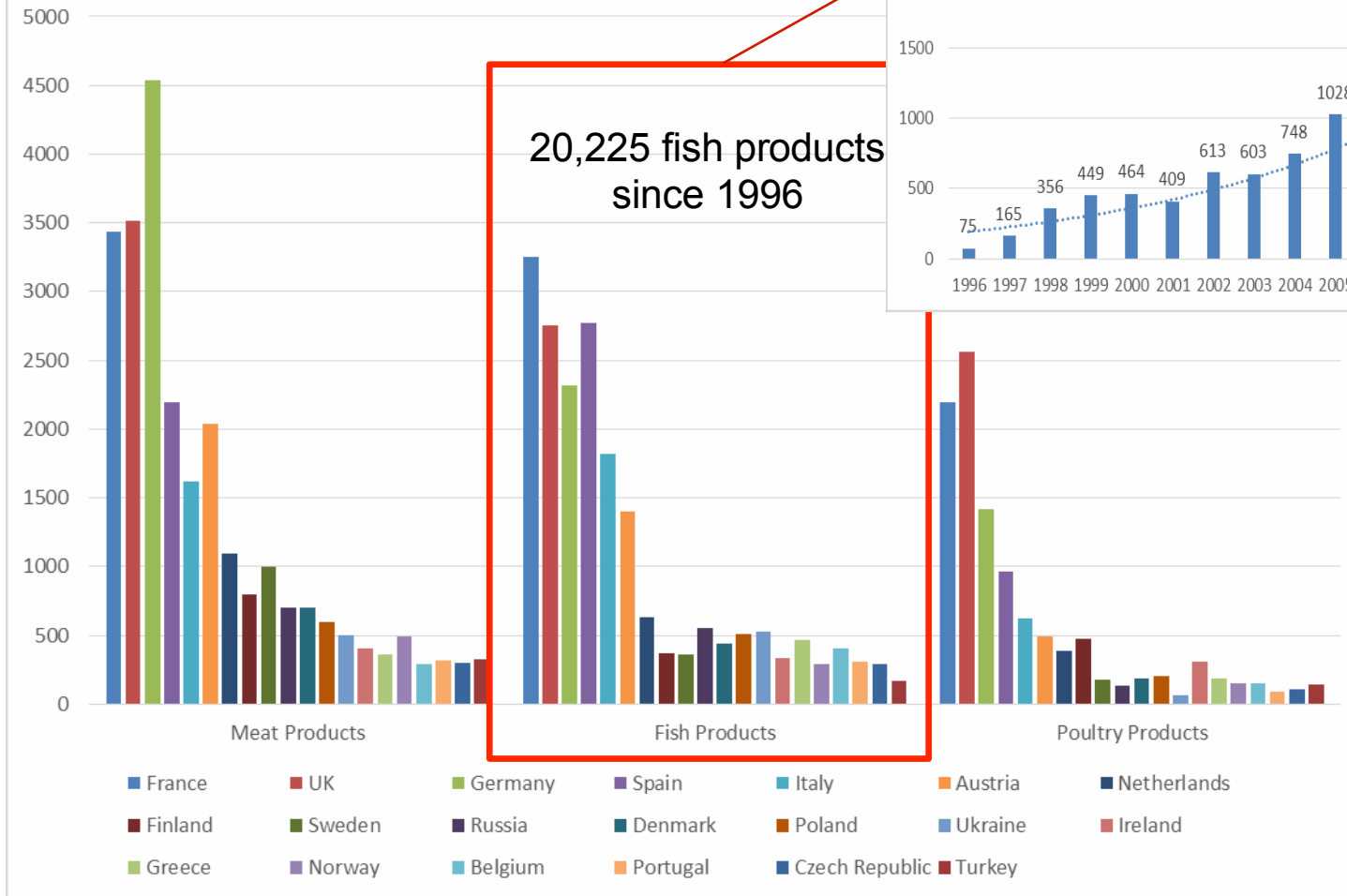




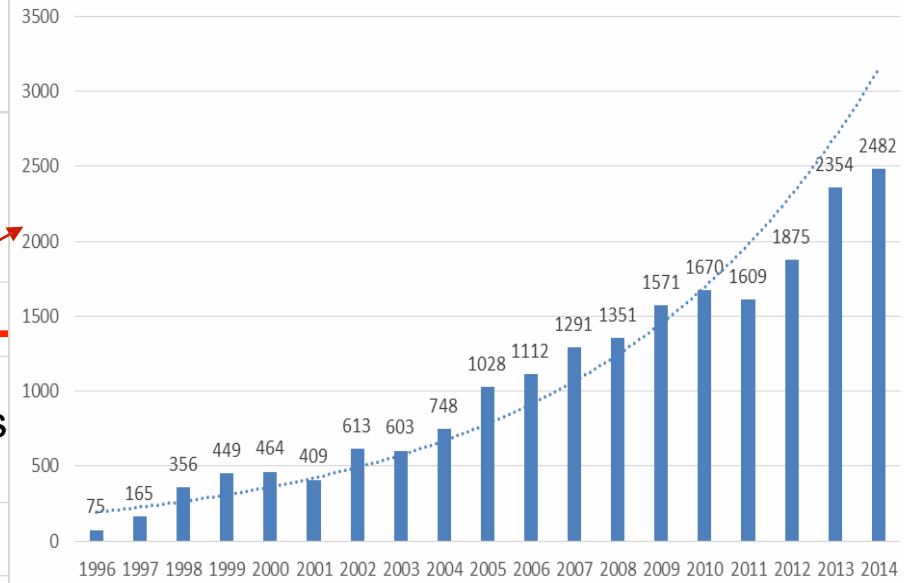
New product launches - top-20 European countries

(source: Mintel - gnep, 7/11/2014)

20,225 fish products since 1996



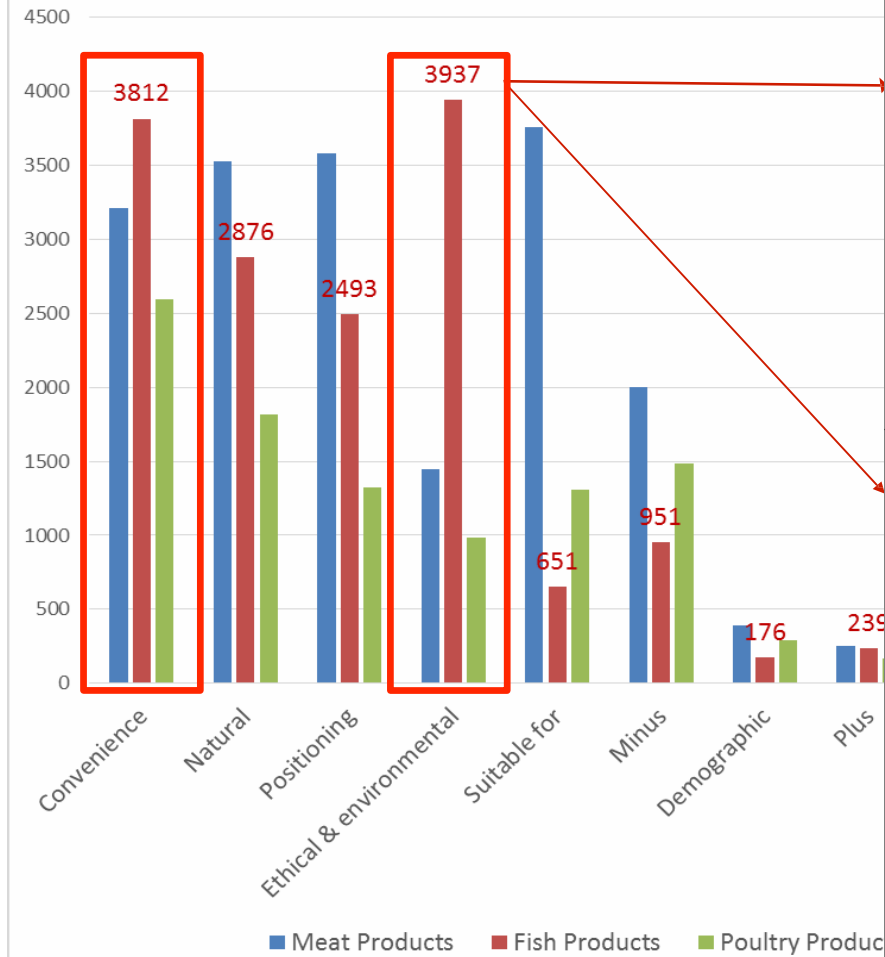
Fish Products



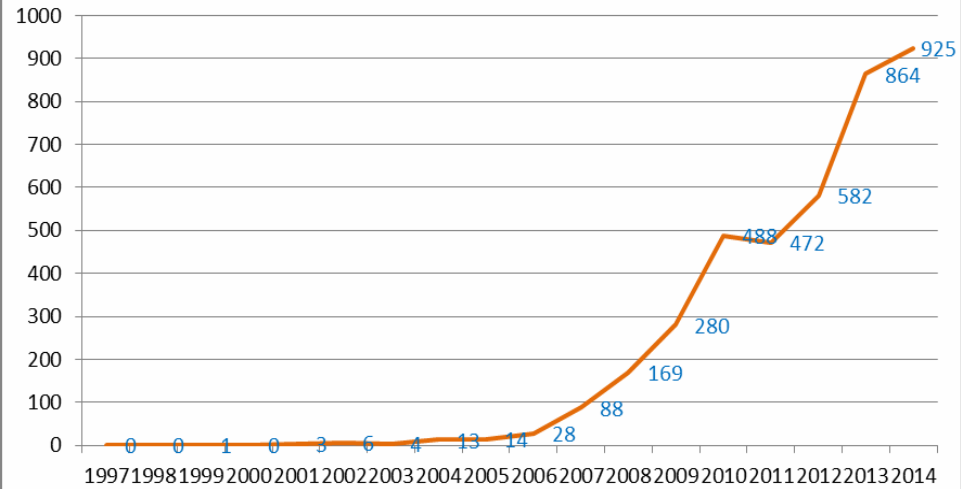


Top-10 types of claims on label, last 15 years

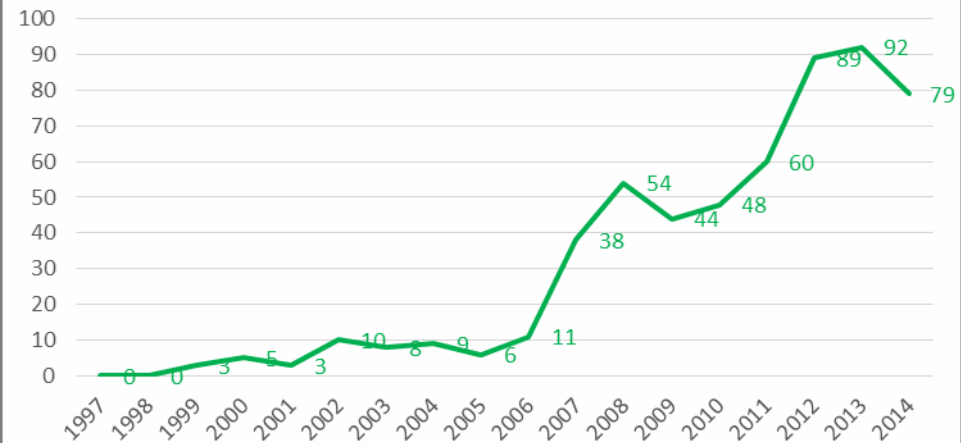
(source: Mintel GNPD, 7/11/2014)



Evolution of ethical & environmental claims in fish products, top-20 European markets



Evolution of organic claim in fish products (559), top 20 European markets



CONSUMER BEHAVIOR- RELATED OBJECTIVES



1. Develop a consumer typology based on **consumers' overall value perceptions** with regard to wild and cultured fish and **identify most promising fish consumer types**;
2. Elicit consumer-derived ideas for **new** (high-added value fish) **products** and **select most promising ideas** for new product development
3. Turn the **selected ideas** into **product concepts** and **evaluate consumer likeness, expectations & sensory perceptions**;
4. Optimize the new product concepts in terms of **extrinsic product attribute combinations** that can generate **best value perceptions**;
5. Determine **effectiveness of market communication** in consumer **attitude change** towards the **new products** and the entire **DIVERSIFY production system**.

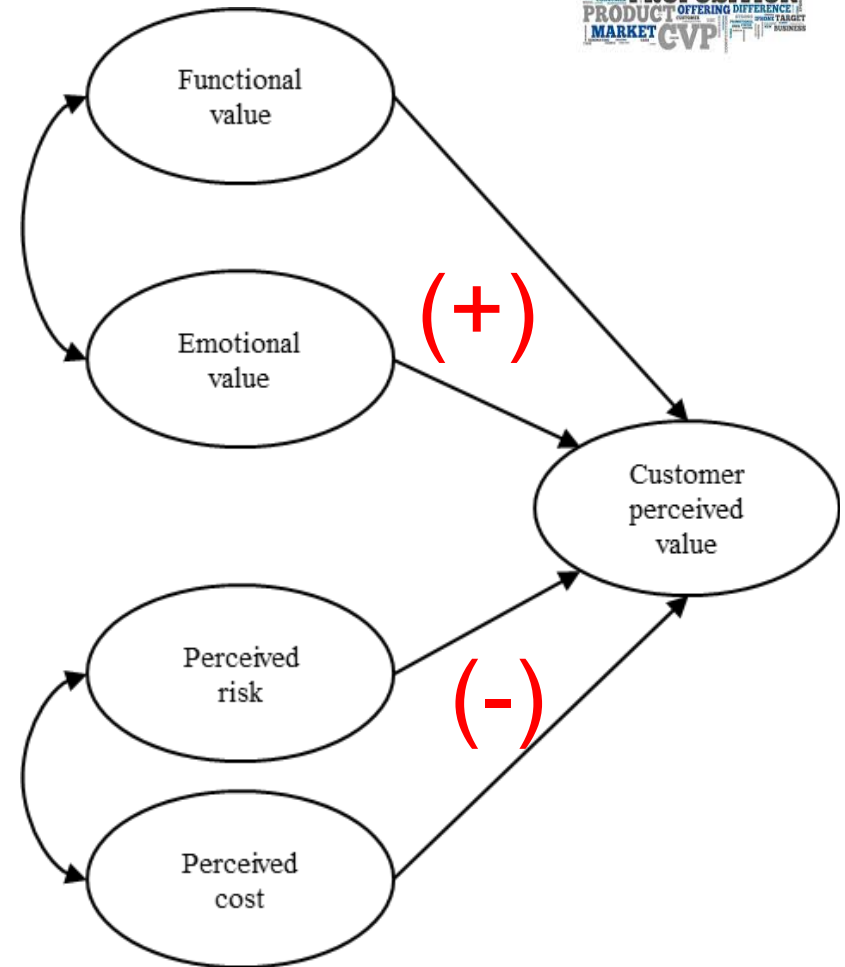
1. DEVELOPMENT OF A CONSUMER TYPOLOGY BASED ON CONSUMERS' OVERALL VALUE PERCEPTIONS WITH REGARD TO WILD AND CULTURED FISH & IDENTIFICATION OF THE MOST PROMISING FISH CONSUMER TYPES

THE CONCEPT OF PERCEIVED CUSTOMER VALUE

› Perceived values and costs, such as:

- **Functional Value** (i.e. perceived product capacity for functional performance)
- **Emotional Value** (i.e. perceived feelings about product purchase & use),
- **Costs** (i.e. price & evaluation efforts), &
- **Risks** (i.e. performance & safety)

impact overall **Customer Perceived Value**





In this picture, you see a **new marine finfish species** from the **European aquaculture industry** that has entered the market recently.

The **size of this fish is similar to that of Atlantic Salmon**. This fish can be found in the Mediterranean and Black Sea, and along the eastern Atlantic coast.

(+)

This fish is a **high quality meal** choice, has a **lower fat content** than the average farmed fish, **excellent taste** and **firm, yet juice flesh**. Due to these characteristics, this fish is very suitable to be **served at special occasions**. Moreover, this species is very suitable for the **development of value-added products**. As such, compared to other possible choices, this fish has the potential to **gain a popular image**. Finally, the development of this fish will **be more environmentally friendly**, compared to other species, and takes place in a **controlled production system**. This new finfish, therefore, suits the needs of consumers who demand **sustainability** and **low environmental impact**.

(-)

As a result of its high quality, this fish might be **more expensive** than the average farmed fish. In addition, since both its **production and market are still small**, it is likely that it will **not be widely available** in the 'usual' retail outlets. Although this fish is praised for its taste, this **taste might seem different than usually expected** from farmed fish, a taste that not everyone would appreciate. Moreover, due to its different quality, this fish might **demand extra skills to cook** compared to other farmed or wild species. Overall, despite sufficient experience with its production system, the **exact rearing methods for this fish are still not perfected** as yet.



THE STORY BEHIND THE FISH

VALUES

Functional value
Sweeney & Soutar (2001)

1. This fish would have consistent quality
2. This fish would be well produced
3. This fish would be a tasty dish
4. This fish would be a nutritious food choice
5. This fish would be a healthy food choice

Emotional value
Perrea et al. (2015)

6. Buying this fish makes me feel excited
7. Buying this fish makes me enthusiastic
8. Buying this fish makes me feel happy

COSTS

Price
Sweeney & Soutar (2001)

9. This fish would not be reasonably priced
10. This fish would not be as good a product as its price indicates
11. This fish would have higher price than the average of farmed fish
12. This fish would not be economical

Evaluation effort
Yoo et al. (2000)
Petrick (2002)

13. This fish would require too much time to find
14. This fish would require too much effort to find
15. This fish would be hard to find

RISKS

Performance risk
Sweeney et al. (1999)

16. There might be a chance that this fish would not taste properly
17. There might be a chance that the taste of this fish would be too different from the fish I usually buy
18. This fish would come from a production method that I cannot trust
19. This fish would not have any extras to offer

Safety risk Perrea et al. (2015)

20. This fish would not be safe to consume
21. Not enough experience is gained in this fish so as to ensure safety
22. There might be a risk if the safety of consuming this fish is not warranted

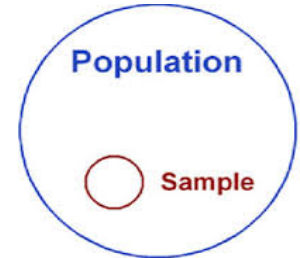
CUSTOMER VALUE

Customer value
Cronin et al. (1997)
Dodds et al. (1991)

23. I would consider this fish to be good value for money
24. I would consider this fish to be a good buy
25. The value of this fish to me would be high
26. Compared to what I would have to give up, the overall ability of this fish to satisfy my needs would be high
27. This fish replace old fish products with new valuable products
28. This fish is a promising fish product

THE PERCEIVED CUSTOMER VALUE QUESTIONNAIRE





THE SAMPLE

Total of **2,511** regular consumers of fish products

- › Online survey in the **top-5 EU fish markets** (i.e. D, FR, I, ES, UK)
- › 49.2% men and 50.8% women
- › Age range 18 - 64 y. (M = 41.4y)



PSYCHOGRAPHIC

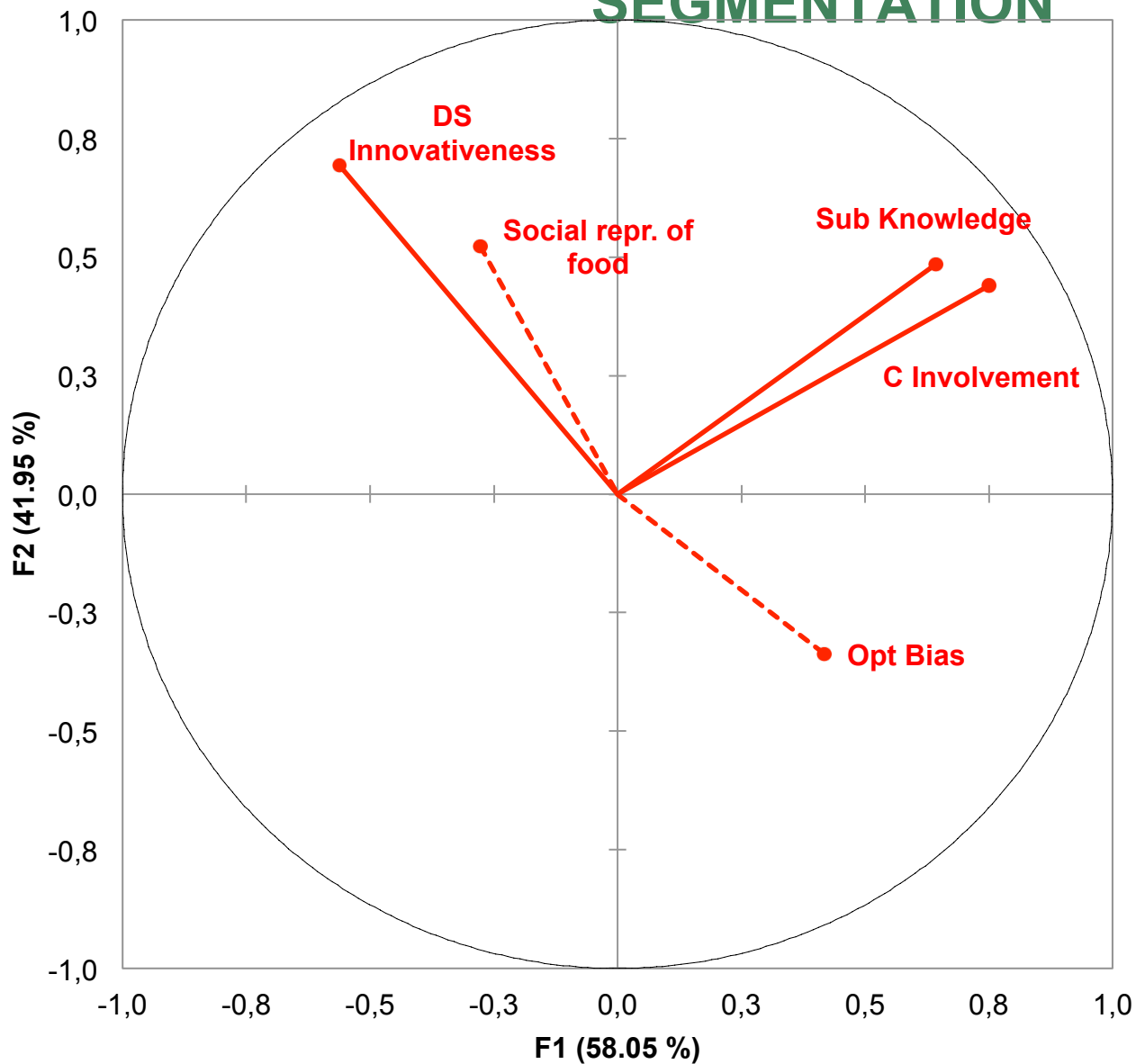
Construct	Germany (n = 506)	France (n = 500)	UK (n = 505)	Spain (n = 500)	Italy (n = 500)	Mean difference- test (F-value)	Pooled sample (N = 2511)
Consumer involvement	$\alpha = .88$	$\alpha = .94$	$\alpha = .94$	$\alpha = .95$	$\alpha = .96$		$\alpha = .94$
59. I am very concerned about what fish products I purchase	2.65	2.49	2.97	2.63	2.29	14.68***	2.61
60. I care a lot about what fish products I consume	2.14	2.46	2.78	2.62	2.44	14.44***	2.49
61. Generally, choosing the right fish products is important to me	2.26	2.42	2.75	2.57	2.28	11.21***	2.46
Domain specific innovativeness	$\alpha = .88$	$\alpha = .86$	$\alpha = .90$	$\alpha = .86$	$\alpha = .86$		$\alpha = .87$
62. In general, I am among the last in my circle of friends to purchase new fish products.	4.22	4.17	4.20	4.18	3.95	2.10	4.14
63. Compared to my friends, I do little shopping for new fish products.	4.19	4.00	4.25	4.23	3.97	3.04*	4.13
64. I would consider buying new fish products, even if I hadn't heard of it yet.	n.a. ¹	n.a. ¹	n.a. ¹	n.a. ¹	n.a. ¹		n.a. ¹
65. In general, I am the last in my circle of friends to know the names of the latest new fish product trends.	4.17	4.09	4.17	4.14	3.99	1.02	4.11
66. I know more about new fish products than other people do.	n.a. ¹	n.a. ¹	n.a. ¹	n.a. ¹	n.a. ¹		n.a. ¹
Subjective knowledge	$\alpha = .93$	$\alpha = .95$	$\alpha = .94$	$\alpha = .93$	$\alpha = .94$		$\alpha = .94$
67. I consider that I know more about fish than the average person	3.49	3.97	3.60	3.69	3.53	7.50***	3.66
68. I think that I know more about fish than my friends	3.39	3.92	3.48	3.54	3.43	8.96***	3.55
69. I have a lot of knowledge about how to prepare fish	3.12	3.85	3.50	3.36	3.25	16.33***	3.41
70. I have a lot of knowledge about how to evaluate the quality of fish	3.29	3.95	3.63	3.59	3.37	14.00***	3.57
Optimistic bias	$\alpha = .81$	$\alpha = .90$	$\alpha = .88$	$\alpha = .86$	$\alpha = .85$		$\alpha = .86$
71. Compared to the average person of my age and sex, the likelihood of me getting health problems when eating new product from a new farmed fish is [-3/+3: much less/more likely than the average person]	-0.73	-0.15	-0.27	-0.46	-0.51	12.95***	-0.42
72. The health risks associated with eating a new product from a new farmed fish to me personally are [1=very low to 7=very high]	2.87	3.57	3.11	2.95	3.10	16.73***	3.12
73. The health risks associated with eating a new product from a new farmed fish to the average [Spanish / / / /] are [1=very low to 7=very high]	3.06	3.62	3.24	3.05	3.36	13.22***	3.27
Social representations of food	$\alpha = .73$	$\alpha = .74$	$\alpha = .76$	$\alpha = .74$	$\alpha = .79$		$\alpha = .75$
74. I value things being in accordance with nature.	n.a. ²	n.a. ²	n.a. ²	n.a. ²	n.a. ²		n.a. ²
75. I feel good when I eat clean and natural food.	n.a. ²	n.a. ²	n.a. ²	n.a. ²	n.a. ²		n.a. ²
76. I would like to eat only food with no additives.	n.a. ²	n.a. ²	n.a. ²	n.a. ²	n.a. ²		n.a. ²
77. Eating is very important to me	n.a. ²	n.a. ²	n.a. ²	n.a. ²	n.a. ²		n.a. ²
78. For me, delicious food is an essential part of weekends.	n.a. ²	n.a. ²	n.a. ²	n.a. ²	n.a. ²		n.a. ²
79. I treat myself to something really delicious.	n.a. ²	n.a. ²	n.a. ²	n.a. ²	n.a. ²		n.a. ²
80. New foods are just a silly trend.	4.43	4.47	4.38	4.58	4.44	1.01	4.46
81. Consequences of eating new foods are unknown.	3.31	3.18	3.53	3.53	3.50	5.41***	3.41
82. I have some doubts about food novelties.	3.67	3.49	3.59	3.51	3.68	1.64	3.59

Notes: Answer scales ranged from 1 = 'strongly agree' to 7 = 'strongly disagree'; ***significant at $p < .001$; **significant at $p < .01$; *significant at $p < .05$.

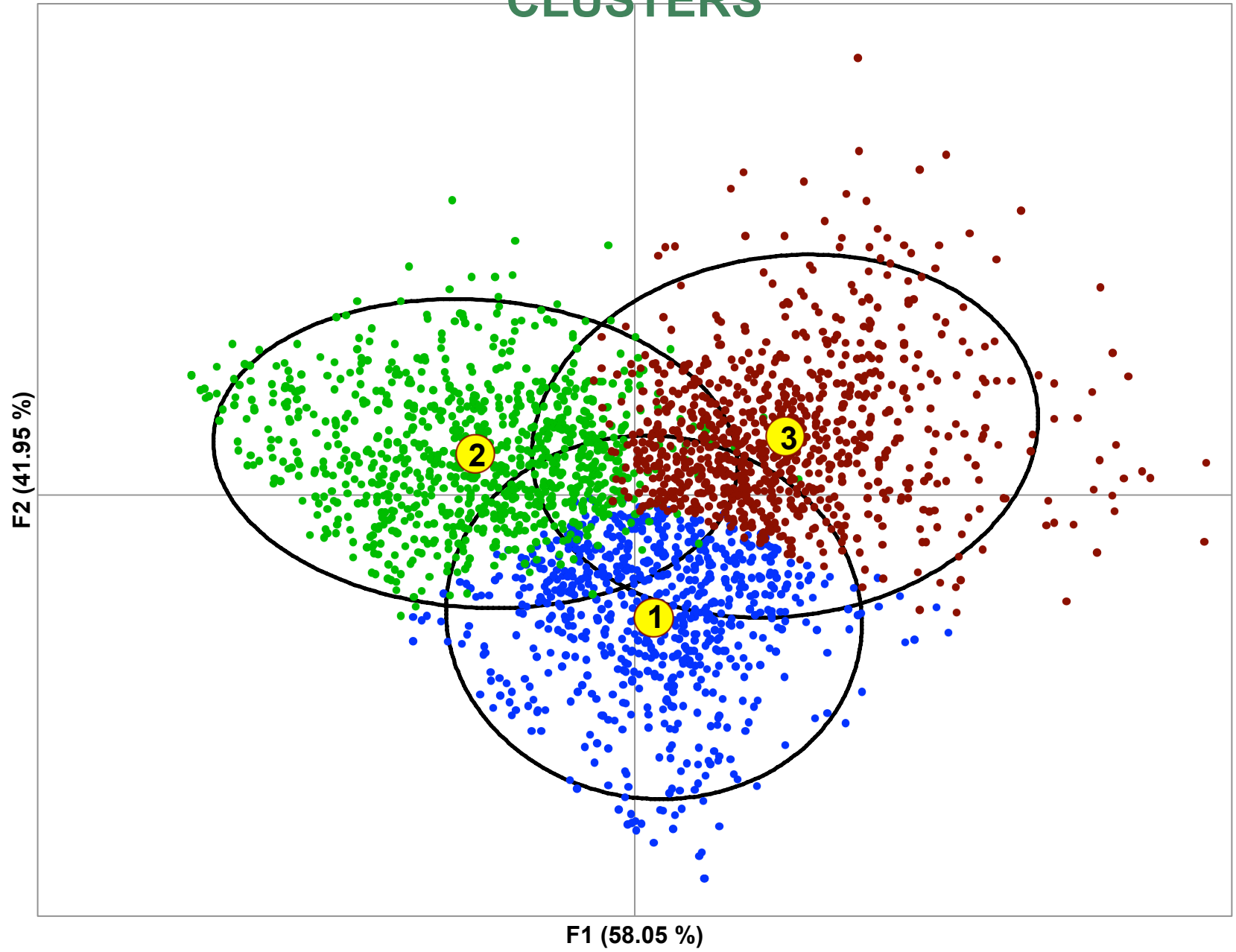
¹Based on the outcomes of the pilot-test, the reversely formulated items were dropped in the analyses; ²Items A74-79 were dropped from the analysis; only items A80-82 ('novel food' dimension) are kept.

PSYCHOGRAPHIC SEGMENTATION

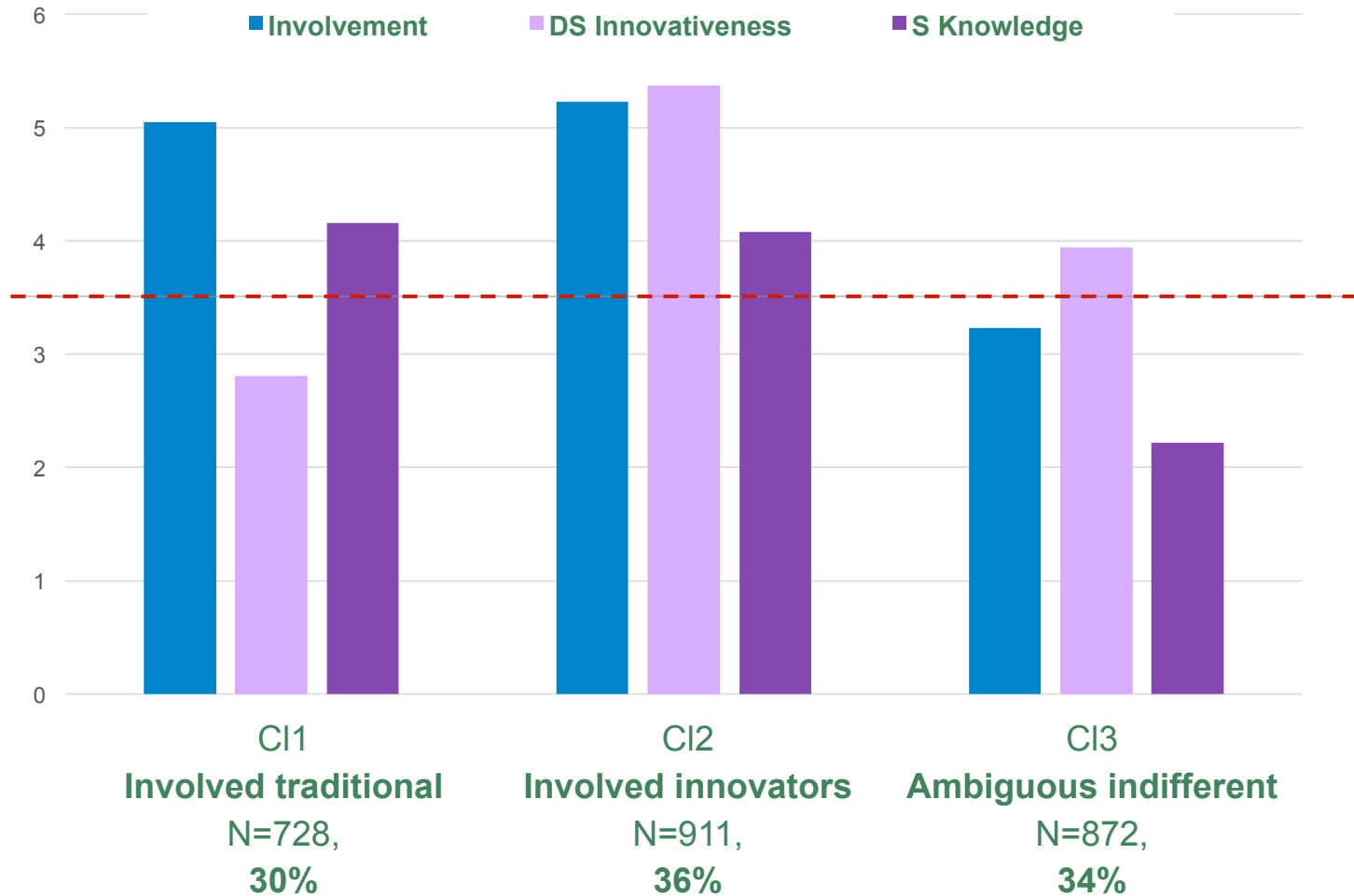
Discriminating power among psychographic factors



THREE FISH CONSUMER CLUSTERS

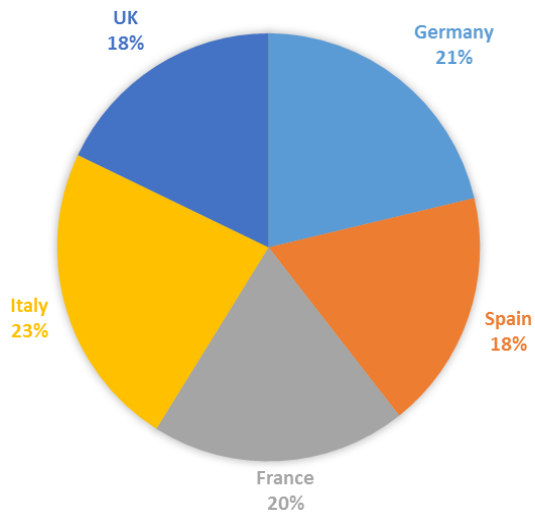


Psychographic profile of the segments

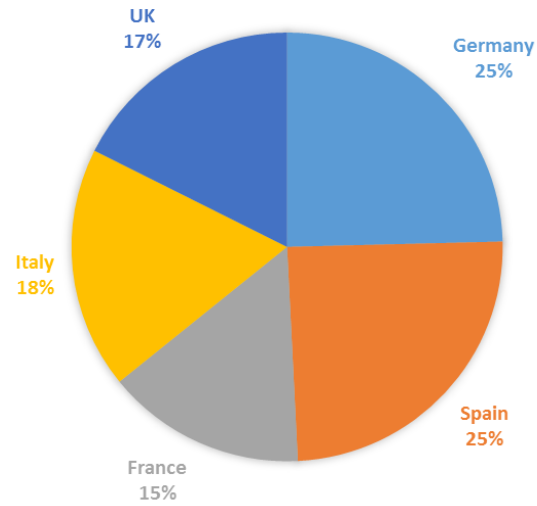


Country participation

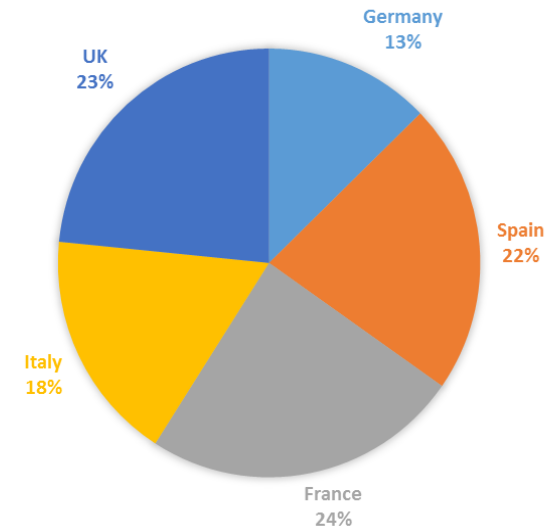
CL.1: INVOLVED TRADITIONAL



CL.2: INVOLVED INNOVATORS



CL.3: AMBIGUOUS INDIFFERENT



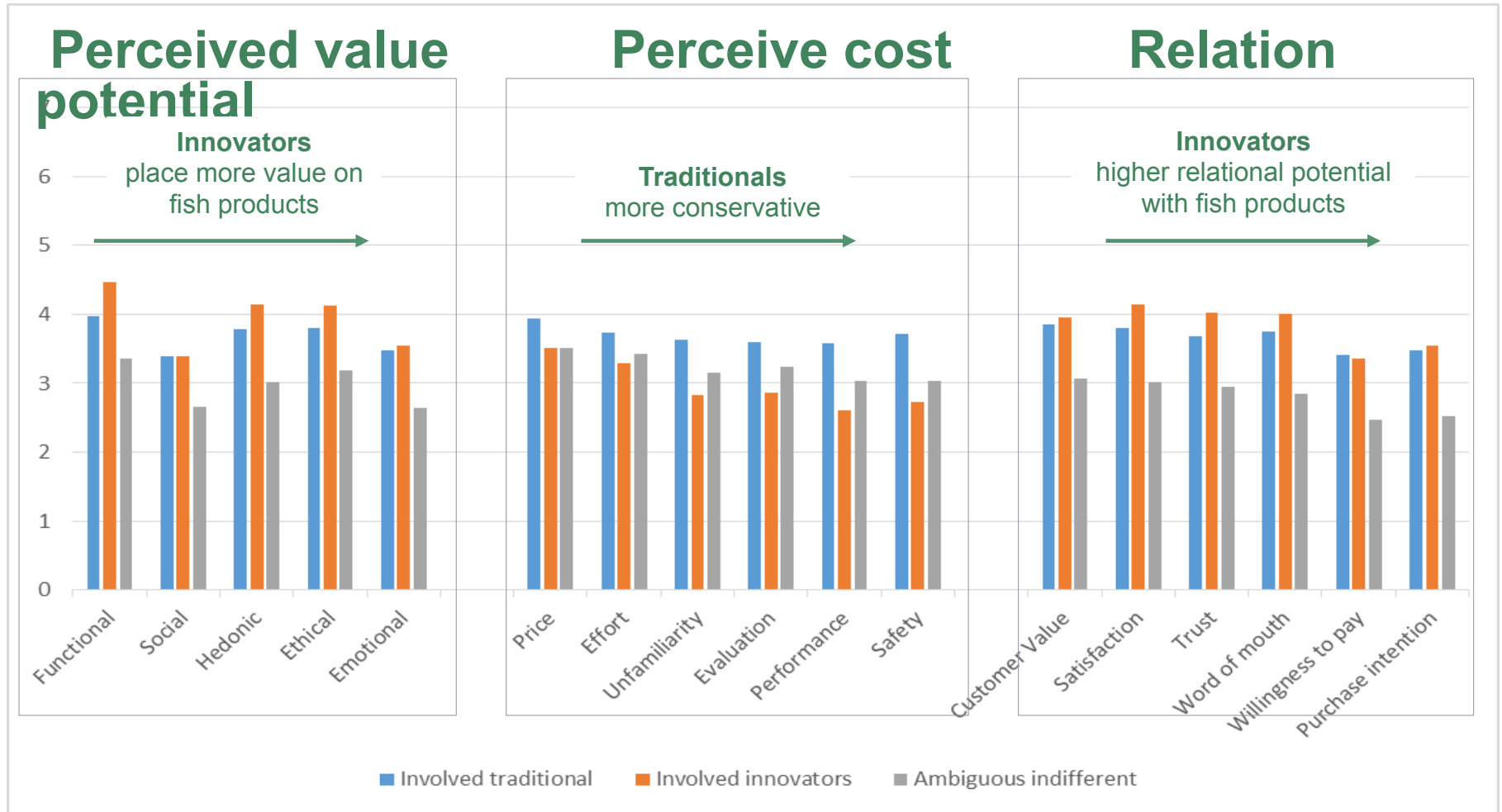
Socio-demographic profile, %

(only statistically significant differences)

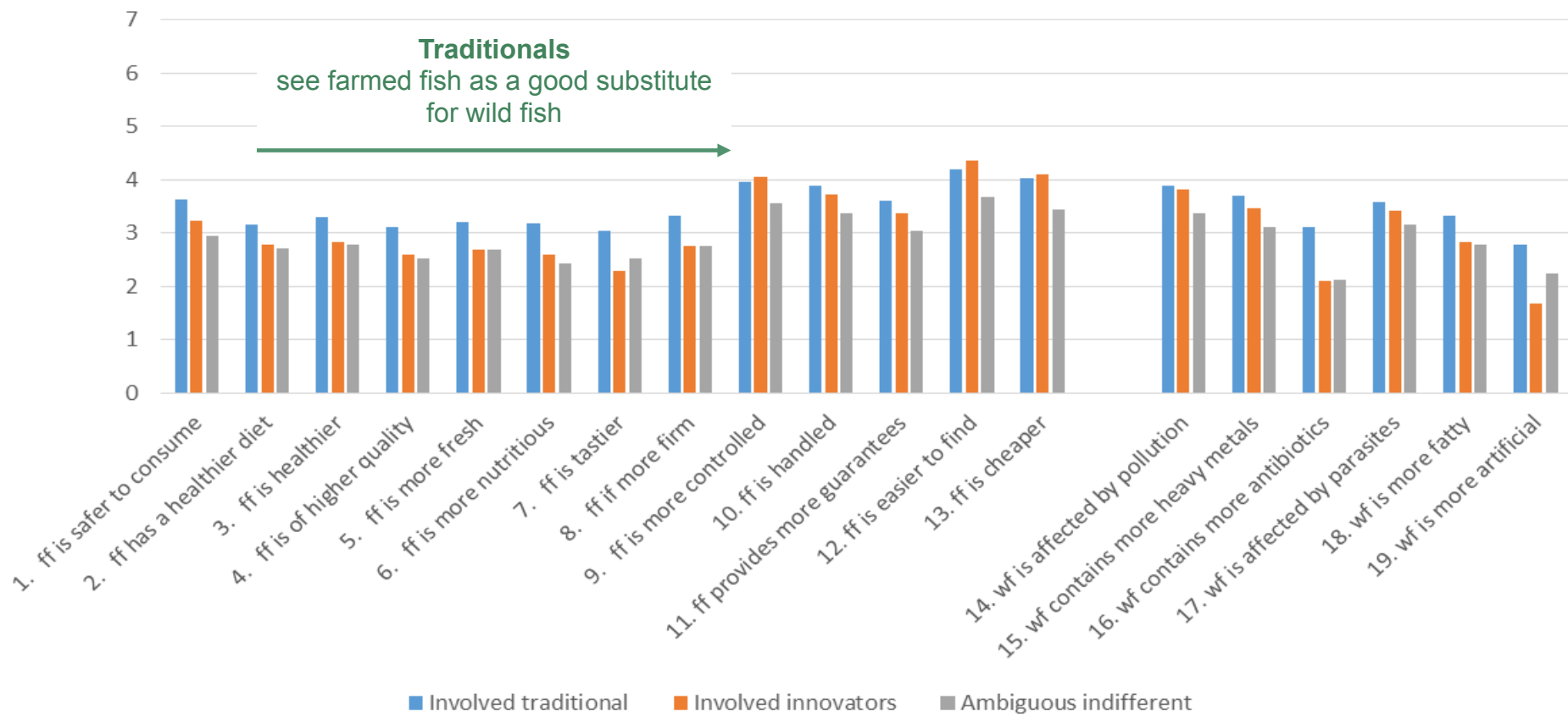
Characteristic		Involved traditional (N=728) 30%	Involved innovators (N=911) 36%	Ambiguous indifferent (N=872) 34%	Sig.
Age	(mean in years)	40.7	43.7	39.6	.002
Marital status	(married)	51.6	53.9	43.1	.000
Employment	(employee various)	32.2 11.7	30.5 14.3	30.6 15.3	.026
	(non-working)				
Income	(more than average)	13.5 61.1	17.3 59.5	9.9 57.7	
	(average)	25.4	23.2	32.5	.000
	(less than average)				

Behavioural profile, %

Characteristic	Involved traditional (N=728) 30%	Involved innovators (N=911) 36%	Ambiguous indifferent (N=872) 34%	Sig.
Consumption of farmed fish:				
Once a week or more	23.1	22.9	16.5	.000
Two-three times a month	29.7	32.4	27.2	
Once a month or less	32.6	32.6	38.6	
Never	9.8	7.2	8.0	
Consumption of wild fish:				
Once a week or more	21.6	17.9	11.9	.000
Two-three times a month	27.9	26.8	22.6	
Once a month or less	33.1	35.7	33.9	
Never	11.1	12.5	22.1	
Consumption of seafood:				
Once a week or more	22.1	20.6	13.9	.000
Consumption of frozen fish:				
Once a week or more	31.7	31.8	25.1	.003
Consumption of whole fish:				
Once a week or more	28.7	24.4	17.1	.000
Consumption of processed fish:				
Once a week or more	29.3	21.7	21.3	.001



Beliefs about farmed fish (ff) and wild fish (wf)



Involved traditional (30%)	Involved innovators (36%)	Ambiguous indifferent (34%)
<p>PSYCHOGRAPHICS -Involved, knowledgeable</p> <p>BEHAVIOUR -Highest number of regular fish consumers across all fish types (farmed, wild, etc.)</p> <p>PERCEPTIONS OF VALUE & COST -Average perceived value of the new species, highest perceived cost (i.e. price, safety, effort), high WTP and PI</p> <p>BELIEFS -Overall strongest beliefs: farmed fish is handled, guaranteed, safe, tasty; wild fish suffers pollution, heavy metals, parasites</p>	<p>-Involved, knowledgeable, innovative when it comes to new fish</p> <p>-Highest number of regular farmed fish consumers, highest number of occasional wild fish consumers</p> <p>-Highest perceived value (i.e. functional, hedonic, ethical), lowest perceived cost, highest expected outcomes (i.e. satisfaction, trust, WOM), high WTP and PI</p> <p>-Stronger beliefs about farmed fish: easier to find, cheaper, more controlled</p>	<p>-Non-involved, non-knowledgeable</p> <p>-Highest number of occasional of non-consumers of all fish types</p> <p>-Lowest value perceptions and outcomes, average cost perceptions</p> <p>-Neutral, low-strength beliefs</p>

2. ELICITATION OF CONSUMER-DERIVED IDEAS FOR NEW (HIGH-ADDED VALUE FISH) PRODUCTS & SELECTION OF THE MOST PROMISING IDEAS FOR NEW FISH PRODUCT DEVELOPMENT

DATA COLLECTION

- › **10 focus groups consisting of 6 participants each** (2 per country) across the **top-5 EU fish markets** (i.e. D, FR, I, ES, UK)
- › 60 consumers, 30-60 y.o. (mean age 44y), equally split between males and females
- › Recruitment criteria:
 - **(farmed/wild) fish consumers**, having bought (farmed/wild) fish or seafood at least once during the month before the interviews
 - **Main decision-makers about grocery shopping** or share the task equally with another member of their household
 - **Belong to the 'Traditional' and 'Innovators' segments**

PROCEDURE

Tasks accomplished:

- **Project consumer perceptions towards new aquaculture products** (by using specific techniques i.e. **personification, free word association, role playing**);
- **Create new ideas for fish products** (by using creative techniques i.e. **empathy map, brainstorming**); &
- **Evaluate the ideas created** (i.e. vote for the best idea giving a score from 0 to 12)

This procedure provided **30 ideas in total** (6 per country)

STIMULI FOR THE ROLE-PLAYING TASK



Fish (back) fillet



Ready-made fish fillet



Fish sausages and hamburgers



Carpaccio



Snacks: dried fish fillet, fried cod skin, crunchy surimi, and fish sticks

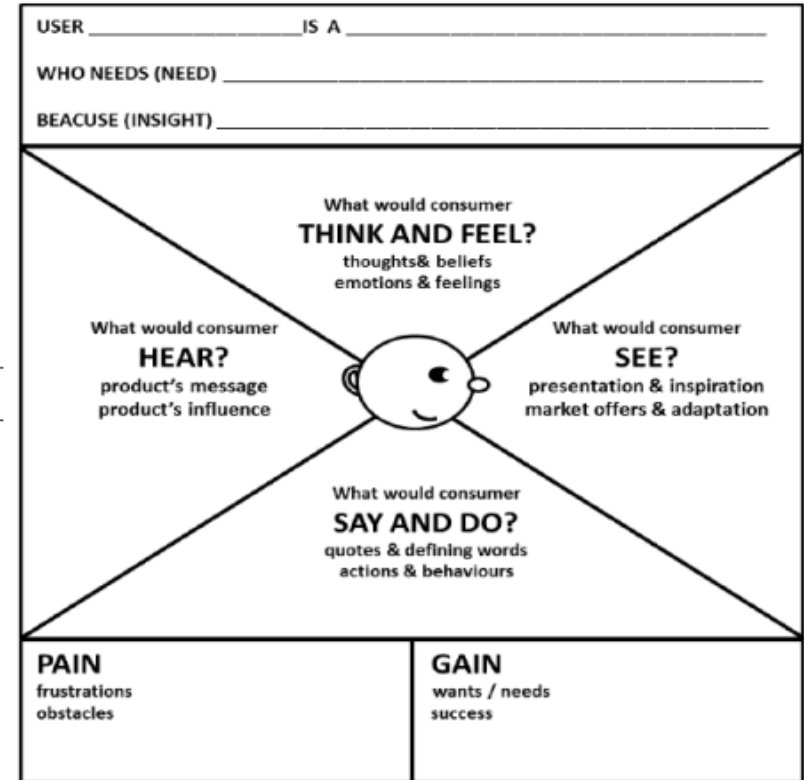


Octopus and seafood salad

EMPATHY MAP

Profiling a hypothetical consumer of a new product

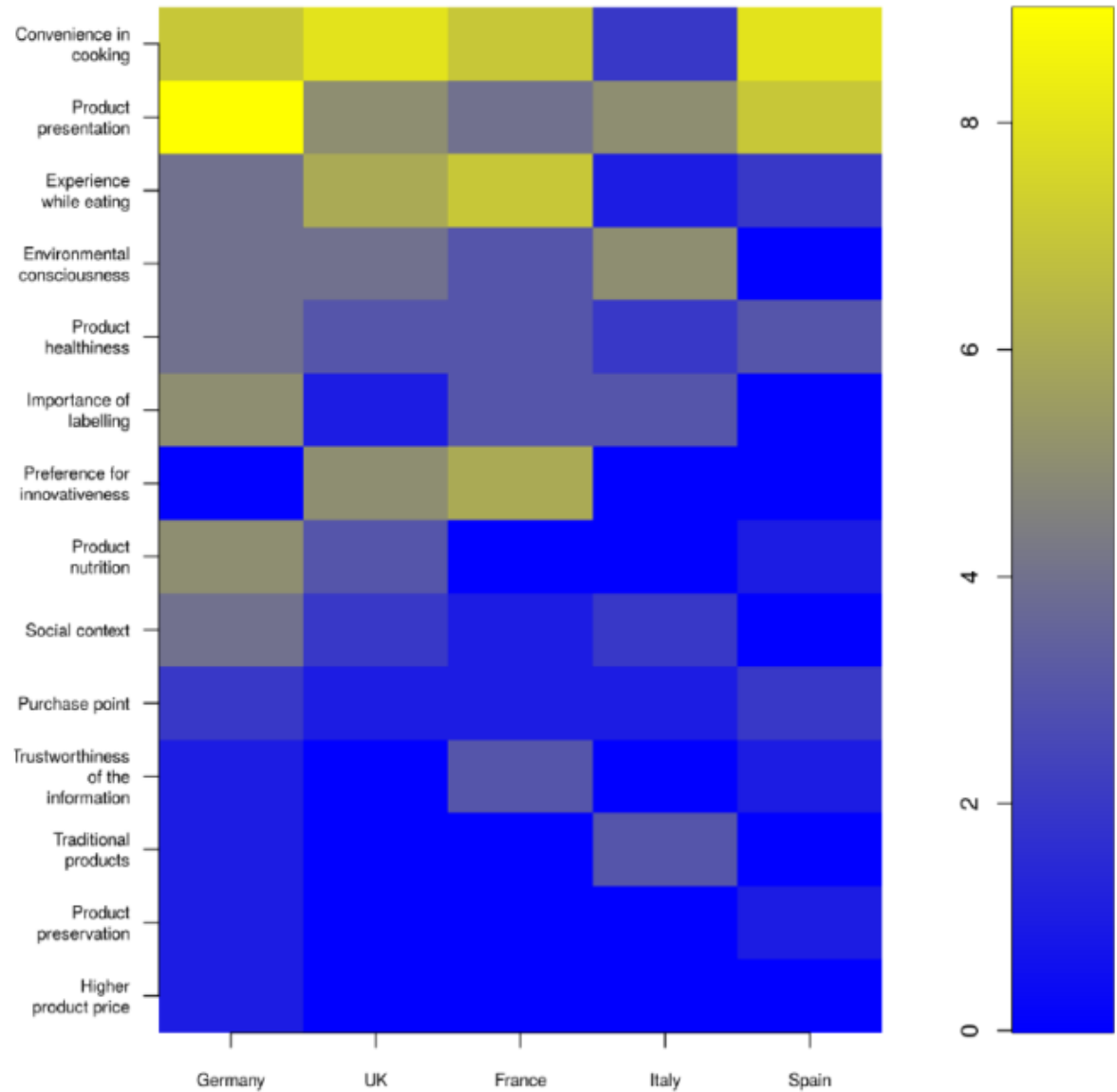
EMPATHY MAP	Questions for brainstorming
SEE Describe what would the consumer like to see in the environment	Why would the consumer like to see this product or how it would look like? Why would this product be different from others on the market? How would you combine, modify or adapt this product with existing products to create a new one?
HEAR Describe how the environment might influence the consumer	Why would this product influence the consumer? What could be this product message? What could consumer's friends/family and others say?
THINK & FEEL Describe what goes in the consumer mind, deeper meaning of consumer needs, thoughts and beliefs, feelings and emotions, with regards to this product	Why would this product be really important to the consumer (what consumer might not say publicly)? What could consumer think/feel about this product? Imagine consumer's feeling and emotions, dreams and aspirations. What could move/keep consumer with regards to this product?
SAY & DO Imagine what the consumer might really say or behave regarding this products	What could be consumer's real attitude towards the product? What could consumer be telling others? What could be potential conflicts between what a consumer might say and may truly think or feel?
PAIN	Why would be consumer frustrated about this product? What obstacles may stand between buying the product and needs to achieve? What risks might consumer fear taking?
GAIN	Why would consumer truly want or need this product? What could be the measure of success for this product? What could be a good strategy for consumer to buy this product?



THEMES FOR NEW PROCAST IDEAS

Stage 3 Creative ideas for new aquaculture products		
n°		Freq.
1.	Product healthiness	96
2.	Convenience in cooking	75
3.	Experiences while eating	68
4.	Product presentation	36
5.	Environmental consciousness	31
6.	Product nutrition	31
7.	Importance of labelling	22
8.	Social context	21
9.	Preference for innovativeness	23
10.	Higher product price	14
11.	Trustworthiness of the information	14
12.	Purchase point	10
13.	Traditional products	2
14.	Appealing for children	2

COUNTRY DIFFERENCES

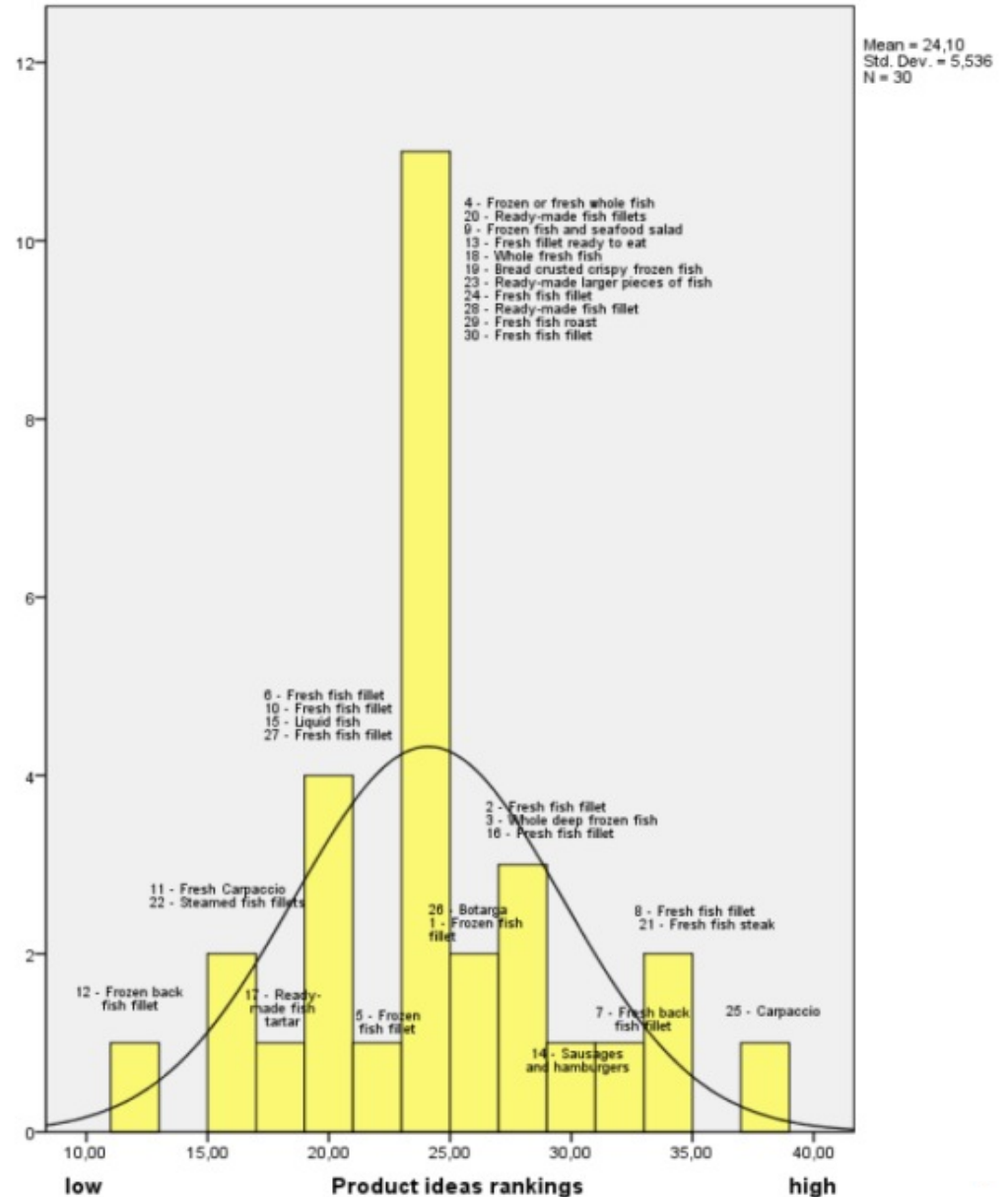


EXAMPLES OF NEW PRODUCT IDEAS CREATED

Country	Product idea	Ratings (*)
France	<u>Fresh fish Carpaccio that can be used as starter for a hot meal or as sandwich filling.</u> This Carpaccio is seasoned with ginger and chili and presented as scales of the fish. The product is produced environmentally sustainable. The packaging is a plate that looks like a round box with the compartments and transparent wheel on the top that you can turn to rich different sections.	38
UK	<u>Fresh fish back fillet that looks like a roast in tray or bag</u> that can be prepared in an oven or barbecue. This fish is accompanied with dips, sauces and dressings. The product is produced environmentally sustainable. The packaging is transparent bag or a tray where fish is laid and covered with transparent plastic.	31
Germany	<u>Frozen fish filet that is seasoned or marinated</u> , either traditional, Italian, Provence or Asian. The product is produced environmentally sustainable. The product is in a sliding packaging, transparent vacuum packed bag made of recyclable material, with clear pictures of the unfrozen product on the cardboard sleeve.	26
Italy	<u>Bread crusted crispy frozen fish product</u> with a topping of vegetables and sauce made by the traditional recipe. This fish product is medium seasoned and easy to prepare in the oven or the microwave in the original packaging. The product is produced environmentally sustainable. It is labelled as a premium product. The packaging is a tray with transparent lid where image of the ready dish is presented.	24
Spain	<u>Liquid fish to make soups or drink.</u> Liquid fish for soups is in mashed form. These products are without additives and thus highly suitable for diabetic and vegetarian people. The product is produced environmentally sustainable. The packaging for soups is tetra brik, while liquid fish for drinking is in the plastic bottle.	20

*: Each idea could take a value from 0 to 72; Min. = 12; Max. = 38; mean = 24.1; SD = 5.5

EVALUATION OF THE NEW PRODUCT IDEAS CREATED



10 NEW PRODUCT IDEAS TO BE TURNED INTO PHYSICAL PRODUCTS:

MEAGRE	Idea 1*: Frozen fish fillets with different recipes Idea 6: Fish burgers shaped as fish (H) Idea 4: Ready to eat meal: salad with fish (L)
PICKEPERCH	Idea 21: Fresh fish fillet with different 'healthy' seasoning and marinades Idea 30: Ready-made fish tartar with additional soy sauce Idea 9: Fish spreads/pate (H)
GREY MULLET	Idea 2: Thin smoked fillets (M) Idea 33: Ready-made fish fillets in olive oil (M) Idea 21: Fresh fish fillet with different "healthy" seasoning and marinades
GREATER AMBERJACK	Idea 13: Frozen fish fillet that is seasoned or marinated Idea 30: Ready-made fish tartar with additional soy sauce Idea 34: Fresh fish steak for grilling in the pan (L)

L: low processing; M: mid processing; H: high processing.

3. TURN THE SELECTED IDEAS INTO PRODUCT CONCEPTS & EVALUATE CONSUMER LIKENESS, EXPECTATIONS & SENSORY PERCEPTIONS

Examples of physical product preparation and presentation



Examples of sample presentation to the participants in the test.



Example of the production of some of the products. a) Grey mullet fillets in salting mixture before smoking; b) Grey mullet fillets on smoking trays; c) Glass pots with clean and homogenous pieces of mullet fillets; d) Filling the glass containers with olive oil; e) Bottles with grey mullet fillet and olive oil ready to go under cooking process.

Design of sensory testing

N=100 consumers / country in 10 sets of 10 each, randomly assigned to each of the 10 product concepts

Session	Order of presentation									
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
Session 1	246	854	782	917	549	652	131	330	493	086
Session 2	782	246	549	854	131	917	493	652	086	330
Session 3	549	782	131	246	493	854	086	917	330	652
Session 4	131	549	493	782	086	246	330	854	652	917
Session 5	493	131	086	549	330	782	652	246	917	854
Session 6	086	493	330	131	652	549	917	782	854	246
Session 7	330	086	652	493	917	131	854	549	246	782
Session 8	917	652	854	330	246	086	782	493	549	131
Session 9	652	330	917	086	854	493	246	131	782	549
Session 10	854	917	246	652	782	330	549	086	131	493

Product 086: Fish spreads/pate; *Product 131:* Fresh fish fillet with different healthy seasoning and marinades; *Product 246:* Frozen fish fillets with different recipes; *Product 330:* Thin smoked fish fillets; *Product 493:* Ready-made fish tartar with additional soy sauce; *Product 549:* Ready to eat meal: salad with fish; *Product 652:* Ready-made fish fillets in olive oil; *Product 782:* Fish burgers shaped as fish; *Product 854:* Fresh fish steak for grilling in the pan; *Product 917:* Frozen fish fillet that is seasoned or marinated.

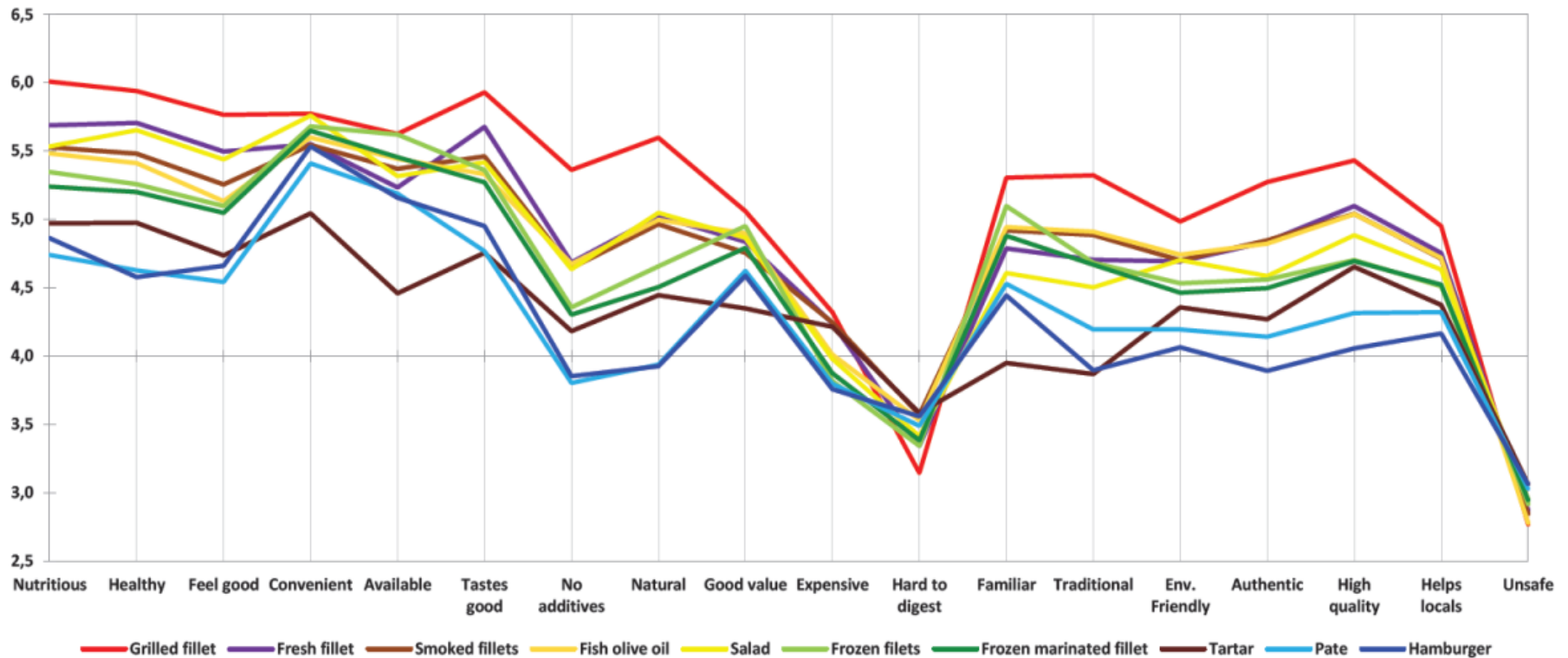
Example of consumer expectations' measurement **BEFORE** information provision



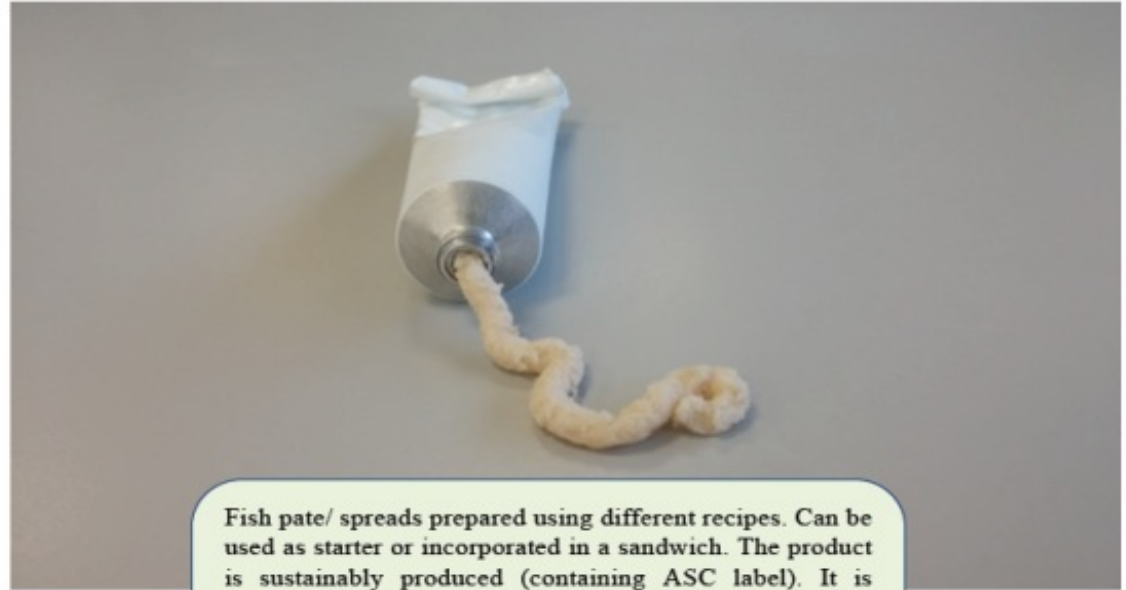
Question to ask: Please indicate in the scale below how much you think you would like this product

1	2	3	4	5	6	7	8	9	10
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am sure I would not like it at all									I am sure I would like it very much

Product perceptions (before info)



Example of consumer expectations' measurement **AFTER** information provision



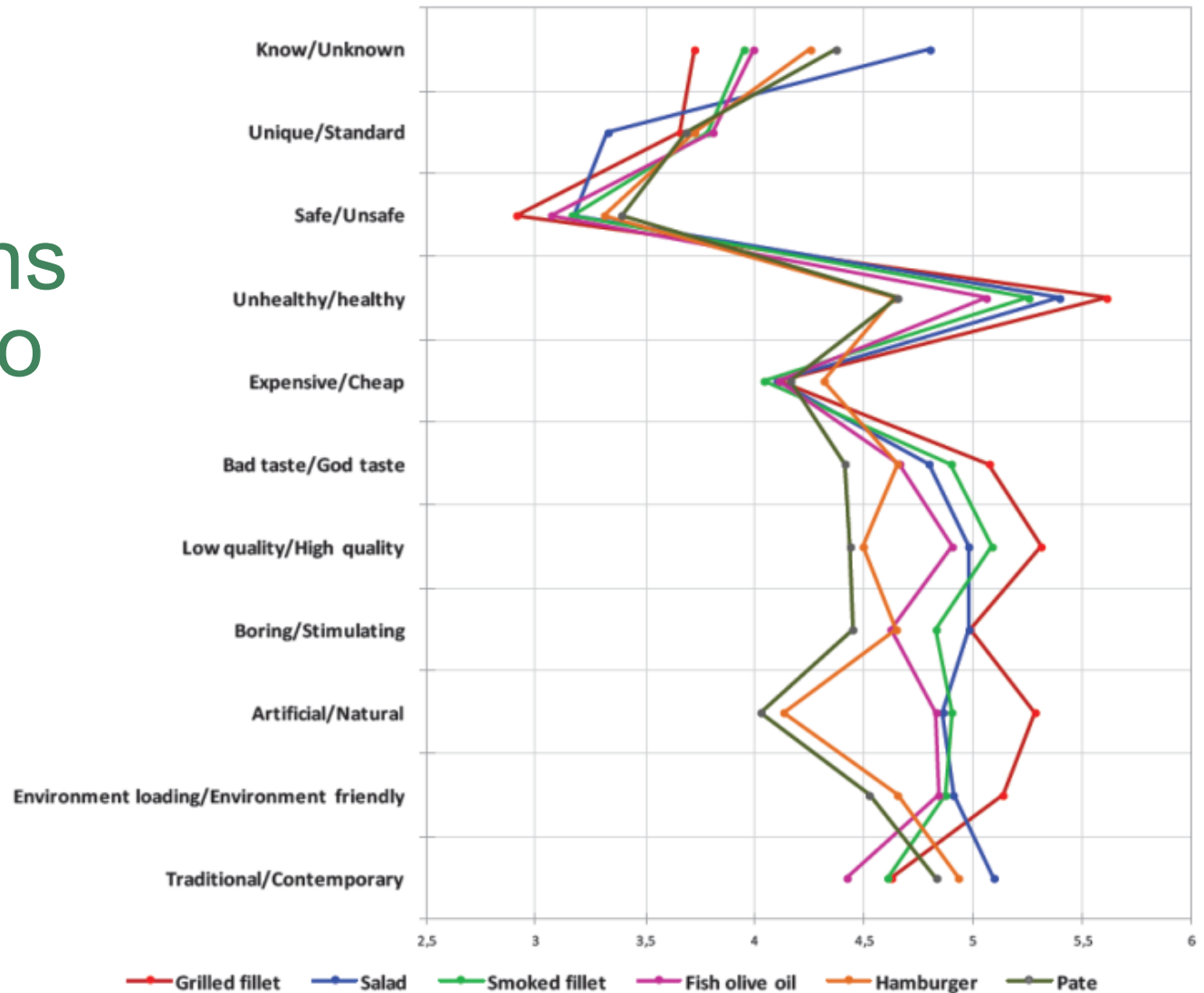
Fish pate/ spreads prepared using different recipes. Can be used as starter or incorporated in a sandwich. The product is sustainably produced (containing ASC label). It is labelled as a premium product; the country of origin is EU. The product is included in a tube to facilitate use, extraction of right amount of product as well as prolong shelf life (only outer part of the product will come in contact with air in each use).

Question to ask: Please indicate in the scale below how much you think you would like this product

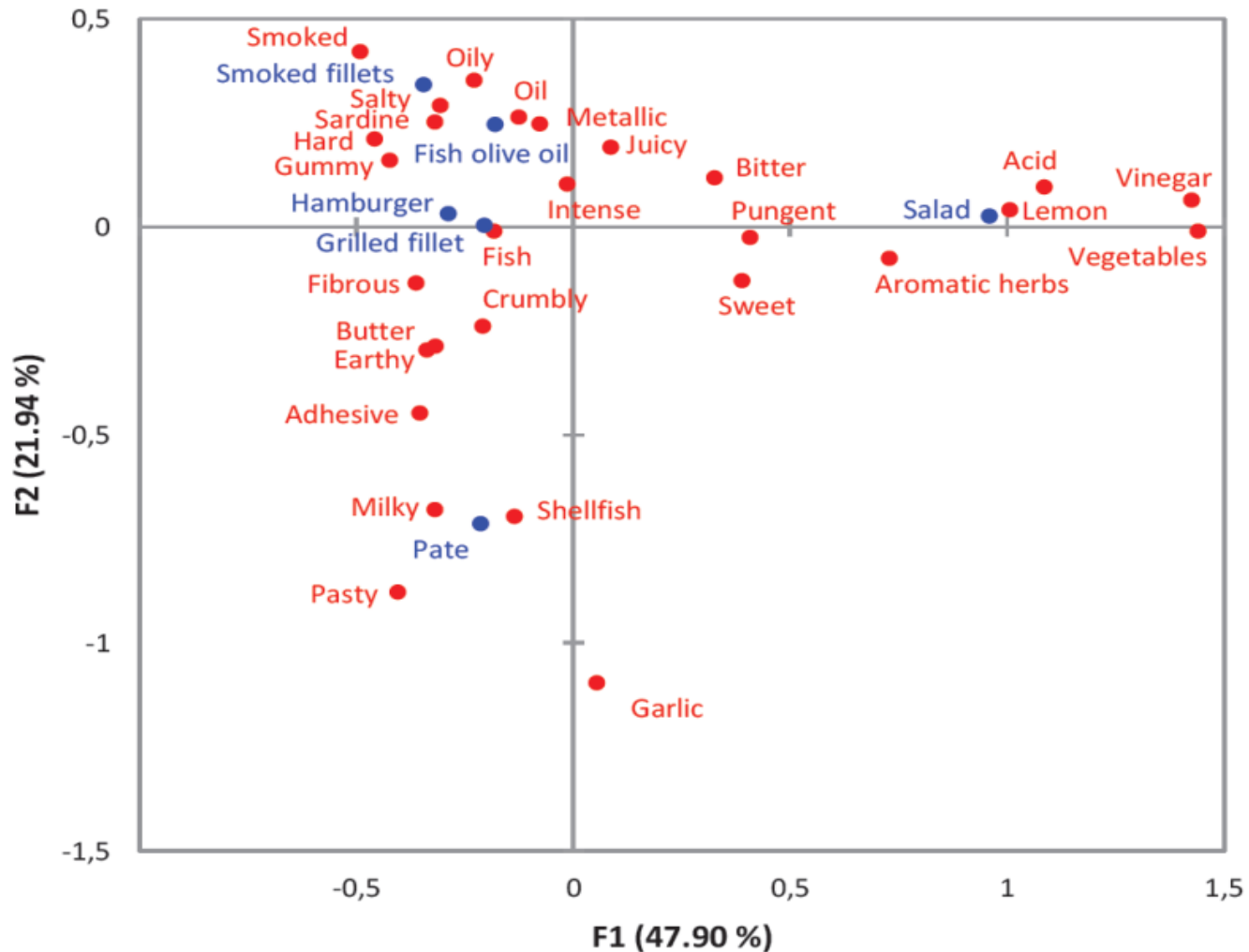
1	2	3	4	5	6	7	8	9	10
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am sure I would not like it at all									I am sure I would like it very much

OR

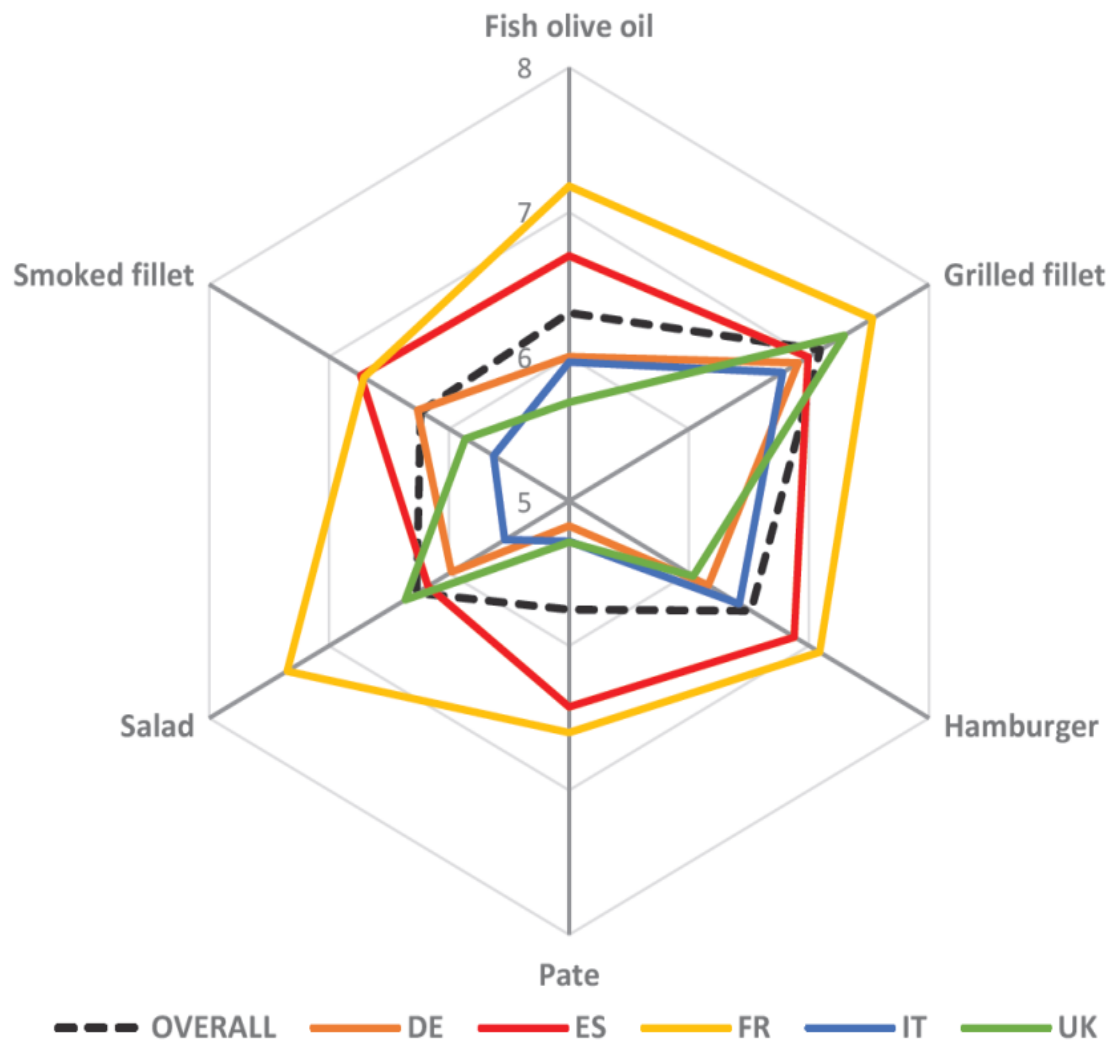
Product associations AFTER info (semantic profile) – pooled sample



Sensory perception mapping



Overall acceptability of products per country

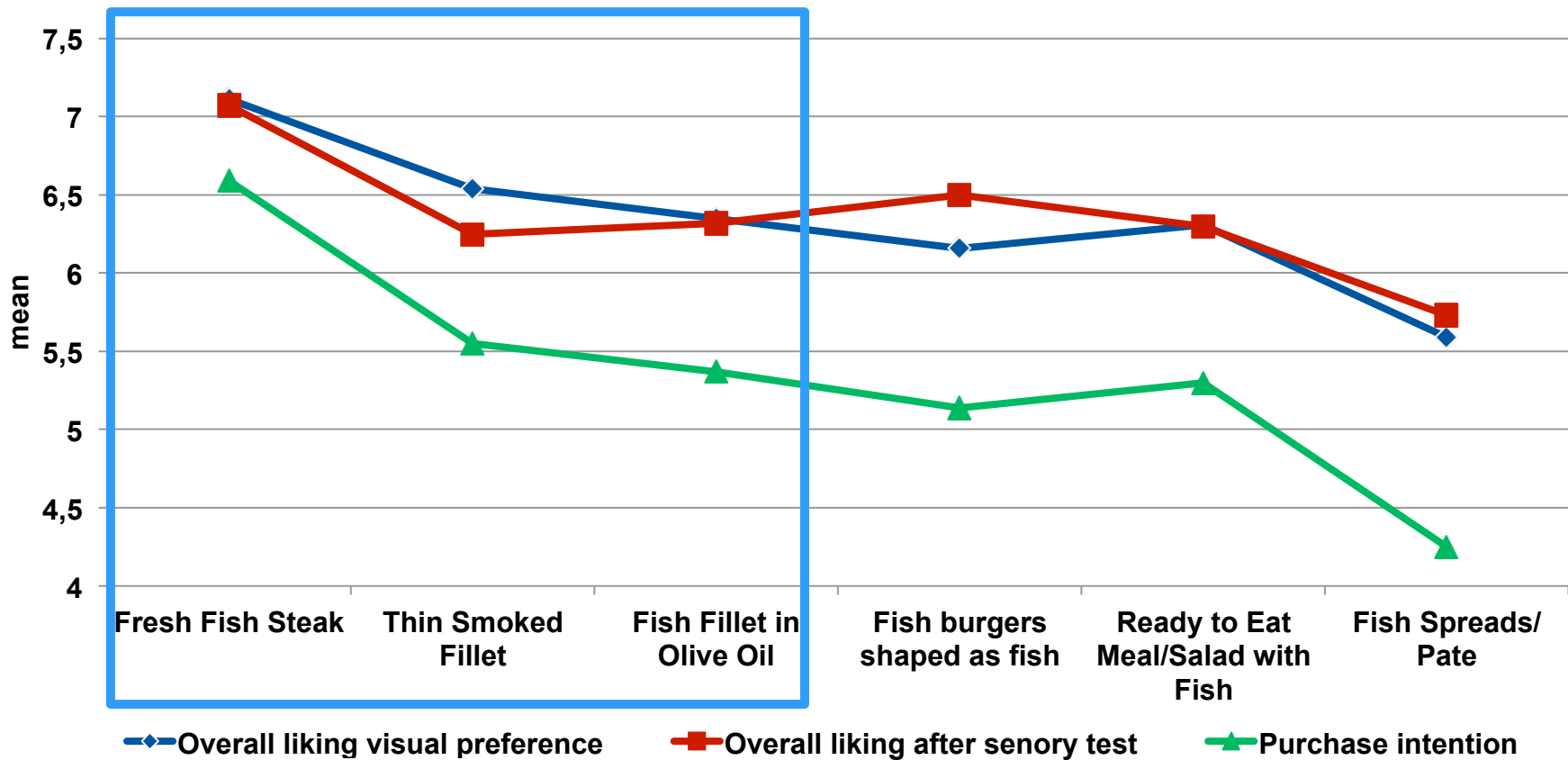


Fish species	Developed DIVERSIFY prototypes	
Meagre	Idea 6: Fish burgers shaped as fish processing)	(High
	Idea 4: Ready to eat meal: salad with fish processing)	(Low
Pikeperch	Idea 9: Fish spreads/pate processing)	(High
Grey mullet	Idea 2: Thin smoked fillets processing)	(Medium
	Idea 33: Ready-made fish fillets in olive oil process.)	(Medium
Greater Amberjack	Idea 34: Fresh fish steak for grilling in the pan	(Low



4. OPTIMIZE THE NEW PRODUCT CONCEPTS IN TERMS OF EXTRINSIC PRODUCT ATTRIBUTES THAT CAN GENERATE BEST VALUE PERCEPTIONS;

› Final choice of products for the experiments based on sensory profiling of the prototypes + consumers' purchase intention



- › Based on the **previous literature review and secondary data analysis**, the suggested **attribute versions** for **product mock-ups**, are as follows:

Attribute
Country of origin - COR
Price
Nutrition claim
Health claim
Responsible - Environmental

› Examples of the three product mock-ups created for the consumer experiments



Mild processing



Low processed



Figure 1. Example of the production of some of the products. a) Grey mullet fillets in salting mixture before smoking; b) Grey mullet fillets on smoking trays; c) Glass pots with clean and homogeneous pieces of mullet fillets; d) Filling the glass containers with olive oil; e) Bottles with grey mullet fillet and olive oil ready to go under cooking process.



Nutrition claim

Health claim

Certification logo

Price

Country of Origin

- › Online survey in top-5 EU countries (Fr G, It, E, UK)
- › N ~ 100 per product per country -> N ~ 300 /country, N ~ 1500/overall
- › Two consumer segments ~ 50/50% 'Involved Innovators' / 'Involved Traditionals'

The questionnaire

Product design

Intrinsic & expected quality

Extrinsic & expected quality

Fish species knowledge & liking

Fish beliefs (wild vs farmed fish)

Purchase & consumption behaviour

Sociodemographics

You are standing in front of the supermarket shelf.
Which one of the following three products would you **MOST LIKELY CHOOSE** and **LEAST LIKELY CHOOSE** to purchase for dinner on a typical day?



Most likely to buy

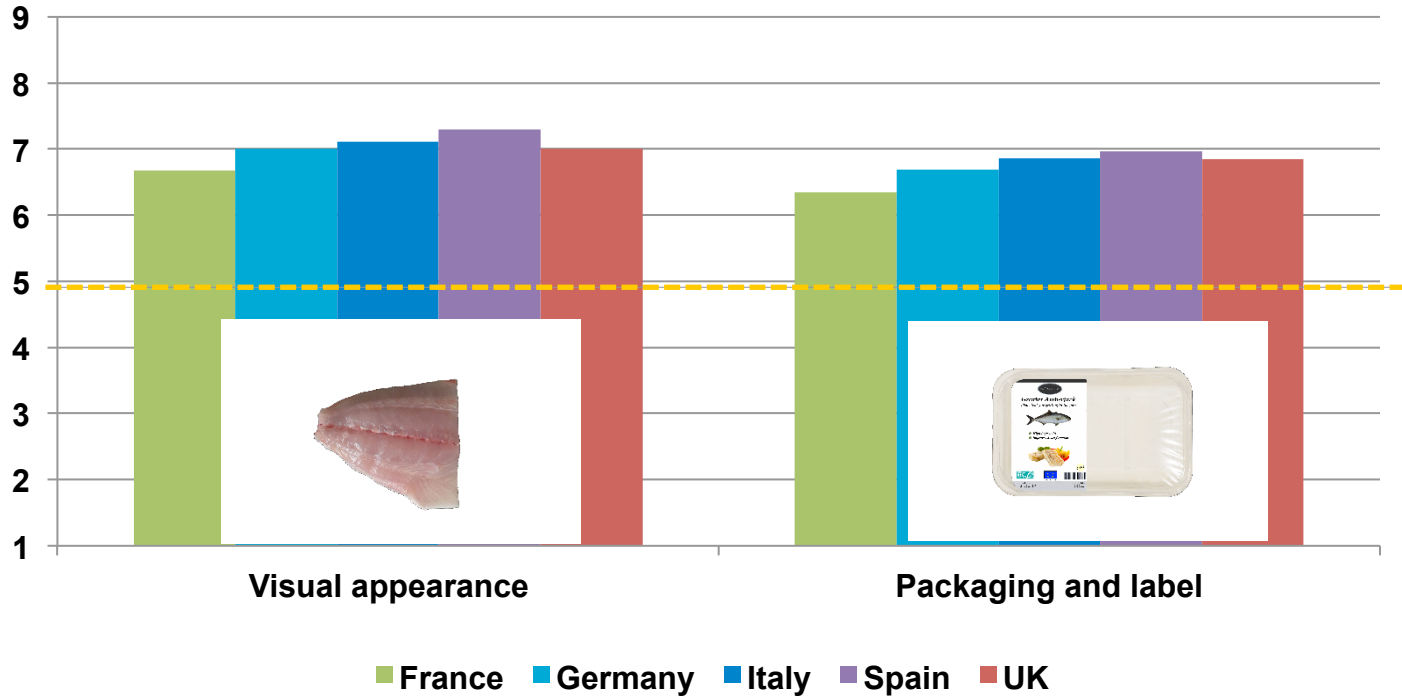
Least likely to buy

Example: Fresh fish steak (Greater Amberjack)



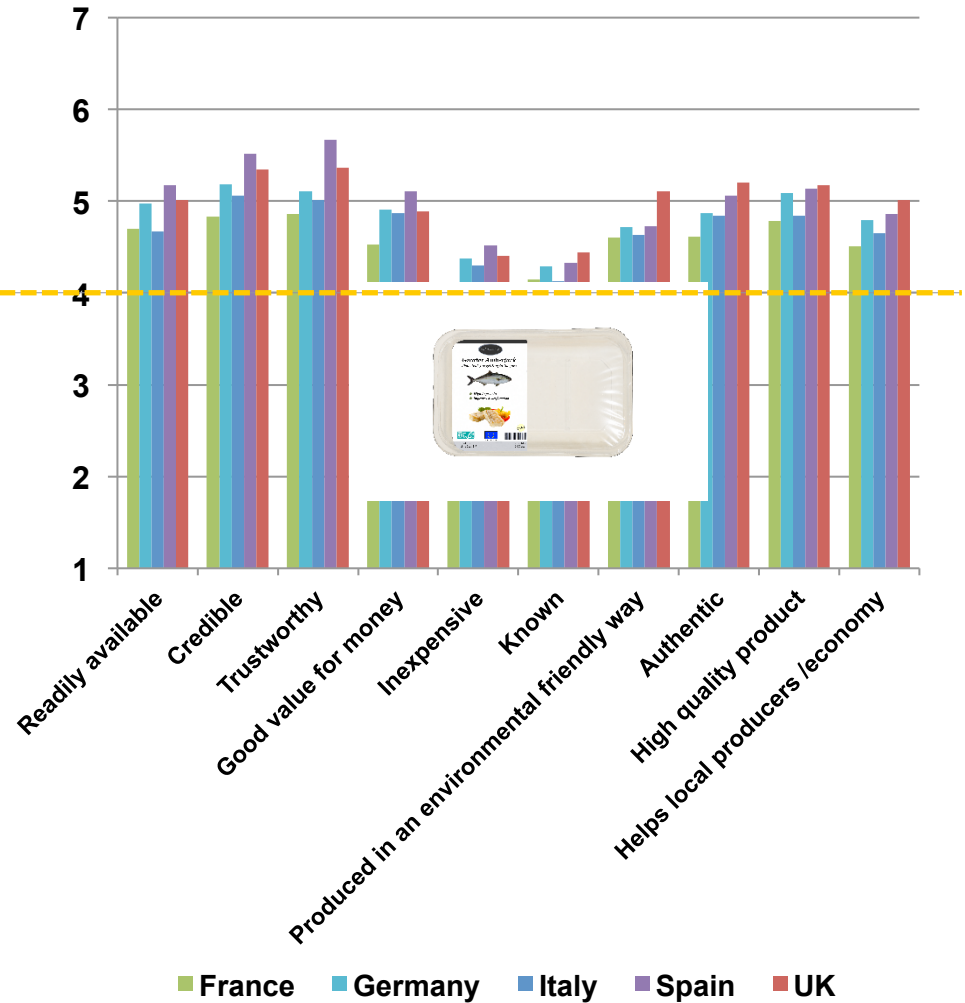
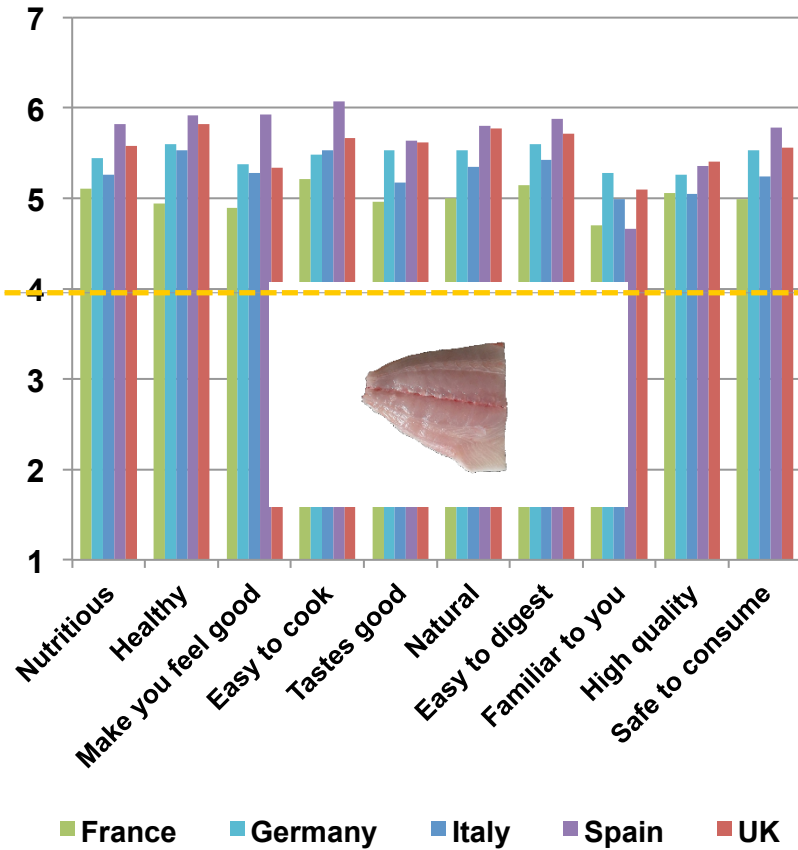
Likeness: intrinsic & extrinsic quality

Like very much

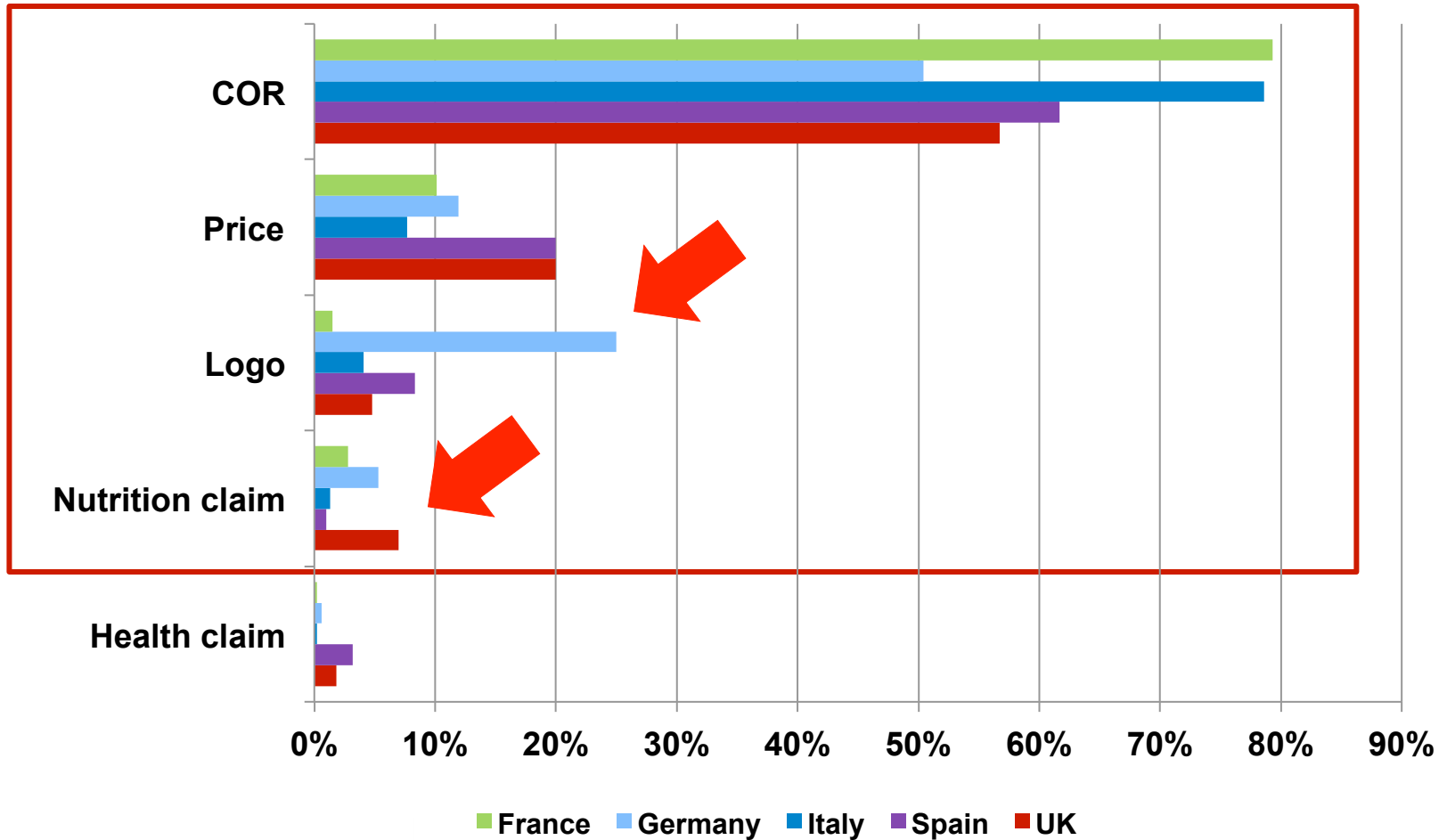


Dislike completely

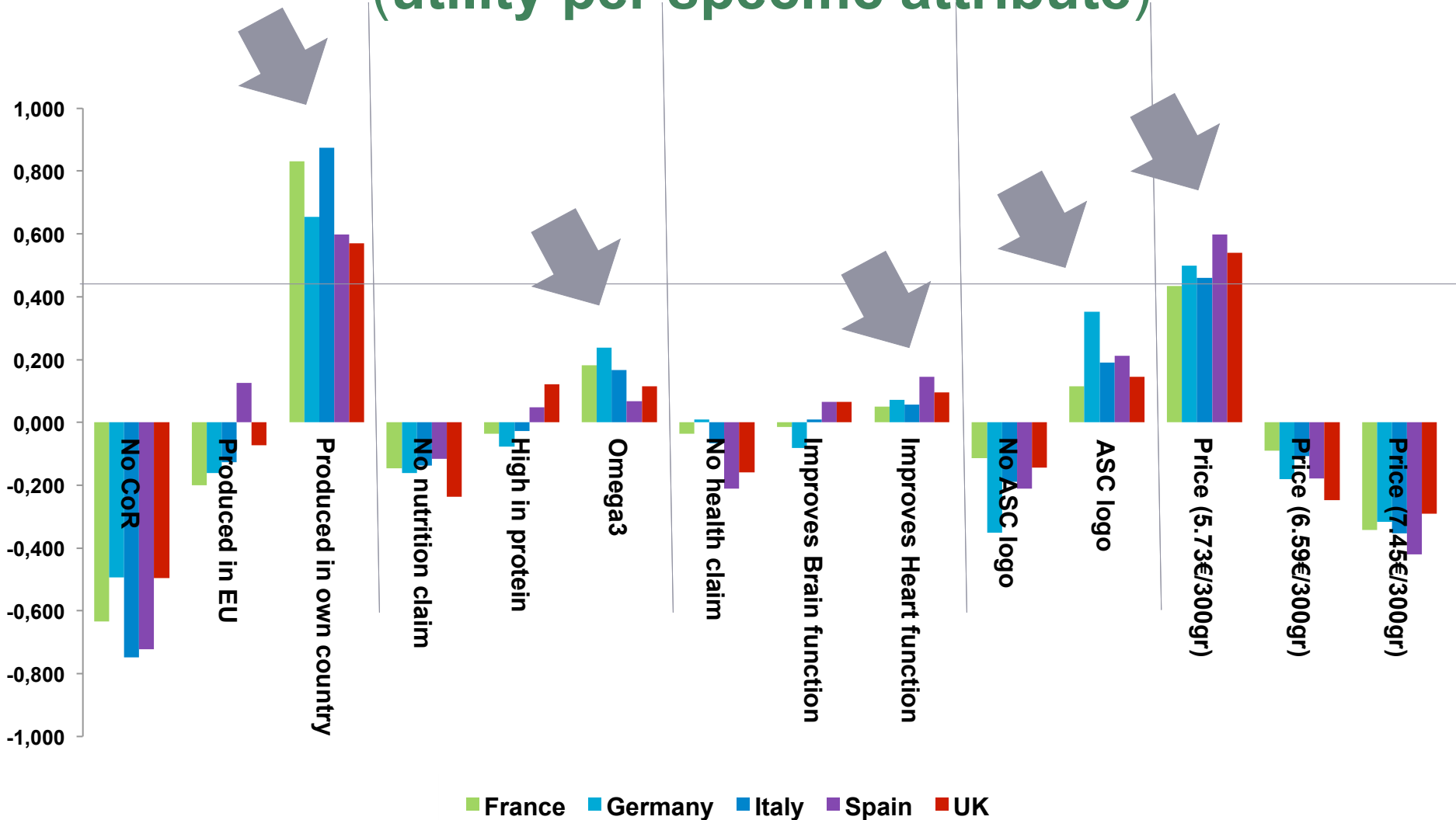
Expected quality (Associations after visual inspection)



Choice experiment results (product attribute importance, %)



Choice experiment results (utility per specific attribute)



Willingness to pay (WTP) IN €/300g

› **Baseline:** reference price for fresh fish steak (5.73€/300g.)

	France	Germany	Italy	Spain	UK
COR					
None	-1.56	-1.10	-1.75	-1.29	-1.02
Produced in EU	-0.51	-0.40	-0.33	+0.21	-0.19
Produced in own Country	+2.07	+1.49	+2.08	+1.08	+1.21
Nutrition claim					
None	-0.35	-0.38	-0.33	-0.19	-0.49
Omega3	+0.46	+0.56	+0.46	+0.12	+0.26
High in protein	-0.11	-0.19	-0.13	+0.07	+0.23
Health claim					
None	-0.08	+0.02	-0.14	-0.35	-0.31
Improves Heart function	+0.13	+0.20	+0.15	+0.25	+0.22
Improves Brain function	-0.06	-0.22	-0.01	+0.10	+0.09
ASC logo					
No ASC certified	-0.27	-0.80	-0.44	-0.38	-0.30
ASC certified	+0.27	+0.80	+0.44	+0.38	+0.30

MANAGERIAL IMPLICATIONS

GOOD NEWS!

It is **possible to create new products targeting similar high-profile segments ACROSS** all big EU markets

- › Same **pattern** in consumer **choice-drivers**, i.e.
 - › COR and price come first, followed by quality certification, while nutrition/health claims have much less impact

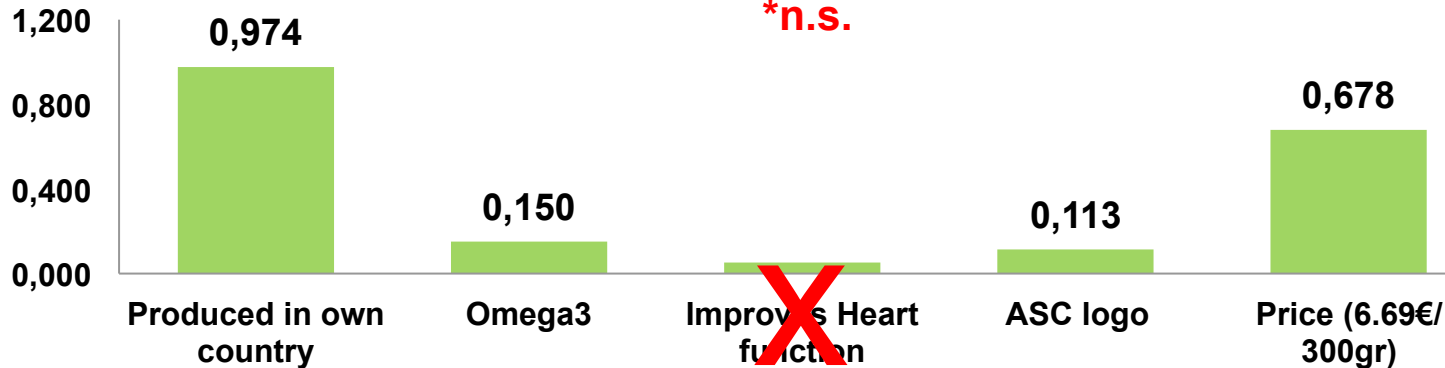
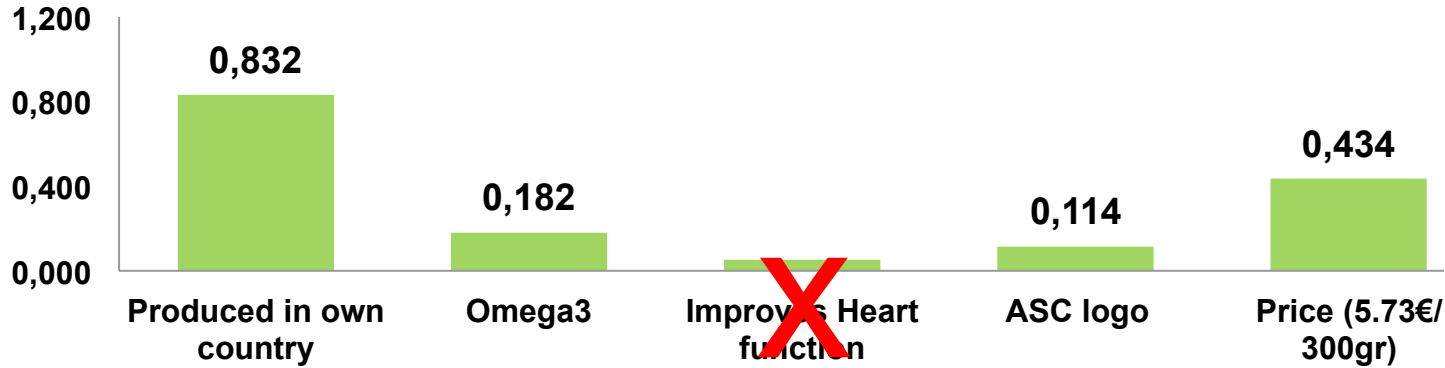
MANAGERIAL IMPLICATIONS

HOWEVER...

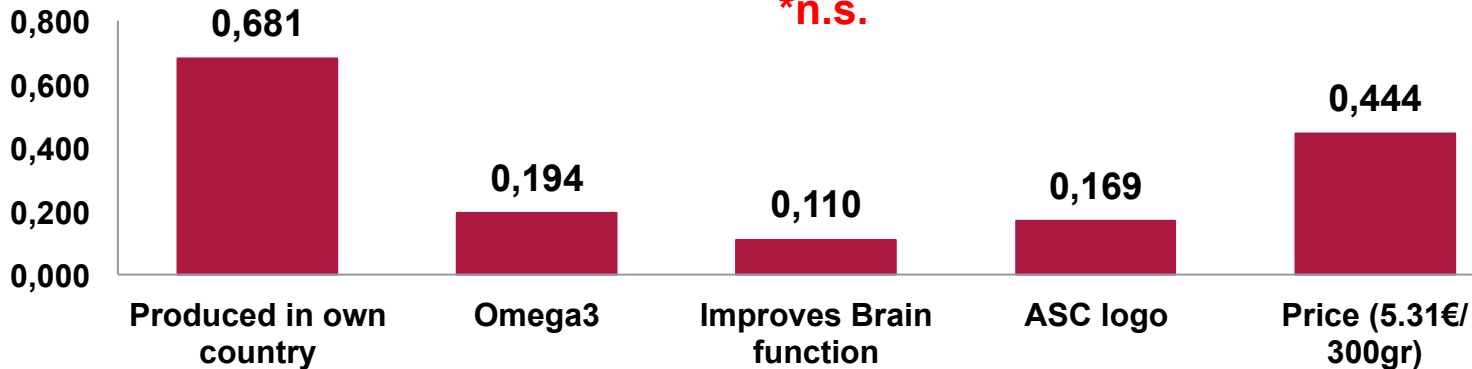
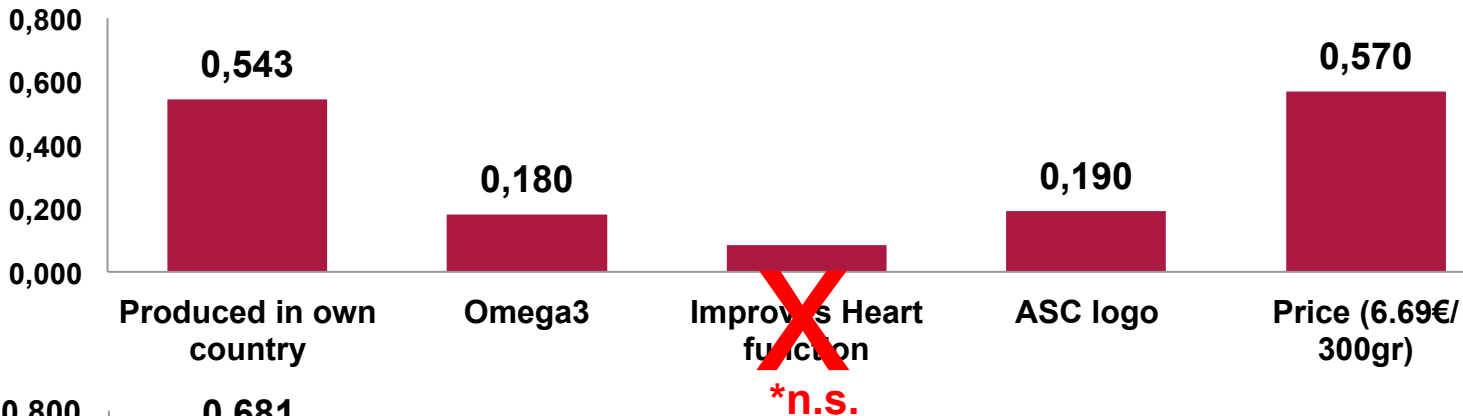
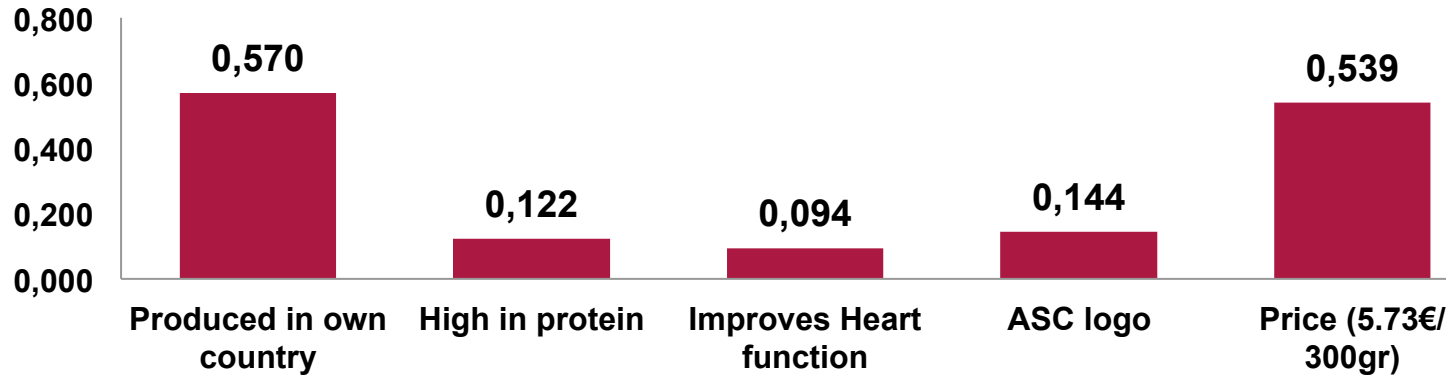
A certain degree of **customisation needed across countries**

- › **Results are country-dependend**, i.e.
 - › in the UK, all attribute versions selected do add something to the product, being noticed by the UK consumers
 - › in GE, FR & IT, health claims are adding nothing to consumer choice
- › **Results are product-dependend**, based on the way processing is perceived by consumers,
 - › i.e. in SP, nutrition and health claims are important in smoked fillet (mild-processing product), but not in fresh fish steaks.

HIGHEST UTILITIES PRODUCT VARIATIONS: FRANCE



HIGHEST UTILITIES PRODUCT VARIATIONS: UK



5. DETERMINE EFFECTIVENESS OF MARKET COMMUNICATION IN CONSUMER ATTITUDE CHANGE TOWARDS THE NEW PRODUCTS & THE ENTIRE DIVERSIFY PRODUCTION SYSTEM