CONSUMERS AS CO-CREATORS IN ENGINEERING OF PROTEIN ENRICHED PRODUCTS

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FOOD (PROTEIN) FOR THOUGHT

- Is eating (protein enriched food) for health and wellness an elusive goal?
- How can consumer co-creation fuel design and development of protein enriched foods?
FIELD OF DREAMS: ‘IF YOU BUILD IT, THEY WILL COME’

Innovation R&D often consider themselves visionaries that can come up with a brilliant product market-ready ideas poised for success, often implementing them without involving the end-user who is supposed to use these solutions.

Consumer-driven concept development & co-creation emphasizes that the user is to be involved from the beginning.

(Füller et al, 2011; Hoyer et al, 2010; Potts et al., 2008; Von Hippel, 2005)
EVEN ANCIENT OLYMPIANS FOLLOWED ‘ATKINS’ DIET

(Grivetti, 2014)

THE TIME IS RIGHT FOR PROTEIN INNOVATION

1.4 BILLION ARE OVERWEIGHT
We have a situation where 1.4 billion people in the world are overweight and obese, and at the same time one billion people go to bed hungry. With the world’s population predicted to reach 9 billion by 2050, we’ll need new ways to feed everyone.

EXPENSIVE BURGER
The two-year project to make one lab burger, plus extra tissue for testing, cost $325,000. If production could be scaled up, cultured beef made as one burger was made would cost more than $30 a pound.

200 MILLION SARCOPENIA SUFFERERS
The number of people seriously affected by declining muscle mass (sarcopenia) will reach over 200 million people by 2050 in the U.S., EU, and Japan. Of this number, an estimated 10% to 20% of seniors are at risk of losing their independence because of its progress.

20 MILLION “SILVER” CONSUMERS
In affluent societies, the number of people living to the age of 90 and beyond has tripled since 1980. The number of US seniors – 85 and older – will increase to 20 million by 2050. 95,000 of these will be centenarians.

-45% LOWER EMISSIONS
A lab-grown beef uses 45% less energy than the average global representative figure for farming cattle. It also produces 96% fewer greenhouse gas emissions and requires 99% less land.

DAIRY: THE PROTEIN MOVER
The biggest increase in protein has been in the dairy category, where the number of products launched with a protein claim has risen more than 15% in 2013. Part of this growth can be attributed to the rise of the Greek yogurt trend, where “high protein” claims are highly prevalent.

SPORTS IS KING FOR PROTEIN
Although health and health related issues account for most of the research papers, over 12% of the patents are on proteins in relation with sports. This is by far the biggest cluster of research for proteins. It is even bigger than health and nutrition, which comes in second with 8% of the patents.

WHEY DOMINATES
In sports nutrition, whey is the go-to protein, accounting for over 30% of patents. This is much more than other protein concentrates such as milk protein concentrate, which makes up less than 5% of the patents.

Source: Innova Market Insights (2014)
PROTEIN ENRICHED FOODS HAVE A ROOM TO GROW, ESPECIALLY AMONG HEALTH CONSCIOUS CONSUMERS

(Halkjaer et al., 2009; N=36,034)
What do you think ‘eating a healthy diet’ involves?

- Eat more fruit and vegetables
- Eat a variety of different foods/balanced diet
- Avoid/do not eat too much fatty food
- Eat more fish
- Avoid/do not eat too much sugary food
- Avoid/do not eat too much salt
- Do not eat too many calories
- Eat less meat
- Avoid/do not eat food containing additives
- Eat organic food
- Eat less bread, rice, pasta and other carbohydrates
- Eat more bread, rice, pasta and other carbohydrates
- Eat more meat
- Eat less fruit and vegetables
- Don't know
- Eat less fish

(Eurobarometar, 2010; N=26,788)
NEWLY LAUNCHED FOOD AND DRINK PRODUCTS CLAIMING TO BE RICH IN PROTEIN (EU)

(MINTEL, 2016)
CONSUMER RESEARCH SCARCE

- Protein in general; meat alternatives; functional foods; sensory profiling of enriched foods

  - Nutritional studies
  - Clinical studies
  - Food technology studies
  - Sustainability studies

Research on protein related to consumption, benefits to human health and environment, and functionally of the protein

(van der Zanden et al., 2014; Childs et al., 2007; Oltman et al., 2015; Lee et al., 2002; Da Silva et al., 2014; de Bruin, 1995; Boer et al., 2014; Fenko et al., 2015; Elzerman et al., 2013; Stratton et al., 2014)
Do consumers understand the difference between...

- Naturally/inherently rich in protein
- Scientifically increased protein
CLAIM BOMBARDMENT & CHOICE OVERLOAD

Protein (nutrition) claims on newly launched products in Europe:

- Source of protein
- High protein
- Increased protein (European commission, 2016)
- + Protein
- Rich in protein
- X% more protein
- X times more protein than traditional (conventional)
- X% protein
- X gr protein per serving /product
- X% of energy comes from protein
- X gr protein per 100 gr
- X% high protein
- High protein content
- High in Plant Protein
- 2 times good quality protein
- Enriched with protein
- Fortified with protein
- Contains minimum 45% protein and maximum 25% carbs
- A protein bomb

(Mintel, 2016)
MIXED MESSAGES DO NOT HELP
EATING FOR HEALTH & WELLNESS CAN BE AN ELUSIVE GOAL

Consumer is likely to ignore a product unless you can make it to....

Stand out in a crowd: Cognitive ease

Feels familiar
(Gigerenzer & Gaissmaier, 2011)

Feels true
(Oppenheimer, 2005)

Feels good
(Stepper & Strack, 1993)

Feels effortless
(Gigerenzer & Goldstein, 1996)

(Kahneman, 2003)
CONSUMERS & CO-CREATION

- Tapping into the same areas of the cognitive thought that drive responses that are less rational but more intuitive and related to affections and motivations which guide everyday decisions... (Kahneman, 2003; Gigerenzer & Goldstein, 1996)

- **Creative techniques** (Amabile, 1983; Couger, 1990; Higgins, 1996; Osterwalder & Pigneur, 2010; De Bono, 2010)
  - Empathy map
  - Storyboarding
  - Brainstorming

**Components of creativity:**
- domain-relevant skills
- creativity-relevant skills
- task motivation
CONSUMER-DRIVEN CONCEPT DEVELOPMENT

Consumer as resource (ideation)
- General knowledge
- Product carrier preferences
- Product relevance & concerns

Consumer as user
- Product testing & support

Consumer as co-creator
- Design & development of product ideas

Expert
- Monitoring & control of design and development

(Banovic et al, 2016a; working paper)
CONSUMER AS RESOURCE & CO-CREATOR

- Eight focus groups
- Four European countries (i.e. Denmark, Finland, Germany & Romania); general population & elderly (N=52)

Objectives:

- **Consumer as resource**: assess knowledge on proteins in general and protein enriched foods in particular (plant vs animal protein enriched foods)
- **Consumer as co-creator**: create new product ideas for food applications enriched with oat protein

(Banovic et al., 2016a,b; working papers)
‘EATING A VARIETY OF PROTEINS WOULD BE HEALTHIER THAN NEED TO ADD PROTEIN TO SOMETHING TO COMPENSATE’

Why would somebody use or avoid to use protein enriched foods?

- preference for conventional products
- higher amounts of protein seen to have harmful consequences on health
- benefits of the protein enriched foods linked to the overall feeling of health and wellness

(Banovic et al., 2016a; working paper)
‘PLANT PROTEIN HEALTHIER THAN ANIMAL PROTEIN’

Examples of protein carriers

- could not distinguish between foods naturally high in protein and protein enriched foods
- preference for plant protein enrichment

(Banovic et al., 2016a; working paper)
‘I WOULD CHOOSE CEREAL. IT WOULD BE SOMEHOW EASIER AND MORE NATURAL’

Would you prefer products supplemented with the protein from legumes or from cereals?

- lack of trust
- unethical production
- bad taste
- unhealthy, i.e. allergies

vs

- taste
- habit
- sustainable production
- more natural

(Banovic et al., 2016a; working paper)
‘PASTA WITH EXTRA PROTEIN WOULD NOT BE SO DIFFERENT FROM FULL GRAIN PASTA’

Preferred carriers for oat enrichment

- closeness to the conventional products and oat-carrier compatibility

(Banovic et al., 2016a; working paper)
CONSUMER AS CO-CREATOR

- **Creative task:** Pies map (Banovic et al, 2016b) & Storyboarding (De Bono, 2010; Osterwalder & Pigneur, 2010; Garfield et al., 2001; Couger, 1990; Amabile, 1983)

- **User profiles:**
  - **Health & environment:** practices that will lead to a ‘healthier living’
  - **Wellness:** making choices toward a healthier lifestyle & weight management
  - **Protein deficient:** lack of proteins in the diet (e.g. vegetarians)

(Banovic et al., 2016b; working paper)
‘NO IDEA IS TOO RIDICULOUS’: STORYBOARDING

- 24 workable product ideas created

One short description of the created idea:

**OAT PLUS**

- Light and healthy option, easy to keep, and to include as part of the daily routines. Suitable for the entire family. Label information is clearly marked on the package.
- (description of the intrinsic and extrinsic cues omitted)

Image from the storyboarding session

(Banovic et al., 2016b; working paper)
EXPERT: FEASIBILITY OF THE CREATED PRODUCT IDEAS

Overall assessment of the product idea(s)
- attractiveness; uniqueness; technical complexity, etc.

Technical & commercial feasibility of using different plant proteins

Potential improvement of the product idea(s)
- change of ingredient, carrier, etc.

(Banovic et al., 2016b; working paper)
WHAT DID WE LEARN?
CREATING SUPERCHARGING FOODS WITH EXTRA NUTRITION

Needs to feel familiar
- Closer to conventional products used in everyday diet
- Carrier type – protein compatibility essential

Needs to feel true
- Clear label display & trustworthy information

Needs to feel effortless ('Less is more, more is less')
- Less clutter on the package, too confusing

Needs to feel good
- Associations to overall health & wellness
HOW TO DEVELOP AND MARKET IDEAS AND EXPERIENCES RATHER THAN PRODUCTS?

- Awareness of diet and health & wellness relationship is at an all-time high

- Consumer co-creation good way to reveal what matters to consumers
  - Involving consumers and tapping into their creativity, new ideas can be build with the power to spread
  - Using right consumers & right tools

(Banovic et al., 2016)
THANK YOU
FOR
YOUR ATTENTION
PLANT PROTEIN TODAY

Newly launched food and drink products claiming to be rich in plant protein (EU)

(MINTEL, 2016)
PROTEIN ENRICHED FOODS HAVE A ROOM TO GROW, ESPECIALLY AMONG HEALTH CONSCIOUS CONSUMERS

(Halkjaer et al., 2009; N=36,034)
DIET SHIFT

(Rizzo et al., 2013; N=71,751)

Figure. Dietary mean protein intakes standardized to 2,000 kcal/day by dietary pattern in the Adventist Health Study 2. Adjustments were made for age, sex, and race. *Significant contrast (P<0.05) and a mean difference ≥20% when compared to nonvegetarian dietary pattern as the group of reference.
# Not All Proteins Are Created Equal

<table>
<thead>
<tr>
<th>Animal Protein</th>
<th>Plant Protein</th>
</tr>
</thead>
<tbody>
<tr>
<td>• + complete</td>
<td>• - incomplete</td>
</tr>
<tr>
<td>• - high in fat</td>
<td>• + low in fat</td>
</tr>
<tr>
<td>• - red meat, risk of heart disease, stroke, other cardiovascular disease</td>
<td>• + soy, oat, lowers risk of heart disease, stroke, high blood pressure, cholesterol levels</td>
</tr>
<tr>
<td>• - milk, diabetes type I (juvenile diabetes), lactose intolerance</td>
<td>• + soy, oat, lowers risk of diabetes type II</td>
</tr>
<tr>
<td>• - red meat, risk of cancer, colon cancer, breast cancer</td>
<td>• + soy, oat, lower risk cancer, colorectal cancer</td>
</tr>
<tr>
<td>• - wheat, barley, rye, celiac disease</td>
<td>• - wheat, barley, rye, celiac disease</td>
</tr>
<tr>
<td>• - soy can provoke allergies</td>
<td>• - soy can provoke allergies</td>
</tr>
</tbody>
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(Tielemans et al., 2015; Cherise et al., 2015; Gryson et al., 2014; Boirie et al., 2014; Pedersen et al., 2014)
‘BUILDING BLOCKS OF HUMAN’

- What are proteins and how might proteins help you?
  - essential nutrient
  - important for healthy and active living
  - concerns about too little/too much proteins in the diet

(Banovic et al., 2016α; working paper)