



# CHR. HANSEN HOLDING A/S

Capital Markets Day 12 April 2016

<b>Time:</b>	<b>Topic:</b>	<b>Speaker:</b>
10.00 - 10.05 am	Welcome	
10.05 - 10.45 am	Progress so far	Cees de Jong
10.45 - 11.45 am	Food Cultures & Enzymes	Knud Vindfeldt & Christoffer Lorenzen
11.45 - 12.30 pm	Lunch	
12.30 - 1.00 pm	Natural Colors	Jørgen Erichsen & Mary Bentley
1.00 - 2.15 pm	Health & Nutrition	Christian Barker & Johan van Hylckama Vlieg
2.15 - 2.45 pm	Break	
2.45 - 3.15 pm	Financial ambitions	Søren W. Lonning
3.15 - 3.45 pm	Beyond 2020	Cees de Jong
4.00 - 5.00 pm	Tour of Copenhagen site	

# Disclaimer

This presentation contains forward-looking statements that reflect management's current views with respect to certain future events and potential financial performance.

Forward-looking statements are other than statements of historical facts. The words “believe,” “expect,” “anticipate,” “intend,” “estimate,” “outlook,” “will,” “may,” “continue,” “should” and similar expressions identify forward-looking statements.

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Nature's **1**  
no

REAFFIRMED

## Progress so far

Cees de Jong  
CEO

# Launched Natures No.1 strategy in 2013

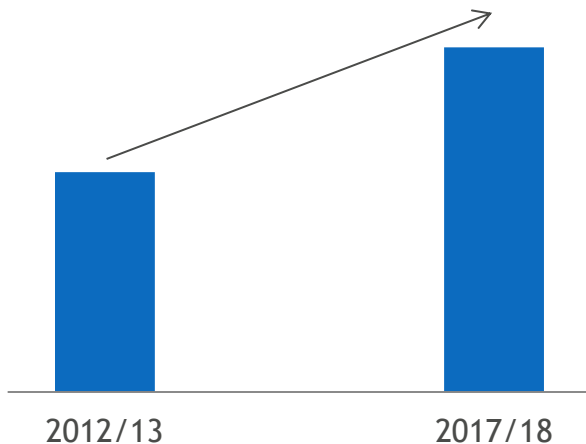
## Evolution, not revolution

	1 Fully leveraging the potential of CED	2 Developing the microbial solutions platform in HND	3 Creating further value in NCD
4 Driving a step change in innovation	➤ New innovation for yield & functionality	<ul style="list-style-type: none"> <li>➤ Expand existing business</li> <li>➤ Develop plant protection</li> <li>➤ Explore human biome</li> </ul>	<ul style="list-style-type: none"> <li>➤ Improve cost-in-use</li> <li>➤ New transformational technologies</li> </ul>
5 Reinforcing position in emerging markets	➤ Undisputed leadership in emerging markets	➤ Pursue probiotic opportunities in emerging markets	➤ Drive emerging market conversion
6 Generating fuel for growth	➤ Drive scalability	➤ Reinvest in future growth	➤ Drive scalability
	<ul style="list-style-type: none"> <li>➤ Continued conversion</li> <li>➤ Commercial excellence</li> </ul>	➤ Commercial excellence	<ul style="list-style-type: none"> <li>➤ Continued conversion</li> <li>➤ Commercial excellence</li> </ul>

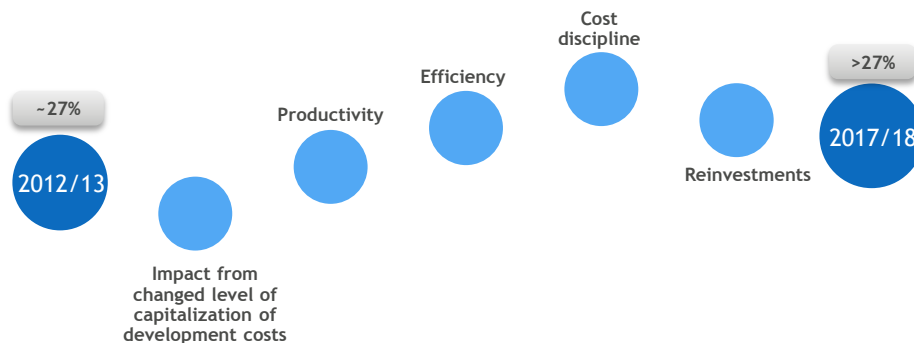
# Launched Natures No.1 strategy in 2013

## Financial ambitions

Organic revenue growth of 7-10% per year



Improved EBIT margin before special items over the period



Increased free cash flow before acquisitions and divestments

# Fully leveraging the potential of Cultures & Enzymes

## Delivered growth

- Continued conversion to DVS in dairy
- New “go-direct” model in China
- Focused on operational excellence
- Protection of EUR topline in volatile currency situations

9% organic growth CAGR

## Fueled innovation

- Streamlined innovation processes and execution
- Focused pipelines on highly relevant consumer challenges
- Launched a/o SaltLite™ & Acidifix™
- Technical issues with YoFlex®Sweet

Innovation index\* cultures: 21% in 2014/15

## Shown scalability

- Reaped benefits from new fermentation capacity in Copenhagen
- Optimized enzymes production footprint
- Solidified cost leadership in production

EBIT margin up 1.9%-points

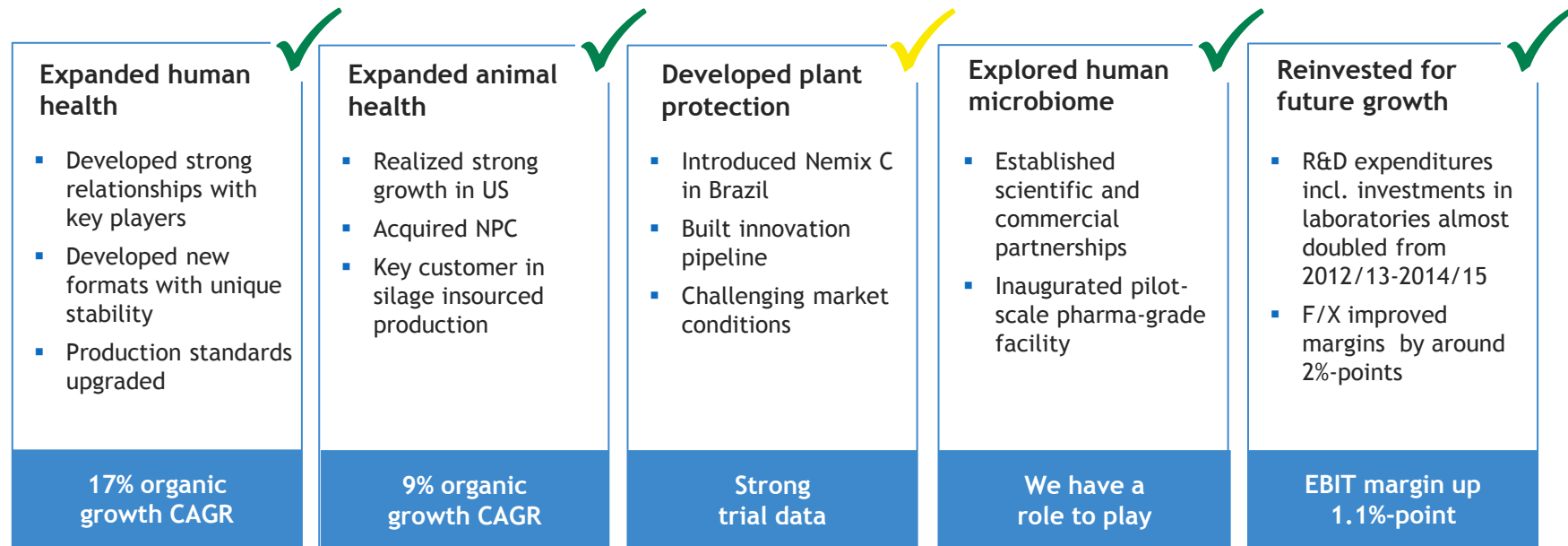
## Developed bioprotection

- Improved freshness and shelf-life in fermented milks and cheese
- Protection against listeria in meat
- Entering new (adjunct) markets

40% organic growth CAGR

\* Revenue from products less than 5 years old

# Developing the microbial solutions platform in Health & Nutrition





# Creating further value in Natural Colors

## Challenged on growth

- Continued conversion in EMEA, Latin America and Asia
- Struggled to get the right organization in China
- Awaited conversion in US

5% organic growth CAGR

## Expanded product offering

- Developed coloring foodstuff range (FruitMax®)
- Improved cost-in-use by introducing new more cost efficient solutions

15% organic growth CAGR for FruitMax®

## Prepared US conversion

- Worked in-depth with brand owners in major food producers
- Helped product developers understand natural colors and the science behind the performance factors

Stronger pipeline

## Created further value

- Profitability deteriorated
- Completed new organizational set-up
- Created a stronger commercial mindset
- Negative impact from F/X by around 2%-points

EBIT margin down 5.0%-points

# Achieved strong financial performance

	2012/13	Long-term financial ambitions*	Progress 2013-15	
Organic revenue growth		7-10%	9% CAGR	✓
<i>Food Cultures &amp; Enzymes</i>		7-8%	9% CAGR	✓
<i>Health &amp; Nutrition</i>		+10%	14% CAGR	✓
<i>Natural Colors</i>		Around 10%	5% CAGR	÷
EBIT margin b.s.i.**	27.2% (26.4%***)	Increasing	27.1% in 2014/15	✓
<i>Food Cultures &amp; Enzymes</i>	30.4% (29.6%)	Increasing	31.5% in 2014/15	✓
<i>Health &amp; Nutrition</i>	34.6% (32.2%)	Around 30%	33.3% in 2014/15	✓
<i>Natural Colors</i>	13.0% (13.3%)	Increasing	8.3% in 2014/15	÷
Free cash flow before acquisition, divestments and special items	EUR 120 million	Increasing	EUR 151 million in 2014/15	✓

\* Baseline 2012/13. NCD organic growth adjusted in 2014 from +10% to around 10%

\*\* Before special items and impairments in 2012/13

\*\*\* Adjusted for changed level of capitalized development costs



# Chr. Hansen supported by strong megatrends

## The trend



Growing world population and rapid urbanization



Resource scarcity



Increasing health care costs



Demand for cleaner, healthier and more natural products



Technology breakthroughs



## The implication\*

By 2030 almost 2/3 of world population will reside in cities and the middle class will have increased by 2.5 billion people

Global food production will have to increase with 70% by 2050 to support growing world population

Global health spend is estimated at USD 6.5 trillion, with an expected growth rate of 5.3% until 2018

67% of U.S. consumers prefer groceries with fewer and simpler ingredients

Big data and speed of DNA sequencing allow for much faster strain screening and knowledge sharing

## The opportunity

Need for more industrialized produced food & beverages

Need for innovation to improve productivity

Need for cheaper and preventive solutions

Need for better, safer products based on natural ingredients

Open up for faster innovation and new areas such as human microbiome

\*EIU, WHO, The World Bank, IDA, IBRD, Food & Agriculture Organization of the United Nations, ReD, OECD, PwC, E&Y

# Distinctive capabilities

	Innovation	Production process & capacity	Customer relations
Food cultures	✓	✓	✓
Bioprotection	✓	✓	✓
Dairy enzymes	✓	✓	✓
Human health	✓	✓	✓
Animal health	✓	✓	✓
Human microbiome	✓	✓	✓
Plant health	✓	✓	✓
Natural Colors	✓	✓	✓



# Building on a strong microbial platform

## Strains & Screening

### Strain access & collection

In-house and external collaborations

### Screening methods

Understanding mode of action

### Strain improvement

Understanding genome and key metabolic pathways

## Process & Analysis

### Production of live and active biomass

Aerobic, anaerobic and strict anaerobic fermentation procedures

### Harvest of biomass

Centrifugation and filtration

### Preservation of biomass

Frozen and freeze dried

### Formulation of biomass

Stabilization

## Documentation & Accept

### Prove performance

Insights into customers products and production processes

### Document effect & efficacy

In vivo trials. Clinical studies and documentation

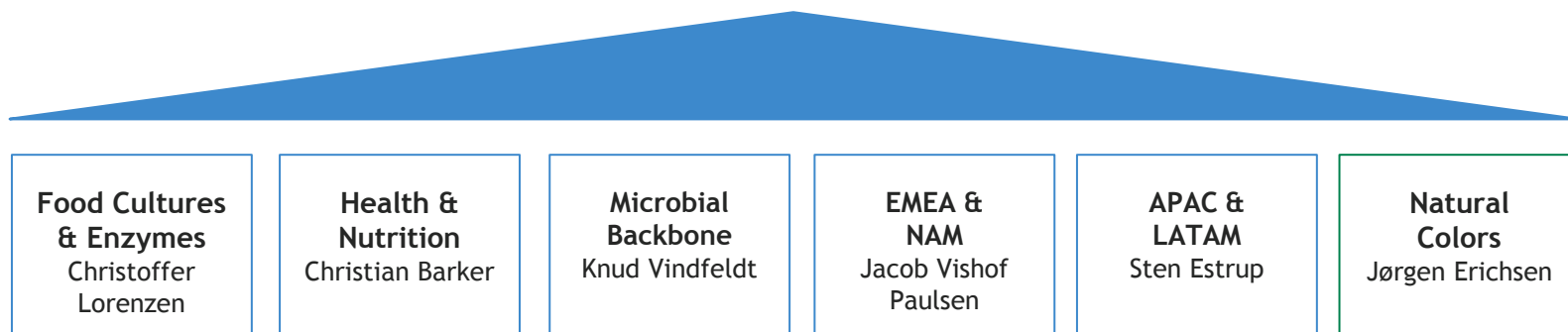
### Regulatory approval

Documentation

**Microbial solutions**



# Preparing the organization for future growth

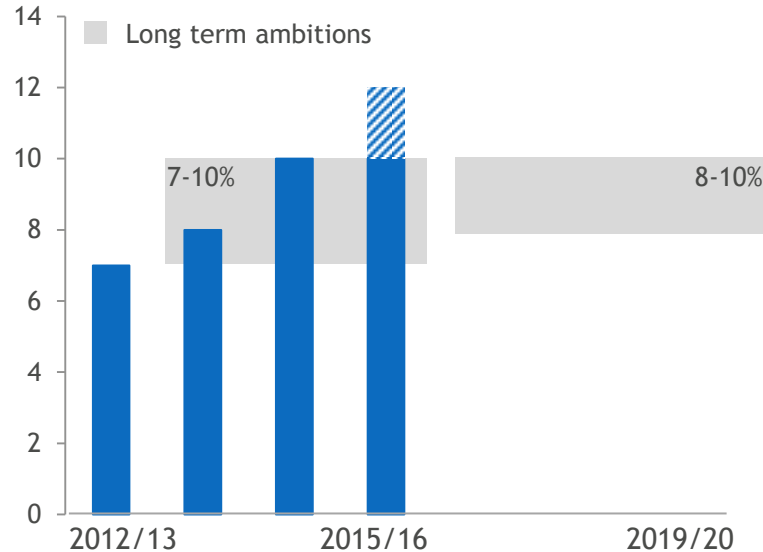


## Main changes to organization

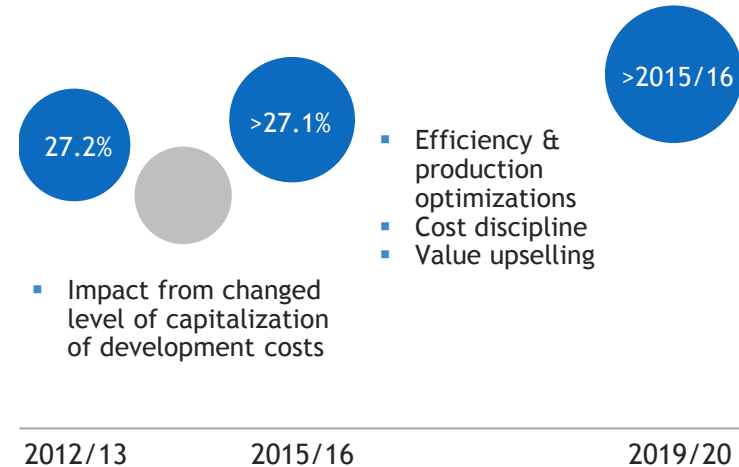
- Created Microbial Backbone covering R&D, Operations, Logistics and IT to support Food Cultures & Enzymes and Health & Nutrition
- Consolidating sales responsibility - but reporting on four regions (EMEA, NAM, LATAM & APAC)
- No changes to Natural Colors, HR, Compliance and Finance

# Deliver profitable growth to 2020 and beyond

## Organic revenue growth of 8-10% per year



## Increasing EBIT margin before special items over the period







# Food Cultures & Enzymes

Knud Vindfeldt  
COO Microbial Backbone

Christoffer Lorenzen  
EVP Food Cultures & Enzymes

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# Megatrends reaffirm dairy as a food category with stable growth

## The trend



Growing world population and rapid urbanization



Resource scarcity



Increasing health care costs



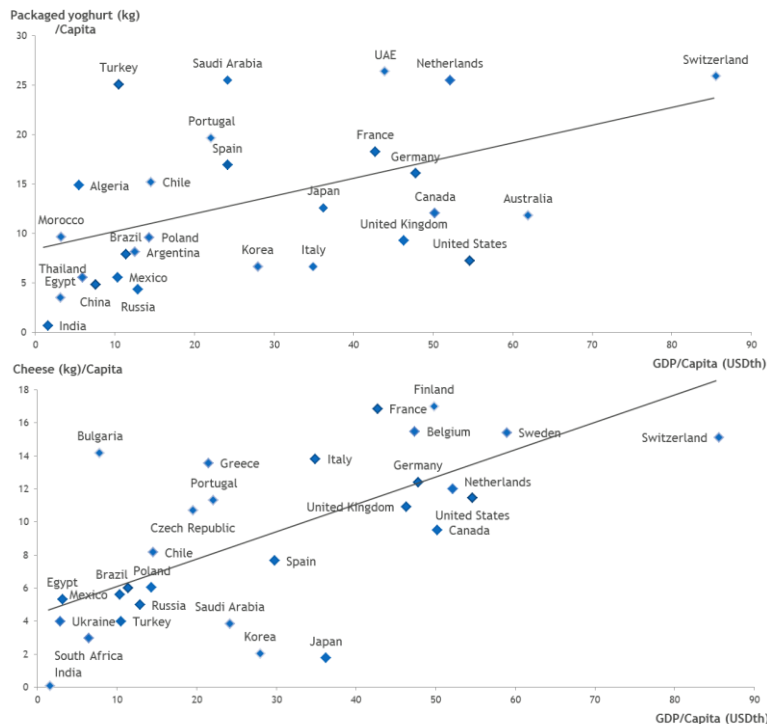
Demand for cleaner, healthier and more natural products



Technology breakthroughs

## The implication

- Dairy consumption correlates with GDP



## The opportunity

Expand market presence

Getting more out of milk

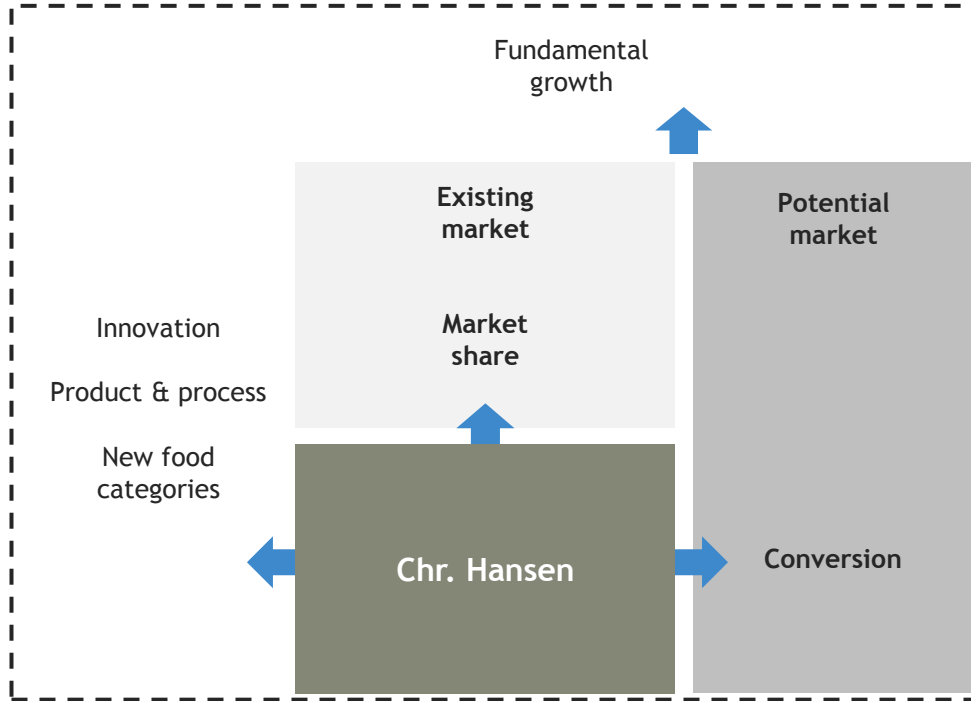
Into new food areas

Further scalability

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# Supporting the long-term growth opportunities in Food Cultures and Enzymes



## Growth components

- Fundamental growth (3-4%)
- Conversion (1-2%)
- Innovation (1-2%)
- Pricing & market share (~1%)

Delivering 7-8% growth



# Protecting entry barriers

## Critical food market dynamics...

- High customer fragmentation
- Local consumer demands and consumption preferences
- Individual customer production set-up
- Strong focus on unit production costs
- Cultures are a small part of total customer production costs (1-2%), yet strategically important

## ...provide substantial entry barriers...

- High customer acquisition costs relative to sales
- Need for wide range of cultures to cover market demands
- Service intensive and technical sales process
- Competitors need high volumes on strain level to generate economies of scale
- Customer incentive to switch is low

## ...creating favorable competitive environment

### Conglomerates



### Niche players



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# Building on deep customer understanding

## New opportunities

Systematic building of key relationships

Intriguing the customer

Log and prioritize opportunities

Structure project launch plan for targeted customers

## Managing customer projects

### Phase 1: Define objective

Align objectives and understand decision process. Know your unique selling points and pricing

### Phase 2: Initiate trials

Right trials with right people using right tools e.g. Six-sigma

### Phase 3: Deliver tech. proof

Deliver technical proof. Gather fact base and optimize final negotiation

### Phase 4: Show the value

Utilize technical and commercial competences to show value creation

## Service and next sale

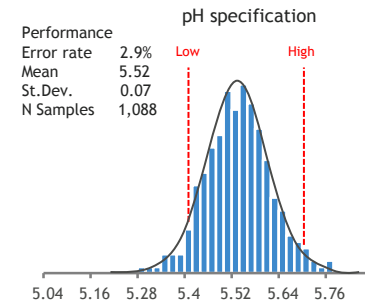
Deliver to promise

High technical service e.g. phage monitoring

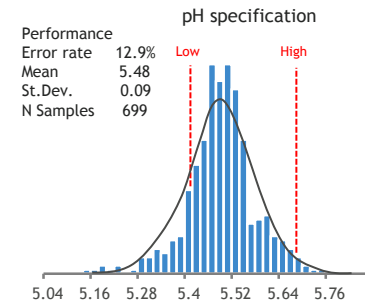
Manage complaints

Prepare for next generation/alternative solution

## New Culture



## Old Culture

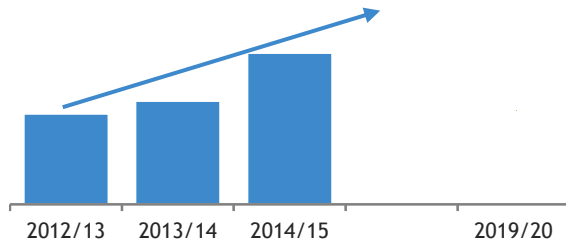


# Expanding market presence in emerging markets

## Changing presence as markets grow...

- Acquired Peyma (50%) in Turkey
- Established presence in Eastern European markets
- Go-direct in China

## China: Cultures revenue growth



## ... and we expect to continue this trend



# Getting more out of milk

The nutritional potential from milk is significant and includes among others:

<b>Bone health</b>	Calcium-binding (CPP) Lactoferricin
<b>Digestive health</b>	Antimicrobial satiety inducing immunomodulatory, Glycomacropeptide, Opioid
<b>Immune defense</b>	Immunomodulatory, Glycomacropeptide, Cytomodulatory
<b>Dental health</b>	Antimicrobial, calcium- binding (CCP)
<b>Heart health</b>	ACE-inhibitory, antithrombotic, anticholesterolemic, antioxidative

Cultures & enzymes help:

<b>Add in</b>	Taste Texture Appearance Shelf life Health benefits Authenticity
<b>Take out</b>	Sugar Fat Lactose Texturizers & Stabilizers Preservatives
<b>Offer</b>	New eating occasions New consumer groups



post-pasteurized yogurt

This yogurt contains 35% more protein than other yogurts in the market, providing a product format that is tasty and nutritious and convenient to consume anytime, anywhere

# Addressing consumer and food producers' needs for safer, cleaner products with long shelf life across categories

66% of consumers worldwide check labels for food and beverage products before purchasing; 62% of these say they check for artificial preservatives<sup>1</sup>

55% of consumers will temporarily switch brand following a recall. 21% would avoid purchasing any brand made by the same manufacturer<sup>2</sup>

Retailers estimate 2-3% losses related to expiration of products on shelf related to dairy products<sup>4</sup>

Food losses in Dairy amount to 20%. In Europe alone 29 million tons of dairy products are lost/wasted every year<sup>3</sup>



Ensure food safety  
(e.g. limit listeria)



Replace undesirable chemical additives (e.g. sorbate)



Prevent spoilage & enhance freshness

1) <http://www.cnsmedia.com/GNTInfographicsIngredientsunderScrutiny.jpg>

2) Consumer Concern Over Product Recalls High." PR Newswire. Harris Interactive, 12 June 2007. Web. 02 Aug. 2013

3) Global Food Losses and Food Waste (2011); Food and Agriculture Organization of the United Nations

4) Chr. Hansen retailer interviews

# Bioprotection helps to protect against spoilage and unwanted additives, using Nature's own processes

## Bioprotection at a glance

- The need to store and preserve milk was the reason to invent fermentation of milk into yogurt and cheese. FreshQ® is an extension of this ancient technique
- Natural microorganisms inhibiting contaminants like yeast and mold through fermentation
- Can be an additional hurdle to help manage end product quality by exerting a fungi-static effect
- Enhances the effectiveness of customers sanitation program
- Adds another barrier against contamination, that helps manage end-product quality



**With and without FreshQ®**



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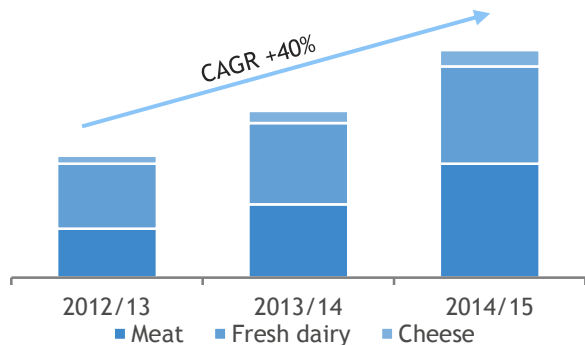
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# Significant opportunities identified based on existing products and new innovation

Bioprotective solutions have seen strong growth in recent years...

- **FreshQ®** an all-natural way to reduce risk of spoilage caused by yeast and mold in dairy
- **SafePro®** minimizes the risk of listeria is and reduces the risk of spore formations from spoilage bacteria in meat



...But further opportunities are available

- Strengthening current base in fresh dairy, cheese, & processed meats



- Expanding into new areas incl. ready-to-eat and fresh meat & fish



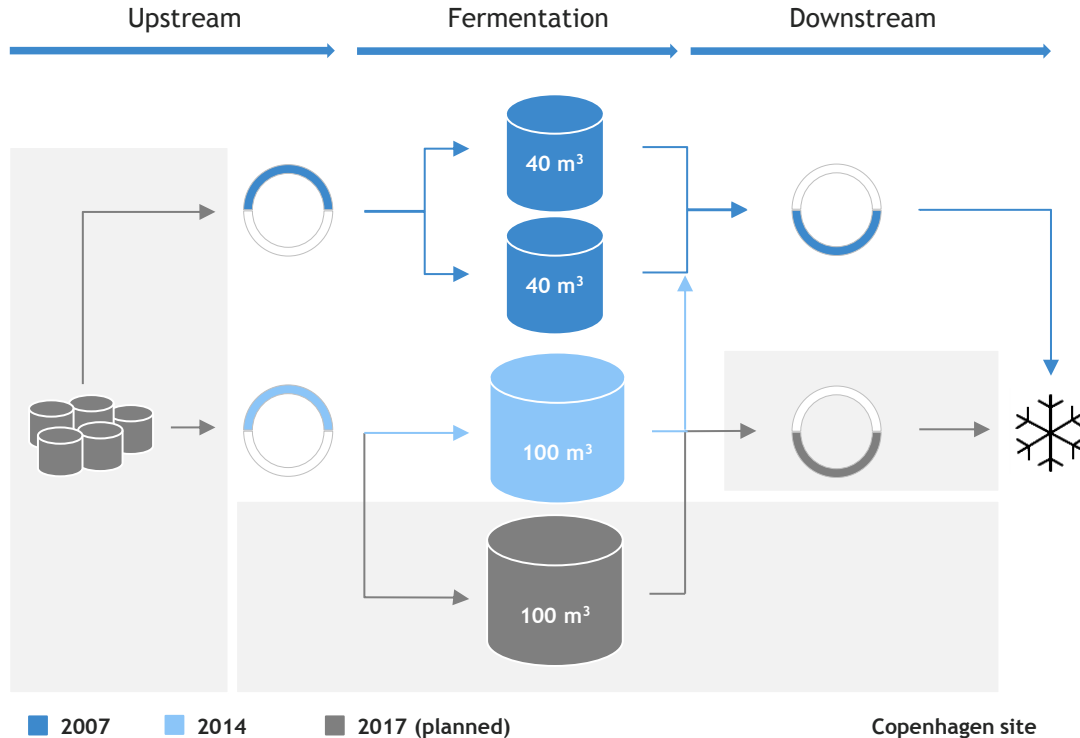
- Innovating solutions e.g. for gram-negative pathogens



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# Driving further scalability through modular expansions



# Financial ambitions

	2012/13	Old long-term ambitions*	Progress 2013-15		New 2019/20 ambitions
Organic revenue growth		7-8%	9% CAGR	✓	7-8%
EBIT margin b.s.i.**	30.4% (29.6% on LFL)	Increasing	31.5% in 2014/15	✓	Increasing

## Main assumptions:

The long term financial ambitions reflect currency rates at around same levels as in 1H 2015/16 i.e. no major impact from EUR-based pricing

Combined end-market volume growth for fermented milk and cheese is expected to be 3-4%

\*Baseline 2012/13.

\*\* Before special items and impairments in 2012/13. Number in () reflects changed level of capitalized development costs





# Natural Colors

Jørgen M. Erichsen  
EVP Natural Colors

Mary Bentley  
SVP US Color Sales

# Megatrends push conversion to natural colors

## The trend



Growing world population and rapid urbanization



Resource scarcity



Increasing health care costs



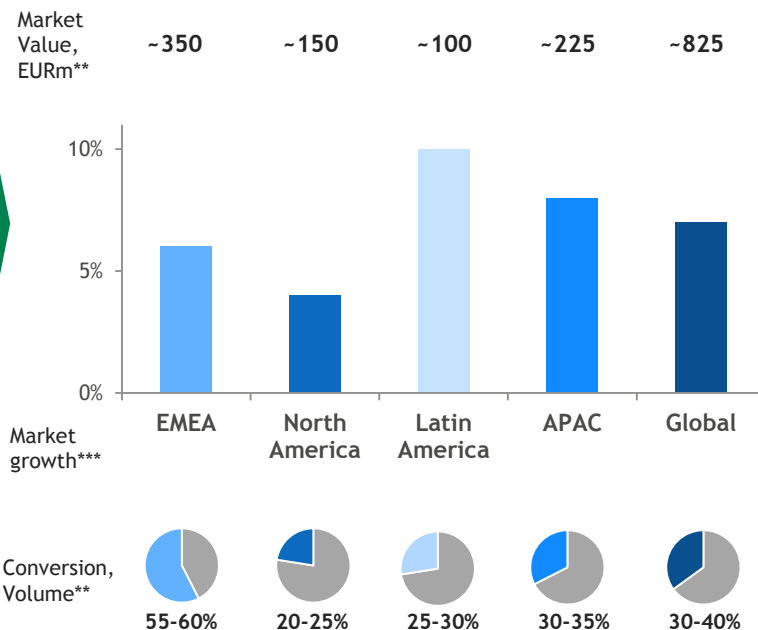
Demand for cleaner, healthier and more natural products



Technology breakthroughs

## The implication

Market value, growth and conversion for natural colors\*



## The opportunity

Capturing our share in the US

Further development in coloring foodstuff

Restore profitability

\* Food & beverages natural colors and coloring foodstuff market

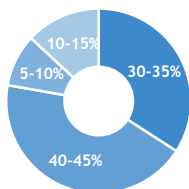
\*\* Management estimate

\*\*\*CAGR 2012-15, Euromonitor

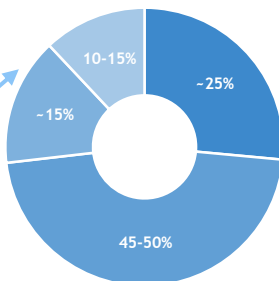
# The US conversion has started

The market for natural colors in the US accounts for 20% of global demand and is expected to grow with a CAGR of 10-20% until 2020...

NC US market 2015



NC US market 2020e



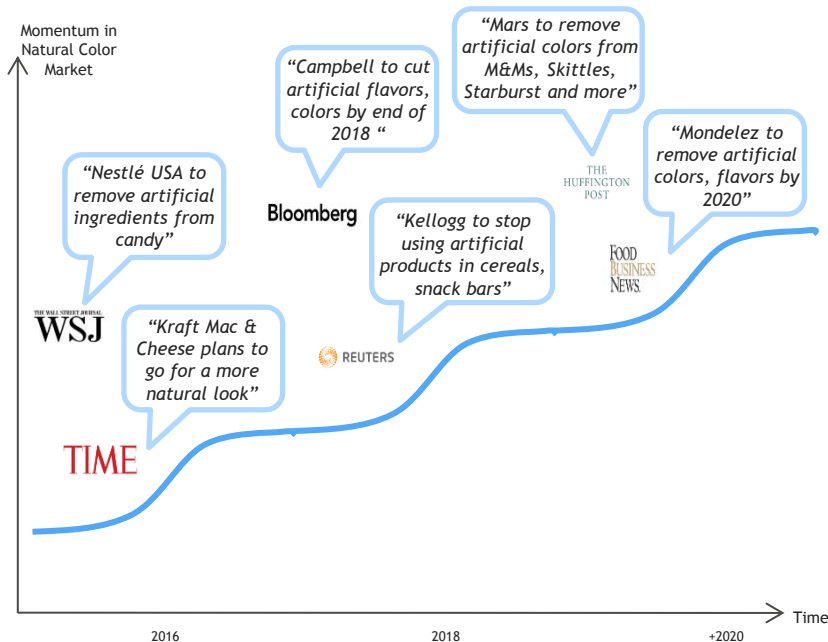
CAGR 10-20%

~EUR 150 million

- Beverages
- Confectionery & ice cream
- Prepared food & meat
- Dairy & fruit prep

...as food manufacturers continue to prepare for a move away from artificial colors

Commitment to natural colors from major brand owners constitute over 50% of the total US food and beverage market



Note: Examples of company announcements listed on this slide is not exhaustive  
Sources: The Wall Street Journal, Reuters, Time, The Huffington Post, Bloomberg, Food Business News

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# US conversion case studies

## Launching the world's largest blind tasting test

Converted to natural colors in December 2015 but only updated the ingredient list

After 50 million boxes sold Kraft introduced new packaging in March 2016

Launched national #didntnotice campaign across all platforms



Example of Kraft Mac & Cheese\*

## Taking first-mover position sharing "our journey"

Proactive public commitment to "axe" artificial colors

Started by converting kids favorites "Trix" communicating through Social Media

Keeping consumers updated on conversion progress on "our mutual journey"



Example of General Mills cereals\*\*

# Capturing our share in US

## Go to market strategy

- Roadmap of where to play triangulated from industry segmentation, supply chain foot print and study of unbranded market



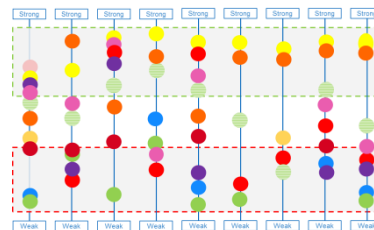
## Commercial excellence

- Establish CH as a partner for conversion through insight leadership and application expertise
- Expanding market reach into private label and food service



## Product portfolio

- Innovation pipeline to enhance current portfolio performance to enable success in all pigments and core industries



## Production footprint

- Current set-up in North America has sufficient capacity for the short-to-mid-term depending on the speed of conversion
- Footprint review initiated with planned capacity expansion in 3-5 years

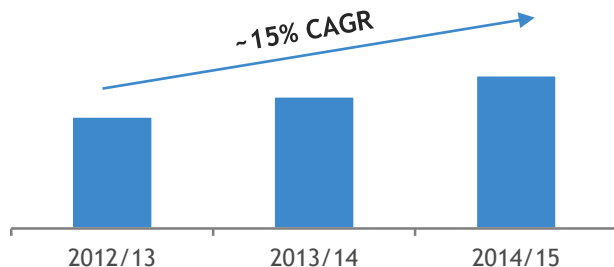




# Further development in coloring foodstuff

Our FruitMax® range of coloring foodstuff is one of the fastest growing categories...

FruitMax® sales



...yet it remains less than 10% of NCD, and Chr. Hansen is not market leader

*Coloring foodstuff: Naturally sourced concentrates from plants, fruits or vegetables. Enables labeling without E numbers*

Expanding market presence by continuing innovation and market penetration

## Raw materials

- Supply chain optimization
- Sourcing optimization



## Innovation

- Applying R&D formulation
- Application knowledge



## Sales penetration

- Regulatory pressure
- Consumer awareness

### Color types

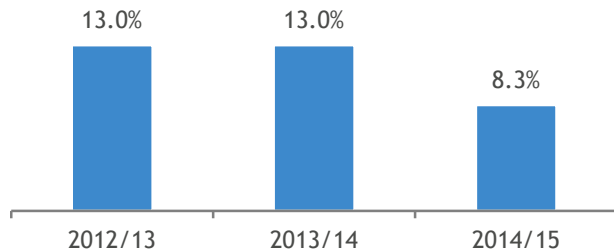


- Consider acquisitions to get access to complementary technologies and raw materials

# Restoring profitability

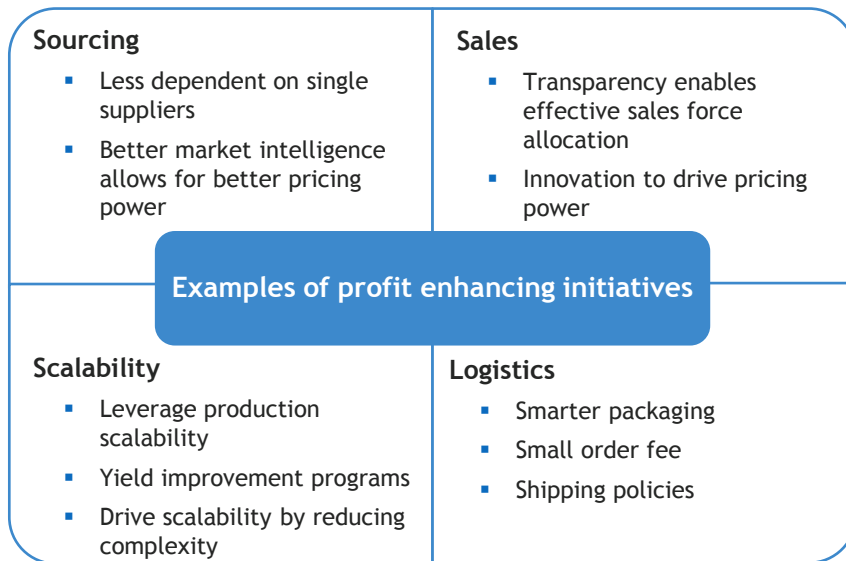
We are behind our target for increasing EBIT margins...

Natural Colors EBIT margin



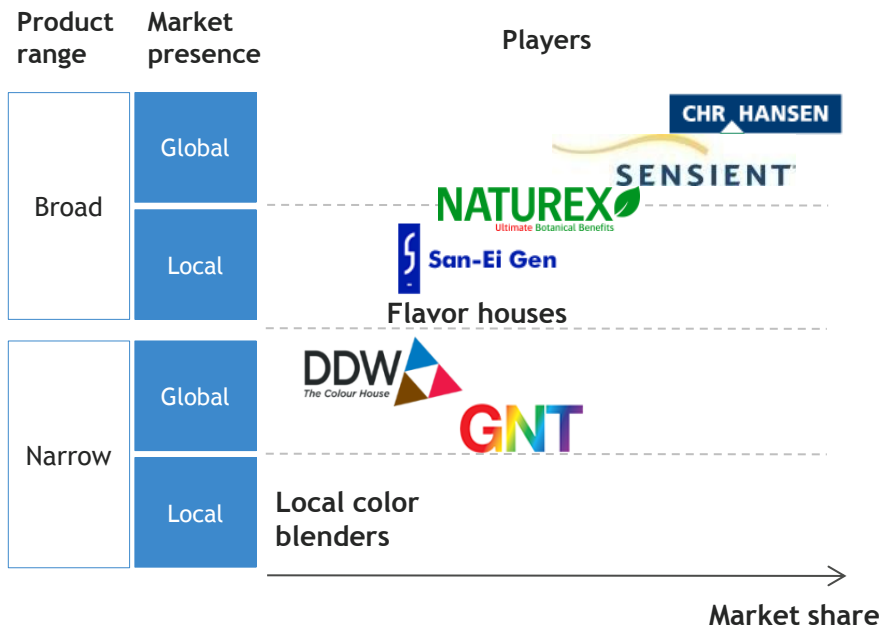
- USD exchange rate (USD appreciated 18% vs. EUR since NN1 strategy launched)
- Strengthening of the commercial organization
- Additional cost related to segregation from Food Cultures & Enzymes

....but increased transparency opens up for a number of initiatives addressing both cost and sales performance



# Staying ahead in competitive landscape

## Competitive situation



## Regulation

### EMEA

- Regulation in place for certain artificial colors
- EU issued new guidance on coloring foodstuff to regulate selective extraction
- Gulf Countries pushing new regulation for artificial colors

### Americas

- No regulation in US; consumer pressure driving growth
- Review of artificial colors in Latin American countries

### APAC

- Indonesia and Vietnam banned artificial colors in some categories
- Artificial colors under review in several countries

# Financial ambitions

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\*\* Before impairments in 2012/13. Number in () reflects changed level of capitalized development costs





# Health & Nutrition

Christian Barker  
EVP Health & Nutrition

Johan van Hylckama Vlieg  
VP Human Microbiome Innovation

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# Megatrends drives penetration of microbial solutions

## The trend



Growing world population and rapid urbanization



Resource scarcity



Increasing health care costs



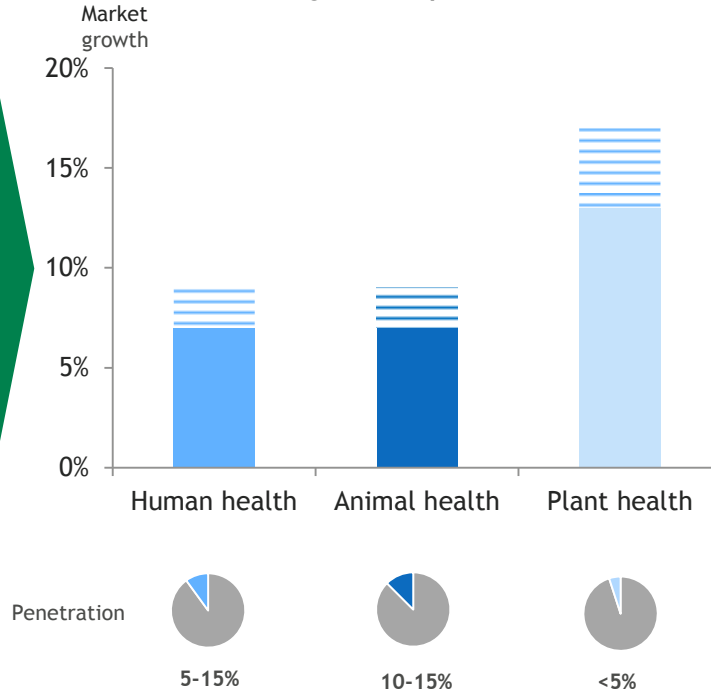
Demand for cleaner, healthier and more natural products



Technology breakthroughs

## The implication

### Market growth & penetration\*



## The opportunity

Continue growth in human health

Start developing solutions for the human microbiome

Further expansion of the platform in animal health

Building the business in plant health

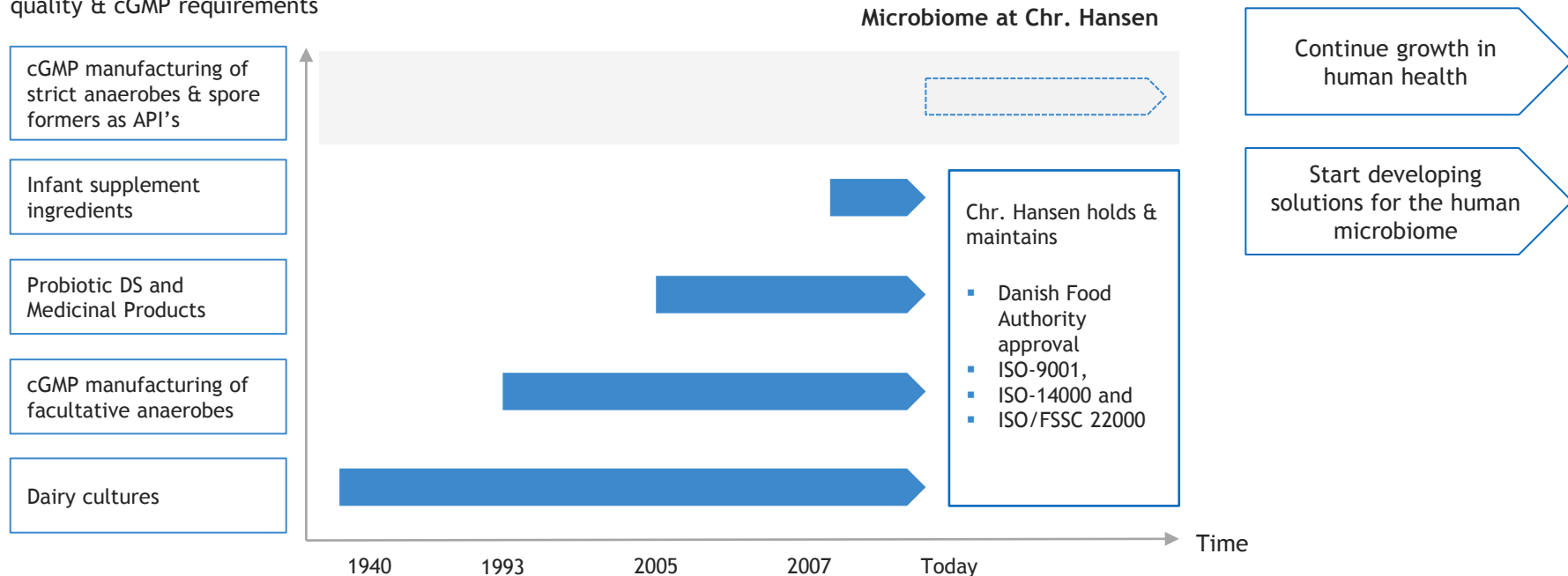
\* Based on Euromonitor and management estimates

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# Moving further into human health and microbiome is an evolutionary journey

Increasing process complexity,  
quality & cGMP requirements



# In human health we continue growth through best value proposition

## The best value proposition...

### IT WORKS



- Only strains with documented health benefits on e.g. GI and Immune
- Further benefits via other ingredients
- Dosage forms that ensure efficacy and appeal to consumers

### IT LASTS



- 2 years at 25°C for finished products
- 3 years at 30°C for selected products
- Stability data from blends to packed products

### IT'S DIFFERENT



- Comprehensive capabilities for customization
- Unique technology platforms
- Stand-out product concepts

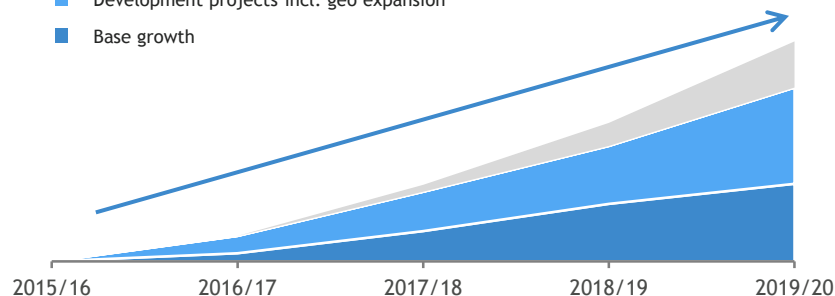
## ...Offers opportunities to "Win with the winners"...

- Supporting 8 of the top global consumer health players
- Co-development of solutions create long-term relationships
- Developing solutions that allow customers to differentiate in the high-end market based on our unique selling points

## ...and secure future organic growth

### Indicative

- Innovation pipeline
- Development projects incl. geo expansion
- Base growth



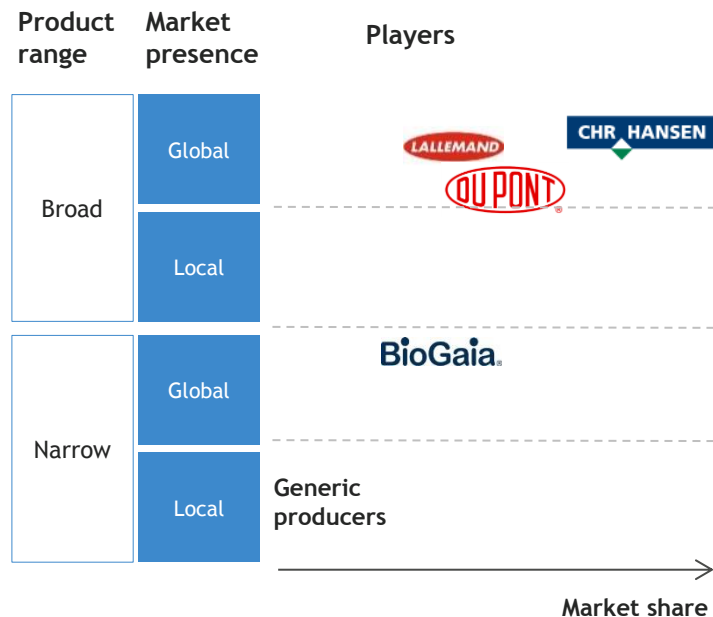
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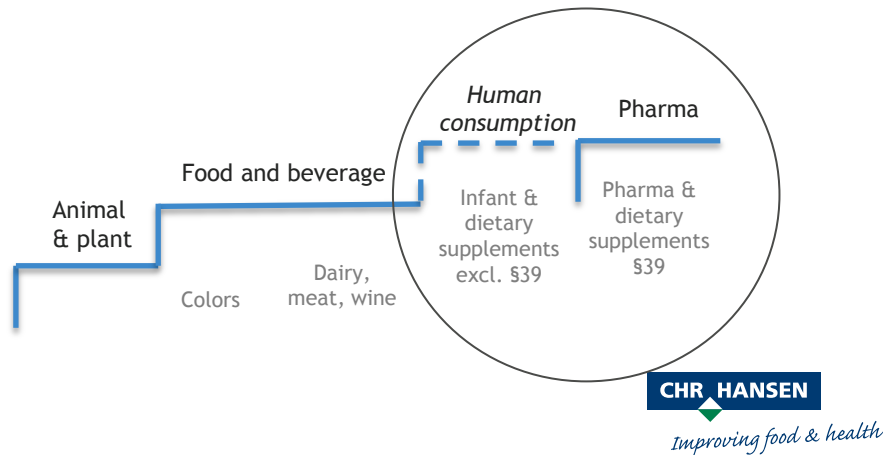
# Keeping ahead of competition in a complex and increasingly regulatory environment

## Competitive situation



## Regulation

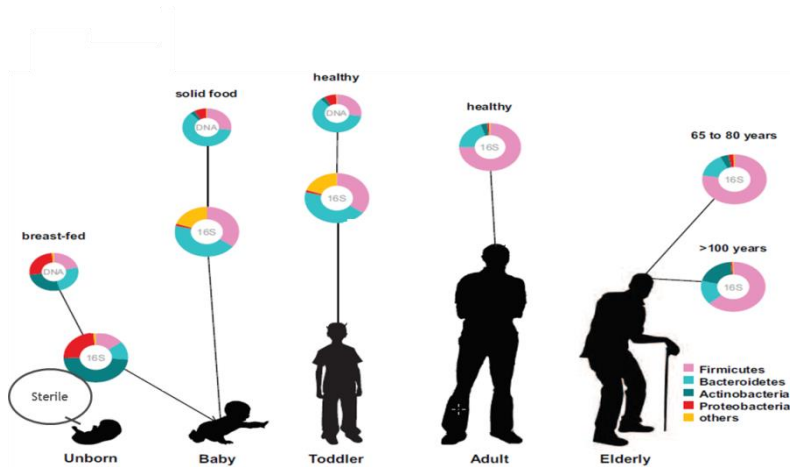
- Relevant legislations are becoming more restrictive in both dietary supplements and infant formula space with food safety driving higher compliance standards
- No harmonized dietary supplements regulation
- Still no EFSA approved claim for probiotics (less of an issue for Dietary Supplements than for Food)



# The human superorganism - of microbes and men

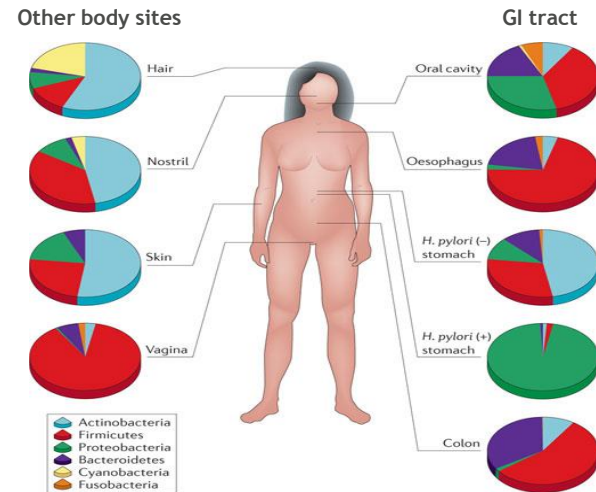
## The human microbiome as it develops

We are born sterile but develop an intimate association with bacteria throughout life



## The human microbiome is in and on us

1,100 bacterial species  
10 million genes (100-fold the human genome)



Nature Reviews | Genetics

## Your personal microbiome

160 species - 0.5 million genes of which you share half with any given person

# Science's understanding of the human microbiome's impact on health and diseases has progressed rapidly

## Potential targets in health & disease

### Role of microbes long recognized

#### Gut health

Ulcerative colitis,  
Crohn's disease,  
Pouchitis, IBS

#### Pathogen Protection

*Clostridium difficile*  
& Infectious diarrhea

### Microbes and metabolic health

#### Energy Metabolism

T1D, T2D, NAFLD  
Metabolic syndrome

Production &  
availability of  
nutrients  
Malnutrition

Cardiovascular  
health  
Artherosclerosis

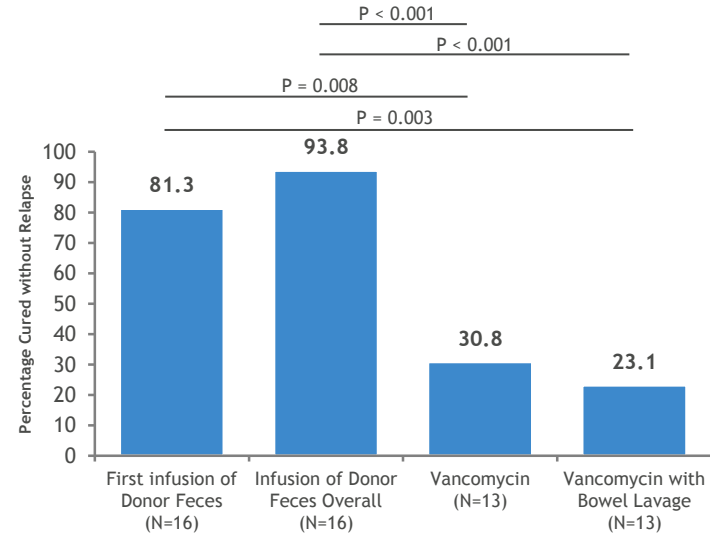
### New breakthrough insights

Gut-brain & emotion  
Autism, Depression  
Stress & anxiety

Cell proliferation  
& cancer  
Bladder, colon  
& stomach

Immune maturation &  
Functioning  
Arthritis, Allergy

## Cure rate - *Clostridium difficile* infection\*



van Nood E et al. N Engl J Med 2013;368:407-415.

\*without relapse for recurrent infection

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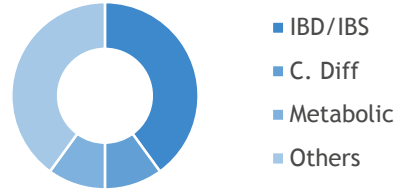
# The scientific progress has fueled major private investments

Looking to introduce new services and products...

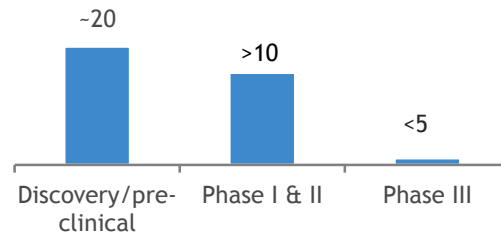
- Bacteria from the microbiome as therapeutics
- Diagnostics
- Drugs targeting the microbiome
- Foods & prebiotics

...companies announce many projects...

Indication areas



# projects



...but three major challenges remains

- 1 Which microbe for which health endpoint
- 2 How to produce and formulate these sensitive microbes
- 3 What will regulatory look like across pharma, infant and food

# Chr. Hansen has made significant progress on addressing two of the challenges

## 1 Which microbe for which health endpoint

Discovery for food and dietary supplements within existing business area most notably G.I.

Development of large well-documented strain libraries of gut commensals through consortium with leading universities



university of  
 groningen



Rowett Institute  
 of Nutrition and Health  
 University of Aberdeen



WAGENINGENUR  
 For quality of life

## 2 How to produce and formulate these sensitive microbes

Product development partner for biotech and pharma

Development of a product formulation for E hallii for a clinical development program on pre-diabetes



CAELUS  
 HEALTH

## Supportive actions

- Dedicated team
- Strong scientific advisory board with leading experts
- Establishing a pilot-scale pharma grade laboratory with production capacity for anaerobic bacteria



# Developing new strains to support long-term growth

## Methodology

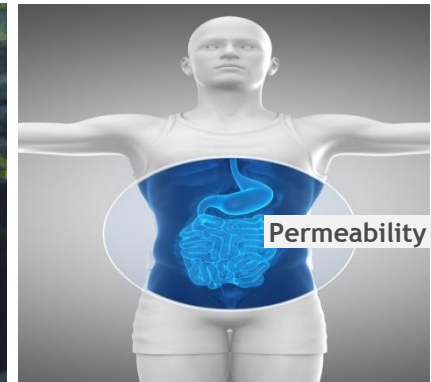
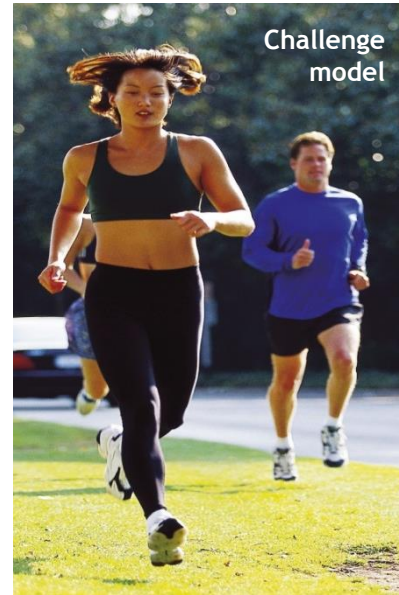
### Classical approach

- Effect evaluated by **subjective outcome measures** e.g. gastro intestinal comfort questionnaires
- Clinical trial populations with fluctuating gastro intestinal symptoms

### New approach (example)

- Effect evaluated by **quantifiable responses** in gastro intestinal and inflammation specific biomarkers
- Physical challenge model induces variable biomarker response depending on the effectiveness of the probiotic

## Effectiveness of new probiotic strain evaluated in exploratory clinical trial by quantitative measures



# Chr. Hansen offers unique production and formulation capabilities for partners

## Anaerobe capabilities

	Anaerobe physiology	Fermentation development	Formulation development	Upscaling
Chr. Hansen	✓	✓	✓	✓
CMO's	✓	✓	÷	✓
Probiotic players	✓	✓	✓	✓

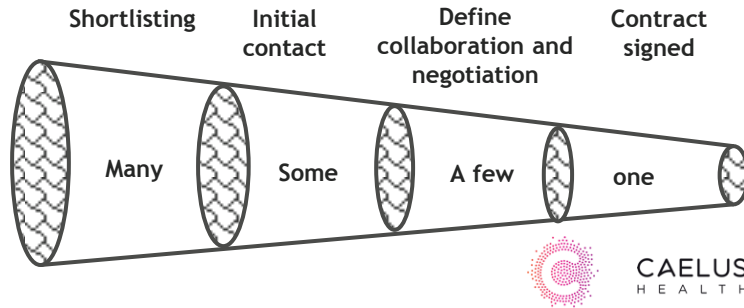


# Developing the human microbiome business model

## Identifying potential partners...

We have identified a large number of opportunities for partnering centered around 2 main areas:

- Gastrointestinal disease
- Metabolic disorders



## ...But significant uncertainty prevails

- Which strains/combinations will deliver most promising results?
- Which strains/combinations can be produced?
- Who will succeed?
- How will the regulatory environment develop?



# Long-term growth opportunity in animal health

## The trend



Growing world population and rapid urbanization



Resource scarcity



Increasing health care costs



Demand for cleaner, healthier and more natural products

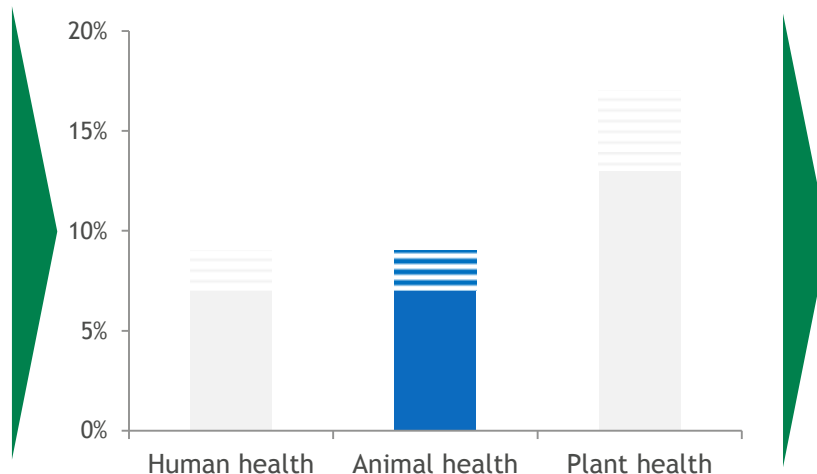


Technology breakthroughs

\* Based on Euromonitor and management estimates

## The implication

### Market growth & penetration \*



Penetration



5-15%



10-15%



<5%

## The opportunity

Increase penetration through RTM and next generation products

Expand into adjacent areas

Offer alternative to antibiotic growth promoters

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*Improving food & health*

# Drive growth across categories

## Strong value proposition...



- Efficiency of milk production and better rumen health (dairy cows)
- Increased feed conversion (beef)



- Significant reduction in dry matter loss
- Improved aerobic stability and fermentation



- Reduction in piglet mortality
- Increased calorie efficiency (reduced cost with same result)



- Increased feed digestibility and production boost
- Defense against pathogens
- *But increasing competition*



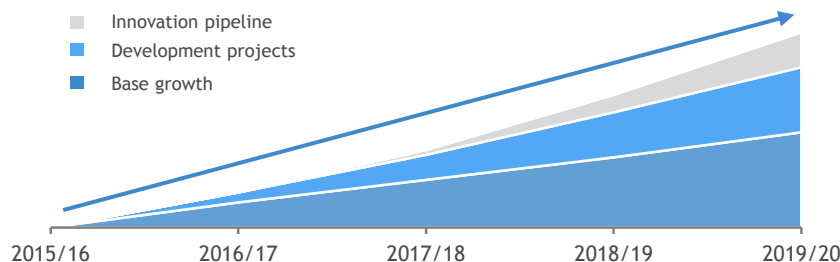
## ...Offers opportunities to deliver customer value...

- Boosting efficiency and profitability for farmers and producers
- Meeting all regulatory requirements for safety, stability, and efficacy
- Address concern around use of antibiotic growth promoters

## ...and secure future organic growth

Indicative

- Innovation pipeline
- Development projects
- Base growth

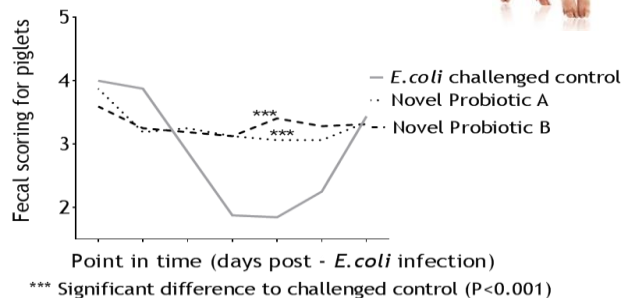


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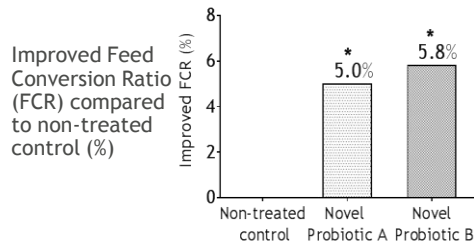
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# Established an innovation pipeline to support growth

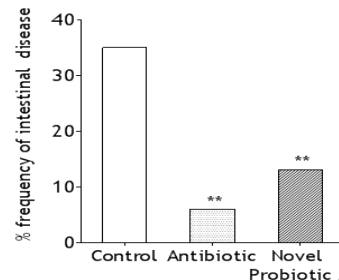
**Novel probiotic significantly reduces diarrhea in piglets challenged with *E.coli*...**



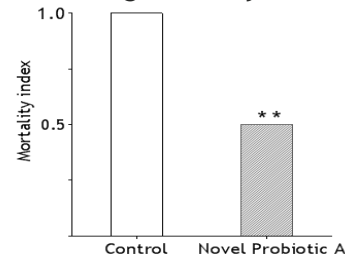
**... leading to increased feed utilization and growth**



**Novel probiotic reduces gut infection...**



**... thereby decreasing mortality rates in poultry**



# Staying ahead of increasing competition in a market supported by regulation and customer awareness

## Competitive situation

### Large players



### Niche players



## Regulation

- Increasing legislations against the use of antibiotic growth promoters (AGP)
- AGP banned in EU in 2006 and in California in 2015
- In 2014 FDA announced legislation to curb usage in US

## ...and consumers drive a move away from AGP



# Creating a broader platform in animal health

## Acquisition Nutrition Physiology Co. (NPC) has a strong fit with Nature's No.1

- Expanding existing business in animal health through complementary microbial solutions for beef cattle
- Aligned with capital allocation principles - bolt-on acquisition to support market presence and technology

### Attractive synergies

- Sales, supply chain, and innovation
- Synergies expected to be achieved within two years

### Fast returns

- Acquisition is expected to be EPS accretive by 2016/17

## NPC is a provider of microbial solutions to the US livestock industry

- Revenue USD 40 million and EBITDA USD 10 million\*
- Strong customer relationships backed by strong scientific trial data with IP protection
- Asset light operations with outsourced production (Chr. Hansen a supplier)
- 50 employees across US, mainly within sales, and R&D

### Key products

- Bovamine®, Bovamine® Defend™, Bovamine® Dairy



\*2015

# Integrate and obtain synergies

## Synergies to be realized mainly through

- Utilization of commercial opportunities from complementary businesses
- Optimization of supply chain
- Strengthened innovation efforts
- Full tax deductibility on acquired intangible assets

Approx. EUR 6 million related to the transaction and integration (recognized as special items)

The acquisition is expected to be margin accretive to the Health & Nutrition and EPS accretive by 2016/17

## Integration process and synergy achievement

- Integration of organization well advanced
- Insourcing of 75-80% of total volume planned and expected to be fully insourced within 1 year at attractive margins
- 20-25% of total volume to remain outsourced for the time being
- Sales synergies primarily in next financial year
- Innovation opportunities identified
- Future of distributor business being reviewed
- Business progress slightly below expectation primarily due to low cattle-on-feed numbers as commodity prices remain depressed



# Good bacteria for plant health is a major opportunity

## Growth drivers remain in place

Government regulators demand fewer chemicals ✓

Consumers and supermarkets demand natural solutions ✓

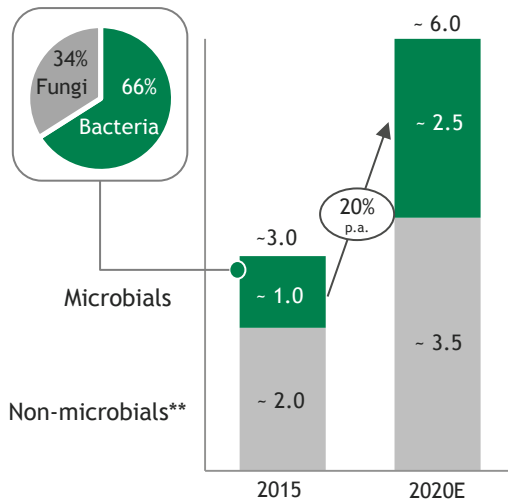
Pests are developing resistance to chemicals ✓

Big AG companies are entering the market ✓

## Strong growth expected...

'Good' bacteria expected to be the fastest growing technology

Global biologics crop protection sales\*, EUR billion



## ..Attracting a lot of interest

Majority of our direct competitors now active in this field



- Entered via acquisition of Verdera in 2008



- Strategic alliance with Monsanto since 2014



- Strategic alliance with Syngenta since 2015

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# Chr. Hansen brings distinct capabilities and is uniquely positioned to tap into this opportunity

We bring unique and distinctive capabilities pursuing two paths



## Bacterial production at scale

- World's largest producer of live bacteria
- Produce over 400 different bacterial strains



## Bacteria stabilization

- Agrochemicals need long shelf life at poorly controlled temperatures
- Chr. Hansen is world leading in stabilization



## Strain improvement

- >50 years of expertise in non-GMO strain improvement in close collaboration with customers understanding their application



## Alliance with FMC

- Exclusive R&D partner since 2013
- Chr. Hansen provides unique development capabilities
- FMC leads scouting, field trials, registration & commercialization
- Investments and profits are shared

## Relationships with agrochemical companies

- Custom process development
- Scale-up
- Manufacturing



# Alliance with FMC progressing well



## Alliance with FMC in good position to succeed

### FMC corp.

- 2015 Agrochemical revenue USD 2.3 billion
- Number 7 globally in agrochemicals (excluding Cheminova)
- Leading positions in some regions and niche industries

### R&D Alliance

- Initiated in 2013
- Complementary strengths throughout the value chain

### Needed competences for succeeding in plant health in place



## Alliance activities progressing well



- Nemix C in testing at all top-10 sugar cane mills in Brazil covering a total area of >25,000 ha.



- Field trials performed on 16 crops in 5 geographies in 2015



- Expecting 1-2 product registration submissions to the US Environmental Protection Agency in 2016



- First product developed by the alliance - Capture VGR - launched in certain states in the US based on strong trial data



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# Strong value proposition from alliance launch

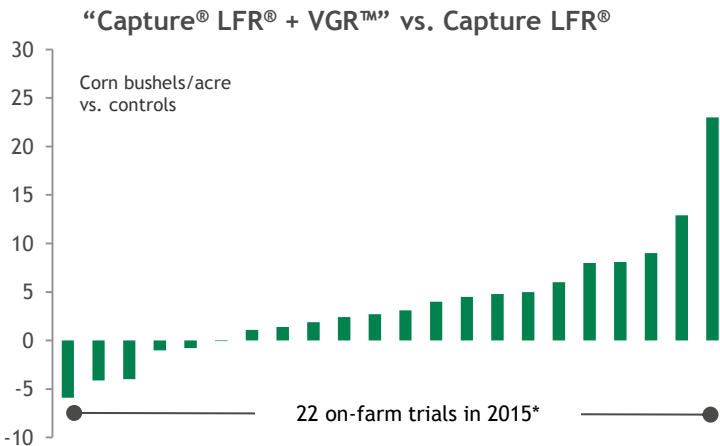


## First alliance product introduced addressing corn yield...

- VGR™ is a *Bacillus licheniformis* based soil amendment that establishes in the root zone and increases the vigor and resistance of the corn plant
- Product sold in certain states in the US as a combination product with FMC's Capture® LFR®
- Capture® LFR® + VGR™ had a win rate of 79% in 28 field trials conducted in 2014 and 2015 against untreated corn increasing yield by an average of 9.1 bushel/acre



## ...with strong value add combined with existing chemical product



- Win rate: 77% of field trials
- Increasing yield over Capture® LFR® by an average of 3.7 bushel/acre

\* Liquid starter fertilizer used in all treatments

Capture® LFR® is a restricted use pesticide. VGR not registered in all states. Visit [www.fmccrop.com](http://www.fmccrop.com) for current list of registered states

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# Financial ambitions

	2012/13	Old long-term ambitions	Progress 2013-15		New 2019/20 ambitions
Organic revenue growth		+10%	14% CAGR	✓	>10%
EBIT margin b.s.i.*	34.6% (32.2% on LFL)	Around 30%	33.3% in 2014/15	✓	Around 30%

## Main assumptions:

The long-term financial ambitions reflect currency rates at around same levels as in 1H 2015/16

Meaningful growth from plant health by 2019/20

*\* Before special items and impairments in 2012/13. Number in () reflects changed level of capitalized development costs*



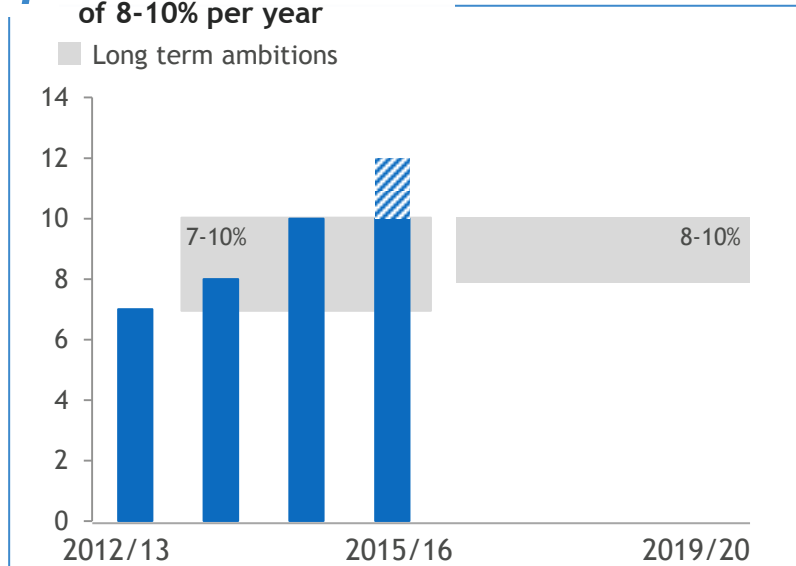


# Financial ambitions

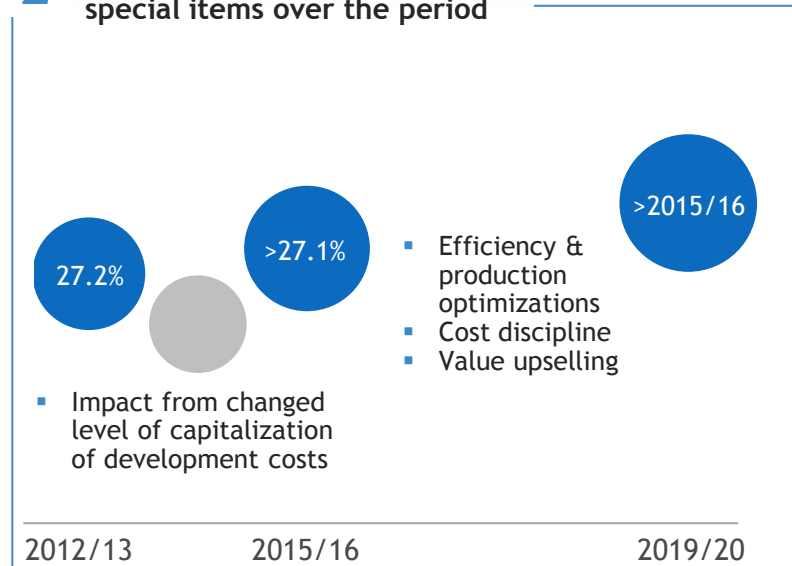
Søren W. Lonning  
CFO

# Securing profitable growth to 2020

## 1 Organic revenue growth of 8-10% per year



## 2 Increasing EBIT margin before special items over the period

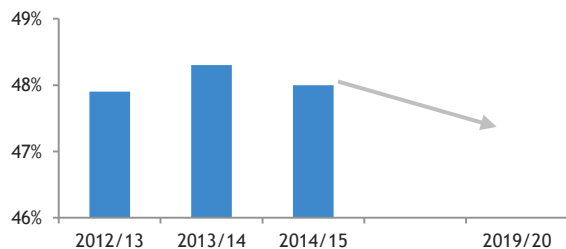


## 3

Increasing free cash flow before acquisitions, divestments and special items over the period

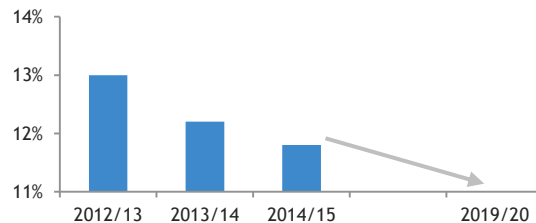
# Ensuring scalability throughout the business

**Cost of sales\***



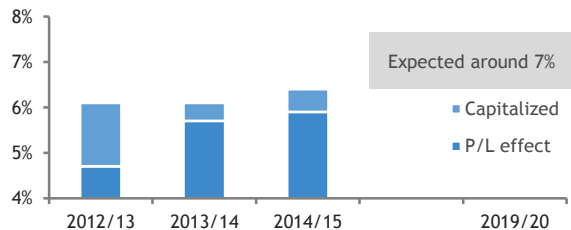
- Targeted efficiency investments
- Further improvements with planned capacity expansions

**Sales & marketing expenses\***



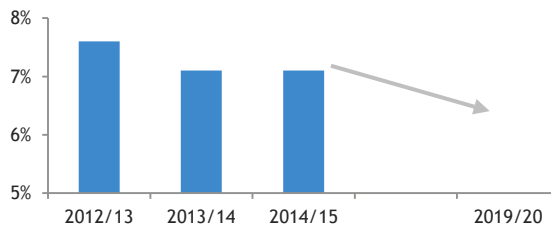
- Scalability driven by sales excellence and best practice
- Maintain cost discipline

**R&D expenditure\***



- Investments in accretive projects
- Focused approach to ensure right balance between R&D

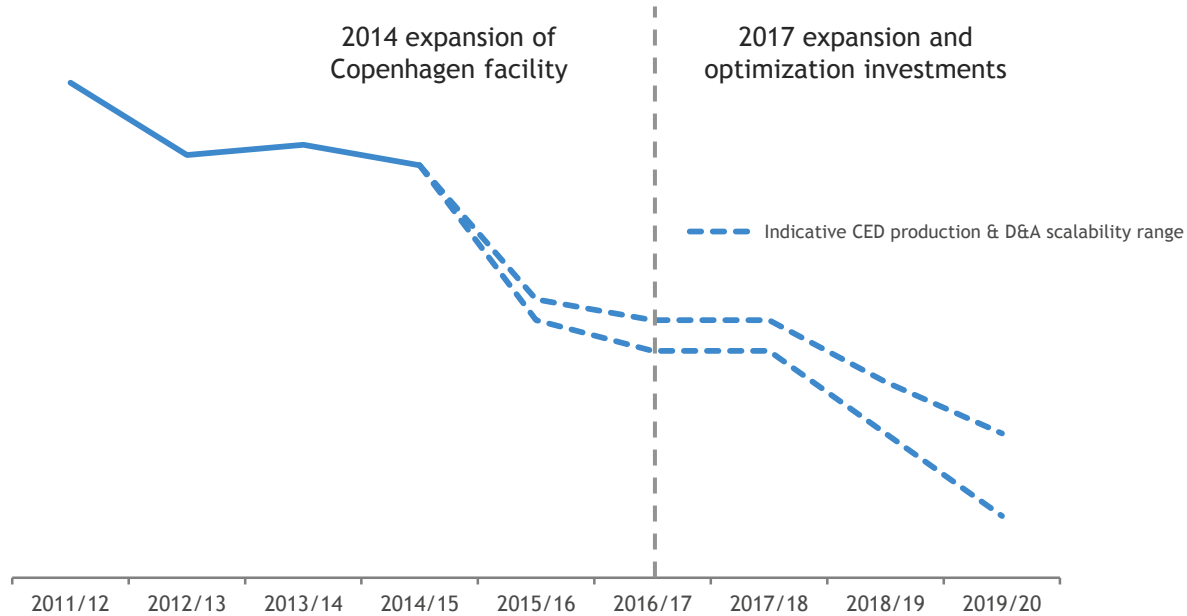
**Administrative expenses\***



- Global process improvement
- Maintain cost discipline

# Production scalability in microbials

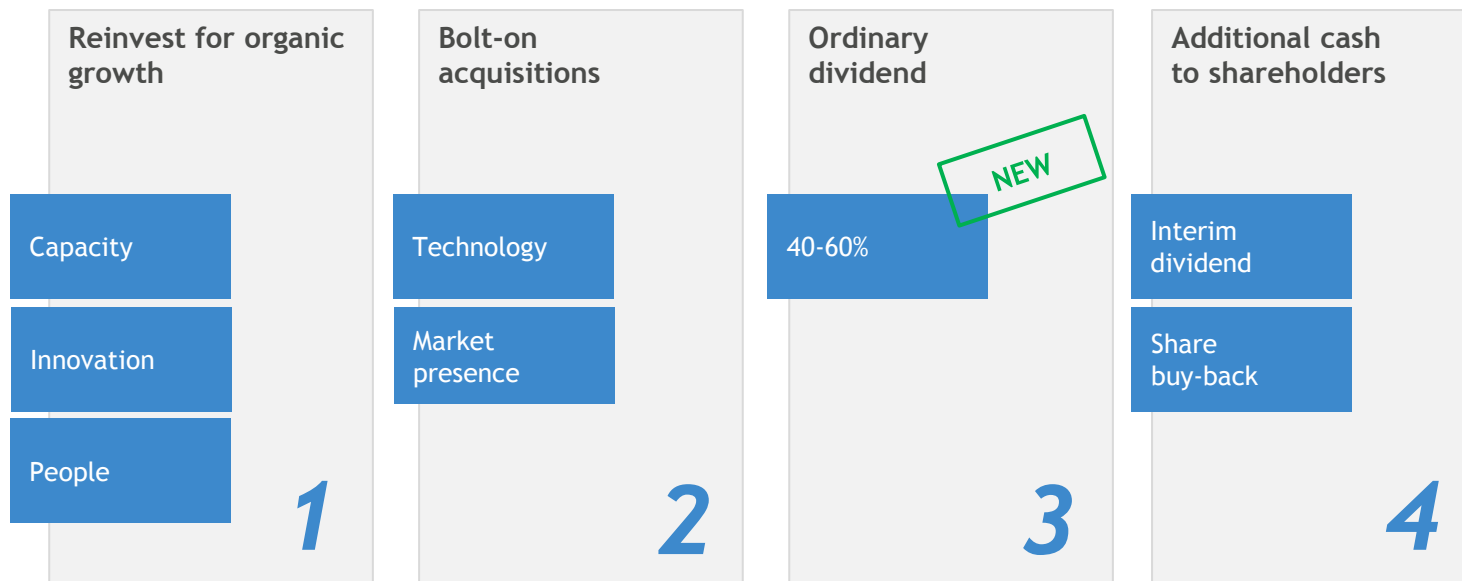
Continue to reap benefits of consolidated production...



...while investing based on known capabilities



# Maintaining our capital allocation priorities



Leverage consistent with a solid investment-grade credit profile

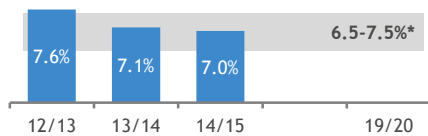


# Reinvest for organic growth

## Tangible investments

- Capacity and efficiency
- Insourcing
- Optimization
- Maintenance

Cash flow from tangibles



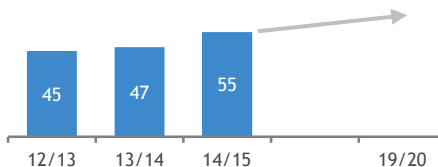
\*+ approx. 1%-point from intangibles

Indicative range of 6.5-7.5% accepting peak investment level in 2016/17

## Innovation

- Selectively strengthen backbone and competencies
- Ensure a strong product pipeline
- Continue investments in Plant Health, Human Microbiome & BioP

R&D expenditures

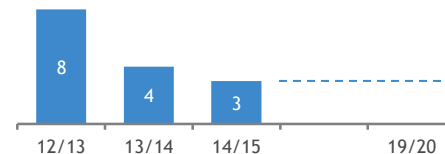


Increasing investments with R&D percentage expected to be around 7%

## People

- Attracting and retaining talent is key to execution of strategy
- Employee satisfaction above benchmarks
- Health and safety a key focus

Incidents per 1 million working hours



Continue investing in people to keep motivation high and attract talent

# Pursue bolt-on acquisitions

## Technology

- Strains
- Formulation
- Stabilization
- Encapsulation
- Coloring Foodstuff



Most opportunities in Health & Nutrition and Natural Colors

## Market presence

- Geographical expansion
- Customer access
- Application formats
- Adjacent products targeting existing customer base



Most opportunities in Health & Nutrition and Natural Colors

## Previous acquisitions

- 2008: Medipharm (H&N)
- 2009: Urex Biotech (H&N)
- 2013: Peyma (Subsidiary Turkey)
- 2015: DIAL (FC&E)
- 2016: NPC (H&N)

÷ Divestments of non-core activities in 2005-2011

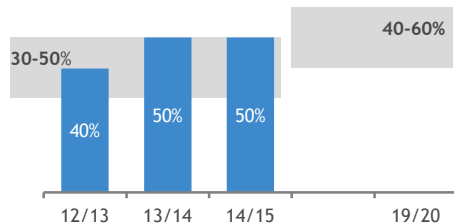
Selective and careful approach

# Deliver shareholder return

## Ordinary dividend

- Increasing dividends in period
- Paid out 50% of net profit last 2 years

Dividend payout ratio

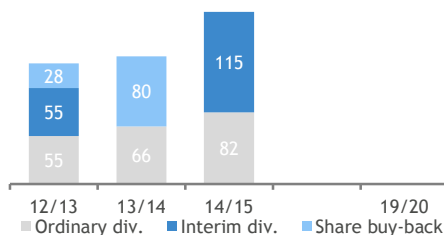


New target of 40-60% of net profit

## Additional cash to shareholders

- No preference between interim dividends and share buy-backs
- No additional cash expected in 2015/16 due to acquisition of NPC

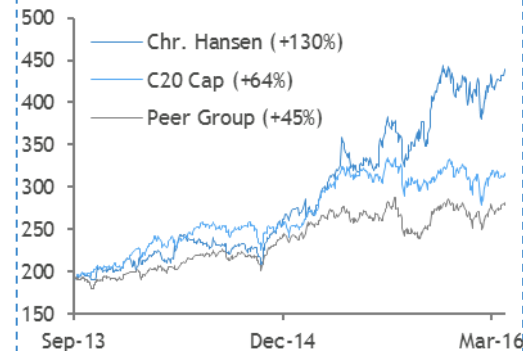
Total cash returned (EUR million)



Remain committed to distribute excess cash

## Capital gain

Share price development  
(September 3 2013 - March 31 2016)



130% share price increase since launch of NN1

# Financial ambitions

	2012/13	Old long-term financial ambitions*	Progress 2013-2015		New 2019/20 ambitions
Organic revenue growth		7-10%	9% CAGR	✓	8-10%
Food Cultures & Enzymes		7-8%	9% CAGR	✓	7-8%
Health & Nutrition		+10%	14% CAGR	✓	+10%
Natural Colors		Around 10%	5% CAGR	÷	Around 10%
EBIT margin b.s.i.**	27.2% (26.4%***)	Increasing	27.1% in 2014/15	✓	Increasing
Food Cultures & Enzymes	30.4% (29.6%)	Increasing	31.5% in 2014/15	✓	Increasing
Health & Nutrition	34.6% (32.2%)	Around 30%	33.3% in 2014/15	✓	Around 30%
Natural Colors	13.0% (13.3%)	Increasing	8.3% in 2014/15	÷	Increasing
Free cash flow before acquisition, divestments and special items	EUR 120 million	Increasing	EUR 151 million in 2014/15	✓	Increasing****

\* Baseline 2012/13. NCD organic growth adjusted in 2014 from +10% to around 10%

\*\* Before special items and impairments in 2012/13

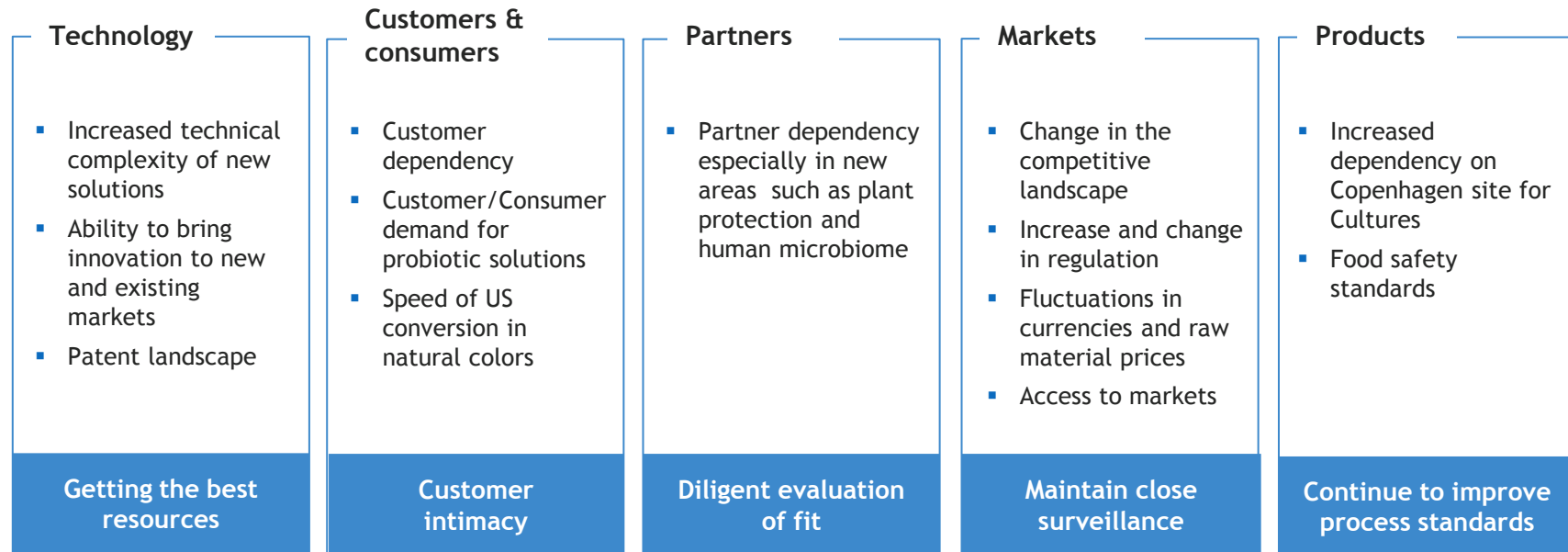
\*\*\* Adjusted for changed level of capitalized development costs

\*\*\*\* Over the period

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# Key risks to the 2019/20 financial ambition





# Beyond 2020

Cees de Jong  
CEO

# We recently completed a study examining long-term, structural trends in food and health

## Standpoint



Chr Hansen



Industry & retail



Consumer



Technology



Marginal practice

## Description

Internal opportunities, key capabilities, and ambitions

Perspectives from food producers, retailers, and regulators

Ethnographic research on consumers

Experts and exciting technologies in the world of food and health

Cutting edge ideas that challenge existing business model

# The study showed we are moving to a new world in food and health

## Old Food World



Quality = Price  
Fresh *or* safe  
Hidden and canned  
Snacks are treats  
Processed is acceptable

Success: Being predictable

## New Food World



Value for money  
Fresh *and* safe  
Visible  
Snacks are healthy  
Processed is undesirable

Success: Solving dilemmas



# We also found that dairy is a food category that is expected to remain stable

## Findings

### Consumer

Dairy has a firm position in people's lives being seen as an essential and healthy category

### Industry

Development in dairy is expected to be stable with incremental improvements

## Comments

- Dairy occupies a background but important space in people's diets
- People see most dairy products as naturally good for you

- Dairy will remain stable, with growth driven by new markets
- Focus in dairy will continue to be on incremental innovation

# Launched Natures No.1 strategy - 2016 update

## Evolution, not revolution

	1 Fully leveraging the potential of Food Cultures & Enzymes	2 Developing the microbial solutions platform in Health & Nutrition	3 Creating further value in Natural Colors
4 Driving a step change in innovation	<ul style="list-style-type: none"> <li>➤ Bioprotection as a new lighthouse</li> <li>➤ New platforms for dairy</li> </ul>	<ul style="list-style-type: none"> <li>➤ Expand existing business</li> <li>➤ Develop plant protection</li> <li>➤ Explore &amp; develop human microbiome</li> </ul>	<ul style="list-style-type: none"> <li>➤ Expand FruitMax® range</li> </ul>
5 Reinforcing position in emerging markets	<ul style="list-style-type: none"> <li>➤ Establish direct market presence in key emerging markets</li> </ul>	<ul style="list-style-type: none"> <li>➤ Increase penetration of human and animal health products</li> </ul>	<ul style="list-style-type: none"> <li>➤ Drive US conversion and secure APAC growth</li> </ul>
6 Generating fuel for growth	<ul style="list-style-type: none"> <li>➤ Drive scalability through new capacity in Copenhagen</li> </ul>	<ul style="list-style-type: none"> <li>➤ Reinvest in future growth</li> </ul>	<ul style="list-style-type: none"> <li>➤ Restore profitability</li> </ul>
	<ul style="list-style-type: none"> <li>➤ Continued conversion</li> <li>➤ Commercial excellence</li> </ul>	<ul style="list-style-type: none"> <li>➤ Commercial excellence</li> </ul>	<ul style="list-style-type: none"> <li>➤ Continued conversion</li> <li>➤ Commercial excellence</li> </ul>

# Strategic direction

What we will **still NOT** do

- ✗ Pursue acquisitions in unrelated areas
- ✗ Expand into products outside microbials/natural colors
- ✗ Attempt to become a full fledged pharma player
- ✗ Lose focus on cost control & operational efficiency

