

# TECHNICAL TOUR 1 – JOINT EVENT WITH NMR

**FOSS**

ICAR 2017 UK CONFERENCE, EDINBURGH, SCOTLAND  
16 JUNE 2017

**Andy Carr, FOSS UK & Ireland**



## ANALYTICS BEYOND MEASURE

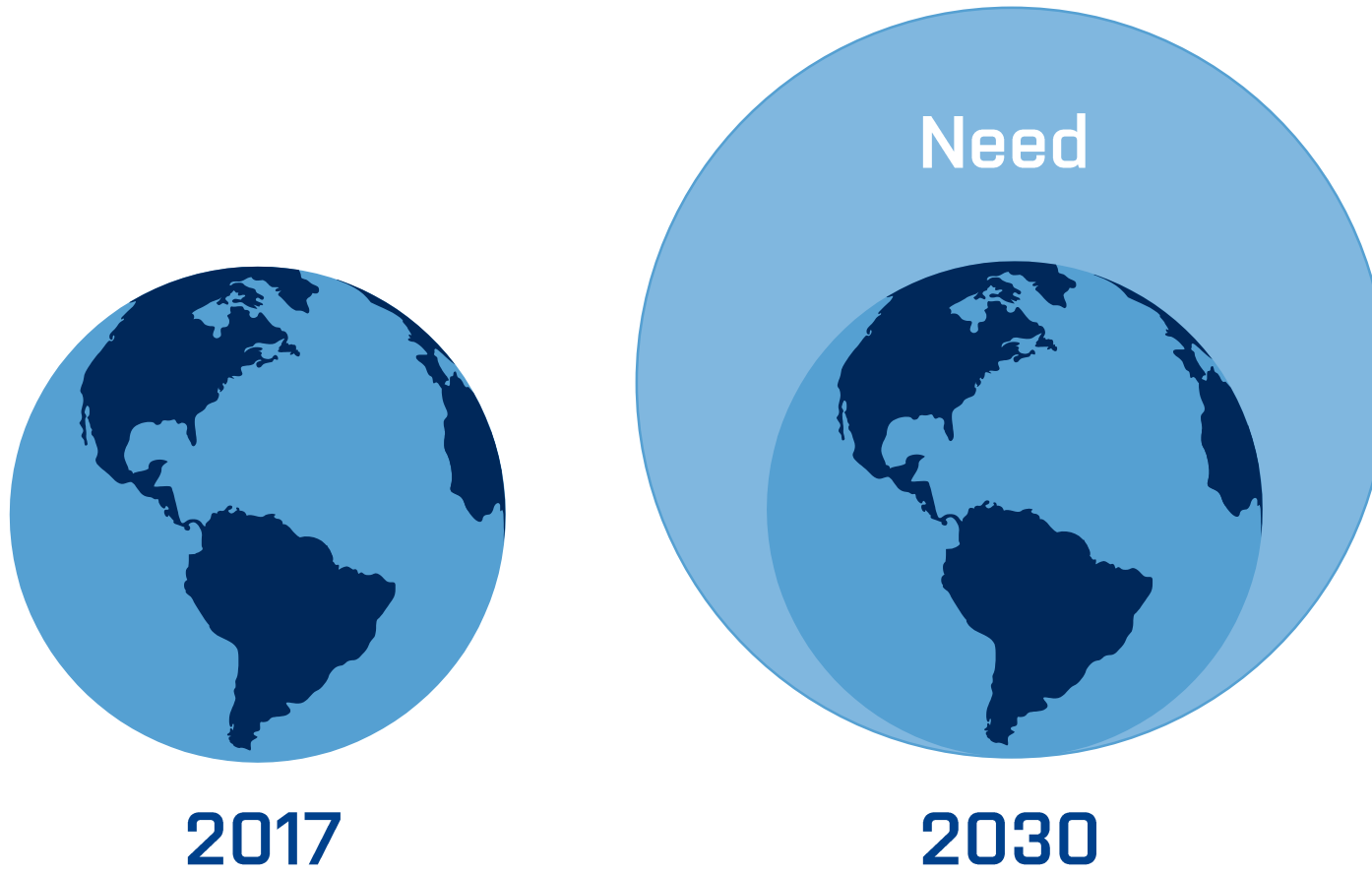
FOSS COMPANY PRESENTATION 2017



In **2030** we have a global  
middle class of **4.9 billion**  
Demanding **quality food**

# THE FUTURE OF GLOBAL FOOD RESOURCES

**FOSS**



**+60%**

Increasing demand for food of consistent and safe quality

**+9 billion**

World population will continue to grow in size

**+4.9 billion**

The global middle class will more than double – from today's 2 billion to 4.9 billion

**OUR MISSION**

We provide world class analytics and information management solutions improving quality and optimising food and agricultural production – and contribute to the sustainable use of our planet's agricultural resources and thus to the nutrition and health of the people of the world

**OUR VISION**

- Superior customer experience
- Profitable growth
- Pride in what we do



# HOW WE ADD VALUE

FOSS

## RAW MATERIAL

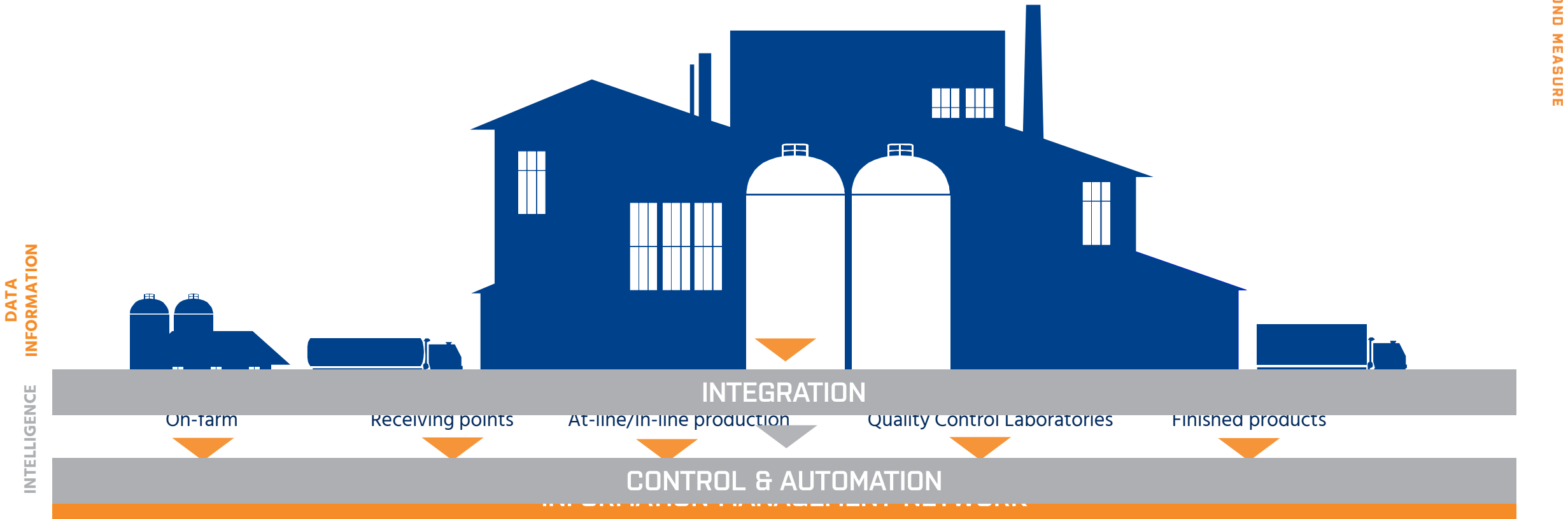
Payment, segregation and quality control of raw material

## PROCESSING

Improved predictability and control of manufacturing processes

## FINISHED GOODS

Safe products and compliance with regulatory requirements



# A HISTORY OF PIONEERING INVENTIONS

# FOSS



In 1956, Nils Foss identified the need for a portable moisture analyser

Fast, easy-to-use and dedicated, the Cera-Tester was the first FOSS innovation

Matching innovative technology to the demands of particular industries has been the foundation of FOSS ever since



1956

Cera Tester monitors moisture content in grain. The instrument is a highly popular world first.



1963

Milk becomes a major business area, and the Pro Milk helps to speed-up the analysis of fat content in milk.



1973

The Tecator Kjeltec™ paves the road for simpler, safer, less timeconsuming and more cost efficient Kjeldahl analysis.



1980

Flow Cytometry for analysis of individual bacteria or somatic cells leads to dramatic improvements in raw milk quality.



1997

FOSS acquires Perstorp Analytical and improves consistency of analysis results throughout the grain industry via NIR.



1999

WineScan introduces FTIR analysis as an effective way of improving quality throughout the wine making process.



2003

Introduction of X-ray analysis of meat allows entire batches of meat to be checked for fat



2014

First commercial use of EyeFoss for quality assessment of grain using image analysis to replace the age-old method of visual inspection.



2015

MilkoScan Mars makes screening for milk adulteration available to any size of business, along with other quality tests.



2016

FOSS achieves record growth with revenue of 269 million EUR.

### FIRST

because we want to be first and best

### CUSTOMER SATISFACTION

because the customer (of course!) is the focus of FOSS

### KNOWLEDGE

because FOSS exceedingly is a company based on knowledge

### PEOPLE AND TEAMS

because our employees in co-operation are the basis of FOSS' success



# MORE THAN 60 YEARS OF INNOVATION

# FOSS



- Strive to bring the advantages of new technology to our customers first
- More than 10% of turnover invested in R&D
- More than 300 highly skilled engineers and scientists in R&D
- Partnership with leading international universities
- Tightly woven network of technology partners
- Customer driven innovation

## FOSS INNOVATION FACTS

- More than 100 patents
- More than 20 world first introductions
- First to integrate analysis directly in line

## CORE TECHNOLOGIES

NIR

FT-IR

X-RAY

IMAGE ANALYSIS

FLOW CYTOMETRY

CHEMOMETRICS



# INDUSTRY LEADING SOLUTIONS FOR INDUSTRY LEADING CUSTOMERS

# FOSS

RAW MILK TESTING



DAIRY



GRAIN, MILLING & OILS



WINE



MEAT



FEED & FORAGE



OTHER INDUSTRIES



LABORATORIES

## KEY FIGURES

100%

A 100% family-owned company – HQ in Hilleroed, Denmark

98%

98% of turnover outside Denmark

285 mill.

A turnover of 285 million EUR in 2016

AAA

AAA-rated by D&amp;B

23%

EBITA of 23% of turnover

60%

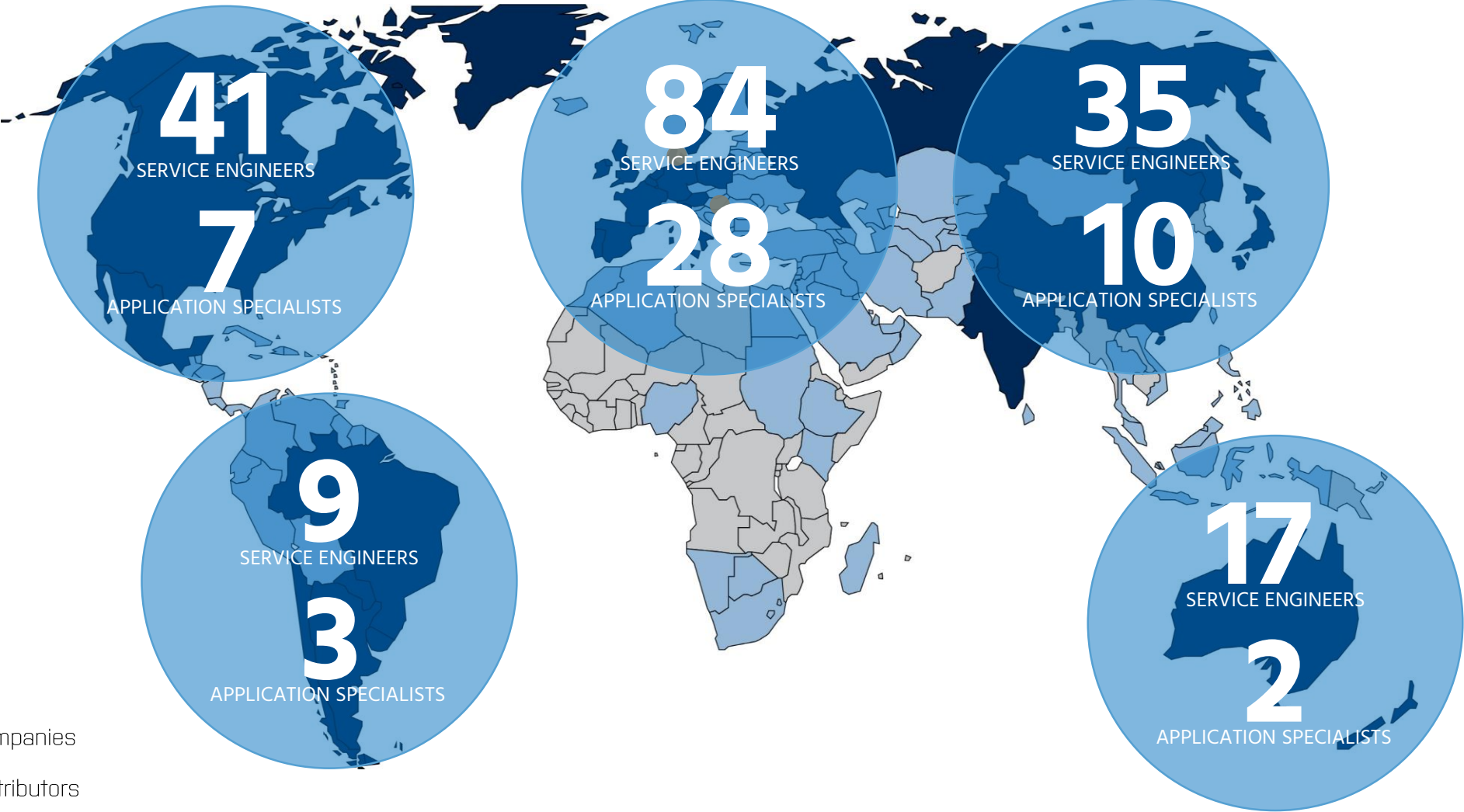
Solvency ratio 60%



# GLOBAL PRESENCE

FOSS

ANALYTICS BEYOND MEASURE



- FOSS Companies
- FOSS Distributors
- FOSS RDM Centres



# FOSS' WORLD-WIDE COMMITMENT

**FOSS**

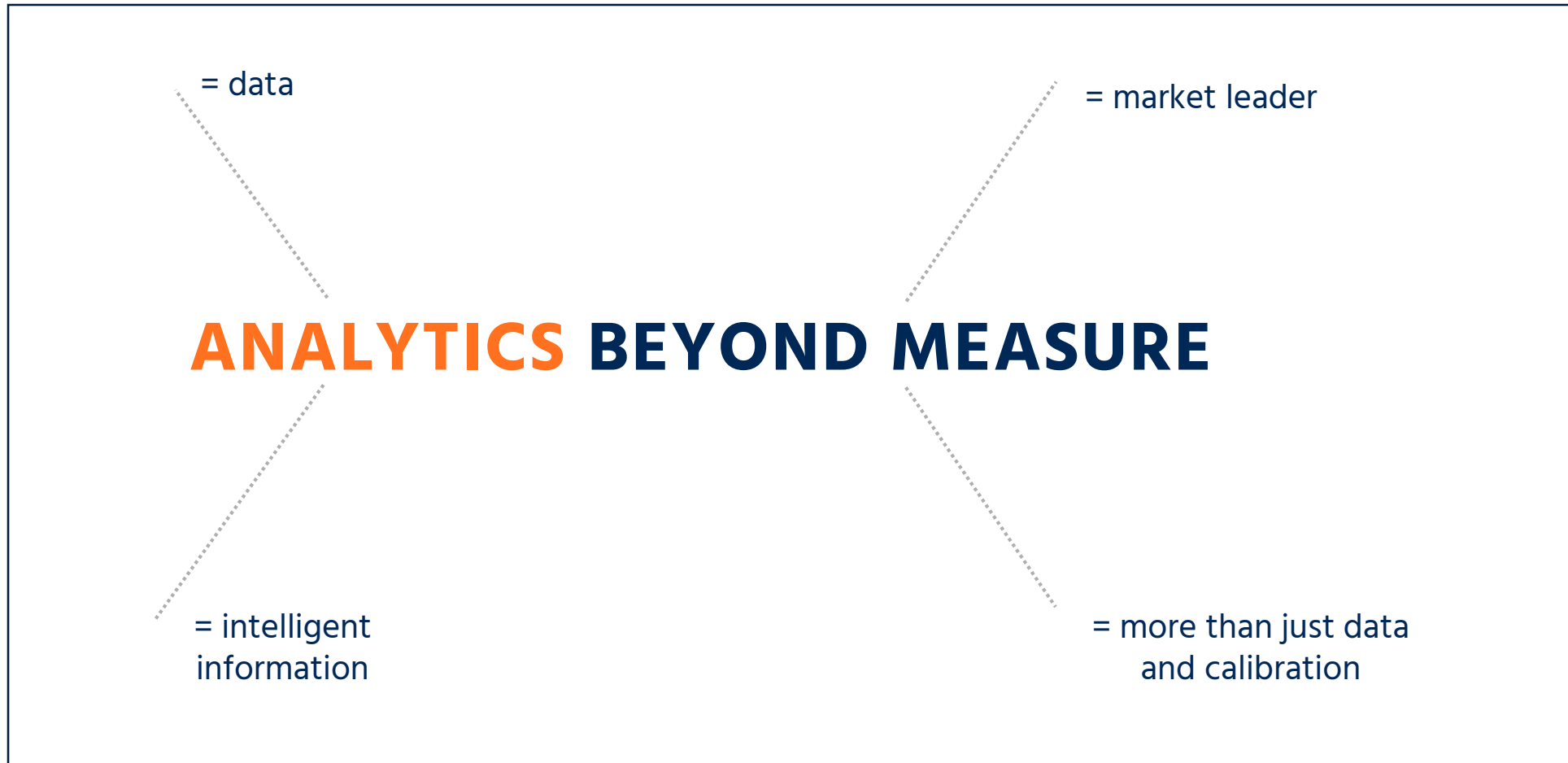




FOSS signed the UN Global Compact in 2012 and follows the ten global principles

Our annual CSR report details our performance and goals in the areas of:

**HUMAN RIGHTS**  
**LABOUR**  
**ENVIRONMENT**  
**ANTI-CORRUPTION**



# DAIRY HERD IMPROVEMENT TESTING – THE FUTURE

**FOSS**

- “We need to provide dairy farmers with more information for improved decision making through DHI testing.”
- Mastitis: Differential Somatic Cell Count (DSCC)

# FACTS ABOUT MASTITIS

**FOSS**

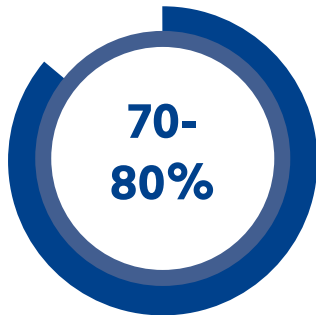
## Multifactorial disease



**€32 billion**  
annually\*



Somatic cell counts (SCC)  
and bacteriology  
are standard\*\*\*



Losses are due to  
subclinical mastitis\*\*



Major need for new  
biomarkers\*\*\*

\* Wellenberg et al., 2002, \*\* Seegers et al., 2003, \*\*\* Viguier et al., 2009



# CombiFoss™ 7 DC

**FOSS**



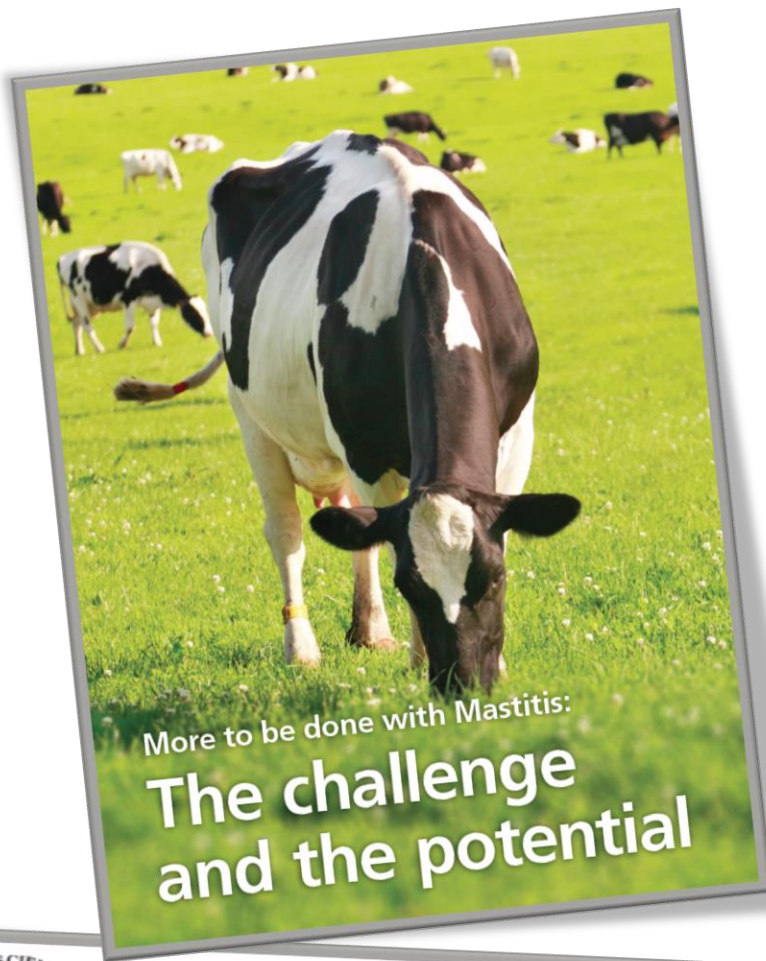
ANALYTICS BEYOND MEASURE

# DSCC RESEARCH PROJECTS

**FOSS**

Project	Objective	Status
Denmark	Longitudinal study to develop general guidelines for application of DSCC in practise	In progress

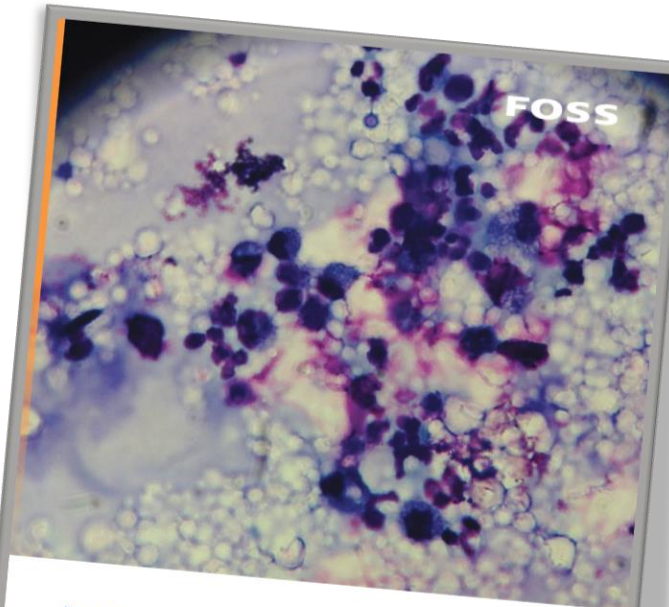
# TECHNICAL ARTICLES FOSS



J. Dairy Sci. 100:4926–4940  
<https://doi.org/10.3168/jds.2016-12409>  
© American Dairy Science Association®, 2017.

**Differential somatic cell count—A novel method for routine mastitis screening in the frame of Dairy Herd Improvement testing programs**

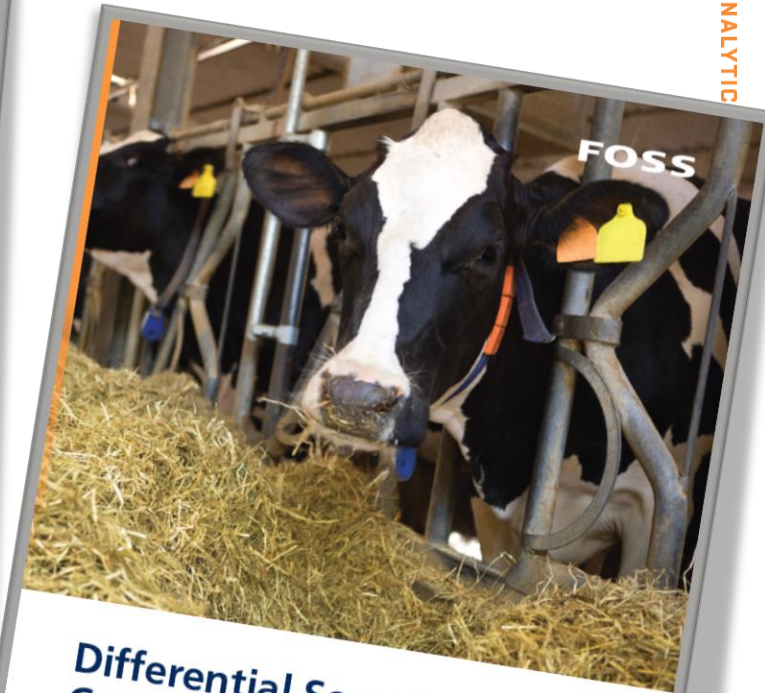
Malin Damm,<sup>1</sup> Claus Holm, Mette Blaabjerg, Morten Novak Bro, and Daniel Schwarz<sup>1,2</sup>  
Foss Analytical A/S, Foss Allé 1, 3400 Hillerød, Denmark



**Differential Somatic Cell Count with the Fossomatic 7 DC - a novel parameter**

By: Dr. Daniel Schwarz, Cattle Disease Specialist, FOSS, Denmark

Dedicated Analytical Solutions



**Differential Somatic Cell Count (DSCC) – a rationale for the new parameter**

By: Dr. Daniel Schwarz, Cattle Disease Specialist, FOSS, Denmark

Dedicated Analytical Solutions



# JOIN THE NEXT WAVE – COMBIFOSS 7 DC

**FOSS**



Highly accurate, fast, reliable, repeatable, and robust determination of up to **19 parameters** at low cost



**New services** to provide dairy farmers with **better information**:

- **Mastitis**: Various applications based on DSCC currently under validation
- **Ketosis screening**: well-accepted and valuable service in many countries



**THANK YOU**