



# Machine vision in Denmark

Henrik Ilsby, CCO at SVS-Vistek May 17th, 2019

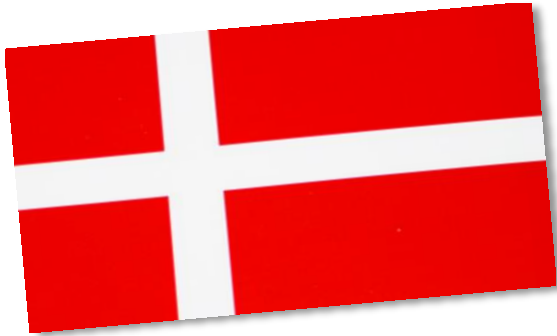
# Presentation Topics

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- Denmark (DK) – background + random facts
- Key Industries
- Machine vision sectors in Denmark
- Machine Vision key players + other imaging DK
- New markets



# Kingdom of Denmark



- The oldest, continuously used **national flag** in the world is **Denmark**, dates back to year 1307. *The flag of Scotland is older – however not used continuously.*
- According to legend/history, the flag came into Danish possession during a Battle in Estonia in 1219. The Danes were on a failing crusade in Estonia, but after praying to God, a flag fell from the sky. After this event, Danish King Valdemar II went on to defeat the Estonians. The official recorded use of the flag appeared about 100 years later in 1307. The **cross design** was later adopted by other Nordic countries such as Sweden, Norway, Finland, and Iceland

# Kingdom of Denmark

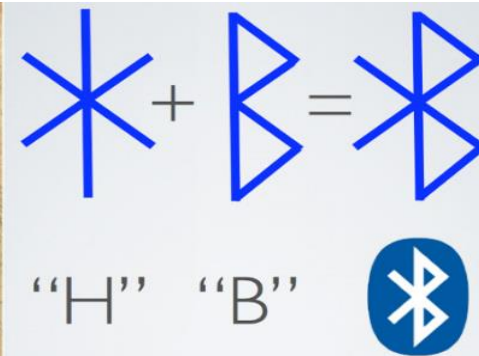


Queen Margrethe II

- Danish **monarchy** is amongst the 3 **oldest** and *the oldest continuous Monarchy in the **world***. Queen Margrethe II's heritage trace back more than 1000 years to a king born in year 958 **Harald Bluetooth**. Queen Margrethe II is Denmark's **monarch** since 1972



King Harald Bluetooth



# Oaktrees planted around Y 970 in France





# Kingdom of Denmark

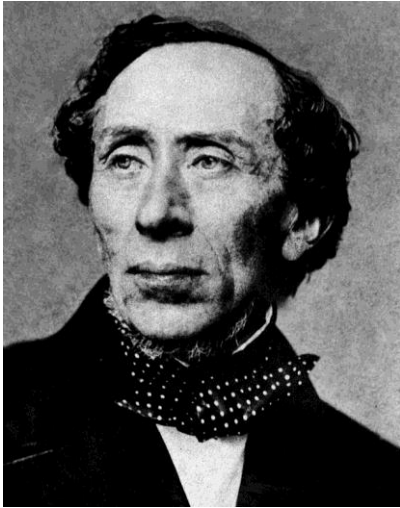


**10 %**

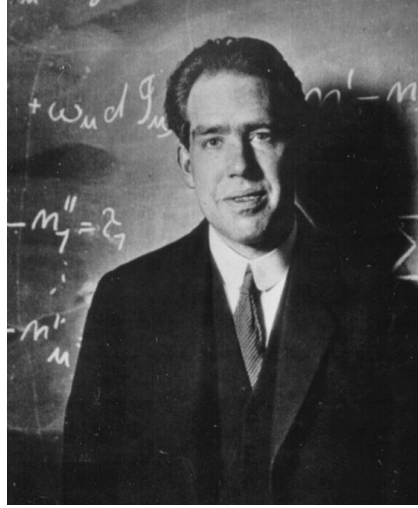
of all globally traded goods are  
transported by Danish shipping  
containers

- The "tiny" Kingdom of Denmark — the little piece on top of Germany — includes Greenland and is the 12th largest in the world.
- Geographic size bigger than Germany, Turkey, France combined..
- - 5.8 Mio people + 28 Mio Pigs
- - 443 named Islands
- Logistics capital of Scandinavia

# 4 Famous Danes ...



Hans Christian  
Andersen,  
fairy tales author



Niels  
Bohr,  
Nobelprize winner 1922  
"Defining the Atom structure"

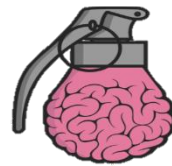


Mads  
Mikkelsen,  
actor



Caroline  
Wozniacki,  
tennis-player

# Random facts



**There are more  
bicycles in Copenhagen,  
Denmark, than people.**



# Key Industries in Denmark



## Cleantech



Denmark holds exceptional business opportunities for the fast-growing cleantech sector. Our national goal is to be powered entirely by renewable sources by 2050.



## Tech

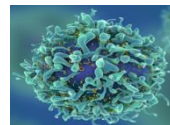


Denmark is one of the world's top locations for tech activities, featuring an excellent test market with access to world-class software development talent pools.



## Life Science

Join our life sciences cluster and turn clinical research into business.



## Food



Denmark's food cluster is known around the globe for quality, safety, sustainability, organic production, gastronomy...the list goes on.



## Maritime



**MAERSK**

Join the maritime industry in Denmark, and enter a dynamic ecosystem within shipping, offshore and technology development. Together we'll set new standards for the global maritime industry.



## Design and Innovation



Danish design is known all over the world. When companies incorporate good design into their innovations, their earnings, exports and competitive ability are bound to grow.



Scale your vision.

# 5 x more Pigs in Denmark than people



- ~ 28 Mio Pigs / year
- 5000 farms
- > 5% of total export
- 70% of meat is exported
- All pigs slaughtered ...



Scale your vision.

# Machine Vision Sectors in DK

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Production

Cleantech

Food

Life Sciences

Design & Innovation

Tech

Food Ingredients

Food Technology



# Machine Vision Key Players in DK



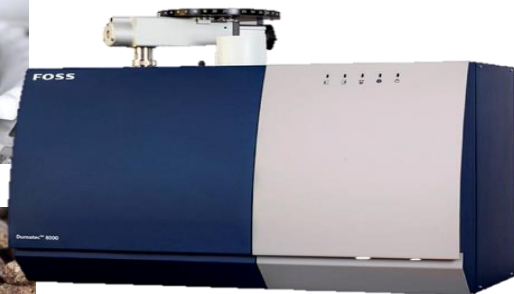


# 3shape

- Founded 2000 > 1500 employees – present in > 100 countries.
- Intra-oral scanners
- 3D Dental scanners
- CAD/CAM software
- Based in Copenhagen



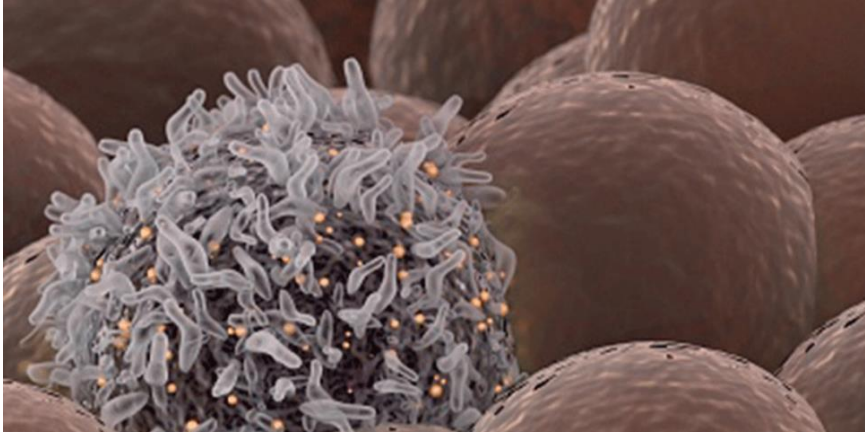
# FOSS



- Founded 1956 >300M€, 1400 empl. 98% export
- Analytic solutions and instruments to secure and improve food quality
- Grading Grain, Feed, Dairy, Milk, Meat ...
- NIR infrared technology
- Based in Hillerød 40 km north of Copenhagen



- Originates in Iceland 1.2 Billion €. Large subsidiary in Denmark
- Advanced processing systems for Poultry, Meat and Fish industries
- Implements Machine Vision to growing extent.
- Based in Aarhus - Jutland



- Founded 1997
- ~ 22 Mio € Nasdaq OMX
- Analytical instruments, **Cytometers** counting and analyzing cells in many areas
- Cancer and stem cells research, drug dev. and for food production
- **Using Fluorescent imaging**



# Image House

**ihfood**  
Vision Technology  
74% owned by IHH

**IMAGE HOUSE**  
PANTOINSPECT  
89% owned by IHH

**IHPostal**  
**IHP Systems**  
53% owned by IHH

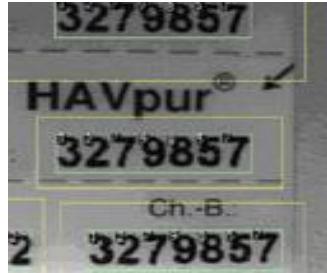
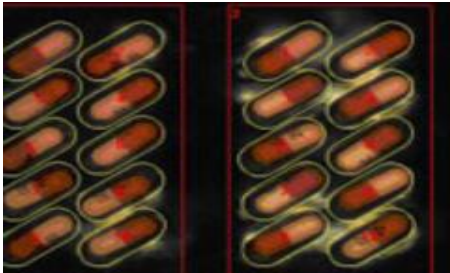
**IHIP ApS**  
75% owned by IHH

- Founded 1985 – an **incubator** for a number of successful machine vision companies
- **Food** industry automation using machine vision MV
- **Railway** condition monitoring using MV
- Vision solutions for **Postal** and **logistics**
- Based central Copenhagen
- ~ 40 employees

# Vision Automation



- Founded 1988 ~ 8 Mio €
- Packaging (logistics), Pharma Pack
- Experts in MV based serialization/traceability
- Substantial export (90%)
- North of Copenhagen
- 12 employees

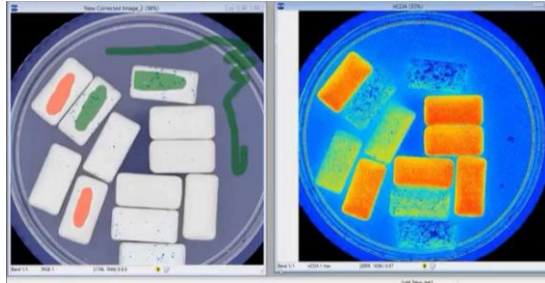
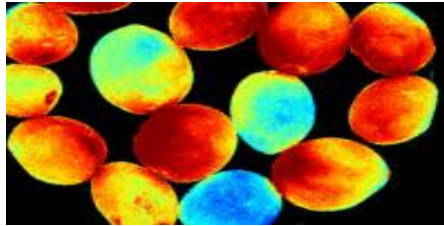
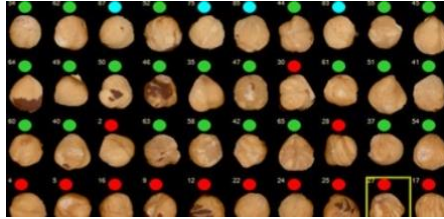


# JLI VISION



- Founded 1985 ~ 15 employees
- Initial MV application inspection of steel nails
- Now expert in glass inspection and other complex MV tasks
- 15 km west of Copenhagen

# Videometer



- Founded mid 1990's
- ~ 11 employees
- Spectral Imaging – **VideometerLab**
- Vision Systems – **VideometerLine**



Scale your vision.



# ProInvent – TRIVISION



- **ProInvent** Founded ~ 1994 ~ 6 M€
- Robotics and automation
- Vision controlled robotics
- North of Copenhagen

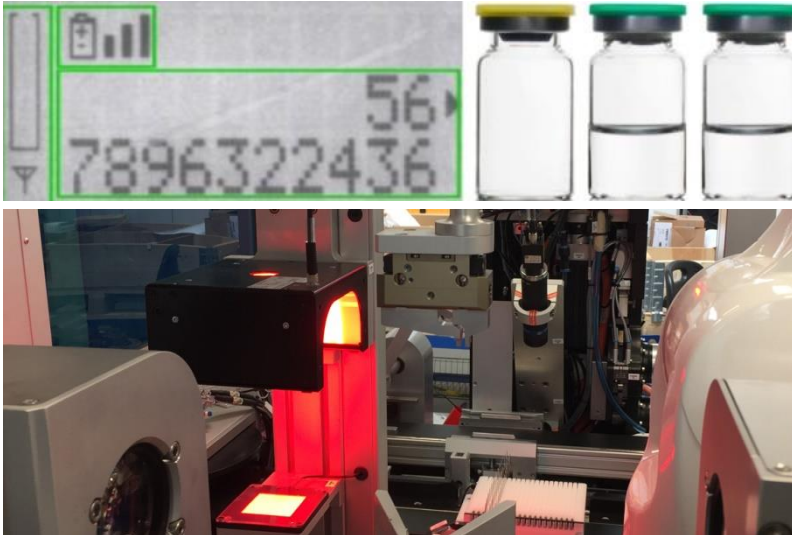


- **TRIVISION** ~ 1999
- Quality control systems based on Machine Vision
- Seals, Labels, Cans etc.
- West of Copenhagen

# CIM



- Founded 1998 – Industrial Systems
- Based in Jutland
- Machine vision and automation
- Big Data specialist
- National Instruments Partner



# Other Imaging related companies in DK



- Founded 1964 – privately held
- ~ 45-50M €
- Present in DK (HQ), Japan and USA
- Significant Camera player
- Machine Vision cameras
- Specialized in Multi-spectral imaging.
  - » Food
  - » Print
  - » Medical
  - » Traffic

# Other Imaging related companies in DK

PHASEONE  
PHASEONE  
INDUSTRIAL

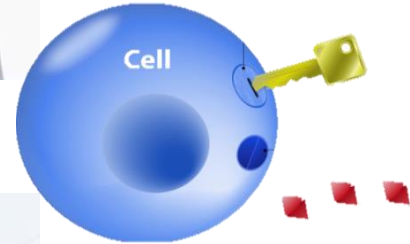


- Founded 1993 – 60 Mio € 350 empl
  - » Silverfleet Capital
- Headquarter in DK, offices in USA, Japan, China and Israel
- Medium Format Digital Cameras – professional photography
- Software RAW
- Entering *industrial imaging*.
  - » Arial surveillance
  - » FPD/FPI

# New / growth Markets in DK

## Flagship industries:

- Wind power
- Health products (Life Science)
- Agriculture / Food
- Green Tech Sector





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thank you for  
your attention