

# Artificial Intelligence and Big Data in Healthcare

November 13th 2018, ATV Technology Summit, Session 3



## Healthcare Artificial Intelligence 2018

## On today's menu:

- 14.45**    **AI for Healthcare in Denmark – ATV Whitebook**  
*Søren Riis, SD Research & Technology Development, Oticon Medical*
- 15.00**    **AI - Navigating the Hype**  
*Jan Madsen, Professor, Deputy Director at DTU Compute*
- 15.20**    **Big Data, Analytics and AI for Health: A Short History**  
*John Crawford, Independent Digital Health Consultant*
- 15.40**    **AI in Hearing Healthcare – Disruptions Ahead**  
*Uwe Hermann, Senior Director, Head of Eriksholm Research Centre, Oticon*
- 16.00**    **Data-driven Living Lab for Heart Patients**  
*Jonas Moll, CEO & Founder of Rehfeld Medical*
- 16.20**    **Debate – Panel and Audience**
- 17.00**    **Return to main conference room**

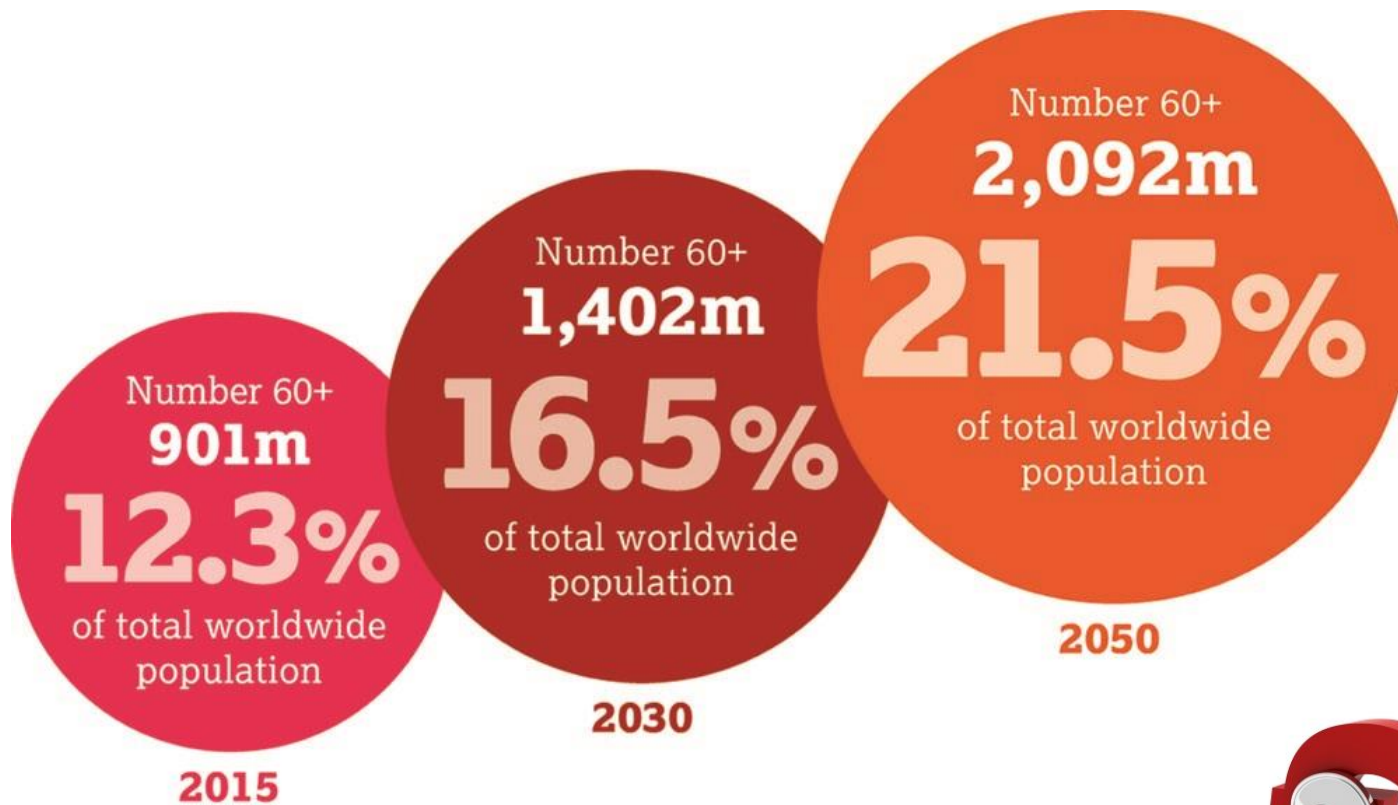
# Why should ATV care about AI for Healthcare in DK?

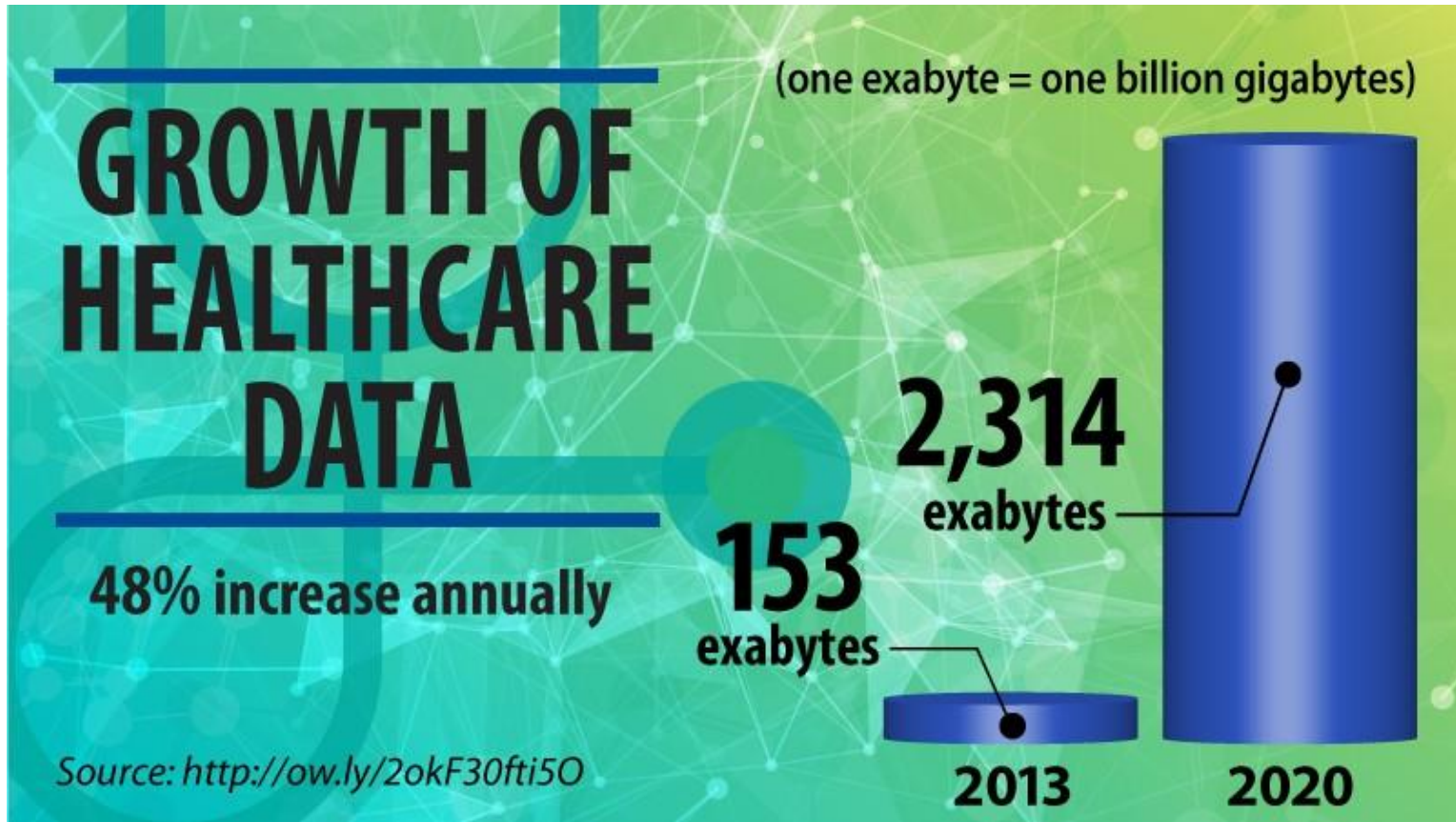
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# Why should ATV care about AI for Healthcare in DK?

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**Figure 1: Artificial Intelligence Market for Healthcare Applications, World, 2014, 2021 (in Millions)**



**Source:** Frost & Sullivan 2016 Transforming healthcare through artificial intelligence systems

# Why should ATV care about AI for Healthcare in DK?

US 200 AI Health companies, mostly startups

**Patient-Facing**

**AI Chatbots**

buoy Your.MD medwhat GYANT Dr.AI

**Wearables & Devices**

physIQ QARDIO sano kiwi.ai Jodytrak kinsa airta Aira Labs CliniCloud AliveCor

**Personalized Genetics**

iCarbonX rthm CG DAY TWO habit Suggestic V I O M E

**Mental Health**

Woebot Ginger.io TOUCHKIN BI BEATS NeuroLex AURA koko

**Women's Health**

CYRCADIA HEALTH Bloomlife flutter eLyse Natural Cycles

**Skin**

SkinVision skinIO skin sciences SCANZ DOCTOR HAZEL FIRST DERM

**Telemedicine**

ada SENSELY how are you feeling today? babyLON pager anamnèse spruce Z

**Lifestyle Management**

AiCure MedAware ovia next IT health Catalia Health lucina Healix Next Gen Doctella Narrative Dx cardiogram Wellframe Welltok CareAngel

**Disease Management**

prognos INFOBIONIC HealthReveal HEALTH FIDELITY DIABNEXT SENTRIAN TEMPUS dreamed Healint WIKAYA FLASHBACK RxPREDICT BELONG

**Doctor-Facing**

**Medical Records**

APIXIO AUGMEDIX clinithink nimor saykara emr ai WellSheet hCue patientory SANSORO PROTENUS BloomAPI

**Data Analytics**

ZEPHYR HEALTH burstIQ MD.ai Infermedica CLOUDMEDX flatiron CareScore ROAM Hindsait Oncora MEDALOGIX ensodata pulseData healthcare.ai KenSci COMBINOSTICS impacthealth LYTICS

**Medical Imaging**

AMARA enlitic zebra VIZ 维想科技 Cure Metrix BAYLABS VUNO ADVENIO koios BUTTERFLY Network, Inc. SIG TUPLÉ Behold.ai imagia ARTERYS Mindshare aidence aiodor Lunit Cardiologs Genetesis HubMedX SemanticMD Blackford

**Research**

**Drug Discovery**

Mind the Byte DATAVANT QUANTITATIVE MEDICINE Standigm ENVISAGENICS BERG RECURSION BenevolentAI Athelas Exscientia NuMedii healx Atomwise Numerate twoAR transcriptic Globavir

**Information & Clinical Trials**

trials.ai PathAI BenchSci CYCLICA Mendel.ai rativ pepitone Brite Health iOLEXUS antidote PLEX Research nference RESULTCARE

**Genetic Research**

MolecularMatch Blueprint Genetics VERGE GENOMICS NURITAS diploid HUMAN LONGEVITY, INC. SOPHIA GENETICS freemome FDNA PATHWAY GENOMICS deep genomics SKYTOP GENETICS

**Hospital**

FORWARD Qventus MedyMatch gaurr orgo.ai MEDA SENSE P3d VERB SURGICAL Qualaris

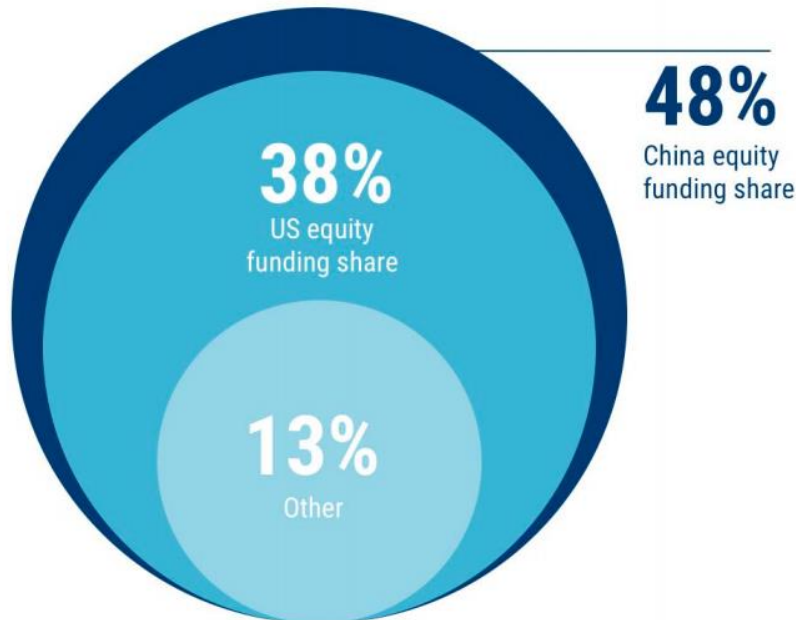
# AI in Healthcare

# Why should ATV care about AI for Healthcare in DK?

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## China dominates global AI funding

US vs. China total equity funding to startups in 2017



深睿医生 让看病不再困难  
Easy Healthcare with Dr. Wise



WuXiNextCODE



# Why should ATV care about AI for Healthcare in DK?

**Healthcare costs are growing with aging population**

**Big data infrastructure and AI algorithms are maturing fast**

**China and US are moving fast - will their models apply to DK/EU ethics/"thinking"?**

**New business opportunities for DK companies – or face the “Kodak moment”?**

**Patients expect involvement, better and more individualized care**

**Complexity of (required) health care is increasing – multimodal data**

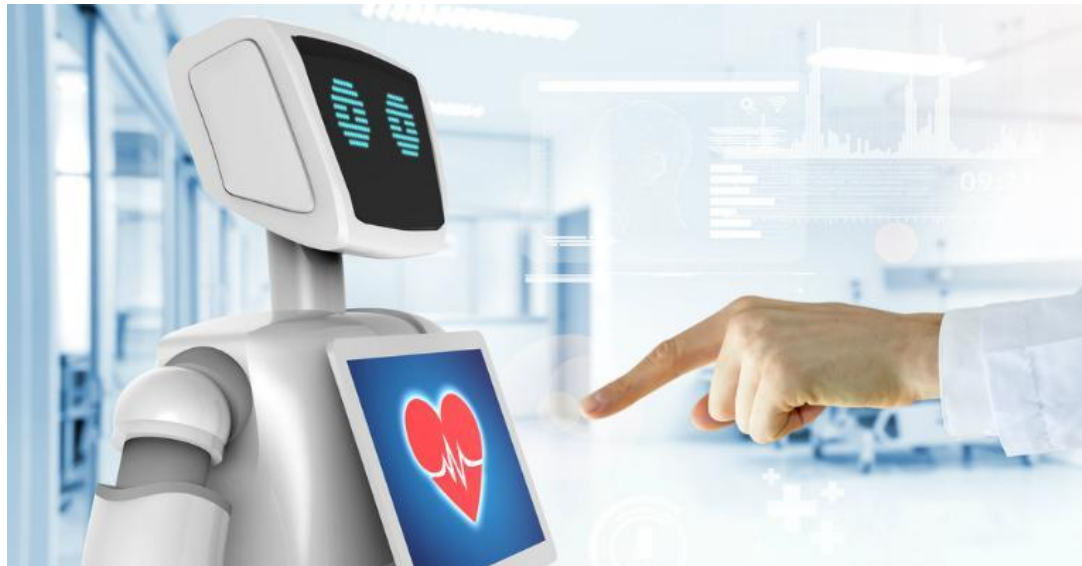
**Data driven Quality Assurance for cost control**

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# Why should ATV care about AI for Healthcare ?

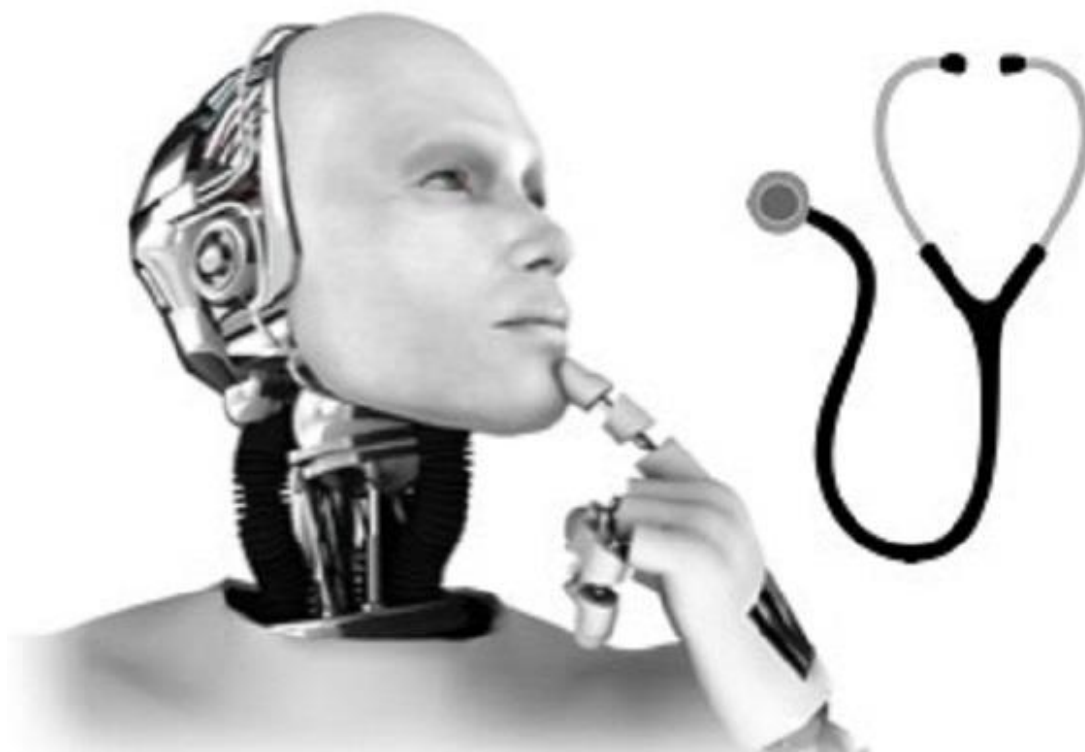
## AI for Health promises and consequences

- Improve outcomes (and cost) for individual patients
- Provide new treatment opportunities and modalities
- Keep Healthcare costs under control (savings pr. patient)
- Disrupt healthcare businesses (from device to data service...)
- Disrupt roles of healthcare professionals in a changed healthcare landscape
- ...



# What can ATV do?

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## Step 1: ATV Whitebook on AI for Health in DK

### Purpose

- Enable more stakeholders to participate in an informed debate
- Inform and inspire on opportunities – rather than getting stuck on discussing barriers
- Facilitate matchmaking/network across industry, academia and authorities on AI Health
- Catalyze collaboration – also across corporations, SMEs and startups
- Catalyze AI for healthcare ecosystem in DK across industry, academia and authorities

### Content

- AI fundamentals and healthcare application examples relevant in DK Context
- DK case studies and examples of key actors in DK
- Format: 20pp, easy to read for general audience, graphical

## Step 2: Debate & ATV Recommendations

**Education** - targeted towards AI for healthcare

**Attracting Talent** – AI Health ecosystem attractive for international talents

**Ethics** – DK / EU models vs e.g. China and US

**Regulatory** – setups and support for data-driven solutions in healthcare

**Start-ups** – funding models, cross-industry collaboration and incubators

**Research** – Strategic focus on AI Health care research and funding models

**Infrastructure** – National health care data center supporting fast AI innovation

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## Step 3: Support implementation of recommendations *...for a strong AI for Healthcare ecosystem in DK*

Concrete initiatives on **training/education**

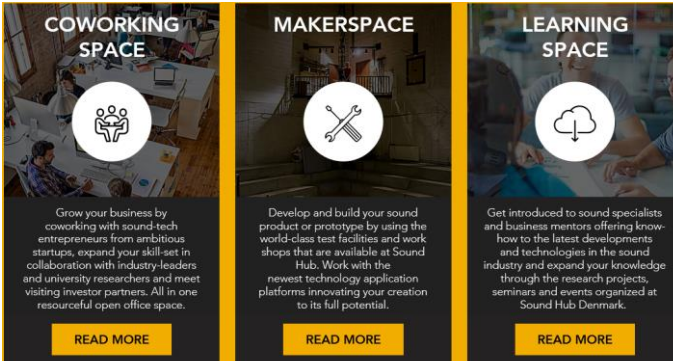
**Networking/matchmaking** events across industry, academia and authorities

Facilitate **collaboration** between industrial actors (SMEs, start-ups, corporates)

Roundtables/workshops to **detail implementation** of specific recommendations

Facilitate **AI Health Innovation Hub** setup (Sound Hub Denmark)

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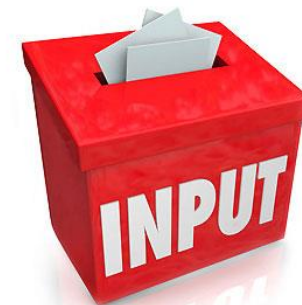
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# Working group and Timeline

## Current Working Group:

- Søren Riis, ATV member, Chair of ATV Health Technologies group
- Jan Madsen, ATV member, Professor DTU Compute
- Uwe Hermann, ATV partner member, Head of Oticon Research Center
- Vibeke Schrøder, ATV secretariat, Senior Consultant



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## Timeline

- Whitebook release: Early 2019
- Debate and developing recommendations: H1 2019
- ATV Recommendations on AI for Healthcare in DK: Summer 2019

