

# SCOR Sweden Re:s Nordic Life Insurance Conference

Stockholm 11 okt 2024

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# Welcome

October 11, 2024

## SCOR Sweden Re:s Nordic Life Insurance Conference

Svein Børre Solvang, CEO

# Translation Service



**Program & list of attendees are available online**



**FORWARD**

**2026**

**SCOR launches its new strategic plan  
“Forward 2026”**

*Driving value creation.  
Shaping the reinsurer of tomorrow.*

*We listen to our partners, to understand their challenges and opportunities, deploying our knowledge, expertise and data to co-create smart and bespoke solutions that deliver mutual value and make an impact on our customers and society*

# SCOR's sustainability strategy

Is shaped by our raison d'être with the goal of...



## Contributing to people's health and wellness

- Develop accessible solutions, products and partnerships that will encourage our policyholders to live healthier lives while providing more protection and services
- Improve the current understanding of climate change's potential impact on human health



## Contributing to the well-being of the planet

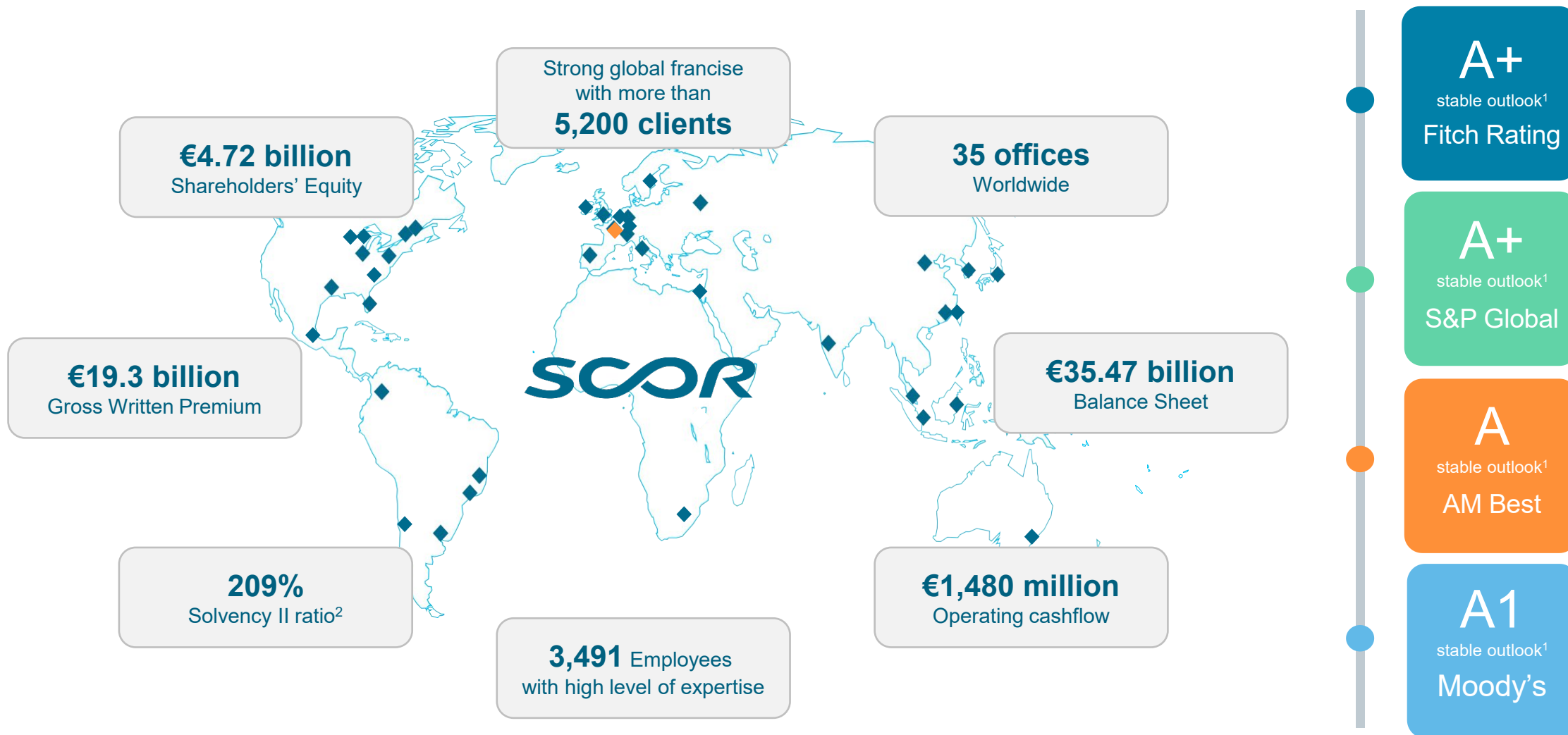
- Contribute to achieve Net-Zero emission by halting support for new oil field production products by 2050 and by setting new decarbonization targets on investments by 2029
- In Specialty Insurance no coverage for new oil field production projects from 2023 and the ambition to multiplying insurance and facultative reinsurance coverage for low carbon energy by 3.5 by 2030. Support clients in their own commitments to follow credible transition pathways



## Closing the protection gap

- Understand ever-evolving client needs brought on by an expanding risk universe and leverage our expertise to adapt solutions to respond to changing trends
- Harness the power of data and embrace digitalization to reach new and underserved populations

# SCOR is a leading global independent reinsurer with solid financial strength



Note: All figures are as of December 31, 2023.

1) Ratings affirmed as of February 1, 2024, for Moody's, July 22, 2024, for S&P, July 24, 2024, for AM Best and November 14, 2023, for Fitch

2) Estimated Solvency II ratio after taking into account the proposed dividend of EUR 1,80 per share for the fiscal year 2023

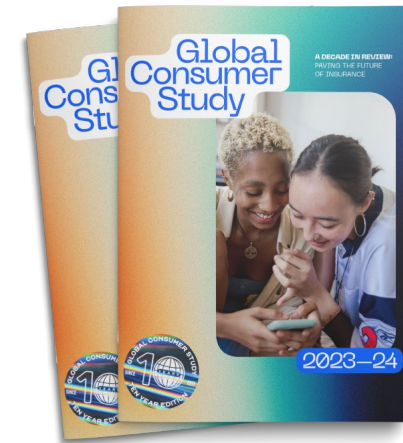


# SCOR Digital Solution’s Global Consumer Study increases client’s understanding of the end consumer


Giving a voice to consumer priorities since 2013

The largest global survey of young insurance consumers


- 12,563 Millennial and Gen Z consumers
- 22 markets
- 10<sup>th</sup> edition covering the consumer journey, L&H and P&C




## P&C Hot trends

 Consumers value ‘good online reviews’

**36%** of young drivers want safety coaching based on telematic analytics.

 Growth opportunities for insurers

**54%** of Gen Z are happy to add cover to their bookings when using ride sharing apps.

 Empowering consumers by improving insurance literacy.

**63%** of young consumers are open to the concept of small amount, stackable insurance.

## L&H Hot trends

**70%** of Gen Z and Millennials regularly use, or are interested in using, health apps

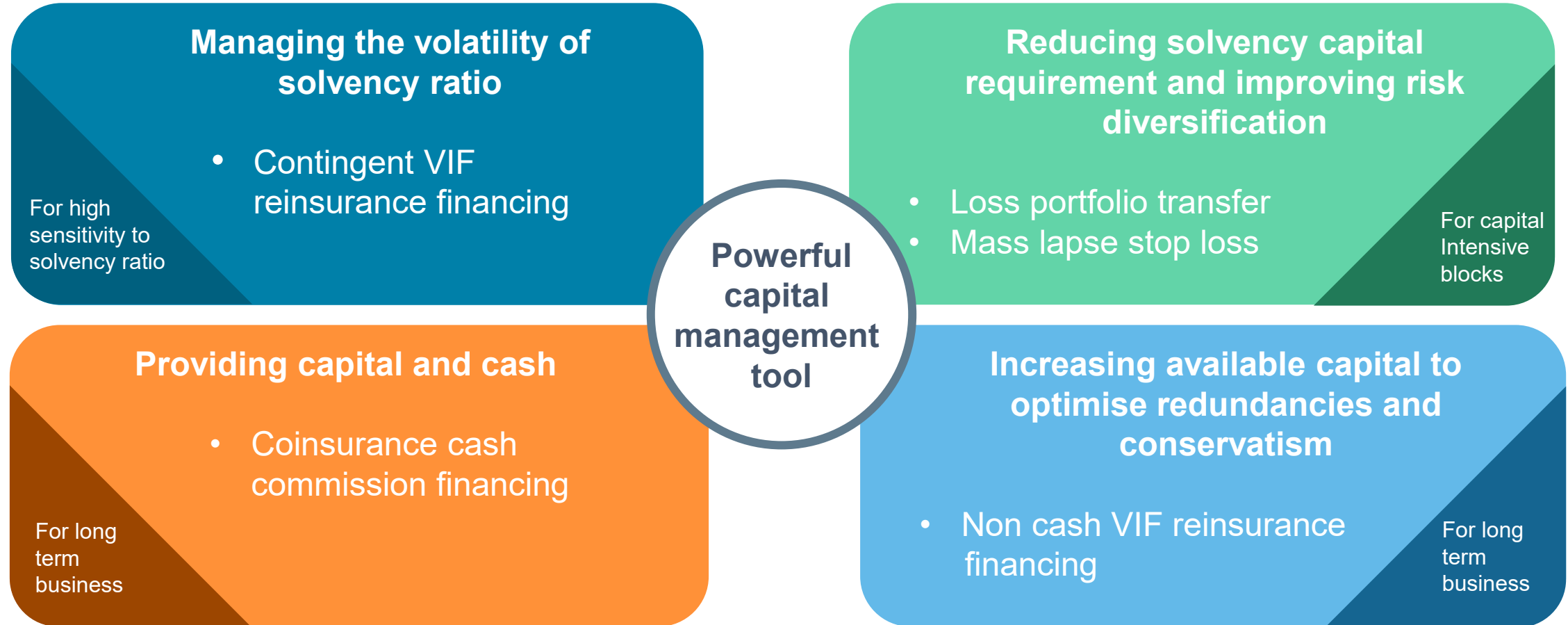
**47%** of Millennials and Gen Zs report feeling often or always stressed

**73%** of consumers are open to receiving personalised risks assessments from their insurers on critical illnesses



# Optimizing our clients' capital and managing volatility through tailor-made financial solutions, focusing strictly on biometric risks

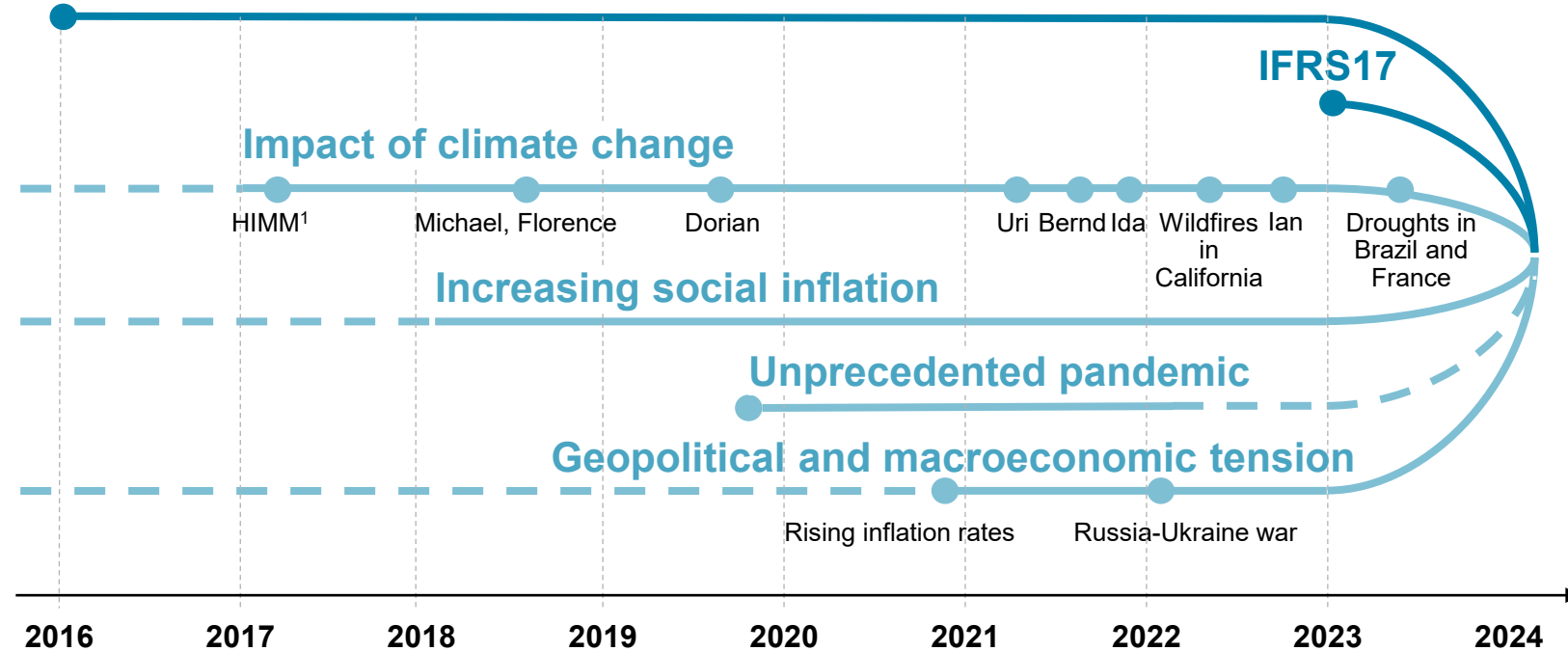
*Financial Solutions is one of many options for Capital Management (including corporate finance tools) and it offers more flexibility in sizing, ease of execution, and avoids impacting shareholders or ratings*



# Fundamental changes and uncertainty fuel Reinsurance demand

— Regulatory and accounting changes  
 — External events

## Solvency II



## New opportunities: *Forward 2026*

Recognized **diversification benefits under Solvency II** and **Economic Value with IFRS 17**

Favorable market conditions with growing demand **for both L&H and P&C reinsurance**, as well as **increasing reinvestment rates**

1. Hurricanes Harvey, Irma, Maria and earthquakes in Mexico

# Further deploy digital services to differentiate offering

## 10+ proprietary digital services

covering the entire value chain

## Differentiated offering:

services co-developed with clients and creating shared-value

## Supporting business generation:

more than half of Protection GWP comes from clients we partner with to develop new services



## Selected examples

### Underwriting

 **Velogica** Automated policy issuance process

- Approx. 90% of underwriting evaluations within 1 minute
- Deployed in the US, Europe and Asia

### Claims management

 **Claims** Digital portal automating the claims assessment process

- 50% reduction in processing time
- Deployed in France, Australia and New Zealand

### Data analytics

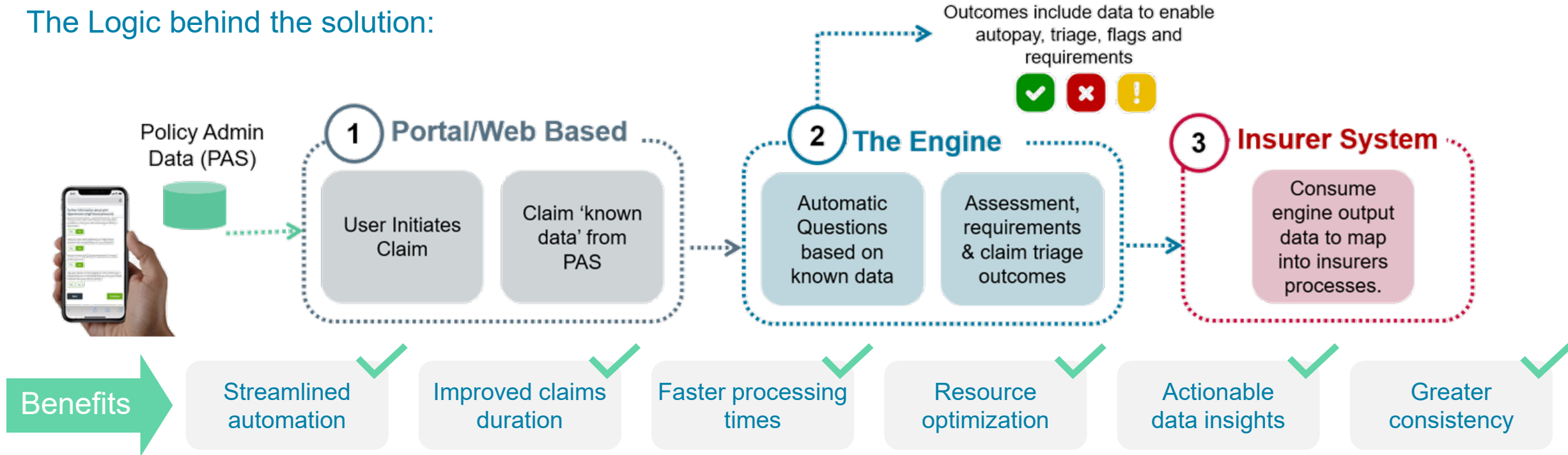
 **DASP** Digital platform:  
Data Analytics Solutions Platform

- Providing clients with distinctive experience analyses and benchmarking tools
- Leveraging AI to enhance SCOR's predictive models

# Using VClaims to optimize the claims experience

## Reduce end consumer complexity and save insurers' costs and time while deepening their knowledge through enhanced data

The Logic behind the solution:



VClaims decisioning\* can **reduce** end to end processing times by up to a month

- 11 days for Death Claims (90% Autopay)
- 2 weeks for DI Claims (50% Autopay)
- 1 month for TPD Claims (10% Autopay)

# SCOR Sweden Re Service & Toolkit

## Actuarial Support

Sharing the workload to save our clients time and resources

- Actuarial analyses
  - Standardized and recurring
  - Ad hoc
- Reinsurance administration
- Pricing
- Reserving
- R-programming courses



## Risk Transfer, Solvency & Balance Sheet Improvement

Bespoke financial solutions, in addition to traditional reinsurance protection

- Traditional reinsurance
- Loss portfolio transfer
- Mass Lapse cover
- Value-in-Force financing
- Outsourcing- & run off solutions



## Education / Inspiration

We regularly share with our clients the knowledge of our multidisciplinary expert teams

- Medical Seminars
- Conference
- Workshops
- Trainings
- SCOR Campus
- Medical reports and research



# SCOR Sweden Re Service & Toolkit

## Medical Underwriting

We do everything from second opinion to full medical underwriting

- All products
- Medical Manuals & Tools



## Market Analysis / Data Insights

Building and sharing market knowledge to the benefit of our clients

- Benchmark survey
- Solvency II QRT Overview
- Global Consumer Study
- Underwriting guidelines advising
- Data analyses & Data pooling



## Product Development

Developing new as well as improve existing products

- Tariffs
- Terms and conditions wording
- Underwriting guidelines
- Medical UW guidance





SCOR Sweden Re:s  
Nordic Life Insurance Conference

Svein Børre Solvang, CEO



# SCOR Sweden Re:s Nordic Life Insurance Conference

Stockholm 11 okt 2024



**Jeremy Speed**

**Head of Business Development Europe & LATAM**

**SCOR Digital solutions**



# SCOR's GenAI-powered client solution for medical underwriting & claims

Jeremy Speed,  
Head of Business Development Europe & LATAM,  
SCOR Digital Solutions

Stockholm – October 11<sup>th</sup> 2024

# Disclaimer

The contents of this presentation, including any professional opinions, are intended to be for professional education and development and marketing purposes only and may not be relied upon, in whole or in part, as professional advice or recommendations. The contents of this presentation and any opinions expressed are intended solely for the use of SCOR clients, business partners or business prospects with whom this document is shared by SCOR. This presentation may not be disclosed to any third party or otherwise quoted or referred to, in whole or in part, without SCOR's prior written consent.

# Agenda

**1** The Consumers' Voice

**2** Generative AI: Shaping the next generation of Underwriting

**3** Introducing

# Purchase Factors Sweden

#1 consideration during the purchase process is “good online reviews”

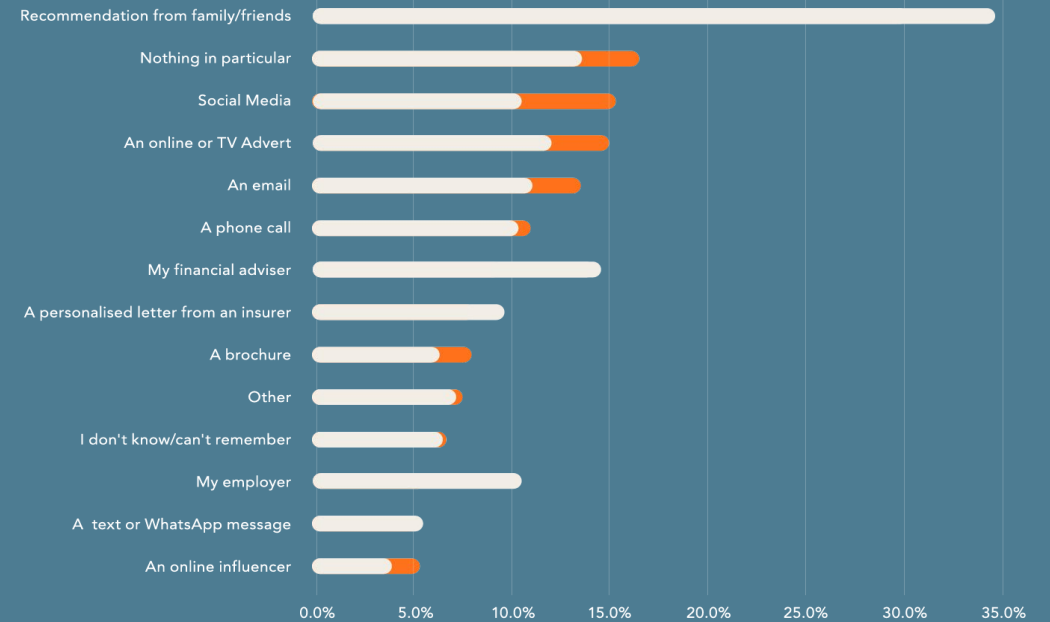
#1

(In Sweden, the #1 consideration is “price”)

- For the first time this year, “Good Online Reviews” are more important than price for young people considering their next insurance purchase, with a quarter choosing this as their priority (26.2%).
- However, price is still a crucial factor, with over 50% of respondents willing to forsake brand reputation if the new online competition were cheaper or more convenient.

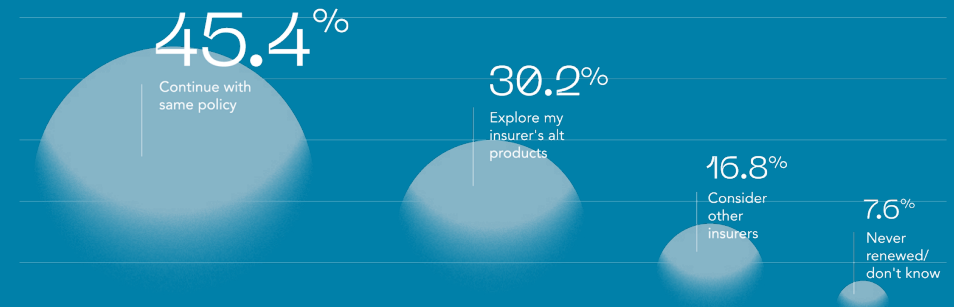
## What triggers young people’s insurance purchases?

● L&H ● P&C



Q / What initially triggered your purchase of your most recent product?

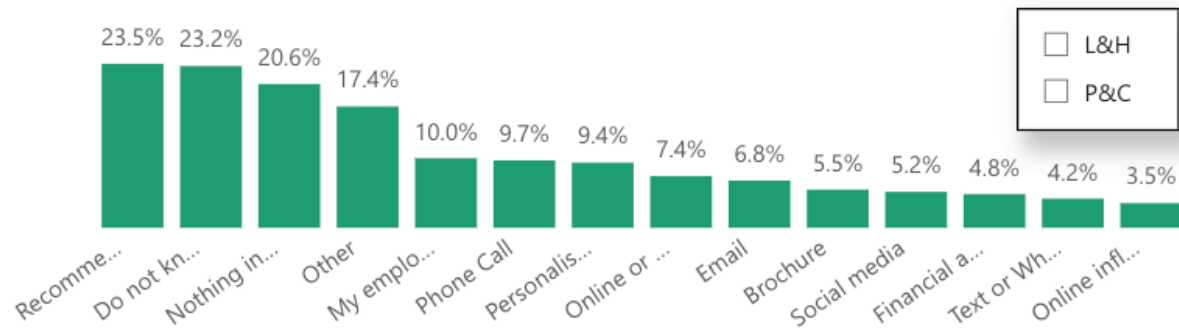
## What’s your renewal preference?



Q / If renewing an insurance policy, what would you usually do?

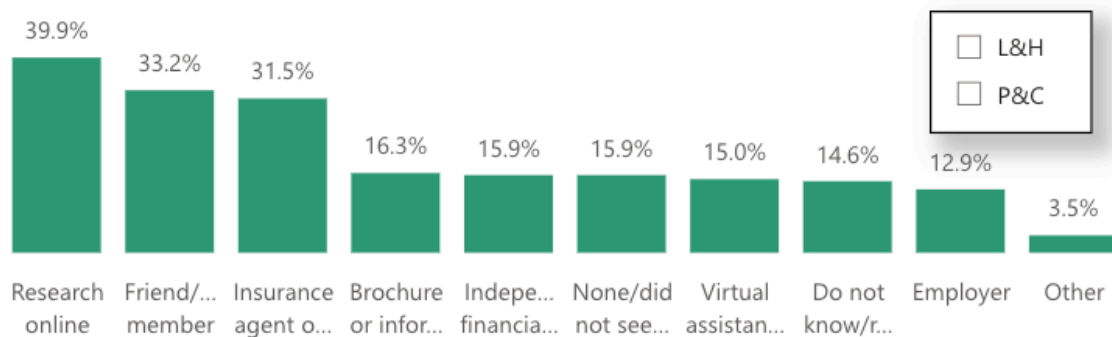
# Purchase Factors Sweden

What initially triggered your purchase of your most recent product?



Number 1 Trigger – Recommendations from friends and family

Where did you go for advice before buying your most recent product?



Main Source of Advice – Online Research

# Agenda

**1** The Consumers' Voice

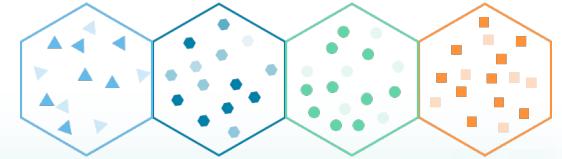
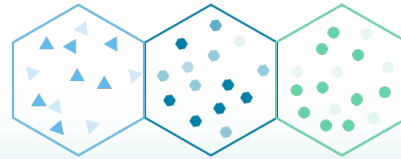
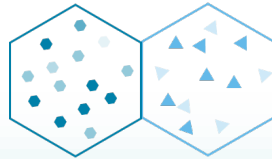
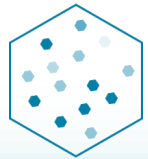
**2** Generative AI: Shaping the next generation of Underwriting

**3** Introducing SCOR's Gen AI Powered Underwriting Assistant



# Today Gen AI is mainly a data source, tomorrow it will enable a light-touch process, leveraging the fullest potential of risk knowledge.

## Generations of Underwriting Enabled by Technology Trends



### Generation 1

#### Underwriting Rules Engines

Underwriting primarily relies on **Underwriting Rules Engines (URE)**.

### Generation 2

#### Predictive Models

The industry introduced **predictive models**, enhancing risk assessment

### Generation 3

#### AI Augmented UW

**AI Case summaries** are another data source. Gen AI can extract information and augments the underwriting process.

### Generation 4

#### AI Augmented UW Decisions

More sophisticated **decision-making** processes. Here AI is trained and linked to insurance **models and evidence based-decision**. Decisions are augmented in the process as a second pair of eyes.

#### Explainability & Transparency

in the prompts and engineering of GenAI solutions are critical. It is essential to recognize that Gen AI should never be used to predict outcomes.

Leading by Knowledge, Enabled by Tech and Data

**The Next Generation of Underwriting**  
Enabled by Gen AI, driven by the  
application of risk knowledge.



# Path to Next Generation Underwriting with Gen AI

**We have a tested approach for the development of Gen AI to aid underwriting decisions.**

**Leverage our Knowledge**

to list all the information that Gen AI needs to extract and how it should interpret this information

**Provide Important Context**

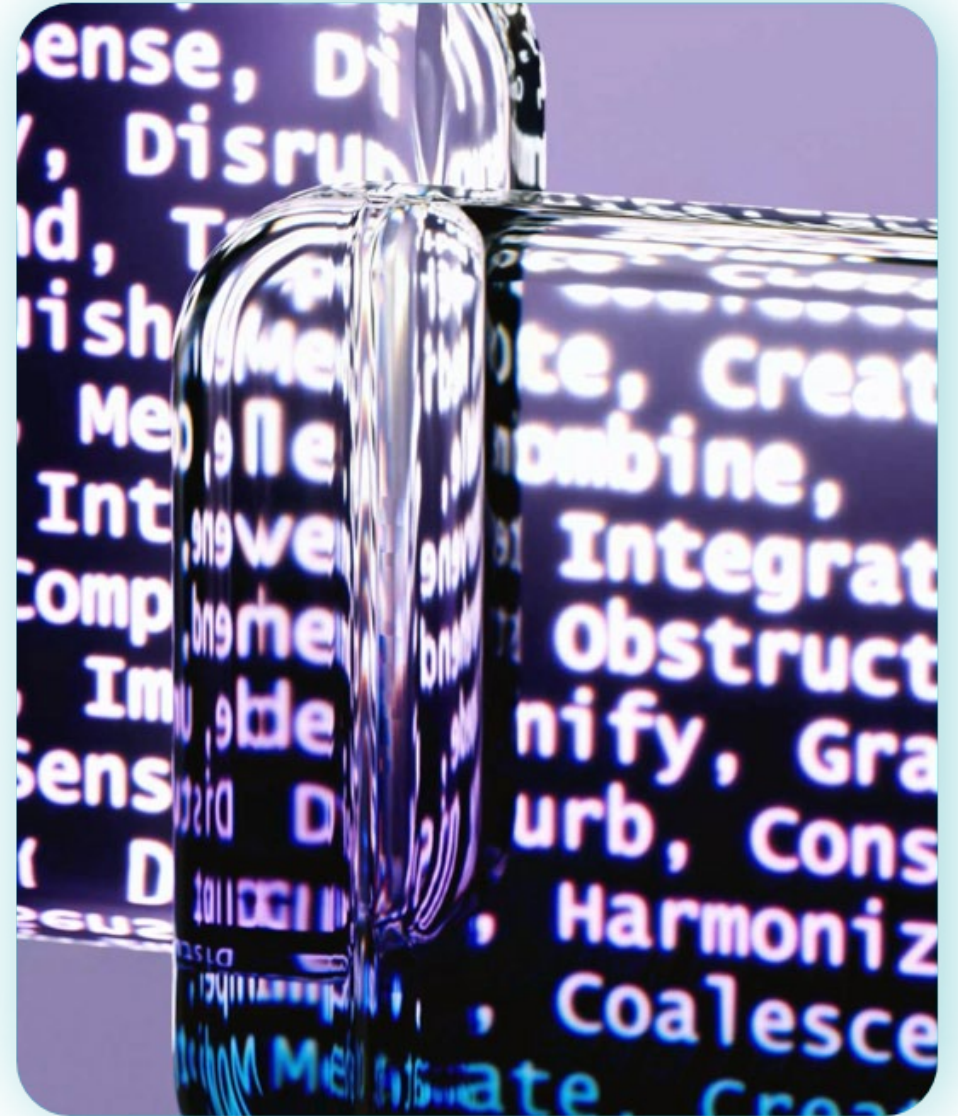
to the Gen AI model including condition classification aligned with SOLEM and auto-declines

**Finetune the Prompts**

based on the type of evidence underwriters typically receive across markets

**Extensively Testing Accuracy**

of Gen AI on our back book to build confidence in the solution



# Agenda

- 1 The Consumers' Voice
- 2 Generative AI: Shaping the next generation of Underwriting
- 3 Introducing SCOR's Gen AI Powered Underwriting Assistant

# Introducing

# SCOR's Gen AI Powered Underwriting Assistant

Extracts and summarizes scanned and electronic medical reports, in a risk-controlled way.

The screenshot displays the Assistant interface with a patient summary on the left and a detailed medical report on the right.

**Assistant Summary:**

- Gender/occupation/citizenship:**
  - Gender: Female
  - Occupation: Accountant
  - Citizenship: Information not specified in provided documents
  - Travel: No foreign travel vaccination discussion noted
- Vitals:**
  - Height: 175 cm
  - Weight: 93 kg
  - BMI: 30.2
- Blood pressure readings:**
  - Reading 1: 145 / 90 (06/01/2023)
- Tobacco use history/status:**
  - Tobacco use: Current smoker, 20 cigarettes per day
- Personal medical history:**
  - Heart and blood pressure issues: Hypertensive disease (06/01/2020)
  - Cancer: Family history of breast cancer in sister (12/01/2020)
  - Respiratory disorders: Asthma (06/01/2020)

**Medical Report (Application\_Richie.PDF):**

PATIENT: 11/14/1962  
 DATE OF BIRTH: 06/16/2023  
 DATE: 06/16/2023  
 VISIT TYPE: Office Visit  
 PROVIDER:

This 60 year old female presents for hypertension, anxiety and insomnia. Established patient

**Assessment/Plan # Detail Type Description**

- Assessment Impression: Essential (primary) hypertension [I10]. stable on meds.  
 Patient Plan: Advised to maintain a low-fat, low-cholesterol diet. Counselled on reducing risk factors to reduce chance of heart attack/stroke. Reviewed lab results in detail. Counselled regarding importance of weight loss. Maintain a low-sodium diet (less than 2 grams per day).  
 Plan Orders: CMP to be performed and Lipid Panel - LIPID to be performed. Today's instructions / counseling include(s) follow a low sodium diet and increase activity. follow-up visit Routine.
- Assessment Impression: Mixed hyperlipidemia [E78.1]. check labs.
- Assessment Impression: Anxiety disorder, unspecified [F41.9]. continue meds.
- Assessment Impression: Insomnia, unspecified type [G47.00]. stable on meds.
- Assessment Impression: Hyperlipidemia LDL goal <300 [E78.5]. as above.
- Assessment Plan Orders: Radicular pain in left arm [M79.2]. Physical Therapy in 4 Weeks. Clinical Information/comments: Axis, neck pt cervicall ddd.
- Assessment: Encounter for screening mammogram for malignant neoplasm of breast [Z12.31].
- Assessment Plan Orders: Hyperglycemia [E73.9]. HEMOGLOBIN A1C to be performed Today.
- Assessment: Body mass index (BMI) 30.0-30.9, adult [Z68.30].

# Gen AI Powered Underwriting Assistant

Supporting a more efficient underwriting experience.  
Better utilizing scarce experienced underwriting talent.



**Provides underwriters access to more meaningful information, faster.**

Streamlining “case handling”



**Reduces unproductive time spent by underwriters retrieving information from lengthy health records.**

Speeding up decisioning



**Frees up underwriters to focus on critical document components.**

Increasing decision quality

# Gen AI Powered Underwriting Assistant

## Unleashing the full potential of medical underwriting with explainable and reliable AI-augmented systems

- Our solution utilizes open access Gen AI models (Microsoft, Mistral, etc.) coupled with our internal knowledge
- SOLEM, our underwriting guideline, acts as a key source of information
- RAG (Retrieval Augmented Generation) is applied to limit hallucinations risk

The screenshot displays the AIsstant interface for a patient named Richie Williams. The interface is divided into several sections:

- Summary/Details:** Includes a search bar and tabs for Summary and Details.
- Pages of classifications:** A table listing document sections and their page ranges:

Cover sheet	1-3
Exams, Labs	5-10
ECG	18
GP reports	17-20
Misc. (handwritten etc.)	21-50
- Personal Information:** Fields for Name (Richie Williams), Date of birth (11/14/1962), Marital status (Married), and Policy number (003529837).
- Impairments:** A list of medical conditions with status indicators:

Heart and blood pressure issues	Hypertensive disease
Mental health issues	Information not specified in provided documents
Cancer	Family history of breast cancer in sister
Endocrine disorders	Information not specified in provided documents
Respiratory disorders	Asthma
Gastrointestinal disorders	Information not specified in provided documents
Marfan Syndrome disorders	Not implemented yet, please review <a href="#">Open chat</a>
Brain or Nervous System Disorders	Information not specified in provided documents
ENT issues	Information not specified in provided documents
PAIN issues	Information not specified in provided documents
- Application\_Richie.PDF:** A preview of the medical document with patient details (PATIENT: 11/14/1962, DATE: 09/16/2023, VISIT TYPE: Office Visit, PROVIDER: ) and a list of assessments and plan orders.
- Chat with AIsstant:** A chat window where the user asks, "Could you please search for any Marfan syndrome Disorders?" and the assistant responds: "Sure, I haven't been fine tuned to accurately find this. However, based on the reading of the document, I did find some Marfan syndrome information you might want to check in page 16, 17 and 50."

# Sample Video

## Gen AI Powered Underwriting Assistant

The screenshot displays the AIsistant web interface. At the top left is the 'AIsistant' logo, and at the top right is a user profile for 'Chris McCain'. The main content area is titled 'Upload document' and includes the instruction: 'To get started upload a document you wish to analyze with AIsistant.' Below this is a large dashed box containing an upload icon and the text 'Drag and drop documents here' and 'Or browse files'. Underneath the dashed box, it states 'Supported file type: PDF, DOC, DOCX. 200MB per file.' and 'Type of document (optional)' with a dropdown menu currently showing 'Pick an option'. A blue 'Upload document' button is positioned below the dropdown. A grey tooltip with the text 'Sparades till W:-enhet' is visible near the bottom left of the interface.



# Gen AI Powered Underwriting Assistant

## Validated and refined by our global team of underwriting experts

- Highly reliable field extraction accuracy, bringing qualitative efficiency
- Multiple use cases piloted by SCOR's inhouse underwriters globally
- Use case evaluated with clients across Asia, US and Europe
- Continued expansion across key impairments and medical conditions





# Q&A

Leading by Knowledge,  
enabled by Tech and Data

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**Fredrik Reinfeldt**

**Ett europa i förändring, hur gick det sen och vart är vi idag?**

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**Fikapaus – åter kl. 10:40**

**SCOR Sweden Re:s**

**Nordic Life Insurance Conference**



Välkomna tillbaka

SCOR Sweden Re:s

Nordic Life Insurance Conference



# SCOR Sweden Re:s Nordic Life Insurance Conference

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**Anita Hegge**

**Kvinnehelse; underfinansiert og uutforsket. Er  
insurtech løsningen?**

# Women's *Health;*

Underfunded  
& Unexplored

*Is Insurtech the Solution?*

# HVILD

In collaboration with the  
McKinsey Health Institute



## Closing the Women's Health Gap: A \$1 Trillion Opportunity to Improve Lives and Economies

INSIGHT REPORT  
JANUARY 2024

# Closing the Women's Health *Gap*

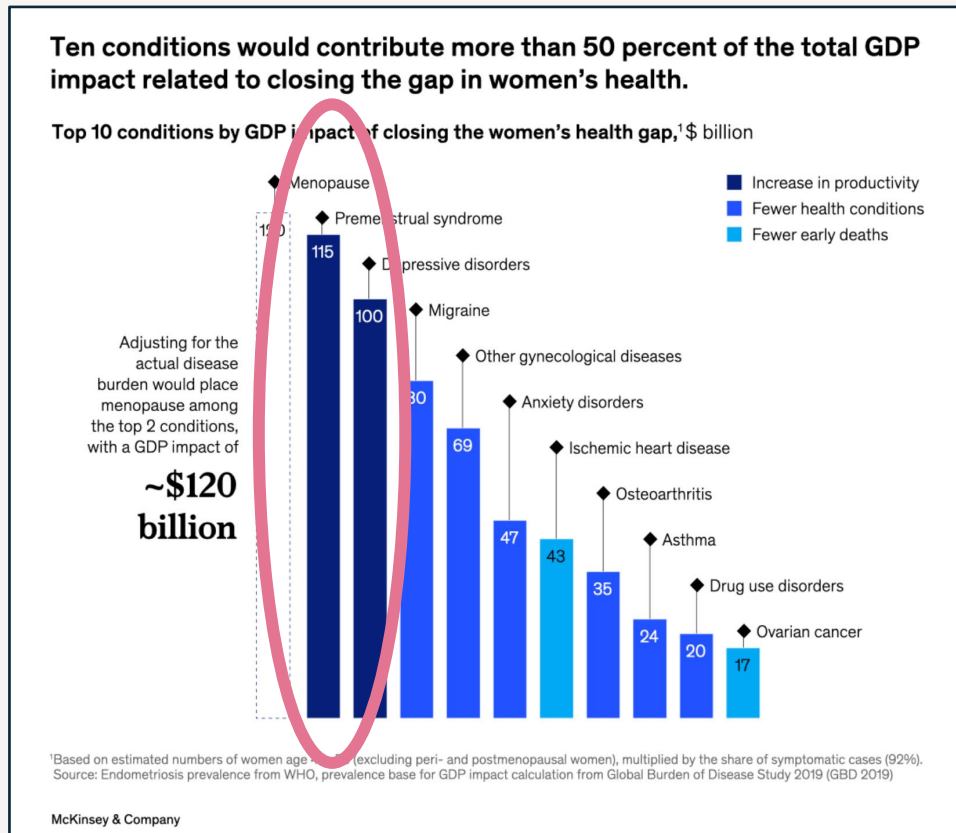
“Despite living longer than men, women spend 25% more of their lives in poor health.

Investments addressing the women's health gap could *add years to life* and *life to years* — and potentially *boost the global economy* by \$1 trillion annually by 2040.”

Source: McKinsey & Company, World Economic Forum

# The *Largest* Health Gaps

## TOP 10 CONDITIONS TO ADDRESS



Source: McKinsey & Company

## FERTILITY

### Global infertility prevalence estimates

2022 global infertility prevalence estimates are:

Approximately **one in six** people have experienced infertility at some stage in their lives, globally.



**17.5%**

Estimated lifetime prevalence of infertility (95% confidence interval: 15.0, 20.3).

Lifetime prevalence is defined as the proportion of a population who have ever experienced infertility in their life.



**12.6%**

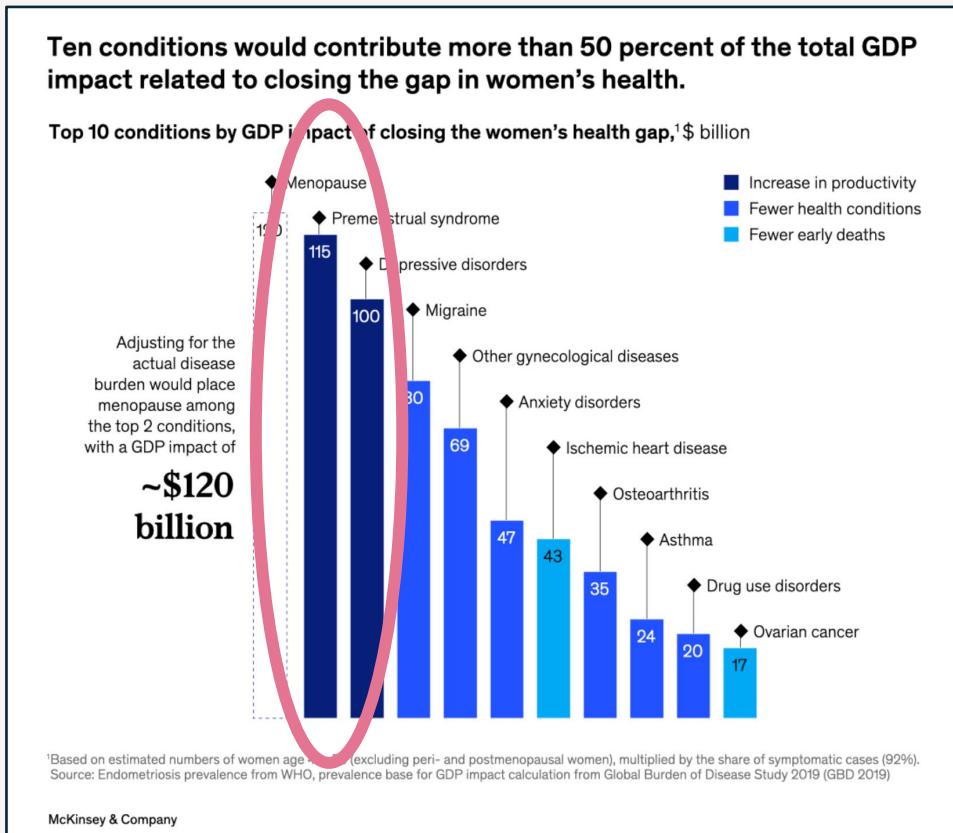
Estimated period prevalence of infertility (95% confidence interval: 10.7, 14.6).

Period prevalence is defined as the proportion of a population with infertility at a given point or interval in time, which may be current or in the past.

World Health Organization

# The *Largest* Health Gaps, Uninsured

## TOP 10 CONDITIONS TO ADDRESS



Source: McKinsey & Company

## FERTILITY

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World Health Organization



1486

Hysteria

1930

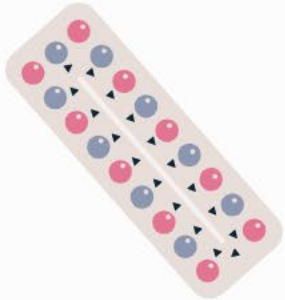
Crazy, sad and useless

1936

Tampax

1942

Estrogen



1955

P-pillen

1966

Feminine Forever

2002

WHI

Darkness

2024

Mckinsey:  
World Ecomonic Forum

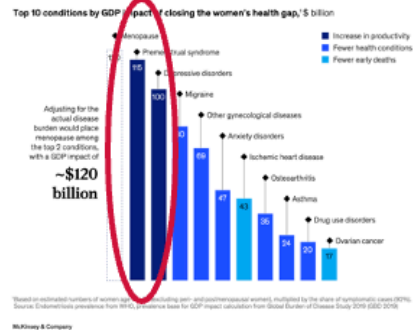
# Women's health.....



## The largest health gaps, *uninsured*

### Top 10 conditions to address

Ten conditions would contribute more than 50 percent of the total GDP impact related to closing the gap in women's health.



Source: McKinsey & Company

### Fertility

### Global infertility prevalence estimates

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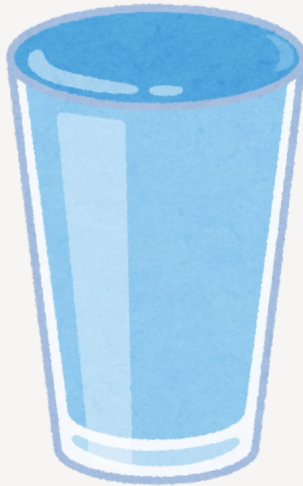


Period prevalence is defined as the proportion of a population with infertility at a given point or interval in time, which may be current or in the past.

World Health Organization

HVILD

# ...the biggest market opportunity in our generation?

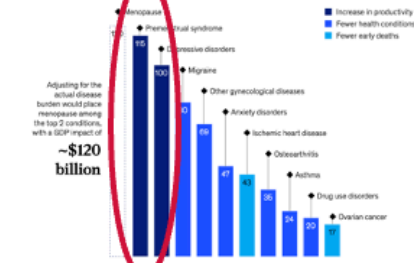


## The largest health gaps, *uninsured*

### Top 10 conditions to address

Ten conditions would contribute more than 50 percent of the total GDP impact related to closing the gap in women's health.

Top 10 conditions by GDP impact of closing the women's health gap, \$ billion



Adjusting for the actual disease burden would place menopause among the top 2 conditions, with a GDP impact of **~\$120 billion**

McKinsey & Company

Source: McKinsey & Company

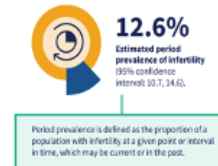
### Fertility

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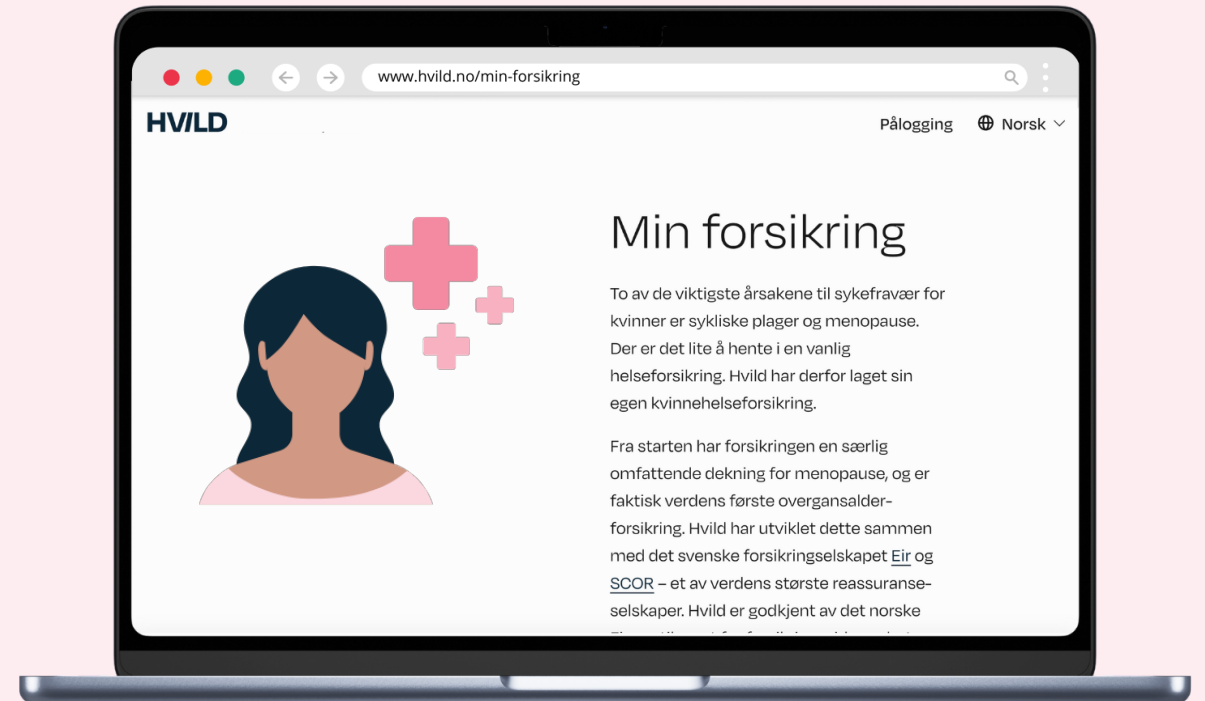
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World Health Organization

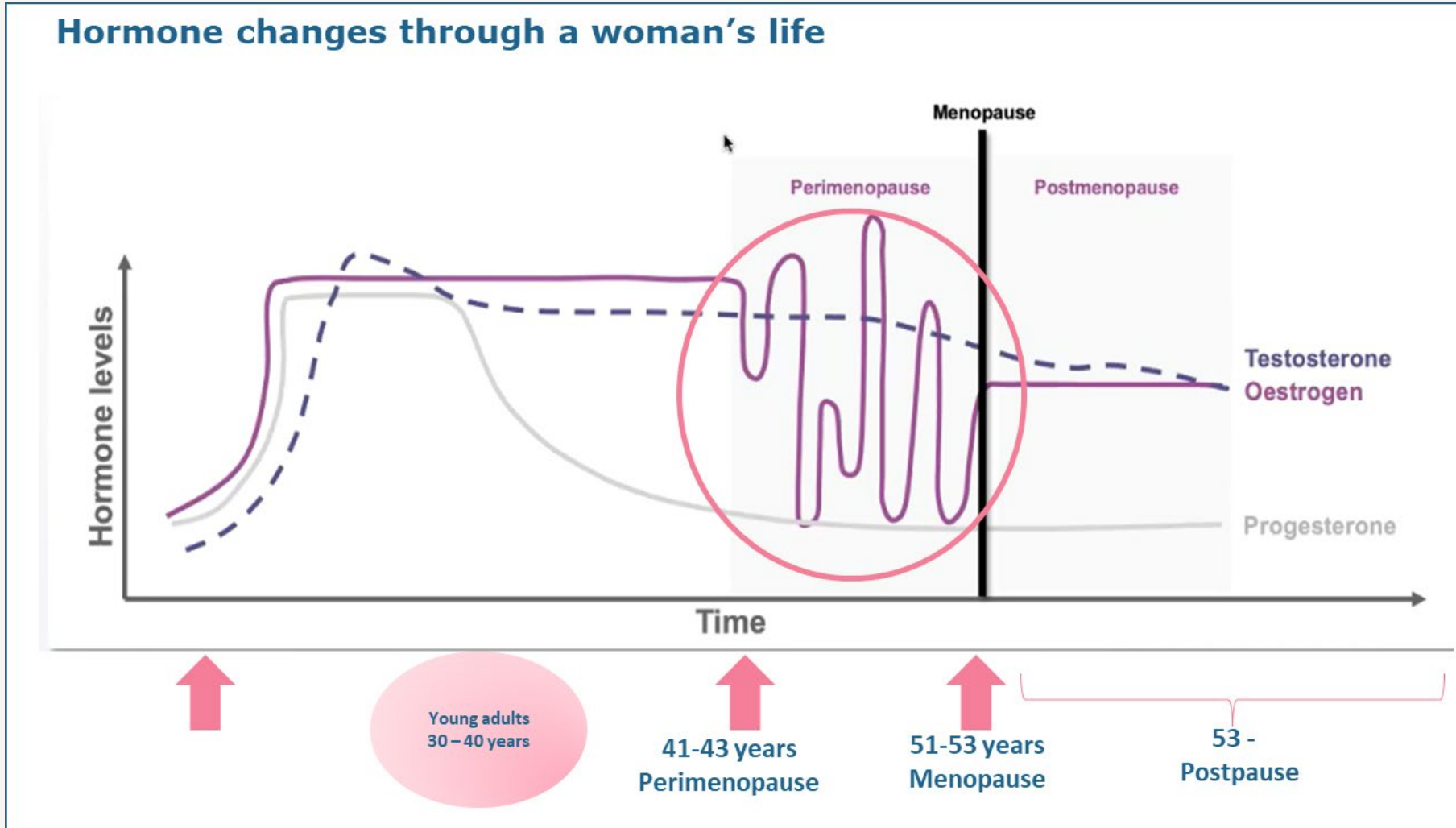
HVILD



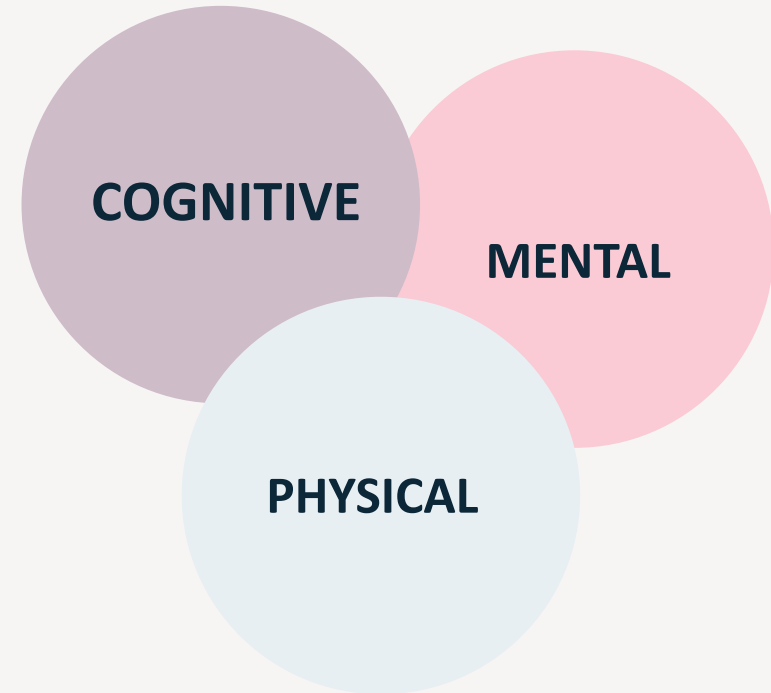
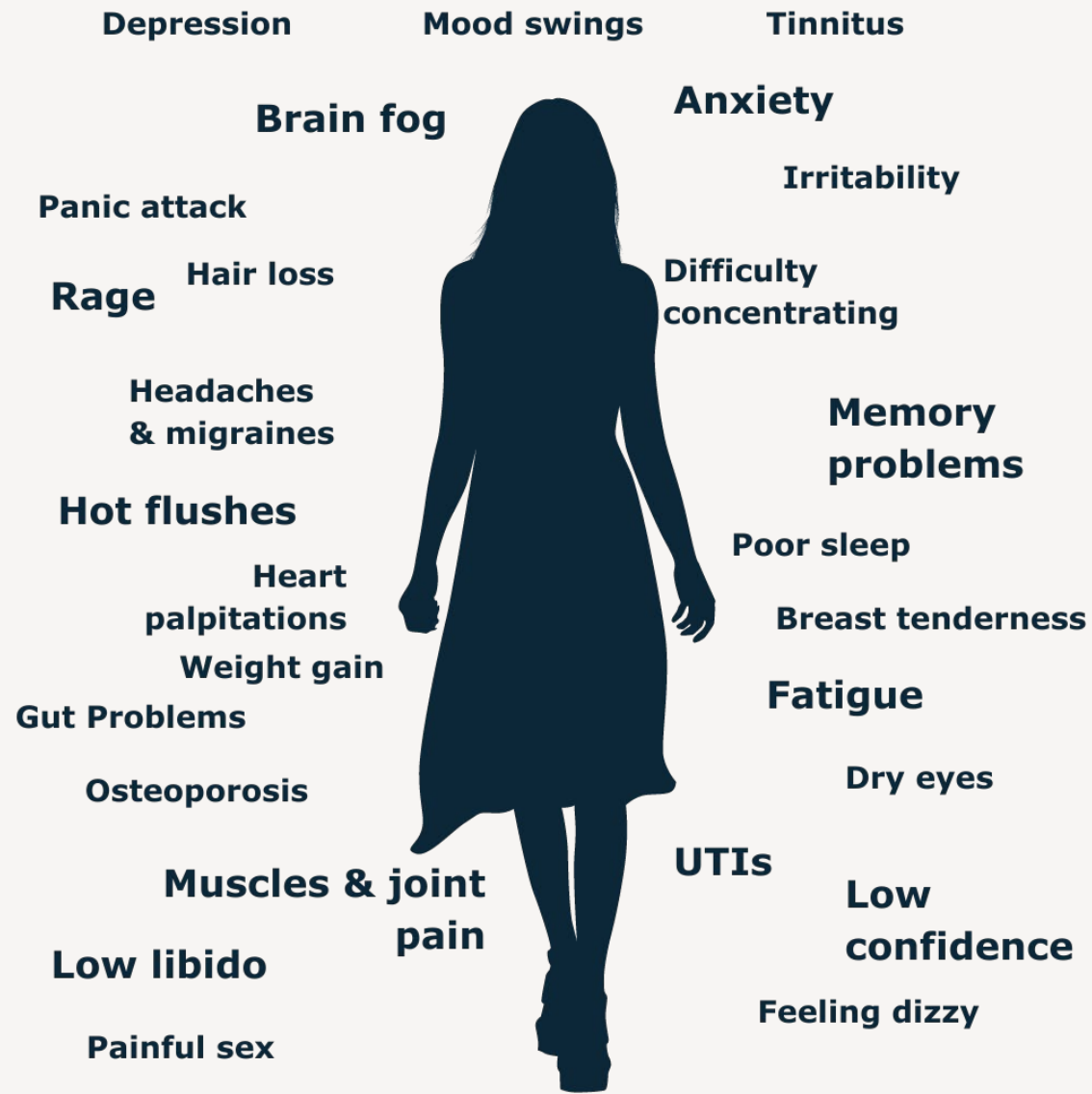
# Menopause Comes First



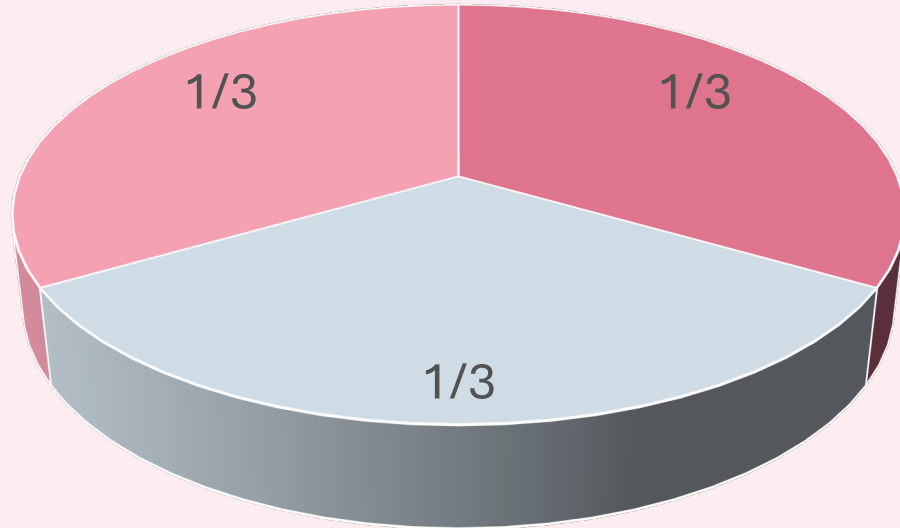
# What's Going On? *Hormones....*



# Menopause Reaches **ALL**, *but* Symptoms Are Different

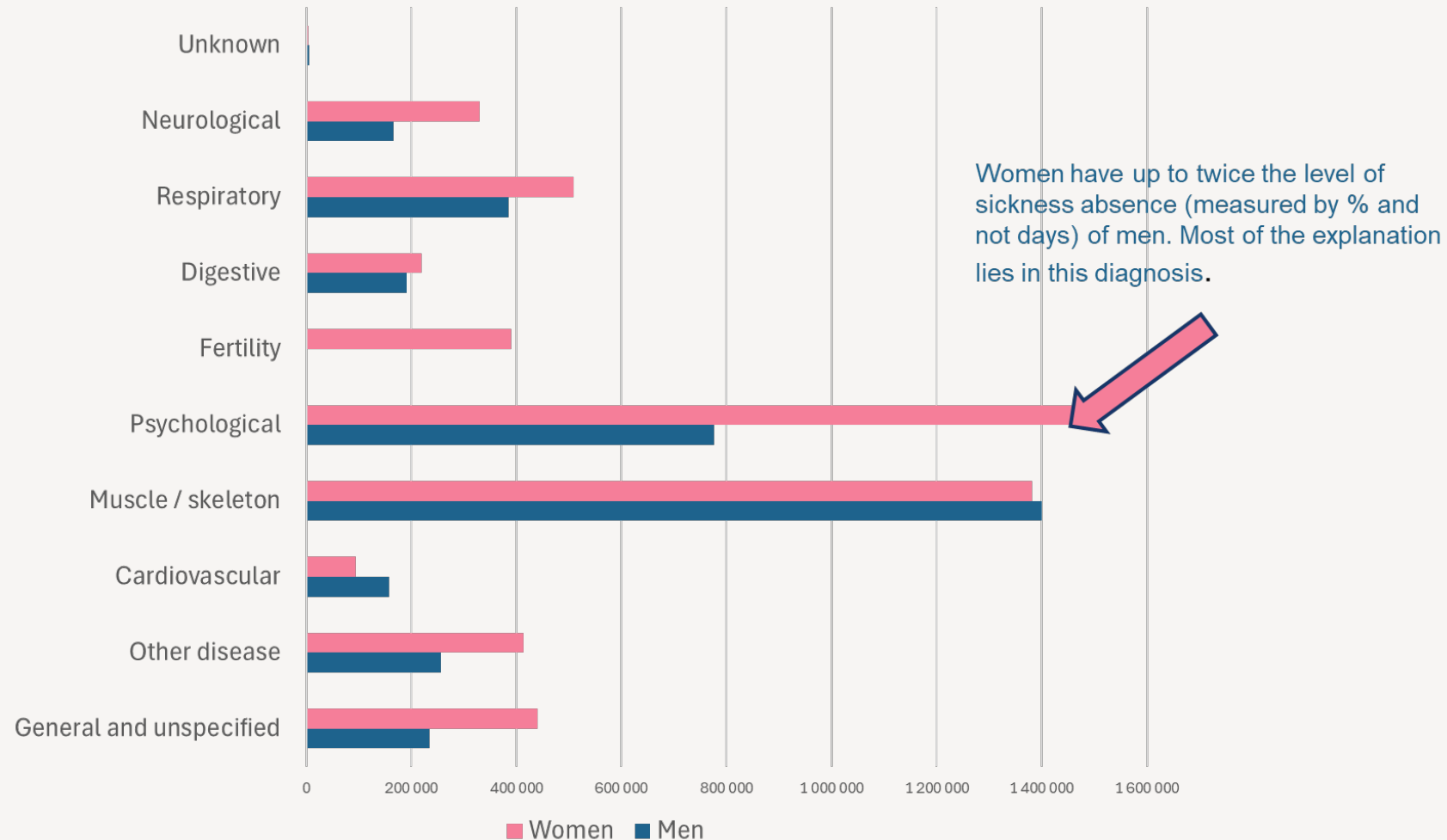


# How *Many* Get Symptoms?



- $1/3$  Few or no symptoms
- $1/3$  Moderate symptoms
- $1/3$  Severe symptoms that impacts on quality of life and capacity to work

# Sickness Absence Norway *Gender and Diagnosis*



# Menopause Consequences *at Work*

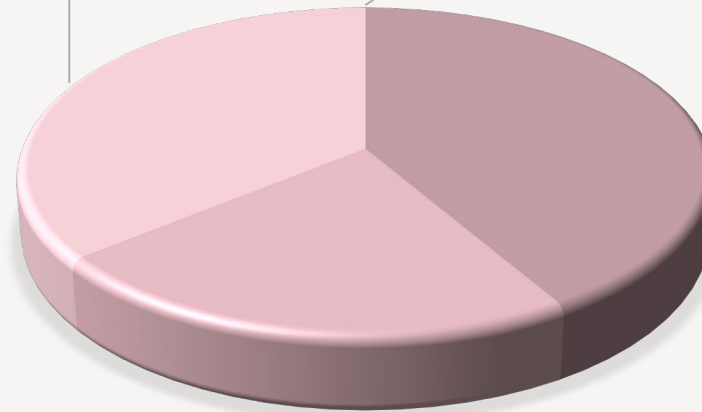
1



- 90 % have been impacted in daily work
- More than 50% have had sick leave due to menopause
- Only 5% gave the real reason

2

1/3 considered resigning      1/3 did not seek natural promotion



A large proportion changed to part time...

3

77 %



Say they would have continued full time in their position or sought promotion if their symptoms were treated

Sources: Hvild Survey

# Menopause *Impact*

## The Cost of Inaction

While some business leaders may scoff at adding yet another set of benefits, especially for a widely misunderstood and maligned health condition, they must realize that the cost of replacing an employee today is incredibly high in a tight labor market.

In 2022, findings released by the UK menopause support app [Balance](#) estimated a staggering £10 billion (\$12.15 billion) in menopause-related business losses, generating significant costs for organizations nationwide. And according to research from the [Mayo Clinic](#), American companies face menopause-related losses of \$26 billion annually, including an estimated \$1.8 billion worth of lost working time alone. [Bloomberg](#) went further, reporting that worldwide menopause-related productivity losses can top \$150 billion a year.

Harvard  
Business  
Review

\$150  
Billion



## Menopause in the Workplace Has an Economic Impact

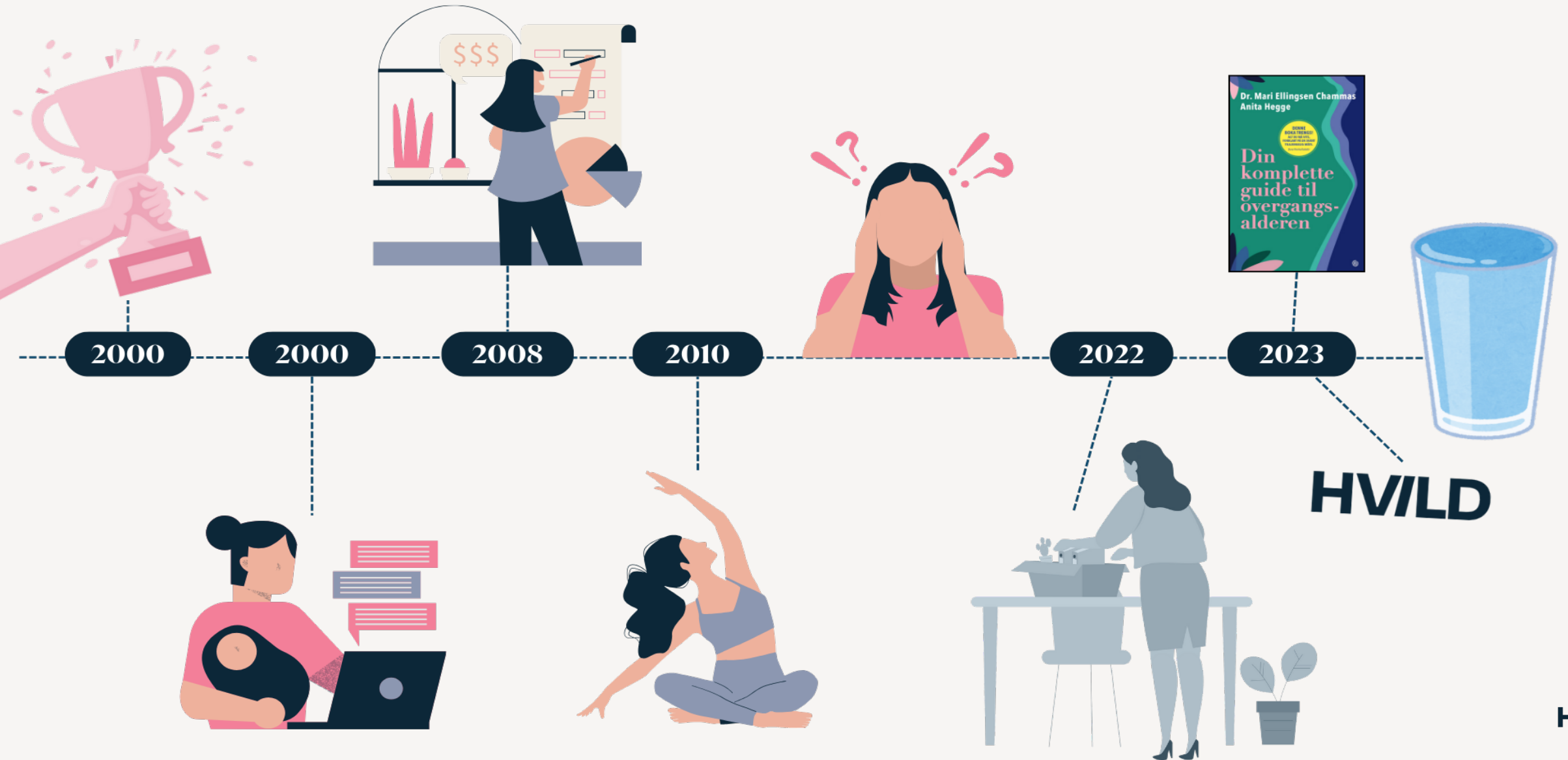
Globally, menopausal symptoms cost an estimated \$150 billion in worker productivity, according to a new AARP survey, and related symptoms cost \$600 billion.

April 25 2024

AARP

\$600  
Billion

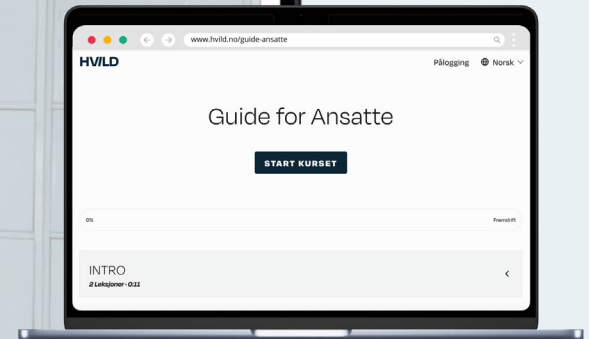
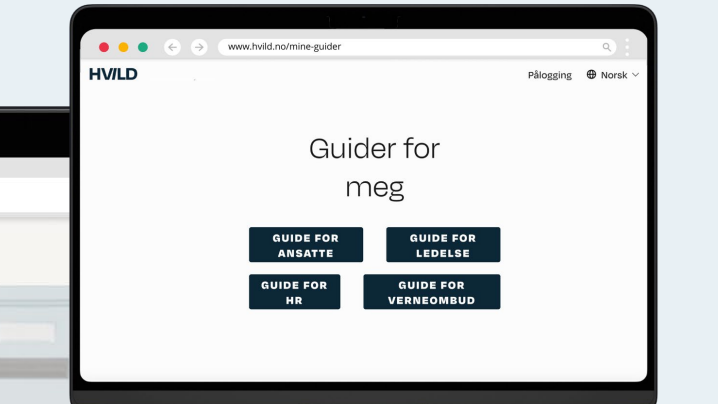
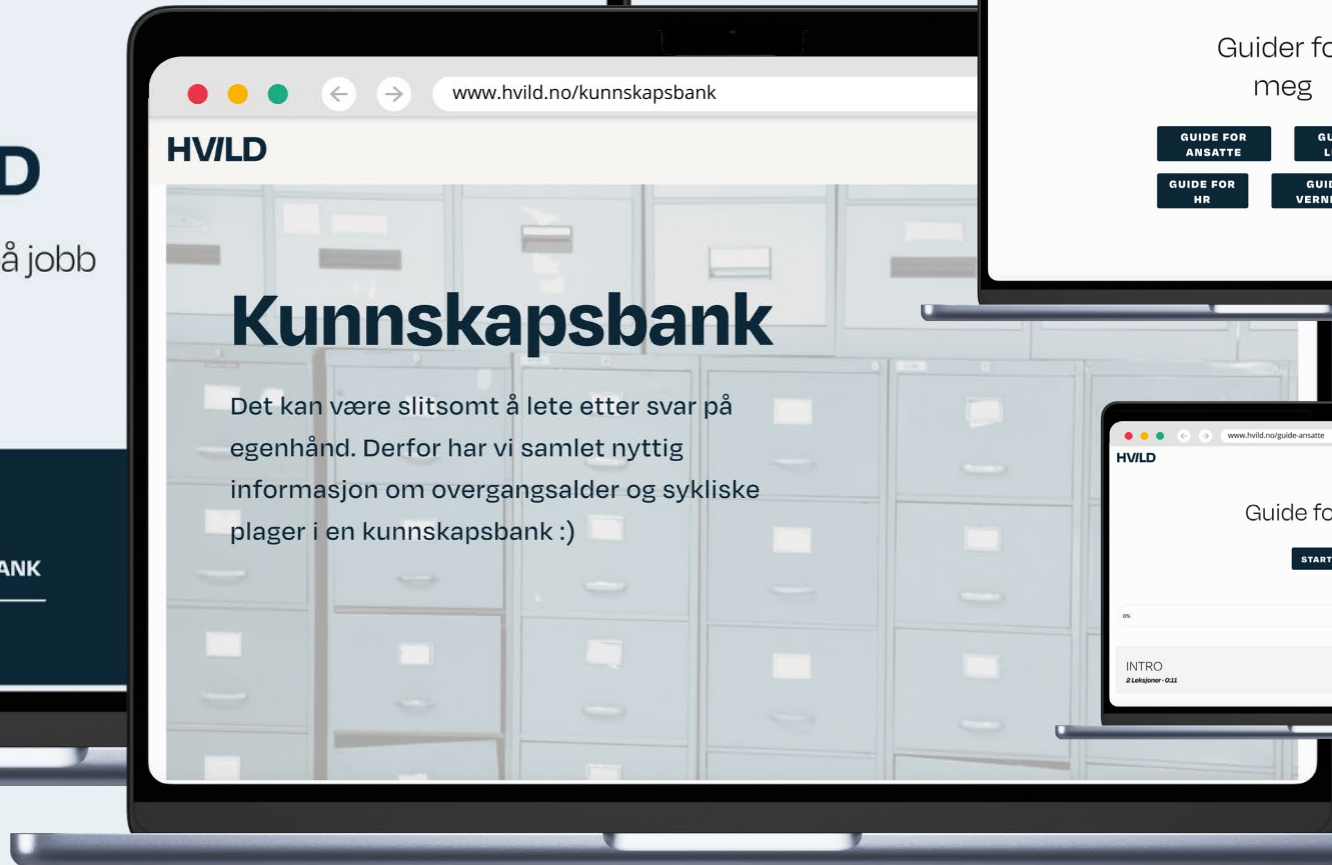
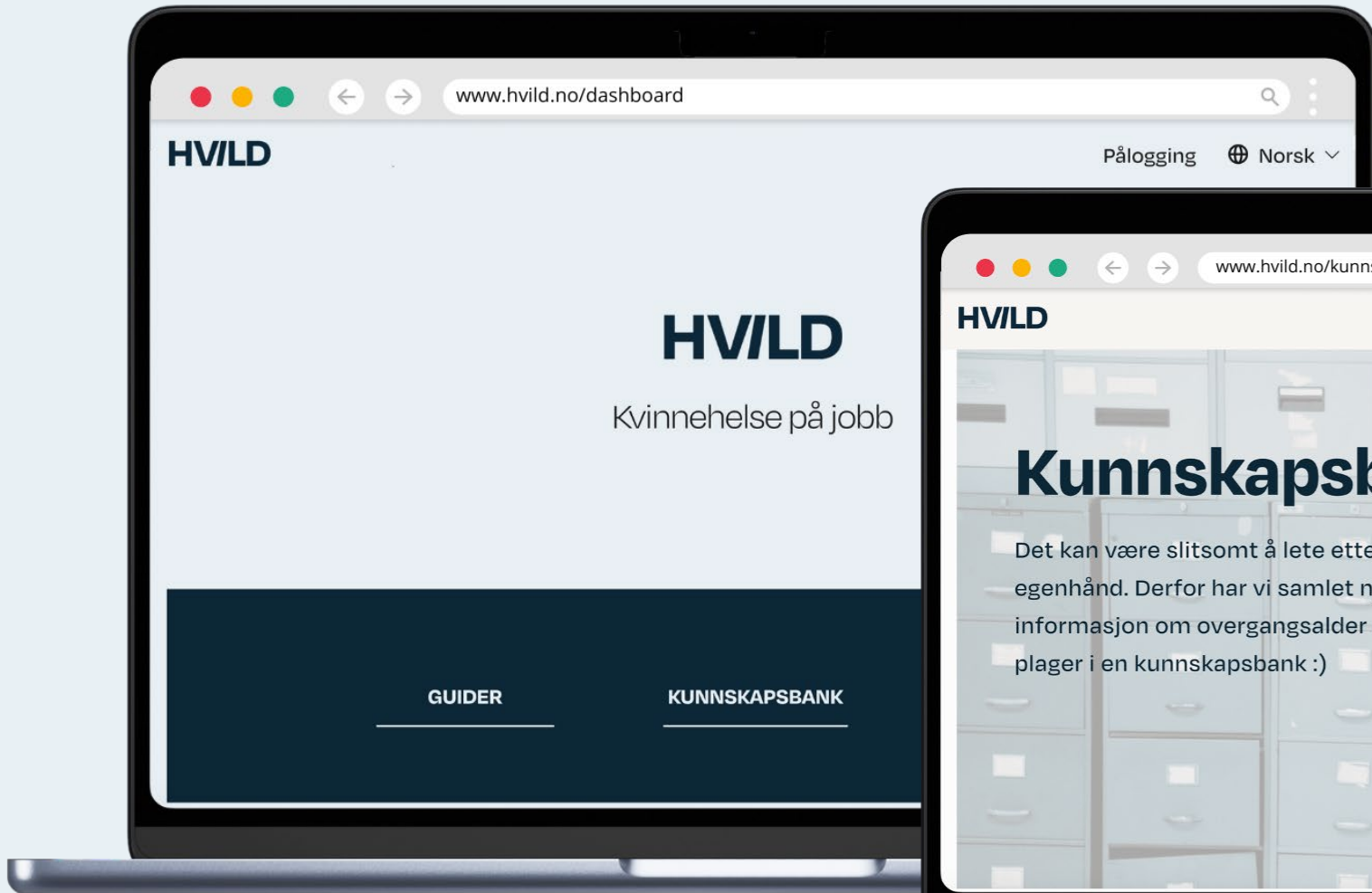
# Women's Health & *My Career*





# Where did we start...

Will femtech save the world?

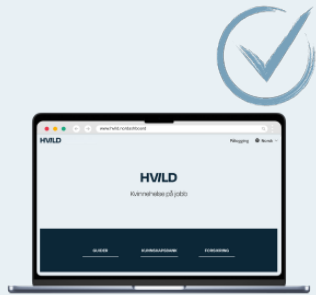


# How to make it scalable...

Insurtech

# Hvild Women's Health Insurance Solution *Covers*

An employer-paid group cover, for all female employees, to protect women who suffer symptoms from menopause. **THE COVER IS IN 4 PARTS:**



## Member Access to Hvild Digital Platform

Practical guidelines and  
digital non-medication  
solutions

- NO COST TO EMPLOYEE



## Digital Consultations with Specialist Gynecologists

Direct booking for menopause  
evaluation / diagnosis, no prior  
referral required

- NO COST TO EMPLOYEE



## Hormone Replacement Treatment (HRT)

If menopause is established and  
there is an absence of negative  
indications, HRT is prescribed

- NO COST TO EMPLOYEE



## Medication Delivered at Home

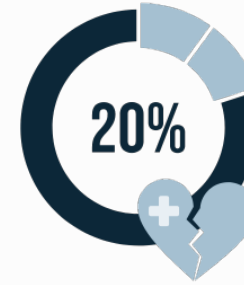
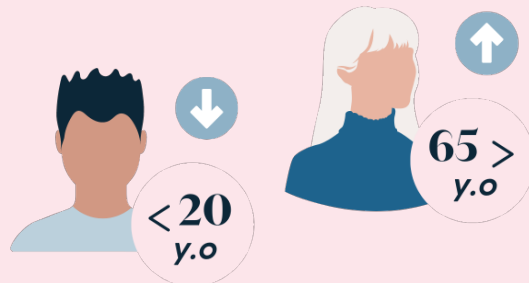
HRT is delivered at home or to a  
delivery point Further consultations  
are included to evaluate HRT

- NO COST TO EMPLOYEE

# Longevity & women's health

## Good news

- Global life expectancy has grown 20 years since the 1950s
- By 2050, the number of 65 + will more than double
- The average person will live decades beyond current retirement age
- The 50+ group will contribute \$12.6 trillion to the economy by 2030 (US)
- Each extra year of working life may grow global GDP
- And this is before technology and medical advances



## Bad news

- The expectancy of healthy lives has not grown at the same pace. Of those extra 20 years, at least 10 are in medium to poor health.
- Women already spend 25% more time in poor health than men
- Untreated symptoms for menopause can lead to long term poor health (cardiovascular, osteoporoses, weight gain)

## *A part of the solution*

- Ensure that menopause symptoms do not turn into poor health!



3

Dr. Mari Ellingsen Chammas  
Anita Hegge

**DENNE  
BOKA TRENGS!**  
ALT DU MÅ VITE,  
FORKLART PÅ EN SVÆRT  
TILGJENGELIG MÅTE.

*Dora Thorhallsdottir*

# Din komplette guide til overgangs- alderen



hvild.no

*Anita Hegge*

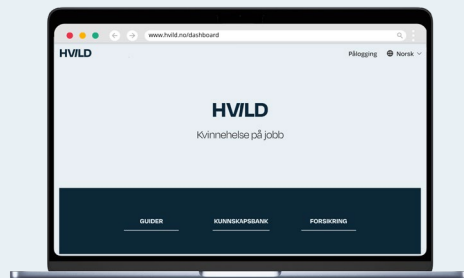
**HVILD**

# Hvild Women's Health Insured Solution *Overview*

## 1 Preventive issues

- Information, training and coaching
- Tools to integrate menopause and women's health care in wellbeing offers to employees
- Tools to allow managers to efficiently and emphatically speak about and manage menopause, at work
- Tools to qualify women's health representatives and measure compliance with CSRD

*Digital Platform*



## 2 Treatment for women in menopause

- Access to specialized doctors – getting the diagnosis right is the first step
- HRT where required and suitable
- Access to specialized doctors to adjust / change HRT as required

### *Treatment infrastructure*



DIGITAL CLINIC,  
SPECIALIZED  
GYNECOLOGISTS

DIGITAL  
PHARMACY



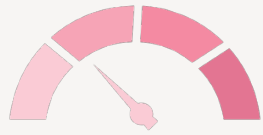
DIRECT AT HOME  
HRT DELIVERY

LAB TESTS WHEN  
REQUIRED





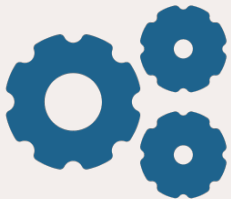
# Hvild Women's Health *Insurance Model*



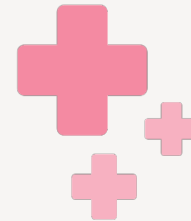
Risk cover model developed with  
and underwritten by SCOR



Pharmaceutical services is sub-  
provided by Apomed



Eir provides insurance fronting  
and admin systems



Medical services are sub-provided by  
Oslo Vitality Clinic



Hvild performs development and  
distribution, policy issue, claims  
management, and provides all  
underlying benefits



Licensed by the Norwegian regulator,  
with EU cross border authorization

# Why me...?



«Raised in finance» and got bankers in the DNB group to sell funds and insurance,

- *which everyone said they would never succeed in doing.*
- *but made the company a market leader with billions in subscriptions in both areas*

Got SATS to deliver quality yoga with competent and happy yoga instructors,

- *which everyone said was impossible,*
- *but has resulted in more than one million annual yoga visits (Europe´s largest)*

Getting businesses to include women´s health in the workplace in their strategies,

- *which many say we cannot achieve*
- *just watch this space!*

# SCOR Sweden Re:s Nordic Life Insurance Conference

Stockholm 11 okt 2024





# Aktuariepriset





# Aktuariepriset

**Christian Cypris**

**Head of Pricing and Data for Central Europe and Nordics,  
SCOR**



# Aktuariepriset

Rasmus Thunberg

Affärschef Kollektivavtalad Affär, Skandia



# Vinnare Aktuariepriset





**Vinnare Aktuariepriset**

**Vilma Guevara Härkönen**

**Folksam**





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# ON CLAIMS RESERVING WITH MACHINE LEARNING TECHNIQUES

Vilma Guevara Härkönen

Aktuarie, Folksam

**Folksam**

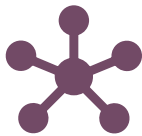
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# AGENDA



**Introduktion**



**Metoder**



**Resultat**



**Slutsatser**

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# INTRODUKTION

01

Försäkringsbolag lägger undan pengar för att kunna betala framtida ersättningar för skador eller krav som kan uppstå senare. Reserv är som en ekonomisk buffert.

02

För att skatta reservens storlek används välbeprövade traditionella statistiska modeller som har varit branschstandard i årtionden.

03

Maskininlärningsmetoder är fortfarande relativt nya och har ännu inte fått bred användning inom branschen för reservsättning.

04

Implementera tre olika maskininlärningsmodeller för att skatta reserven och kassaflöden och jämför dessa med traditionella modeller.

05

Maskininläring ger mer precisa skattningar av reservens storlek och minskar systematiska skattningsfel jämfört med traditionella modellerna.

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# RESERVSÄTTNINGSMODELLER

Vad vet vi idag?

- Antal skador till idag
- Skadekostnad till idag
- Datum då skadan inträffat
- Datum då skadan anmälts till försäkringsbolaget
- Datum för genomförda utbetalningar

Vad vill vi uppnå?

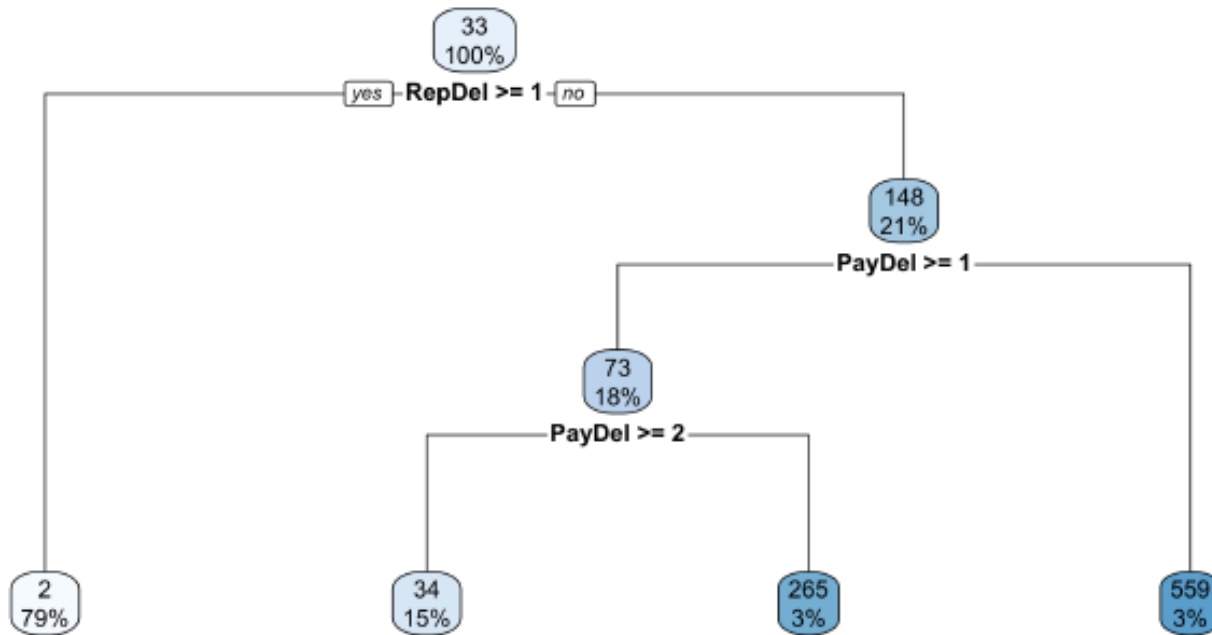
- Kommande utbetalningar på skador som redan har anmälts
- Skadekostnad och antal skador för inträffade men ännu ej anmälda skador till försäkringsbolaget

Hur?

- Historisk data
  - Statistiska modeller som skattar förväntade antal skador och skadekostnader
-

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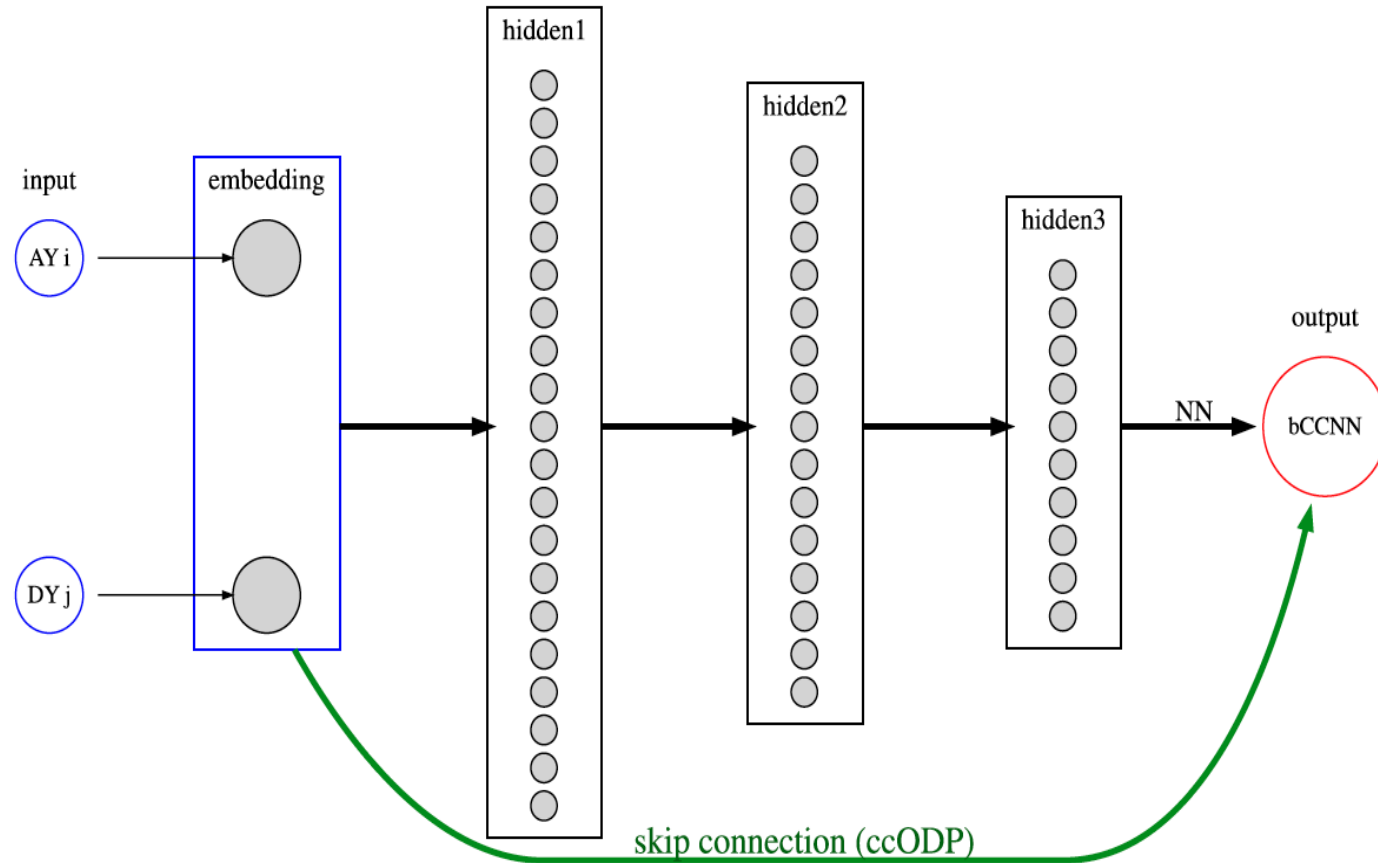
# GRADIENT BOOSTING MACHINES (GBM)



- Trädbaserade modeller där observationer fördelas med Ja/Nej-frågor
  - Kombinera flera svara skattare för en starkare skattare
  - Anpassa flera träd med låg djuphet
  - Fyra hyperparametrar:
    - Djuphet (Depth)
    - Bootstrap-aggregering (Bagging)
    - Krympning (Shrinkage)
    - Minimum antal observationer per blad
  - Modellen anpassas och de hyperparametrar som minimerar prediktionsfelet väljs
-

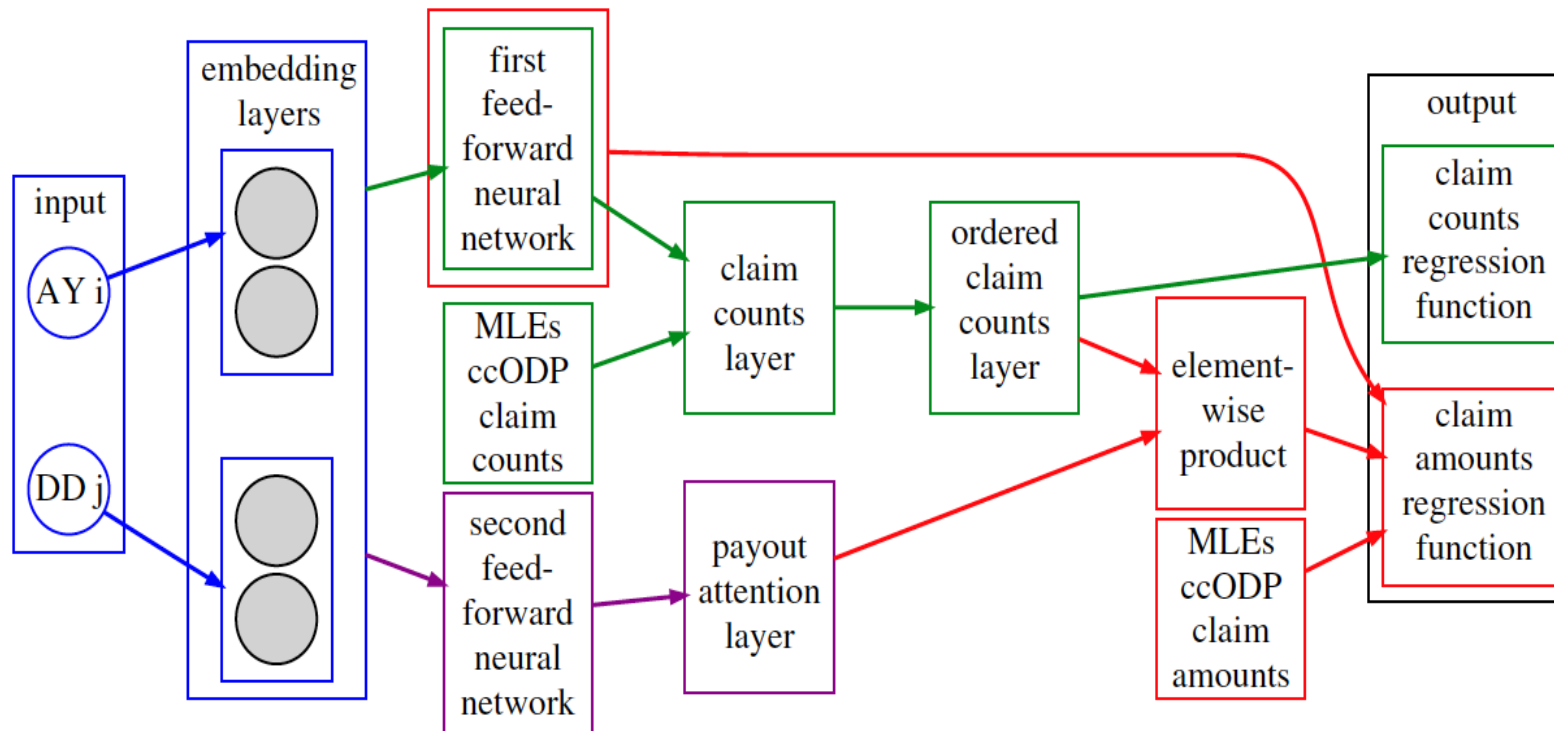
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# NEURALA NÄTVERK (NN)



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# ARKITEKTUR AV DUBBEL NEURAL NÄTVERK



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# DATA



## Simulerad

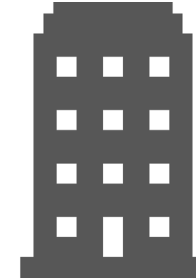
Sex olika produkter

12 skadeår

Skador inträffade mellan 1994 till 2005

Enklare att prediktera

*Från: Gabrielli, A. & Wüthrich, M. V. (2018). An Individual Claims History Simulation Machine. Risks, 6(2):29.*



## Folksam

Tre olika produkter

10 till 16 skadeår

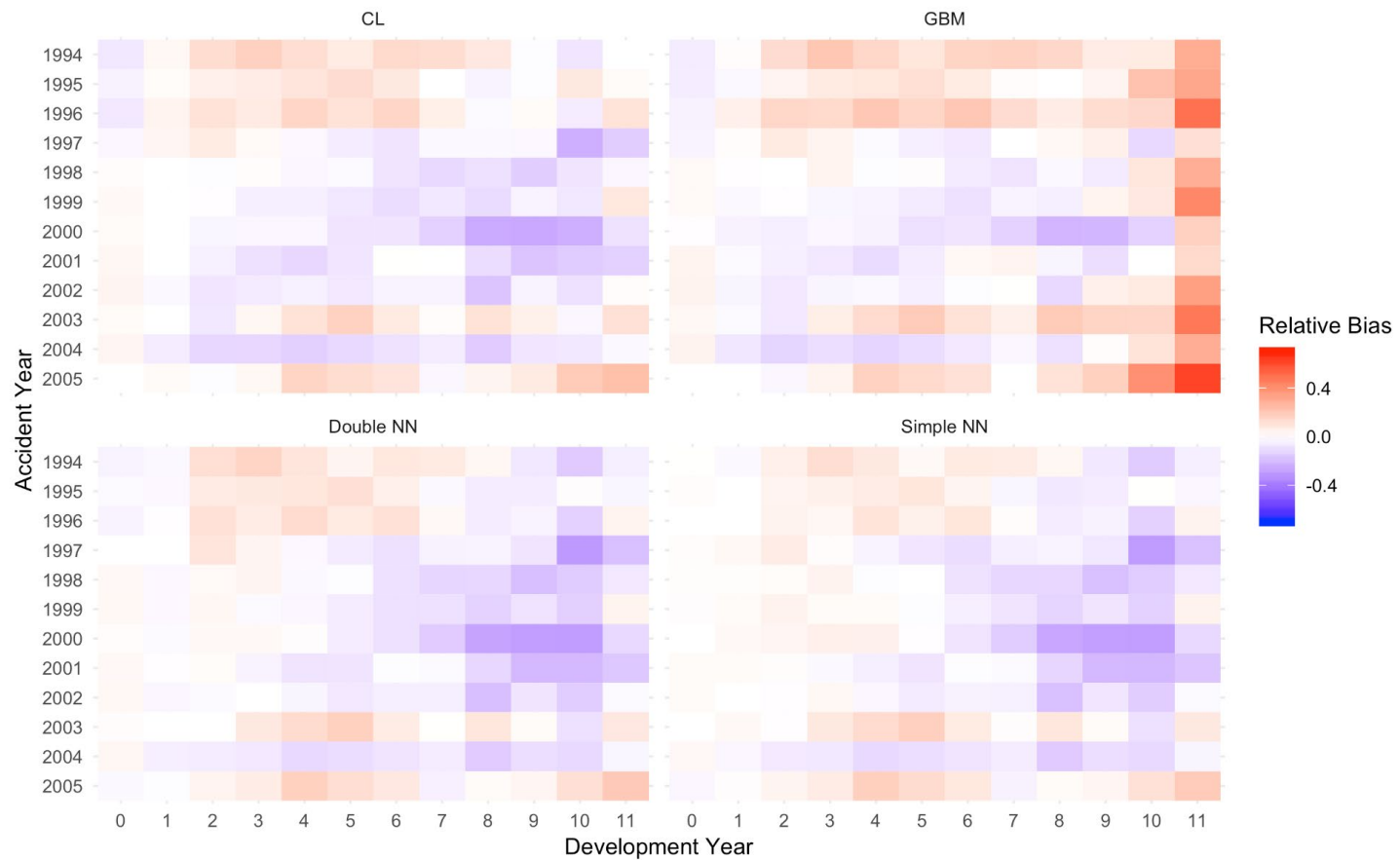
Skador inträffade mellan 1990-2007

Mer utmanande att prediktera framtida utbetalningar

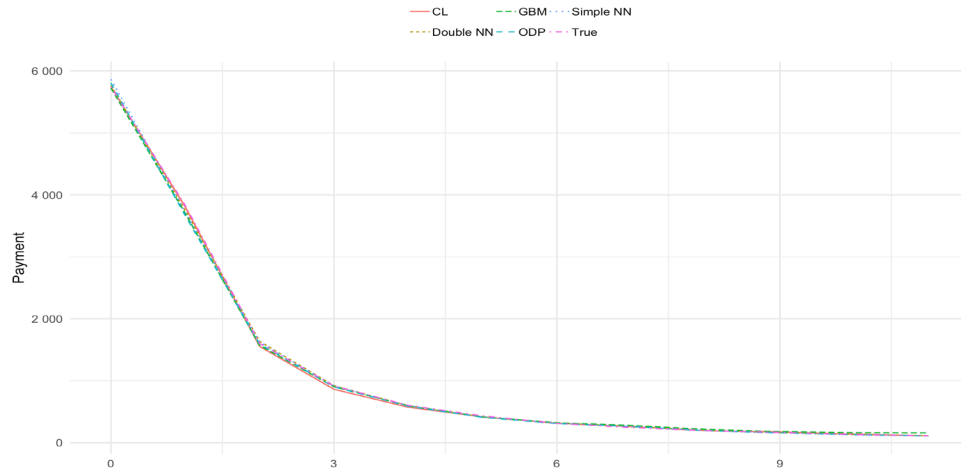


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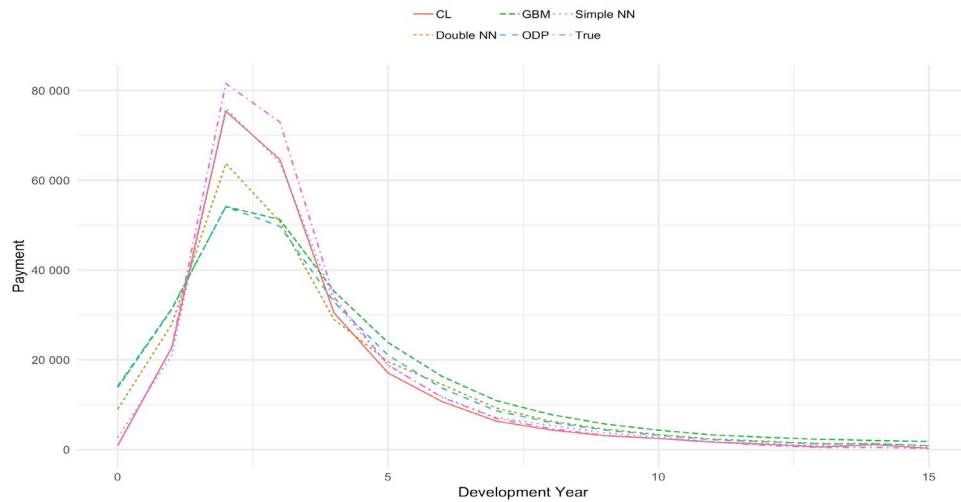
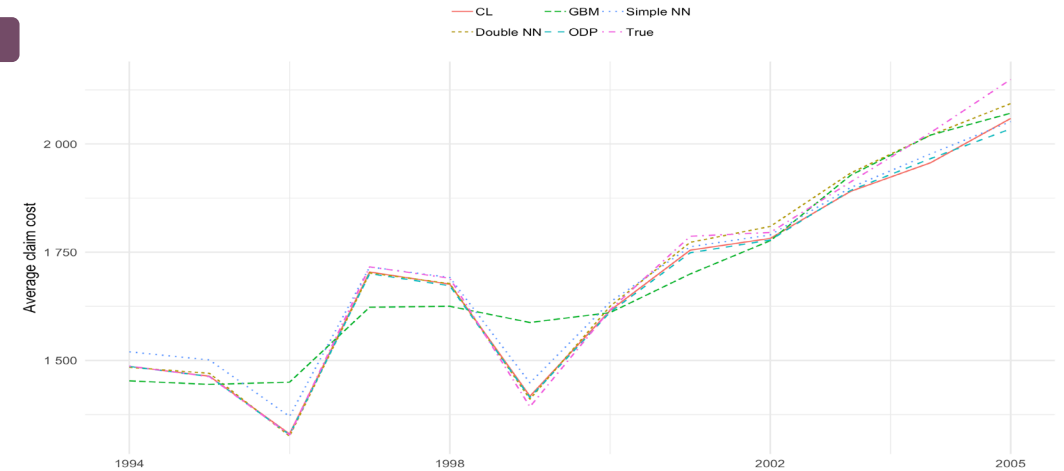
# SKATTNINGSFEL MED OLIKA MODELLER



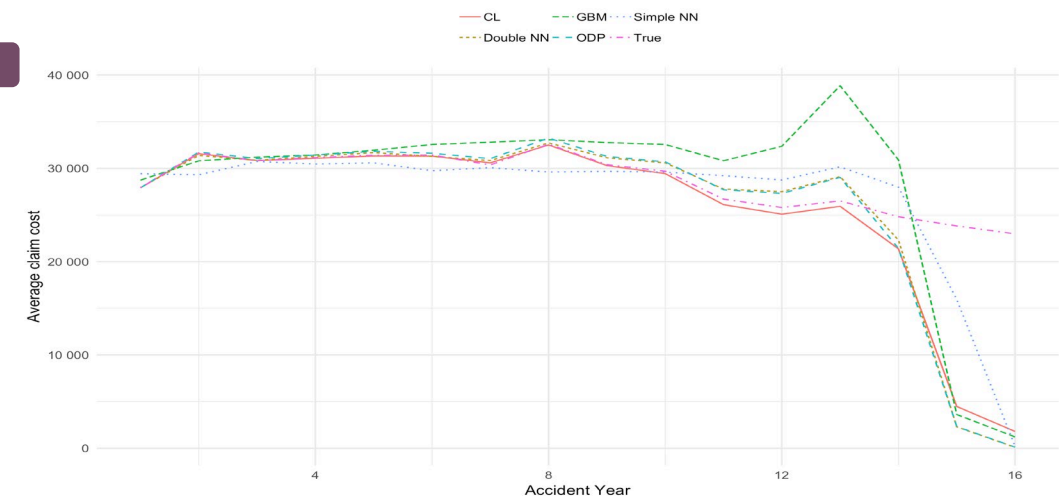
# SKATTAD KASSAFLÖDE OCH MEDELSKADA



Simulerad



Folksam

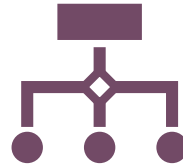


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# SLUTSATSER



**Maskininlärning kan förbättra  
reservsättning**



**Vilken modell är bäst?**

Punktskattning? GBM  
Minst variation? CL/NN  
Minimera skattningsfel? CL/ODP  
Enkel implementering? GBM



**Förbättringar**

Olika uppdelningar av träning- och valideringsdata  
Kategoriska förklarande variabler  
Finjustering av neurala nätverk

---

**TACK!**



# SCOR Sweden Re:s Nordic Life Insurance Conference

Stockholm 11 okt 2024



**Paus – åter kl. 12:20**

**SCOR Sweden Re:s**

**Nordic Life Insurance Conference**



Välkomna tillbaka

SCOR Sweden Re:s

Nordic Life Insurance Conference



# SCOR Sweden Re:s Nordic Life Insurance Conference

Stockholm 11 okt 2024





**Jonas Helgesson**  
**Fördomar**

# ETT CP-BRA LIV

Jonas Helgesson

6 saker jag har lärt mig  
som CP-skadad

1. Alla kan ha en dålig start

2. Etiketter ska man sätta på  
julklappar - inte människor

3. Se det möjliga

4. Skit händer!

# 5. Omgivningen är viktig



6. Livet är en FET bonus!

Tack för ni har lyssnat!!!

# SCOR Sweden Re:s Nordic Life Insurance Conference

Stockholm 11 okt 2024



# Closing

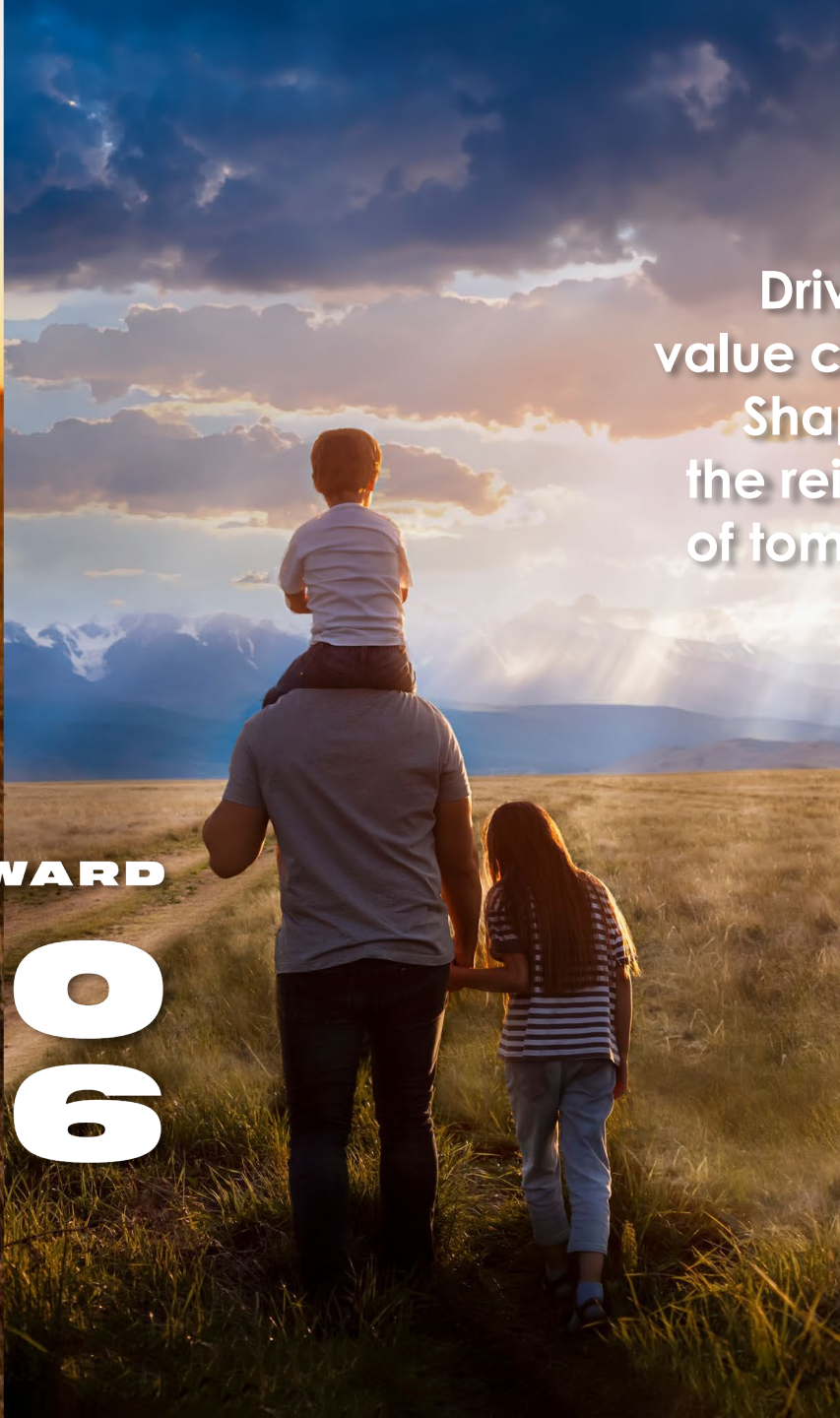
**SCOR Sweden Re:s Nordic Life Insurance Conference**

October 11, 2024

Svein Børre Solvang, CEO



**FORWARD**  
**2026**

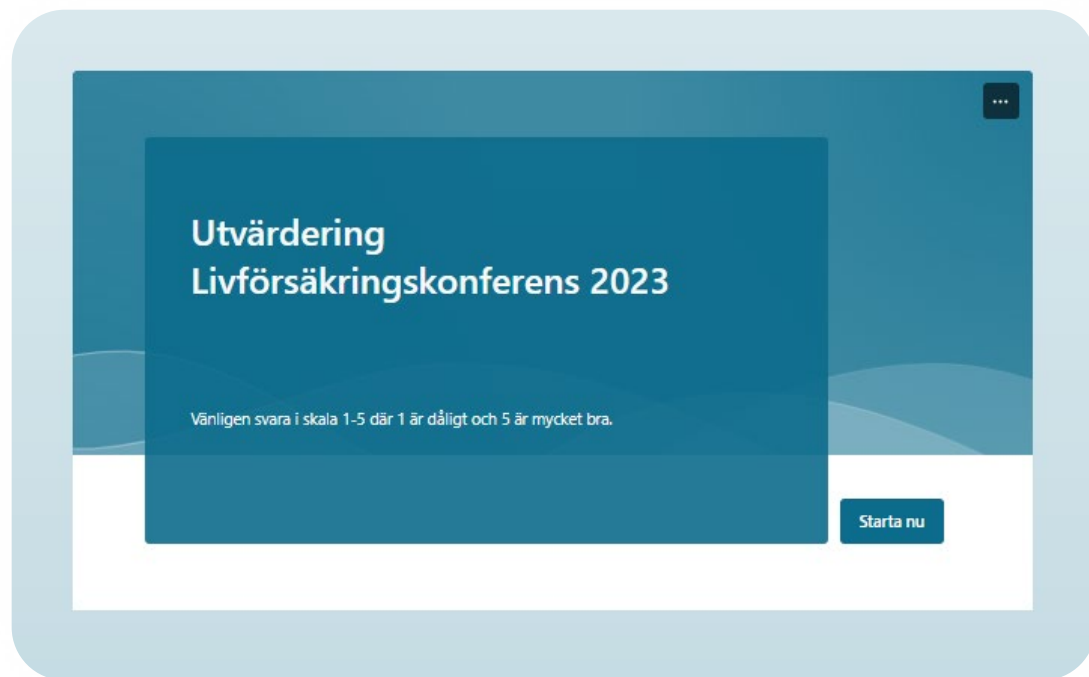


Driving  
value creation.  
Shaping  
the reinsurer  
of tomorrow.



# Livförsäkringskonferens 13 oktober 2023

- Tackmail till deltagarna
- Utvärderingen gick till 208 personer
- Enkät på 7 frågor med fritext



## Vad tyckte du? Glöm inte bort att svara!

Du som redan har svarat på vår enkät kan bortse från detta mail.

Stort tack för ditt deltagande i SCOR Sweden Res Livförsäkringskonferens 2023. Jag hoppas att du uppskattade årets program och innehåll.

Dina synpunkter är viktiga för mig!  
Därför skulle jag vara tacksam om du kunde ta någon minut och ge oss feedback på konferensen och dess innehåll.

### Vänligen klicka här för utvärderingen

En ny utgåva av vår tidning ReNews kommer skickas ut till dig om några veckor, så håll utkik i din mailkorg.

Bästa hälsningar  
Svein Børre Solvang, VD

**SCOR**  
The Art & Science of Risk

**SCOR**  
The Art & Science of Risk

## Feedback on the 2023 Conference

- The best conference ever
- Too cold in the conference hall. I was freezing and the chairs were very uncomfortable
- Very interesting about the vegan diet but too negative about meat
- The lunch should have been aligned with the vegan speech
- Rishi Behl: Great english and interesting on consumer studies
- Too many figures from Rishi Behl
- Stefan Löfven very charismatic and interesting speech
- Stefan Löfven didn't bring any news and too vague
- Great to see SCOR's engagement regarding actuarial science
- Actuarial price. I did not understand anything, as always
- Interesting from the actuary despite I am not an actuary. Very surprising
- Why do you not have a medical underwriting price?
- More cake and sweets during the breaks
- The food 10000 times better than last year. Great wine but breakfast was a disaster
- Where are the female speakers?
- Next year I want to hear something about AI
  
- Not his best performance, closer to his worst
- I think he believes he is funny, but he is not
- I was late and missed his presentation, and thank God for that
- Nice & friendly

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Please give us your valuable feedback also in 2024





**SCOR**

The Art & Science of Risk

**Presentations available on our  
website from 17.00**



**SCOR**

The Art & Science of Risk

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