



May 31 – June 2, Oslo Spektrum

10th anniversary

Age Bakker

The Oil Fund's cloud journey



STATSADMINISTRASJONEN

Ved utbetaling gjennom skattefogd
brukes blankett R-0058.
Se veiledning på baksiden.

Anvisningsbegjæring til
Finansdepartementet

30 MAI 1996

Dato 30. mai 1996

Anv. ktr.

Fra (departement)

Finans- og tolldepartementet

☒ Gjennom
Norges Bank

val. 31. mai 1996

☐ Over
postgiro

Finansdepartementet
blir bedt om å beordre:

Navn og adresse

Norges Bank
Postboks 1179
0107 OSLO

Postgirokontroll eller
bankgirokontroll

0629.06.30019

Kr

1 981 123 502,16

30 MAI 1996

Sum 1 981 123 502,16

Kronebeløpet med bokstaver

enmilliardnihundreogåttienmillioneretthundreogtjueåttetusenfemhundreogto
16/100

Kapittel	Post	Underpost	Underunderpost	For kasseforsterkninger	
Konto nr: 848001 Statens Petroleumsfond.				Regnskapsførerkonto	Kr
Bevilget i innv. budsjettår på vedk. post (inkl. overførte beløp)				Tidligere begjært anvis	Kr
Tidligere begjært anvis på vedk. post				Nåværende beholdning	Kr

Anvisningen gjelder

Overføring til Statens Petroleumsfond.

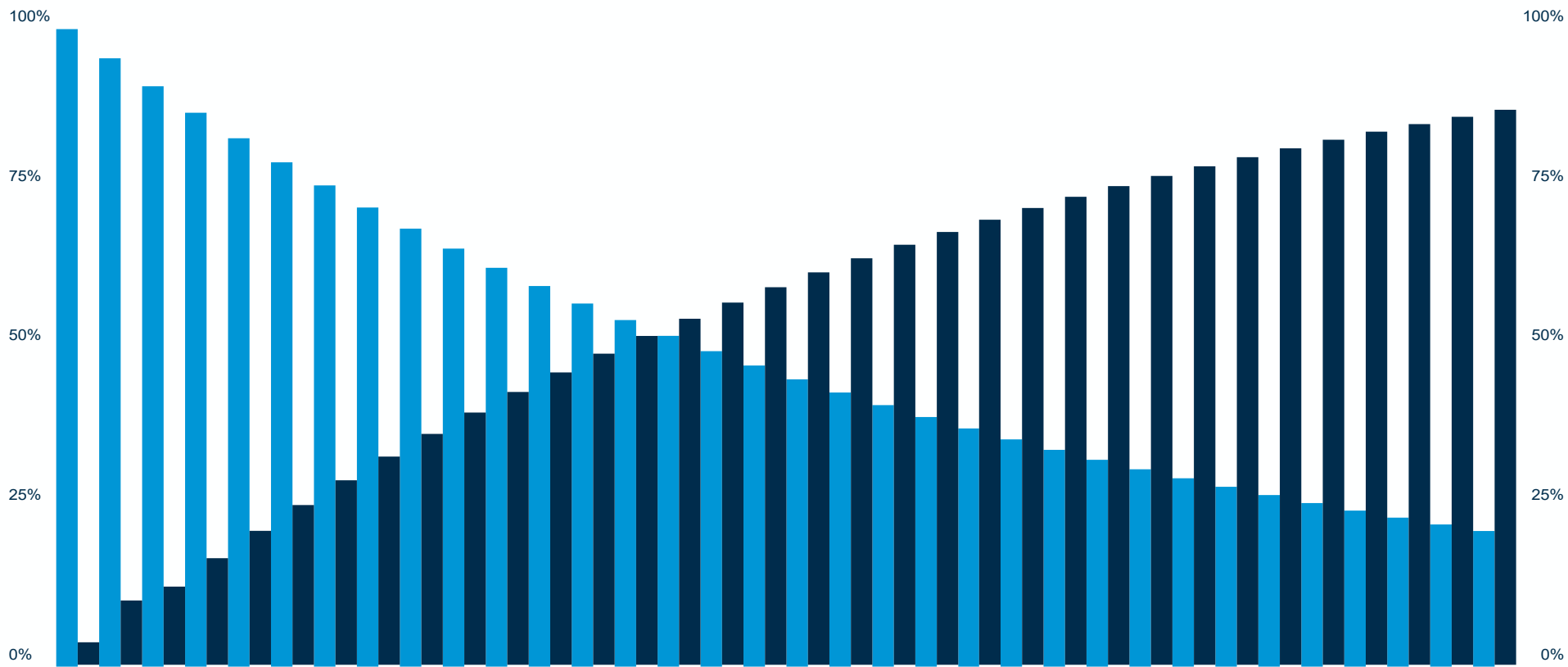
Anvisning

Gerd Waller Nilsen

From natural resources to financial wealth

- Remaining oil reserves
- The fund's historical and estimated value

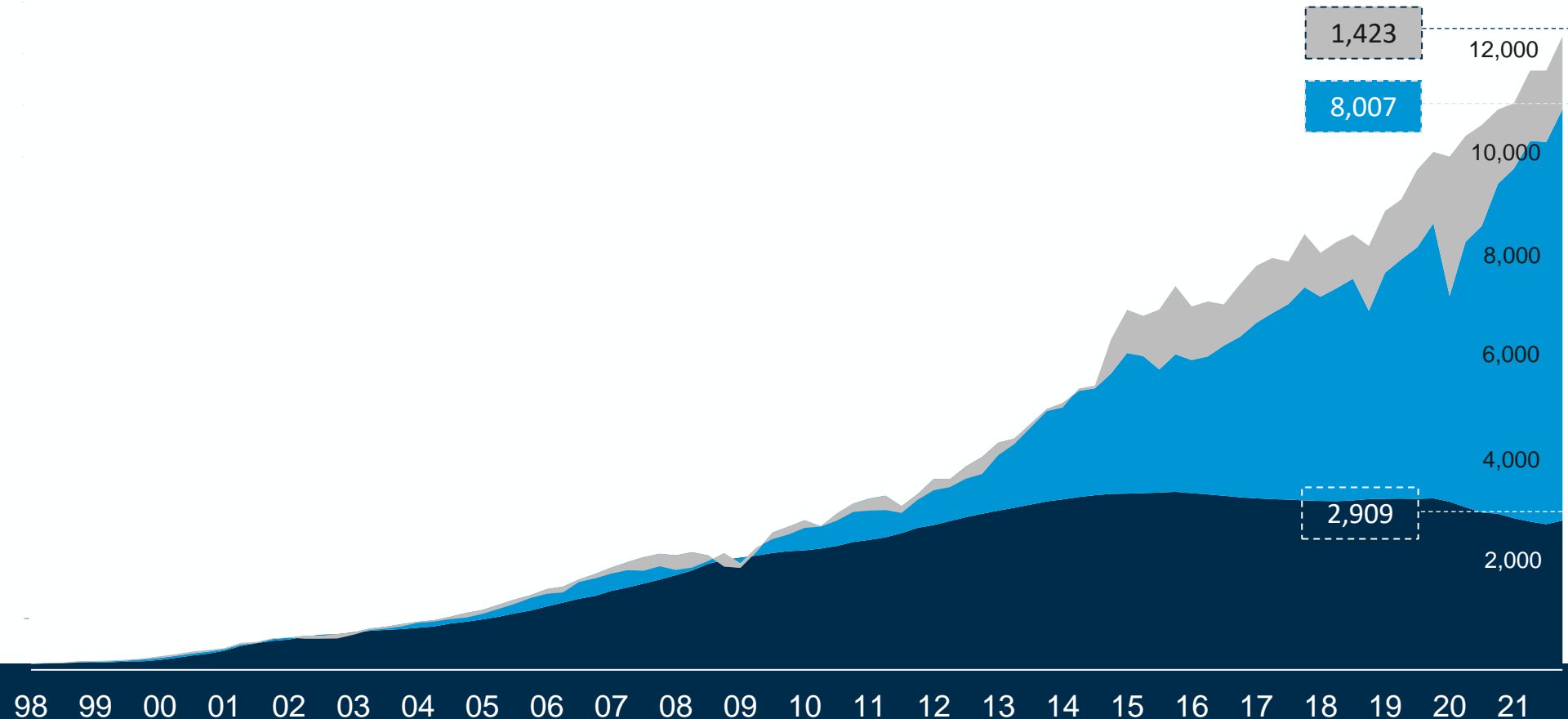
Source: Ministry of Finance and
Norges Bank Investment Management



8,007 billion kroner in return

- Inflow (after management costs)
- Return
- Krone rate

As at 31.12.2021



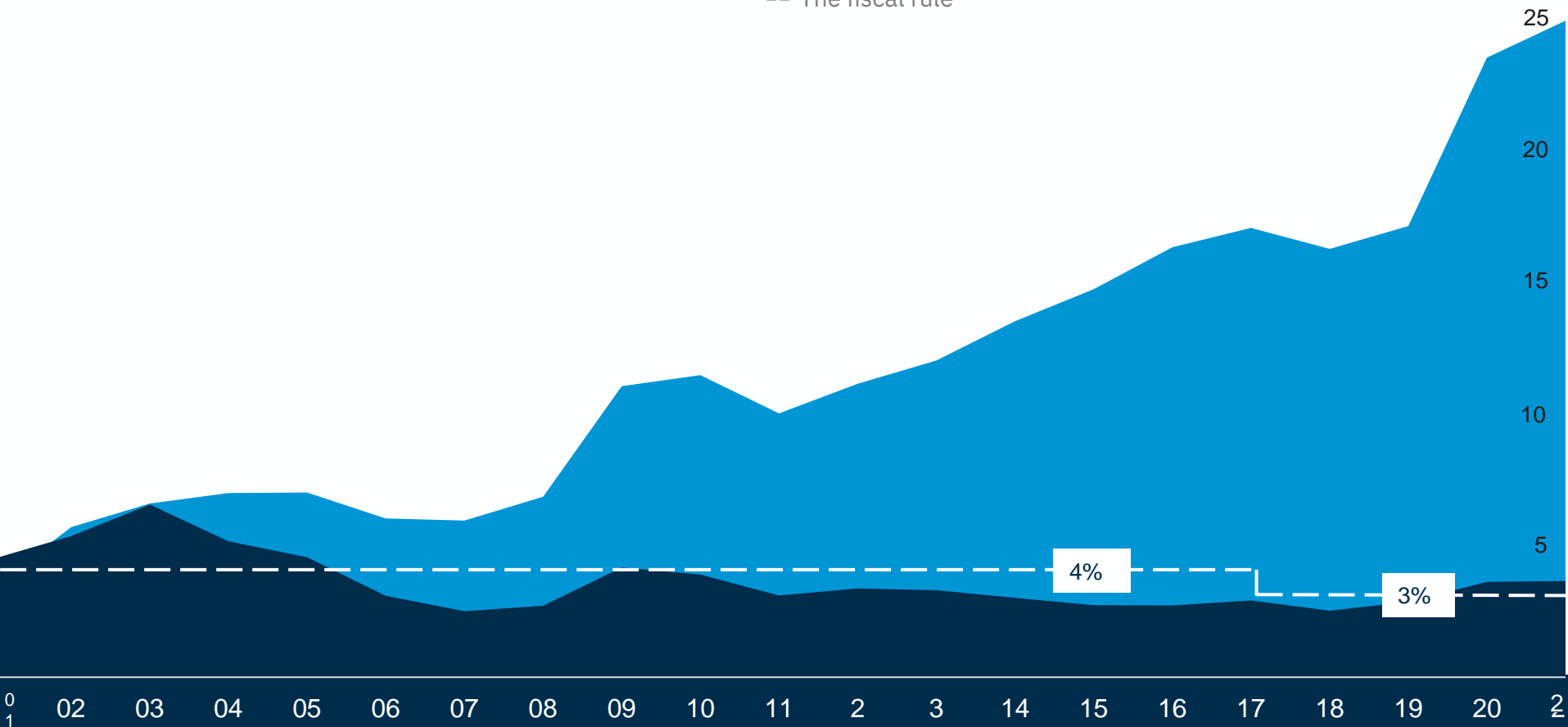


The fund is owned by
the Norwegian people

25 percent of the national budget

The fiscal rule

- Percent of the national budget
- Percent of the fund
- The fiscal rule



Transactions around the clock

Number of transactions handled in 2021

43 000 000

Number of equities traded in 2021

38 billion

Percentage of autonomous transactions

98%



The investments

As at 31.12.2021



72.0%

Equity



25.4%

Fixed income



2.5%

Unlisted real estate



0.1%

Unlisted renewable
energy infrastructure

The investments

As at 31.12.2021

48.8%

North America

31.7%

Europe



17.7%

Asia and Oceania

1.8%

The rest of the world

A global organisation



520 employees
33 nationalities



Our goal is to achieve the highest possible return on behalf of the Norwegian people

We will achieve that by:

- becoming the best global investment fund
- being a global leader in responsible investment
- being the most transparent fund in the world
- becoming a leading technology organisation



The Oil Fund's solution architecture

30.000 feet perspective

High-level solution architecture



Execution management

Order management

Portfolio management

Settlement

High-level solution architecture

Data sources



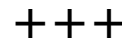
Calculation and QC



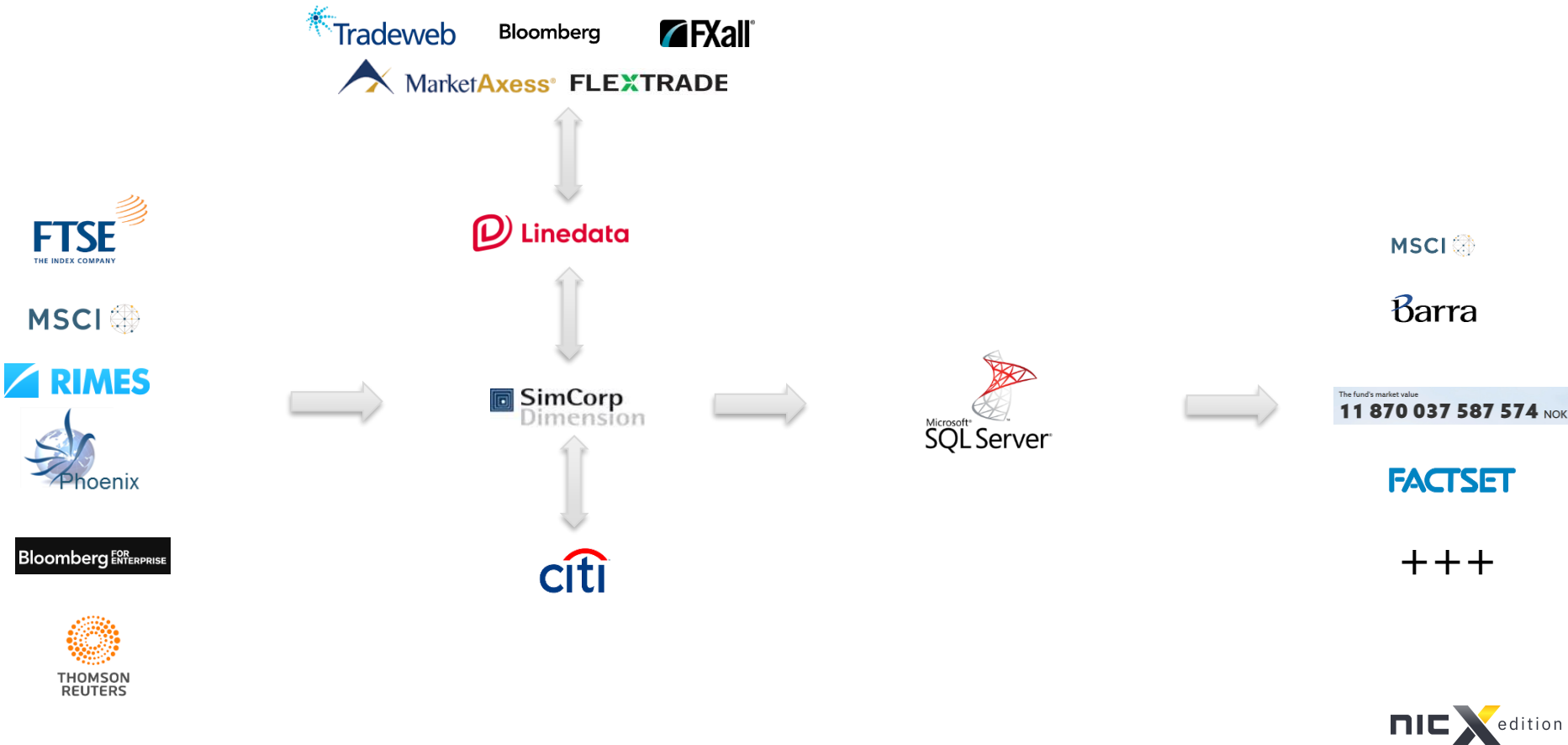
Data Warehouse



Downstream solutions



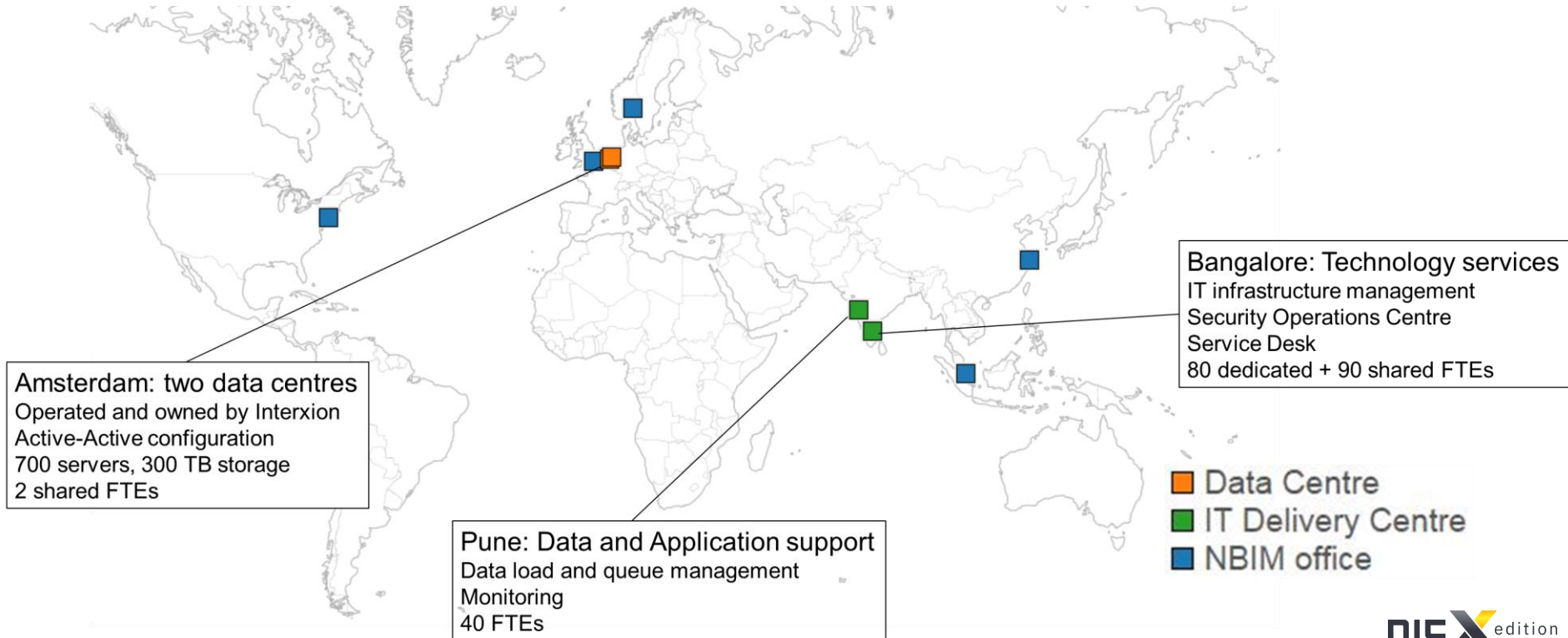
High-level solution architecture



The Oil Fund's cloud journey

Departure: Q1 2017

2017: two data centres operated by an external IT service provider



Why change?



Quality



Agility



Security

Target Operating Model

1

Public cloud

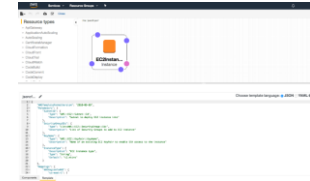
Consume standard services - not buy hardware



2

Automation

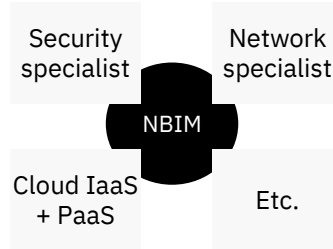
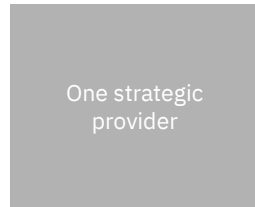
Brainpower over manpower



3

Sourcing

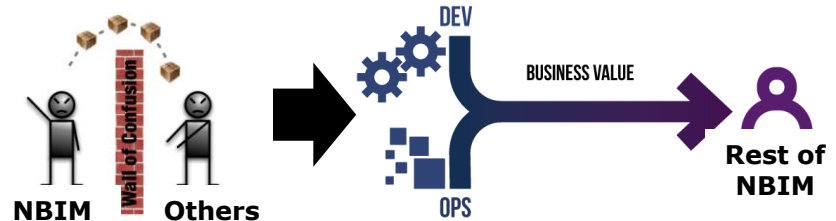
Specialists over generalists



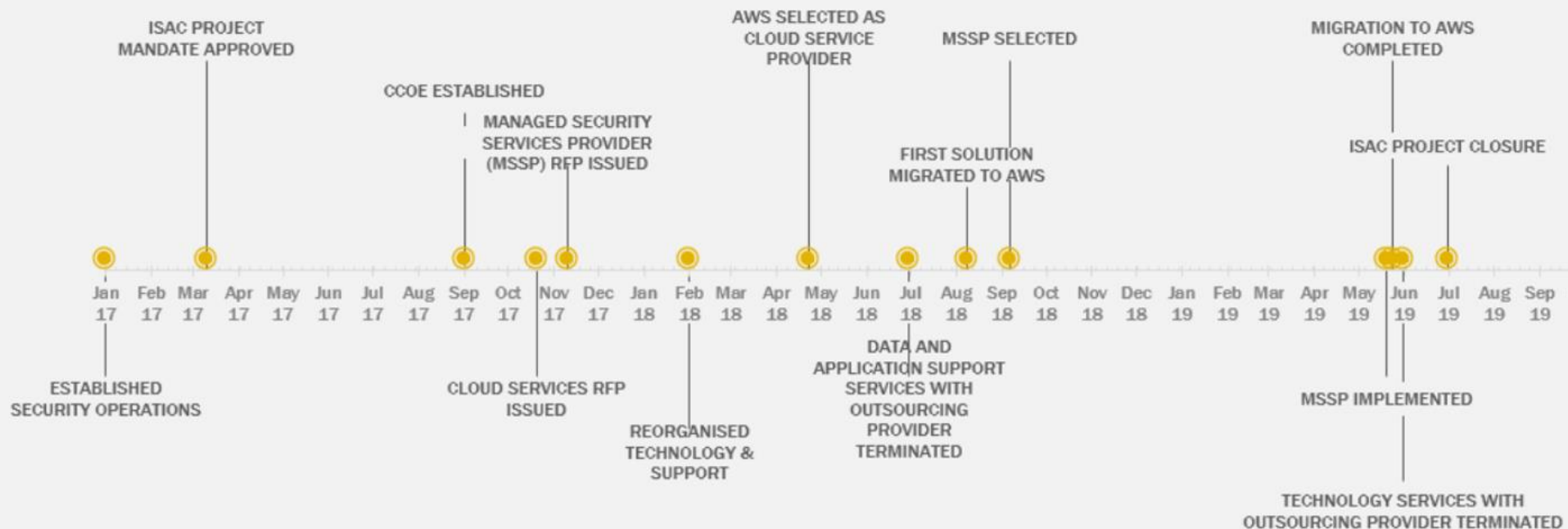
4

Internal capabilities

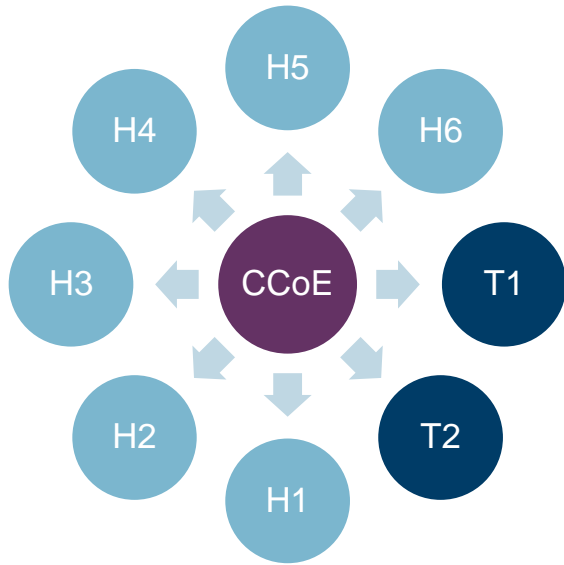
Also do-ers - not just managers



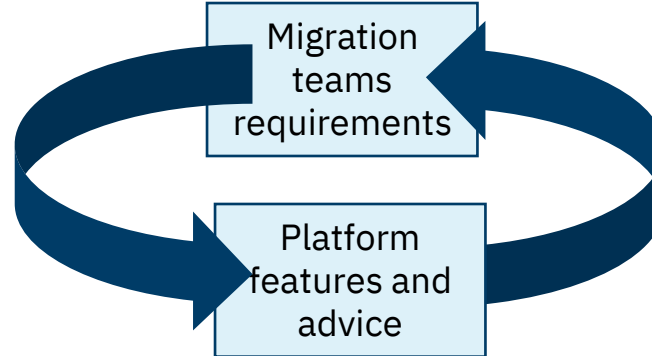
Timeline



CCoE as hub for migration



Mandate: iteratively developing the AWS platform while facilitating the migration



CCoE Multi-disciplinary core team



Hare team – easy migrations



Tortoise team – complex migrations

Infrastructure-as-code



Code

GitHub

AzDo

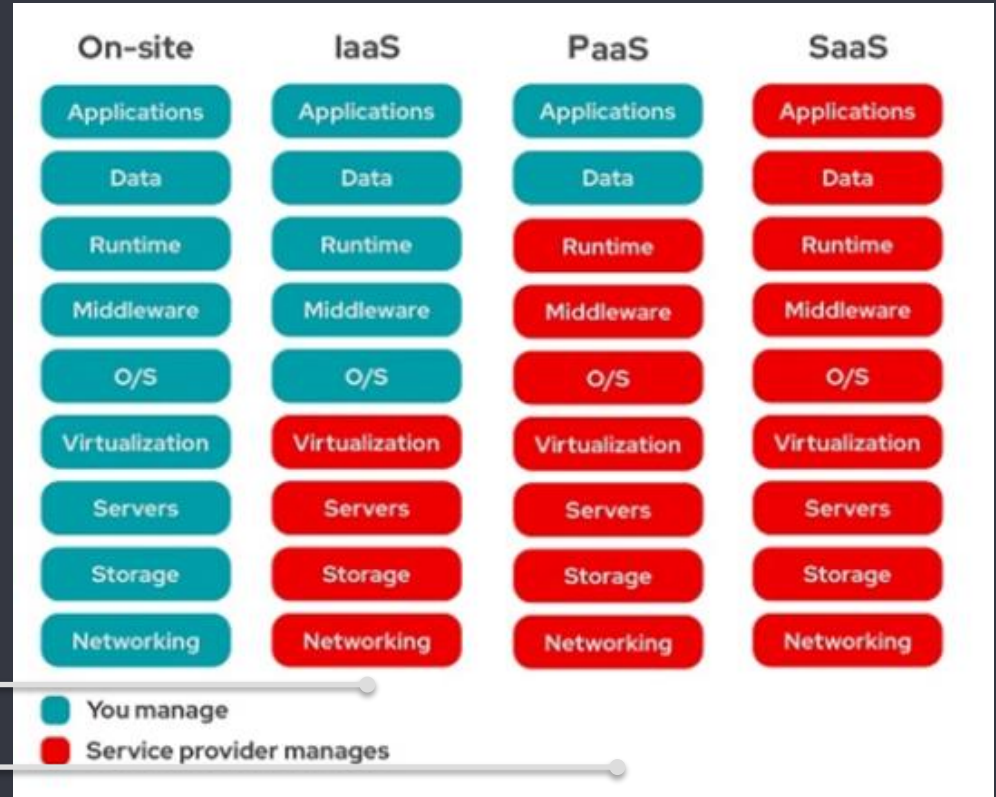
CloudFormation

AWS

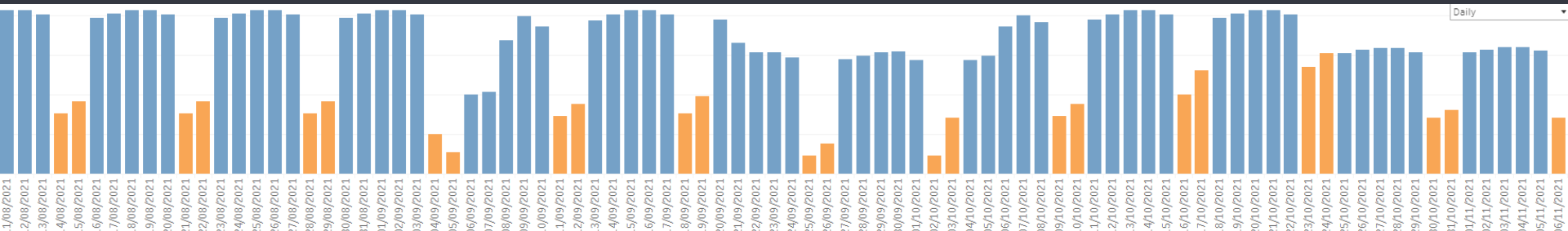
Least managed strategy

SaaS over PaaS over IaaS

traditional servers
database and storage



Cloud costs



Technology services

Current model

- eu-west-1 as main region
- Insourced IT operations
- Infrastructure-as-code
- Specialist security provider
- Global support



What are the challenges?



Competence



Architecture



DevOps culture

Did we succeed?



Quality

- Automation
- High availability
- Fewer incidents



Agility

- Elasticity
- Build vs Buy
- Change



Security

- Multi-account
- Patching
- Automation

Thank you!



Slides and demos from the conference will be available at

<https://github.com/nordicinfrastructureconference/2022>