



24/7 Fleet Monitoring in the Cold Chain

ISLA 2023

Maximizing uptime,
reducing food waste & cargo loss,
and meeting the Gigaton Challenge.

Agenda

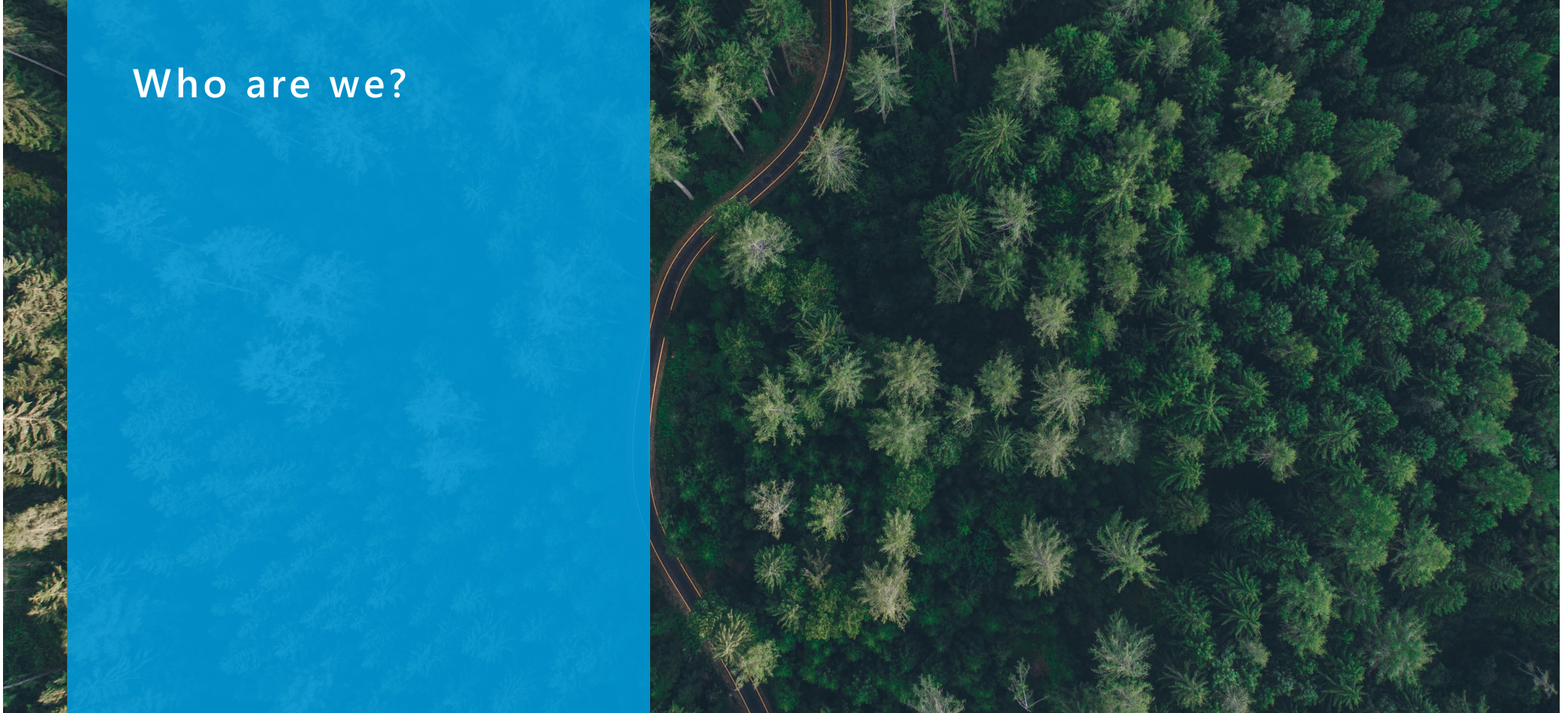
Who are we?

Introduction to the cold chain

24/7 Fleet Monitoring

Our commitment

Who are we?



Who are we? **PRESENTERS**



Wouter Roels

Services & Solutions Business Development Leader
at Trane Technologies

What's My Average Annual CO2 Emission

- Commuting to work by car: 2 600 kg CO2 / year
- Business trips by plane: 5 000 kg CO2 / year

What Tools or Services Do I Use to Monitor My Health

- Sports Watch / Activity Tracker
- Annual check-up at the doctor
- 2 young kids

Who are we? **PRESENTERS**



Marcin Rozanski

Aftermarket Leader - Marine, Rail & Air
at Trane Technologies

What's My Average Annual CO2 Emission

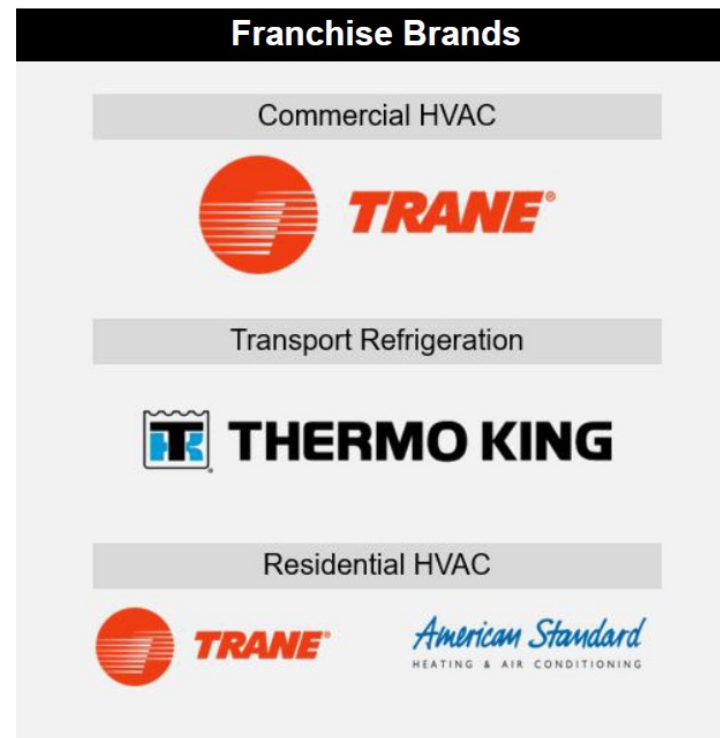
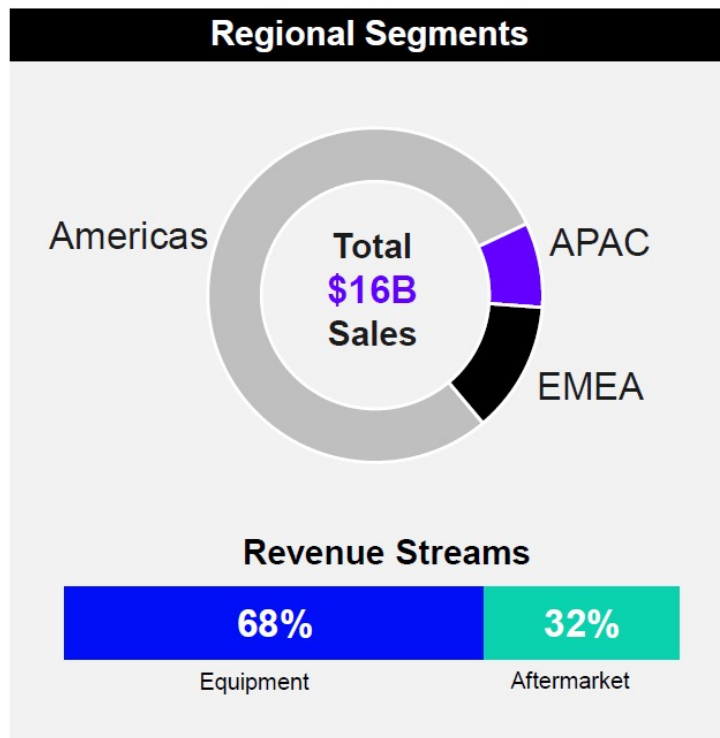
- Commuting to office = 0 CO2 kg/ year
- Uber = 1500 kg of CO2/ year
- Plane Travel = 21,931.00 kg of CO2/ year

What Tools or Services Do I Use to Monitor My Health

- iPhone follows me everywhere

Who are we?

TRANE TECHNOLOGIES IS A PURE PLAY CLIMATE CONTROL BUSINESS



Introduction to the cold chain



Introduction to the cold chain

JOURNEY OF FRESH STRAWBERRIES



< 1 hour to
Cold Storage



Pre-Cooled
To 0 °C



Temperature
contained at 0 °C



15 min.
Temperature Logging



Short Shelf Life
(FIFO)

Introduction to the cold chain

CHALLENGES IN COLD CHAIN TRANSPORTATION



30%

**OF FOOD
IS WASTED**

10%

**GREENHOUSE GAS
EMISSIONS FROM FOOD**

1.3B

**PEOPLE WITH
FOOD INSECURITY**

Introduction to the cold chain

WHERE WE PLAY



< 1 hour to
Cold Storage

Pre-Cooled
To 0 °C

Temperature
contained at 0 °C

15 min.
Temperature Logging

Short Shelf Life
(FIFO)

Introduction to the cold chain

WHERE WE PLAY

ROAD

RAIL

MARINE

AIR

STORAGE

**OUR SERVICES AND SOLUTIONS
READY FOR A DIGITAL BUSINESS MODEL**

24/7 Fleet Monitoring

monitoring,
responding
and resolving



24/7 Fleet Monitoring OUR CUSTOMER'S CHALLENGE

UNEXPECTED DOWNTIME – DAMAGE / LOSS OF CARGO

Loss of value of cargo

Loss of trust

More production

More emission



24/7 Fleet Monitoring

OUR SOLUTION

IMPROVED UPTIME AND CARGO PROTECTION

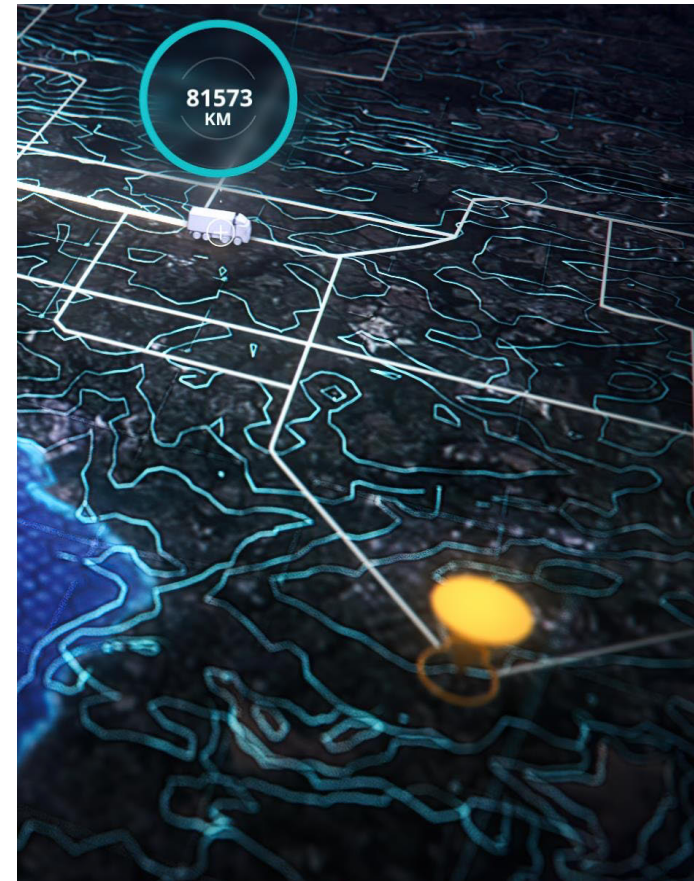
CONNECTIVITY

+

EXPERTISE

+

NETWORK



24/7 Fleet Monitoring CONNECTIVITY

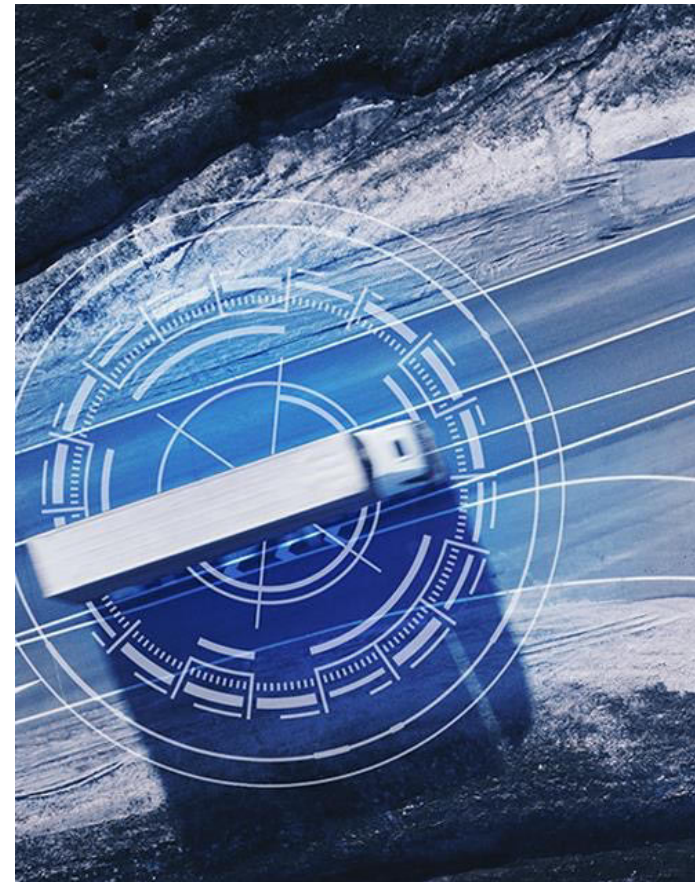
CONNECTIVITY + EXPERTISE + NETWORK

Telematics as standard

Real time data

Unit health alarm

Remote control



Thermo King experts

Remote diagnostics

Monthly report & advice



24/7 Fleet Monitoring NETWORK

CONNECTIVITY + EXPERTISE + **NETWORK**

>500 service points

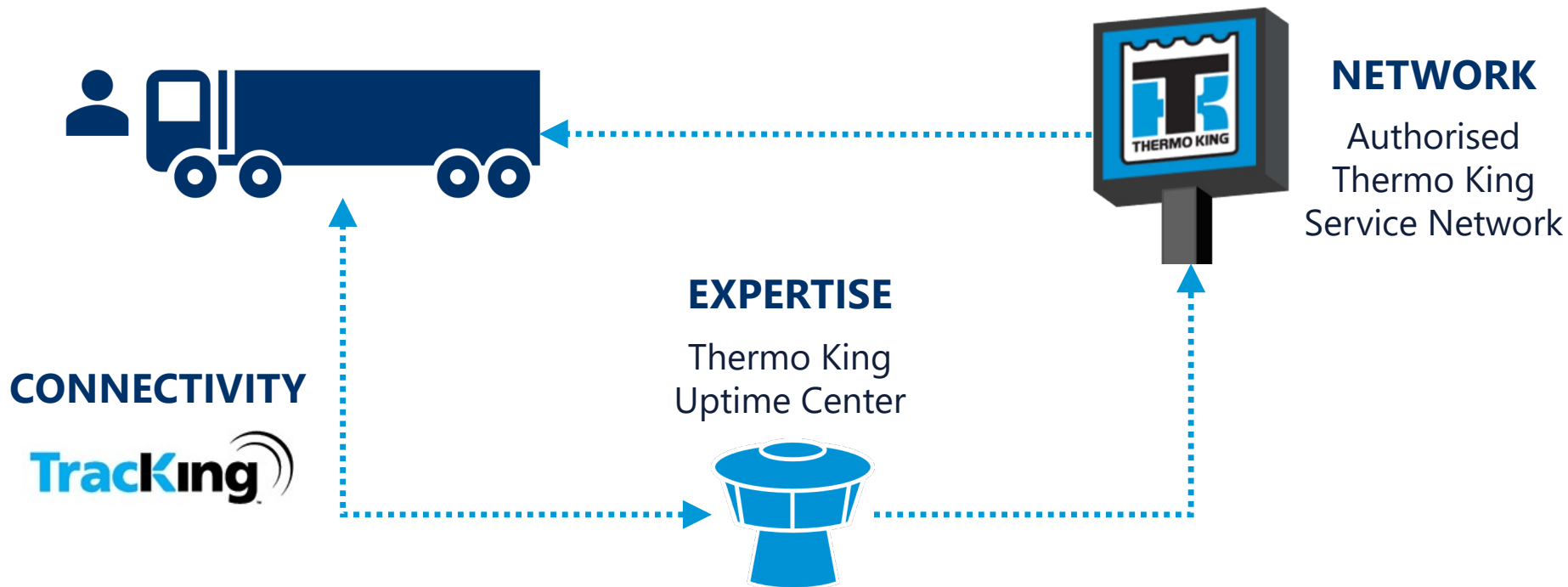
< 2 hours

> 1400 CERTI-TECH service technicians

Centralised billing



24/7 Fleet Monitoring OUR OFFERING



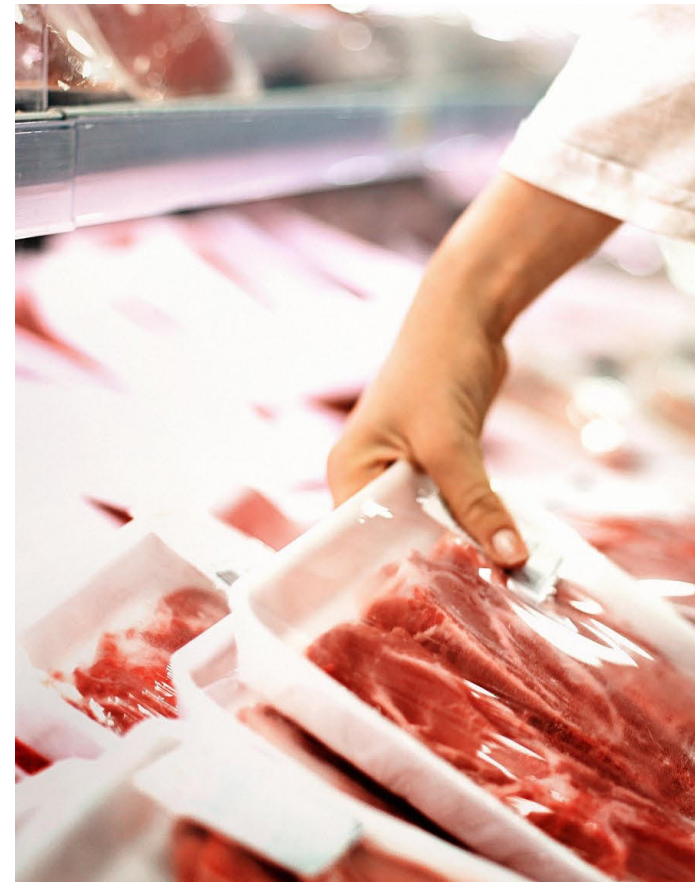
24/7 Fleet Monitoring MEET A TIMELINE FOR MEAT

A trailer-load meat was being transported
and sent out an alarm in UK followed by stoppage.
Just 5 hours left before its next trip

Remote diagnostics <20 minutes On-time technician intervention

>100.000 EUR worth meat saved

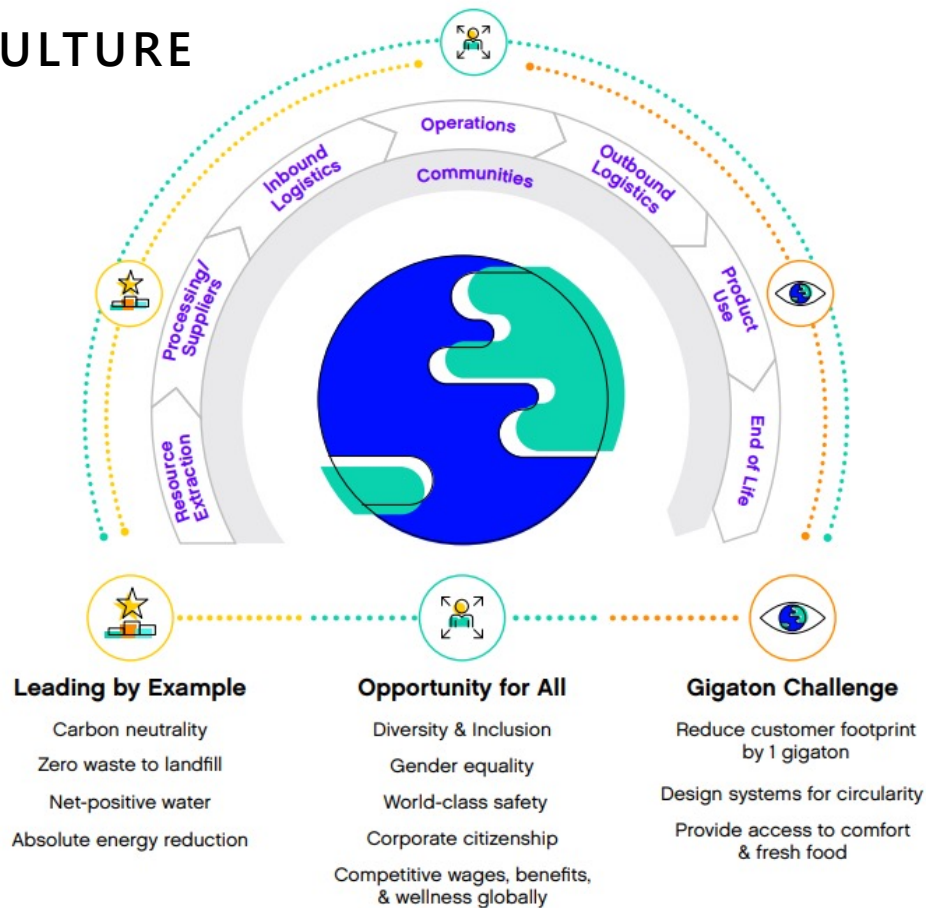
>400 tonnes CO2e saved



Our commitment



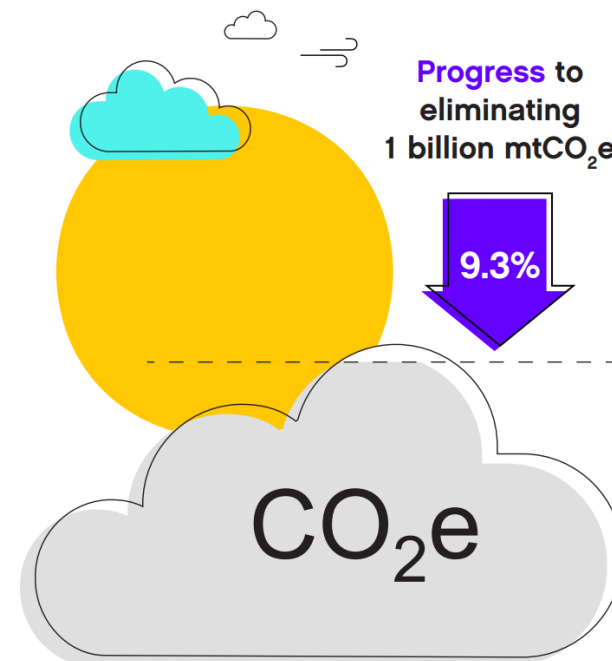
Our commitment SUSTAINABILITY CULTURE



Our commitment DECARBONISATION - GIGATON CHALLENGE

ELIMINATING 1 GIGATON OF CARBON EMISSIONS BY 2030

We are reducing one gigaton - one billion metric tons - of carbon emissions (CO₂e) from our customers' footprint by 2030.



Our commitment
GIGATON CHALLENGE - FOUR STRONGEST LEVERS



High
Efficiency
Equipment



System-level
Energy
Efficiency

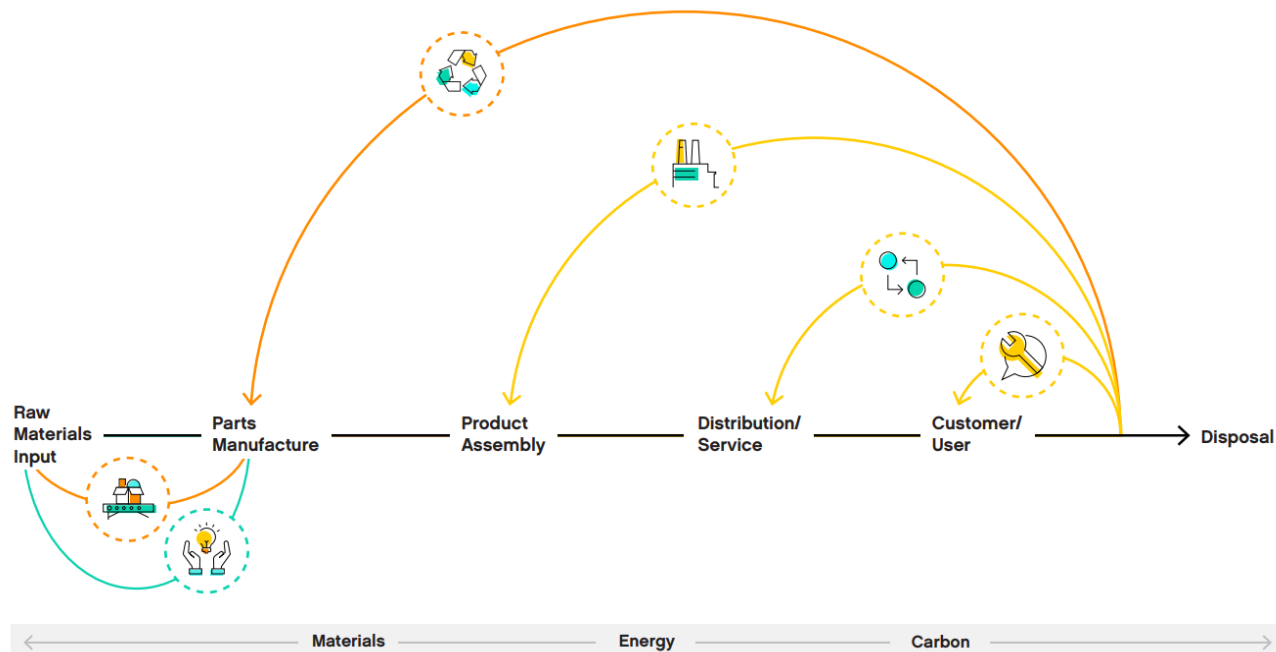


Reduce
Food
Loss



Refrigerant
Transition
Management

Our commitment OUR CIRCULARITY PROCESS



Circular Services



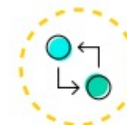
Remanufacture/Upgrade

Remanufacturing of parts and components
Additive Manufacturing
Robotics



Maintain/Prolong/Share

Intelligence for predictive maintenance
ARAR



Reuse/Redistribute

Product as a Service
Refrigerant Reclaim

Eventually, our products must be retired. We enable the reclamation, refurbishment, or recycling of our products to reduce waste and our manufacturing impact on natural resources.

<https://vimeo.com/571334922>





THERMO KING

TRANE
TECHNOLOGIES™