

01 November 2023  
Bangkok

# Multi-Dimensional VTS

## The ever growing tasks for Maritime Authorities

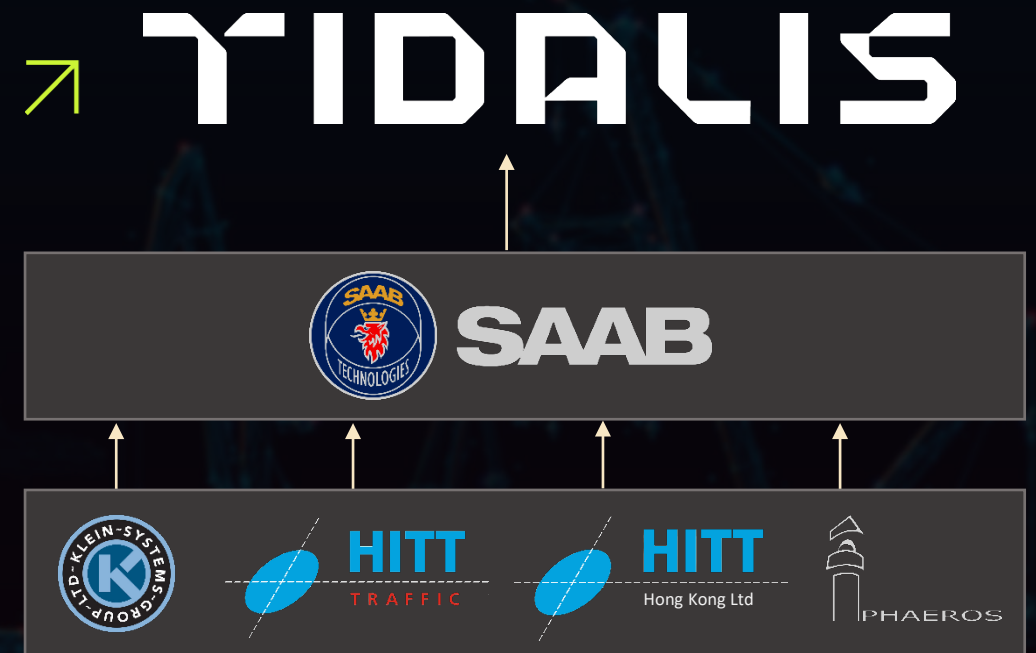
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# Decades of experience

- Maritime software solutions
- Offices :
  - Belgium
  - Canada
  - Hong Kong
  - Netherlands
  - Sweden
- 200+ Employees





# Markets

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- Vessel Traffic Services
- AIS Networking
- Coastal Surveillance
- Port Management
- Pilot Dispatching
- Terminal Operating Systems
- Offshore Protection





# References

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## ↗ Asia

↗ Shanghai

↗ Ningbo-  
Zhoushan

↗ Hong Kong

## ↗ Europe

↗ Rotterdam

↗ Antwerp

↗ Amsterdam

## ↗ North America

↗ Halifax

↗ Los Angeles





# Port of Rotterdam

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## Sensors

- 43 radars
  - X-band
  - Magnetron
  - Solid state
- 6 AIS base stations
- 3 RDF
- 37 CCTV cameras

## Operation

- 2 traffic centers
- 20 VTSO desks

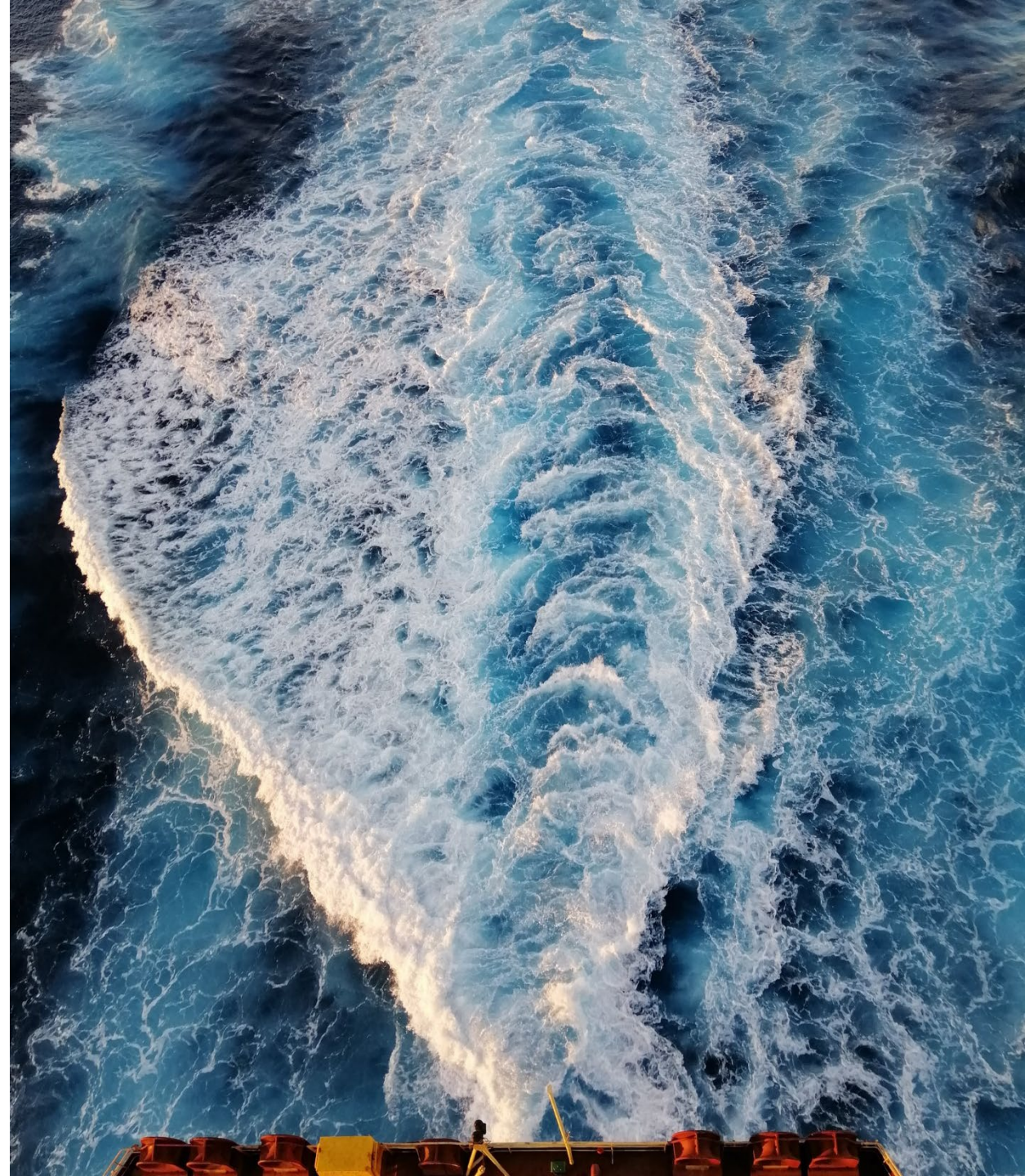
# Adding Dimensions and complexity- safety concerns

- Port of Antwerp – First port operating 6 autonomous drones. (Beyond Visual LOS)
- Potential topic for Singapore MPA for the Next Generation VTMS. More complex environment!
- Other dimensions can be added in the future like (underwater/MASS)- Assuming cooperative craft use some form of transponder. That is a safety requirement!
- Increased information exchange using 5G/SATCOM/AIS 2.0 (VDES) – All helping better JIT



# Decarbonization – more and more a safety topic

- 50% of IMO targets for decarbonization can be achieved through slow sailing – JIT arrival
- 70% of container vessels is more than 10 years old
- At this moment according to BIMCO average age 14.2 years: highest average in last years. That means alternative fuels in absolute numbers play a limited role.
- Key to IMO decarbonization targets is better arrival planning – Green lanes as example,



# Cyber Security and risks of cyber attacks

## ➤ Ports

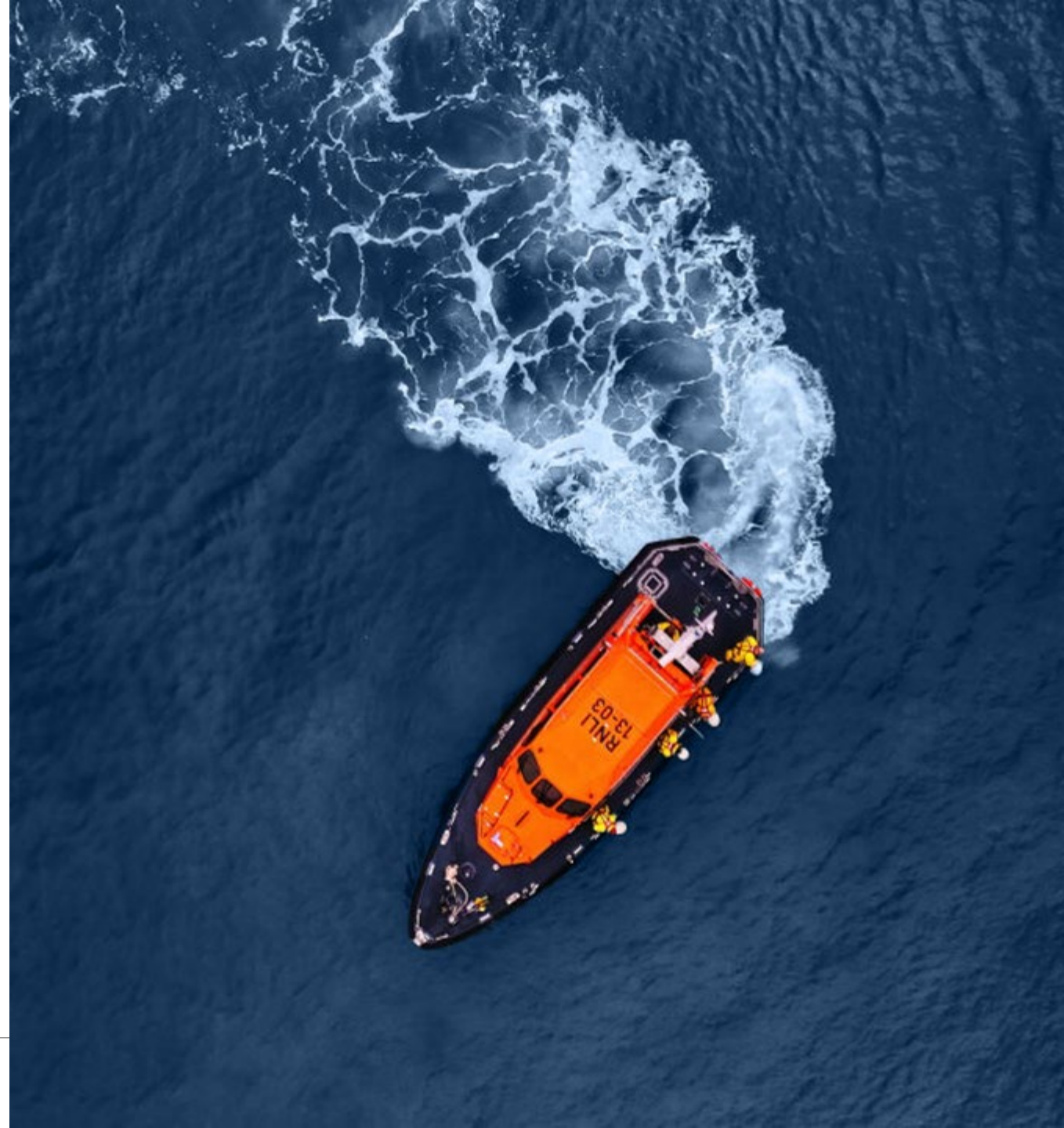
- Even more security awareness in all areas is needed,
- Finding competent staff is a priority

## ➤ Vessels

- Every vessel /shipping management company needs to address cyber security
- Who will be responsible on-board? Most challenges when vessels are in port. Upscale the crew?

## ➤ Terminals

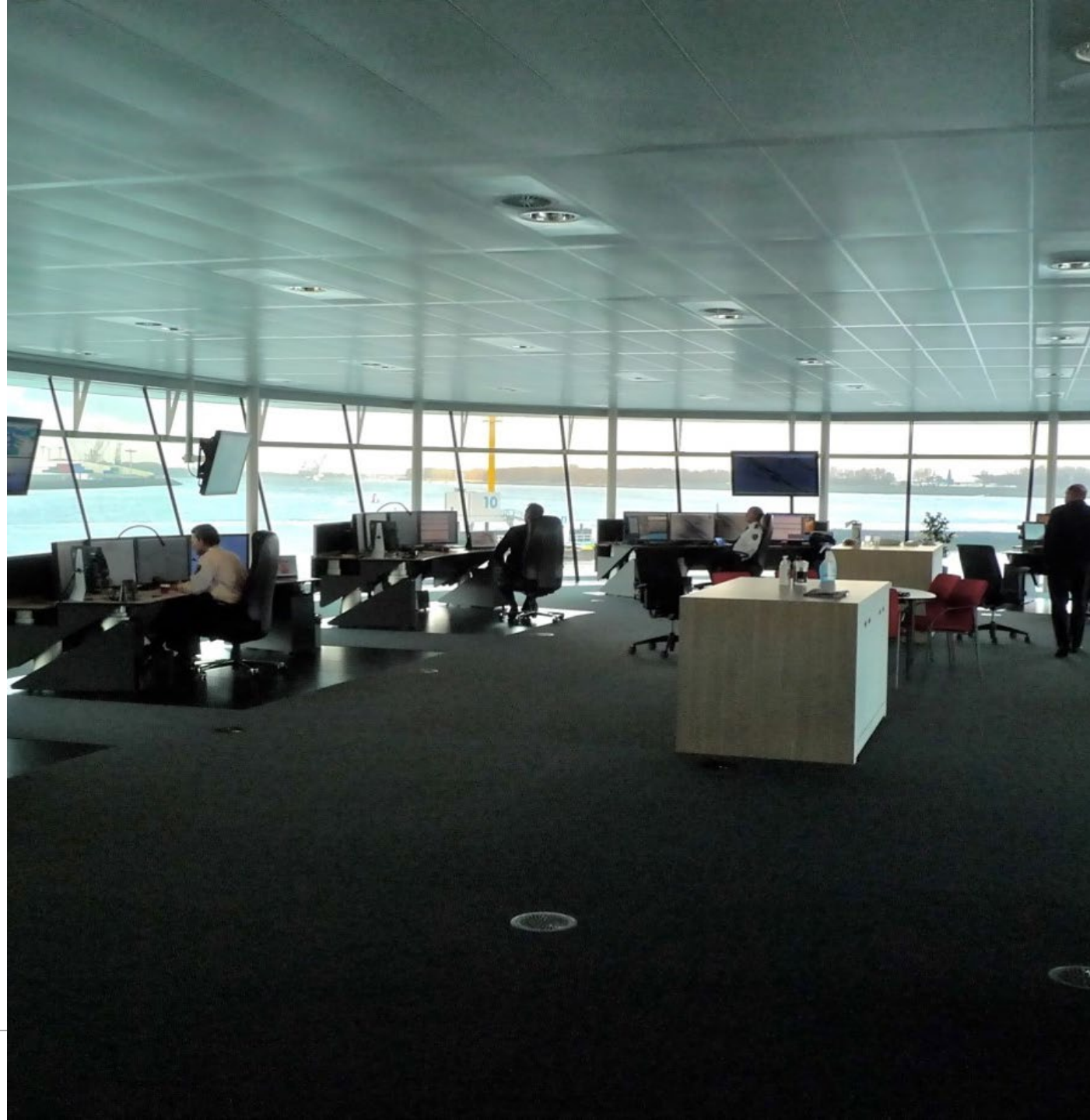
- Examples in recent past of cyber attacks.





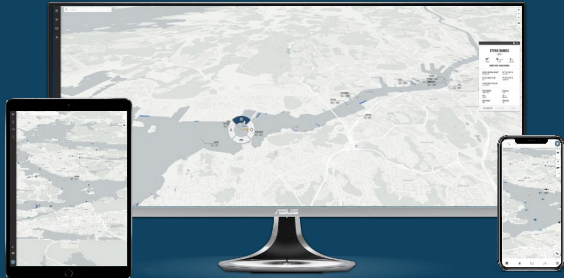
# Multi Dimensional VTMS

- More optimized arrival planning and route planning (JIT arrival)
- Better communication and transparency between stakeholders is a must
- Shared Situational Awareness.
- Less confusing messages on VHF > Silent VTS
- More attention for e-navigation including additional carriage Requirements for vessels?  
When?



# NextGen platform - services orientated

Human  
Machine  
Interface



Machine  
Machine  
Interface



## Maritime Service Suite

Application Programming Interface (API)

Route  
Services

VTS  
Services

Traffic  
Services

Visit  
Services

Radar  
Services

AIS  
Services

ENC  
Services

Mail  
Services

Security  
Services

Video  
Services

Equipm.  
Services

EDI  
Services

STM  
Services

Port  
Services

Meteo  
Services

Alarm  
Services

Tug  
Services

Pilot  
Services

Incident  
Services

Gate  
Services

Yard  
Services

Lock  
Services

Berth  
Services

Billing  
Services

Stowage  
Services

CDM  
Services

## Internet of Things (IoT)



## Third party Data Providers



# Our Next steps:

- Identifying Third-Party applications that add-value to our customers and integrate them as a service
- More effort on predictive technologies (ML/AI) – using reliable data sets
- Improve JIT arrival – transparency between actors is required.
- Actively working on adding more dimensions – surface/air/subsurface/space





# TIDALIS

Thank you