

MSC 100

One hundred sessions  
enhancing safety and  
security of international  
shipping

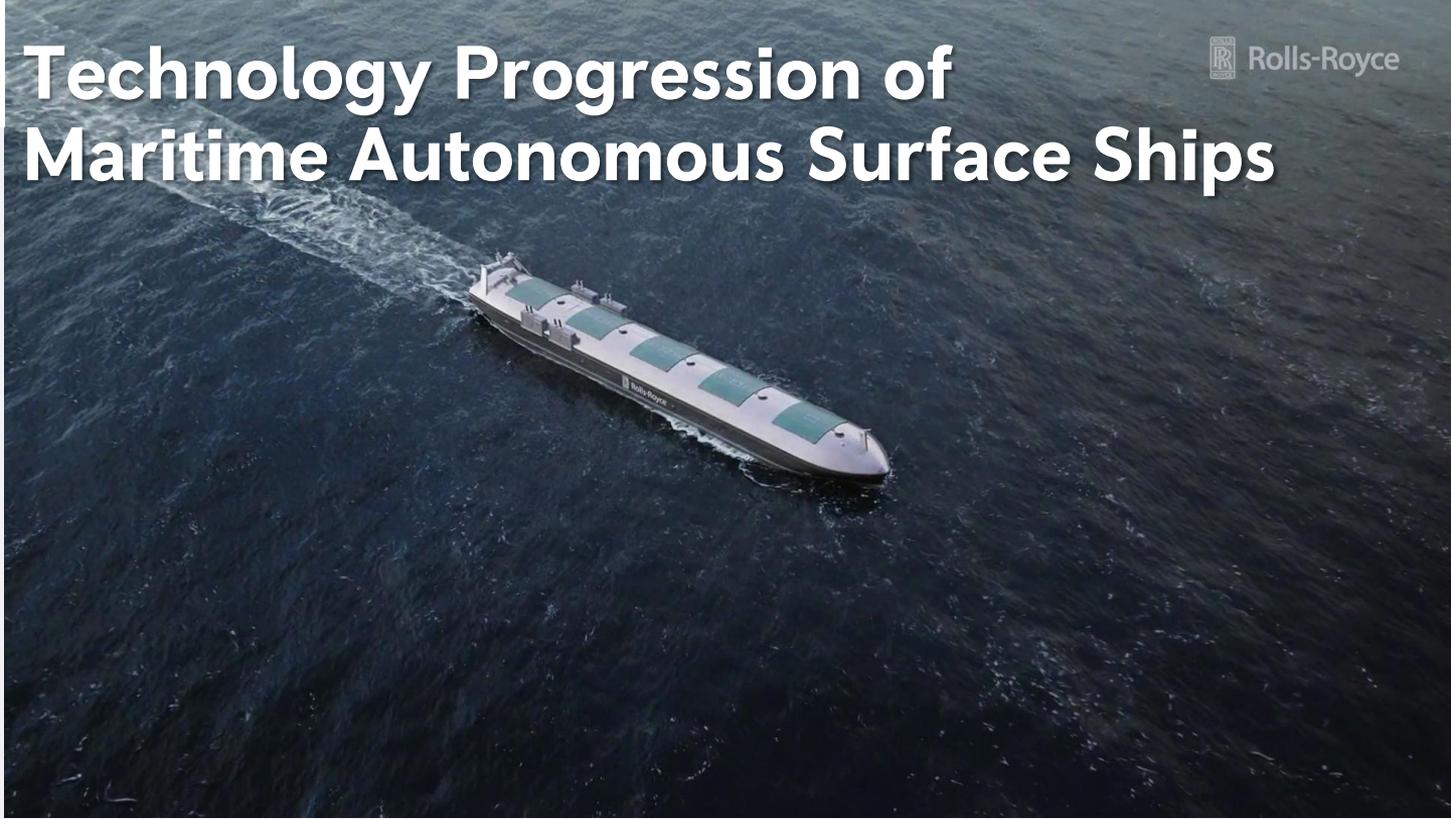


Kevin Daffey  
Director Ship Intelligence,  
Engineering & Technology

3<sup>rd</sup> December 2018

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# Technology Progression of Maritime Autonomous Surface Ships

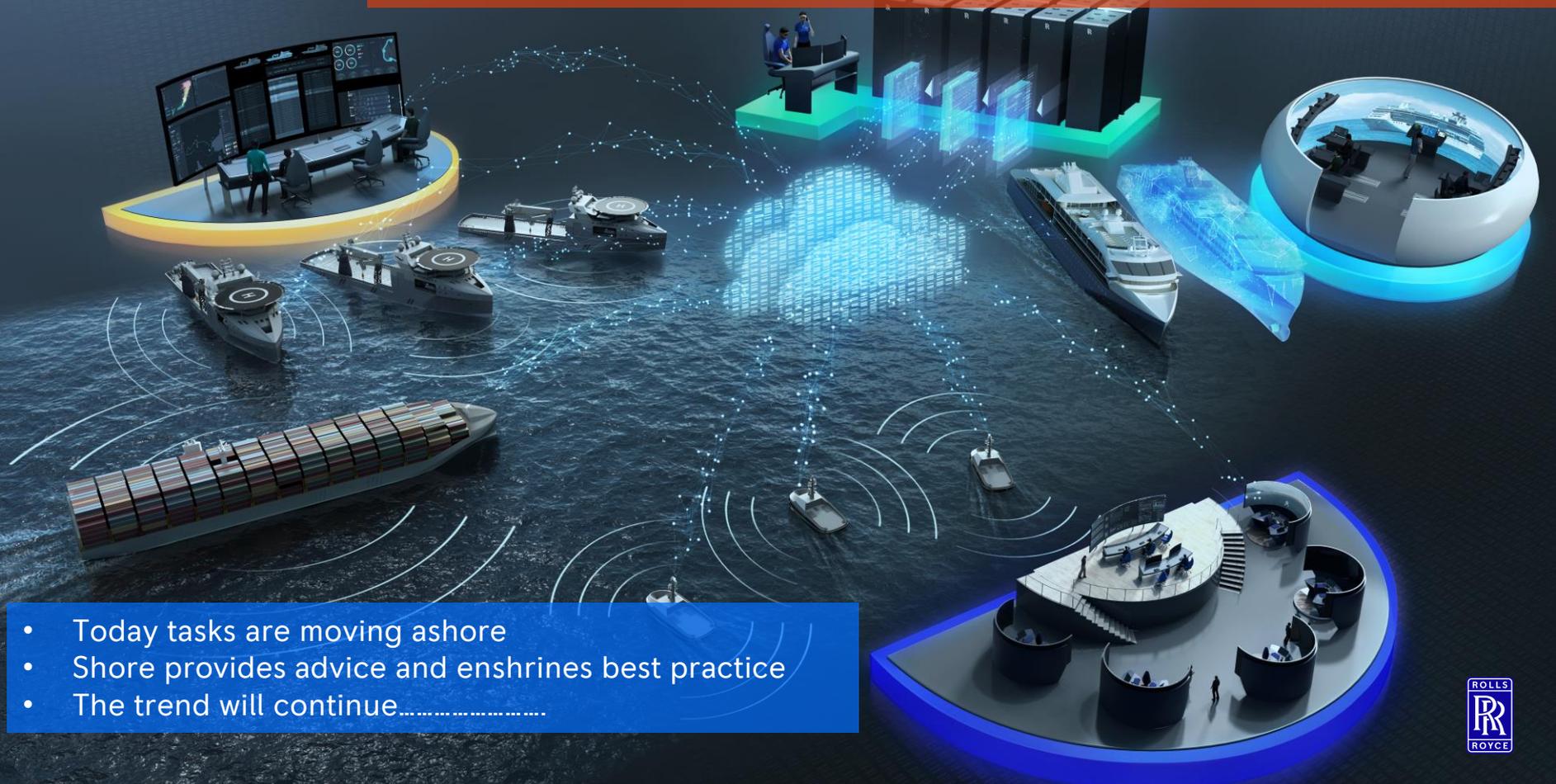


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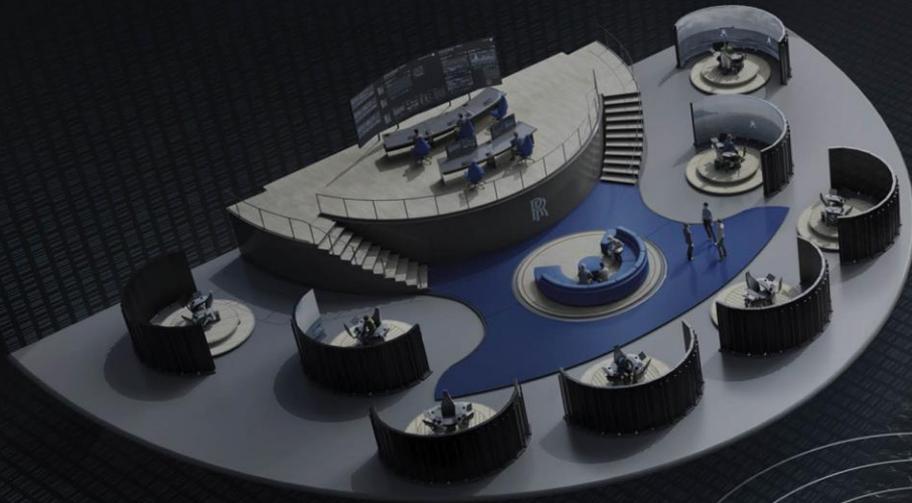
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# The New Maritime digital landscape



- Today tasks are moving ashore
- Shore provides advice and enshrines best practice
- The trend will continue.....

# Maritime Autonomous Surface Ships



# Benefits of Autonomous shipping



# Drivers for Autonomous shipping - Cost



# Autonomous & auxiliary wind:

- High competitive advantage:
  - Higher earnings
  - Positive earnings already at lower freight rates
  - Attractive payback
  - Reduced risk
  - Greater flexibility - adapt to market demand fluctuations
- Significant emission reductions (up to 60%)
  - Economic way to reach IMO target of 50% CO<sub>2</sub> reductions





## The Remote & Autonomous (R&A) Journey to SVAN





**Rolls-Royce | Ferry Master**

<https://www.youtube.com/watch?v=KXOc6x8yJMw>

VESSEL NAME



## The Remote & Autonomous (R&A) Journey to SVAN



## **Rolls-Royce | Project Sisu**

<https://www.youtube.com/watch?v=ayJ61q3YPiw>



## The Remote & Autonomous (R&A) Journey to SVAN



**2017**  
World's first automatic crossing system



**2017**  
World's first remote controlled commercial vessel demonstration



**2018**  
Rolls-Royce Intelligent Awareness solution launch



**2018**  
World's first R&D centre for autonomous ships opens



**2018**  
SVAN - world's first remote and autonomous vessel demonstration



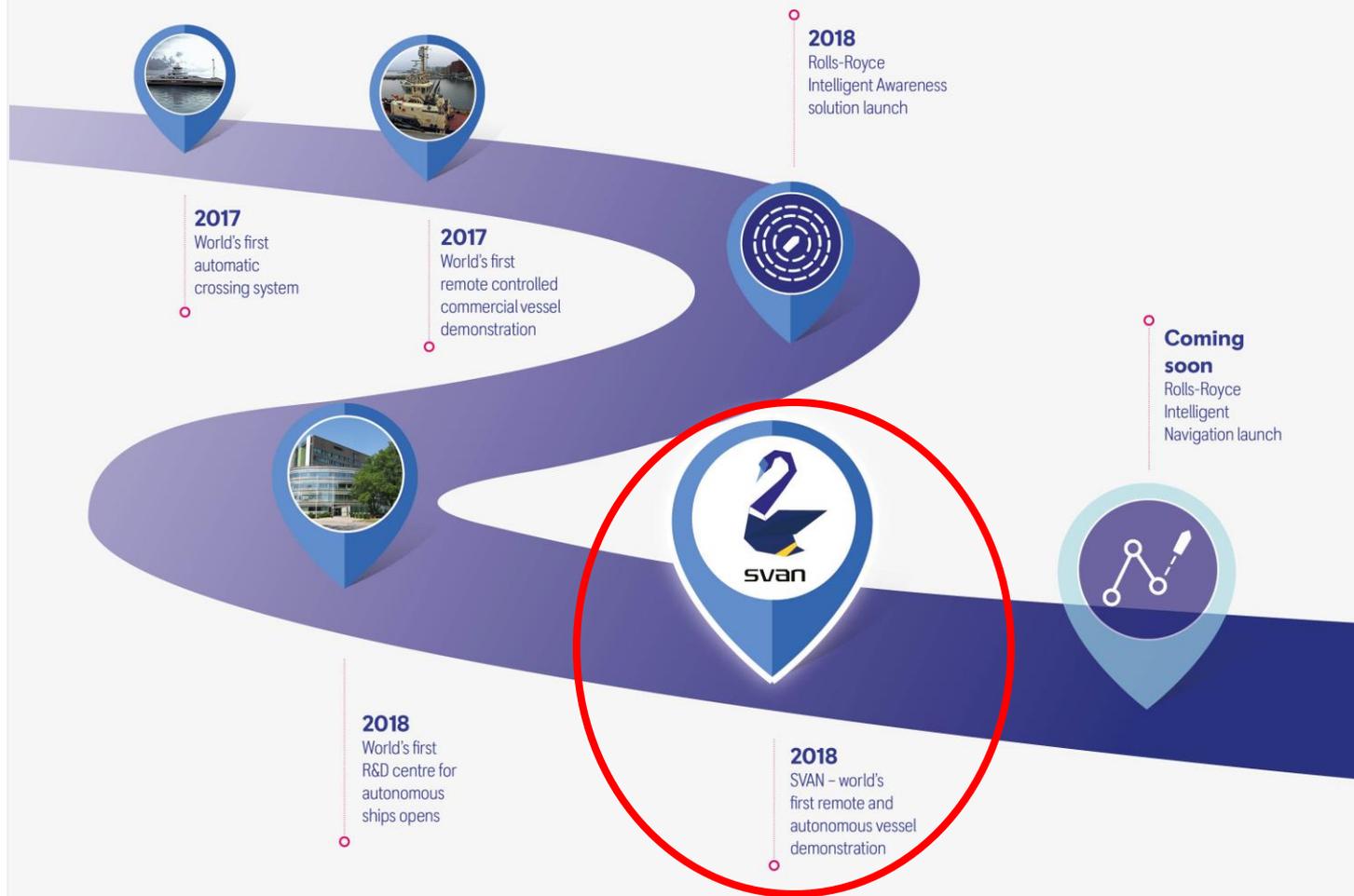
**Coming soon**  
Rolls-Royce Intelligent Navigation launch

## **Rolls-Royce | Intelligent Awareness System for vessels (User Interface Demo)**

<https://www.youtube.com/watch?v=VC7fZvM-NXI>



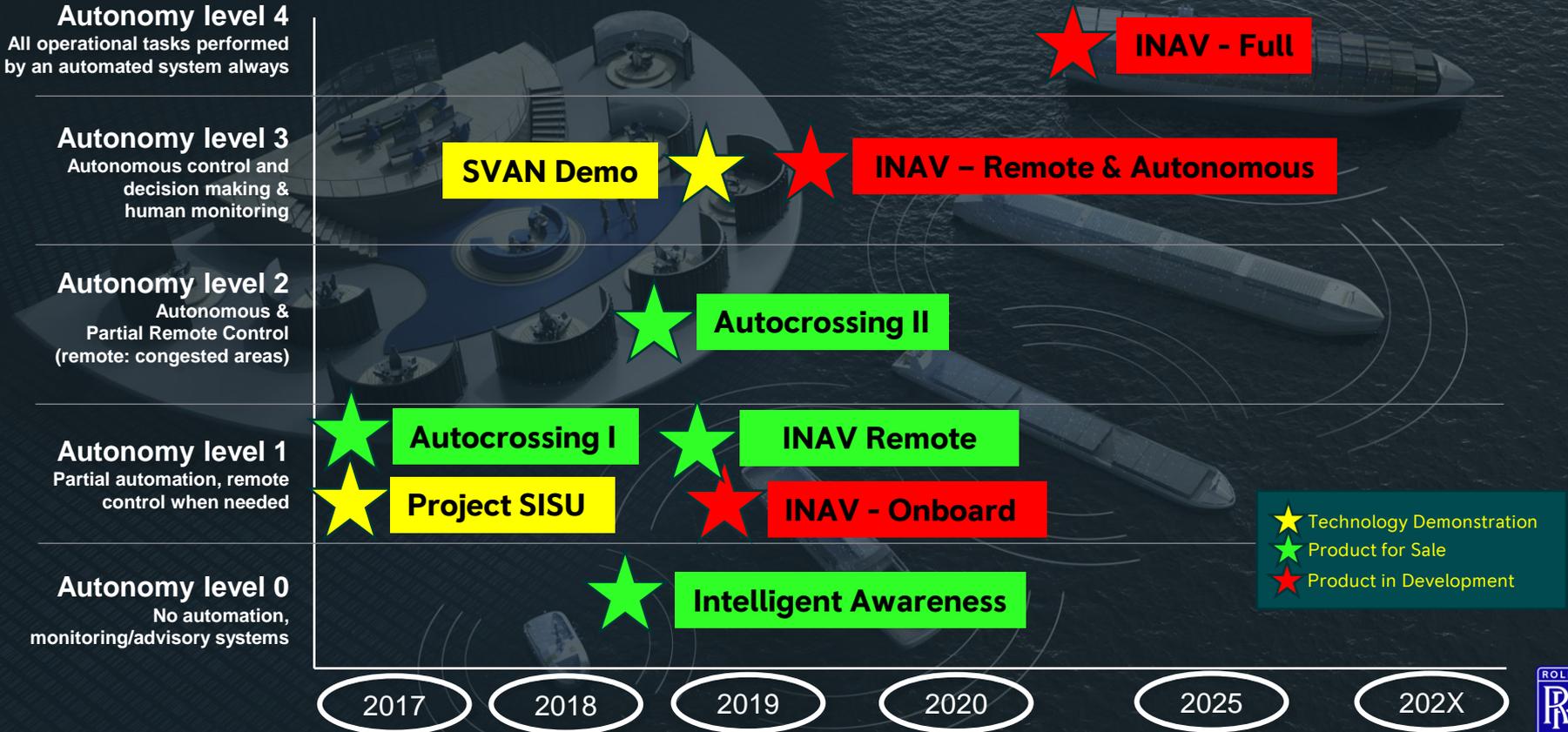
## The Remote & Autonomous (R&A) Journey to SVAN



## **Rolls-Royce | SVAN - world's first autonomous ferry demonstration**

[https://www.youtube.com/watch?v=JW57ZMjL\\_fc](https://www.youtube.com/watch?v=JW57ZMjL_fc)

# Where are we on the autonomy journey?

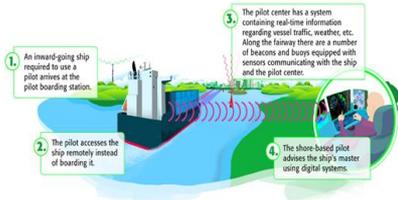


★ Technology Demonstration  
★ Product for Sale  
★ Product in Development

2017 2018 2019 2020 2025 202X



## MASS Helped by Regulation



## Recent changes in national legislation for autonomous shipping in Finland

1. An Amendment to Finnish Act on ships' crews and the safety management of ships entered into force on 1 July 2018
  - Possible to grant exemptions to minimum vessel manning requirements and watchkeeping for testing purposes
  - The manning of ships can be reduced in automatization tests
  - The legislative amendment promotes testing of advanced technology
  
2. An act regarding remote piloting is currently being drafted
  - Refers to piloting taking place outside of the vessel being piloted
  - Allows experiments of remote piloting (subject to a license)
  - Provides new testing opportunities for ship controlling and advanced technologies regarding navigation
  - Estimated entry into force in 2019



**Industry wants to help create a safe environment and level playing field**

## **Industry / IMO Collaboration**

- **Please engage with the leading manufacturers to ensure the regulations are realistic and do not constrain innovation.**
- **Industry will never compromise on safety and we are willing to help the IMO and standards making bodies in the development of their requirements.**
- **Industry would welcome regulation to be based on their goal based principles as prescriptive requirements would not work due to the rapid pace of technological changes.**

## Summary



## Maritime Autonomous Surface Ships

1. Ship operations are already a combination of sea and shore based roles
2. Autonomy technology is progressing faster than anyone predicted
3. MASS represents an opportunity to
  1. Reduce cost of shipping cargo
  2. Contribute to CO2 reduction
  3. Make shipping safer and supply chains more secure
4. Industry wants to work with IMO to make sure the developing regulations are goal-based, safe and realistic.

# Questions



Rolls-Royce

