

Industry needs

Requirements and challenges within the UK
aerodynamic measurement/testing industry

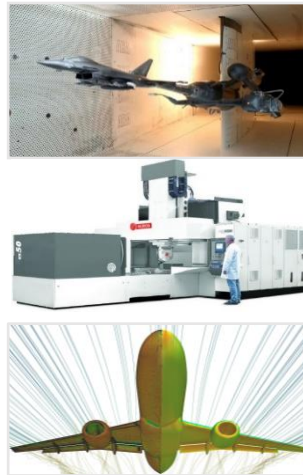
Dr David Roberts – Aircraft Research Association

Outline

- 1 | ARA background
- 2 | Data generation
- 3 | Data science
- 4 | People
- 5 | Funding

1 ARA background

- 71 year old organisation
- Setup to provide transonic testing for the UK and now worldwide aerospace industry
- ~140 employees
- 3 main business streams
 - Large scale industrial transonic wind tunnel testing (8'x9' working section)
 - D&M, supporting testing in our tunnel and supplying models worldwide.
 - Complex CFD investigations and consultancy



2 Data generation

- Contemporary data requirements are continuously evolving
- Individual customers all have different requirements
- Over a programme, requirements and complexity can vary

- ARA strives to provide the highest-quality measurements
- We remain flexible and adaptive to support and retain a broad customer base
- ARA's offering needs to stay relevant to new methods
 - Smart Aerodynamic Testing
 - use of appropriate techniques, reduce risks and uncertainty earlier in programme

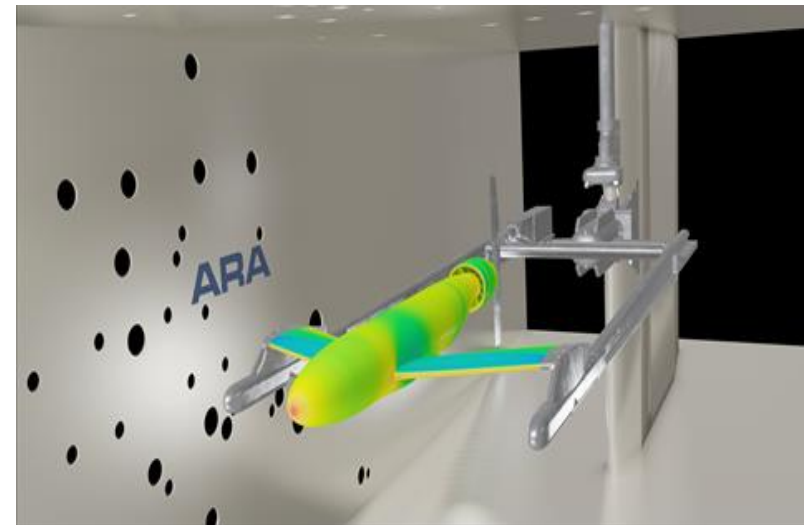
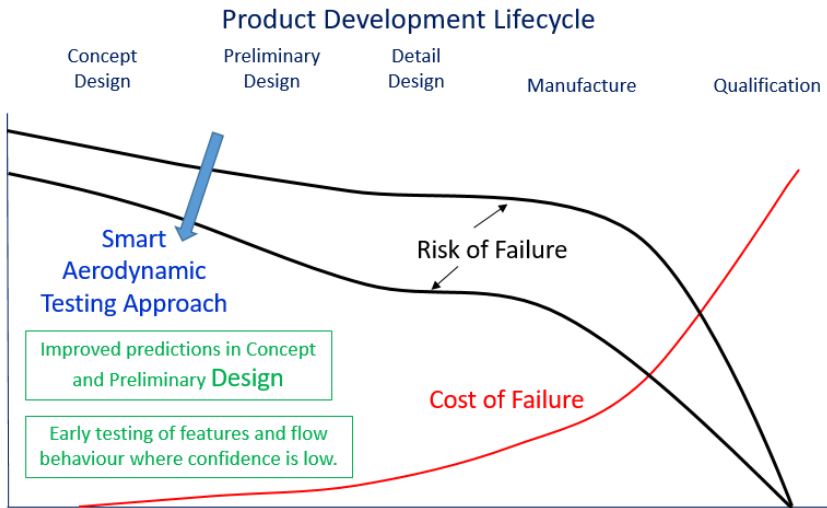
- We often need sight of the real question customers are trying to answer
- We need sight of development programmes, so new techniques can be developed in time

- Equipment plant needs to be robust to improve efficiency and reduce costs
 - Running a 30MW plant is expensive!



3 Data science

- Data is becoming more than just sets of 2D plots generated on a screen
- Customers need insight into the aerodynamic causes of the profiles they see
- Data is now becoming a more integrated tool
 - “data fusion”
 - “Smart Aerodynamic Testing”
 - “Digital twins”



4 People

- ARA needs talented, passionate, inquisitive people to push forward capabilities
- Number of experienced personnel in the UK talent pool is quite small
- Where do all the UK engineering graduates go?
- We often find the experimental aspects are the weakest parts of graduate skillsets
- High-speed and transonic testing knowledge isn't widespread

5 Funding

- The most significant barrier to development is funding
- EU CleanSky programme is ending
 - This has enabled ARA to develop a number of novel test rigs and improve existing capability
- UK participation in Horizon Europe continues to remain unclear
- ARA has no other direct routes to 100% grant funding
 - Difficult market to pass on 100% of development costs to customers
- ATI/InnovateUK are 50:50 geared
 - Often only accessible through consortia with Airbus/Rolls Royce
- ARA not eligible for EPSRC or similar funding
- ARA is not an SME

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droberts@ara.co.uk

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