Session 2 Opportunities for benefit from NDT

2a Opportunities for benefit from NDT Dr Barbara Gordon, UoB
2b Design for manufacture – NDT opportunities Prof Kevin Potter, UoB
2c Breakout sessions
2d Breakout de-brief
2e Panel session - What does success look like?

2c. Breakout Groups - Session 2
A: Design and Qualification – Chair: Dr Barbara Gordon (Front)
B: Qualification and Certification – Chair: Prof Phil Irving (Watt)
C: In-service and Certification – Chair: Prof Peter Foote (Back)
D: Production and Design – Chair: Prof Kevin Potter (Breakout)
E: Production / In-service (Repair) – Chair: Dr Tim Barden (Brunel)

2d. Breakout session 2 de-brief
• Mech properties – layup, cure, ALM?
  • Adhesives, kissing disbonds, weak bonds.
  • Strength or just properties without failing structure
• Non-local defects (poor cure, pre-preg life, env. Degradation)
• Inspection during manufacturing, process control,
  • Repair - layup, temp,
• Geometry – difficult to NDT in some cases.
• NDT vs Scale of defect.
  • Significance of defect depends on size, whether structural component etc.
• Processes – improve information –
  • put into ‘effects of defect’ calculations – better models
• ABJ – NDT to assess strength.
• Production – improve sensitivity but cannot inspect quality into product
• Process control
• Improve NDT outcomes – training
  • Visual inspection tap testing, subjective – how to test judgement
  • Emphasis still on metal inspection
  • Training burden – managing through life cycle
  • Emerging techniques, think of whole process, certifn., training etc
• Emerging technology gaps eg ALM.
  • What are certifiable steps in processes? Process is ahead of NDT.
    • Kissing bonds. Controlling process.
• Communities – is this a complete X-section?
  • Where have failings occurred? They should all be involved.
  • Design, prodn. Inspection and continued airworthiness
  • SHM links to bonded structures?

• Design and production – single entity.
  • Desire - Zero defects
  • Link NDT, design, residual strength to features at manufacture.
  • Feature is only a defect if has greater effect than design criterion.
  • More collaboration between design and production functions.

• In-line inspection. Enables you to put higher up chain, before value added.

• Repair and production.
  • NDT good link between design and production
  • Automation – reduce human element.
  • Characterise material props. Waviness etc. Cost-effective NDT.
  • SHM – key for repair and in-service
  • Simpler, faster NDT technique approval
  • Bond integrity