

The logo for Cranfield University, featuring a stylized white 'C' with a smaller white circle inside it, set against a dark red background. The text 'Cranfield University' is written in a dark red serif font inside the 'C'.

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Qualification for Asset Managers of Future

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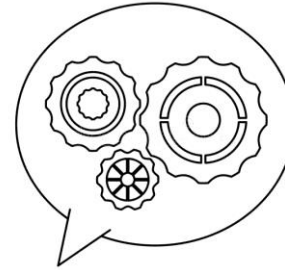
Few basic questions - A call to Industries

- Do we really need qualified asset managers???
- If yes, what does qualification really means to us???
- Is it just mere an experience???
 - Using OEM specs;
 - Use Hit and Trial for introducing something new;
 - Estimate results by using standards;
 - Perhaps the main criteria of current practice in recruitment
- Or you consider qualification as the blend of knowledge and skills which can work out cost effective and customized route for asset availability



Few basic questions - A call to Industries

- The bubble of self contentment or perhaps confinement



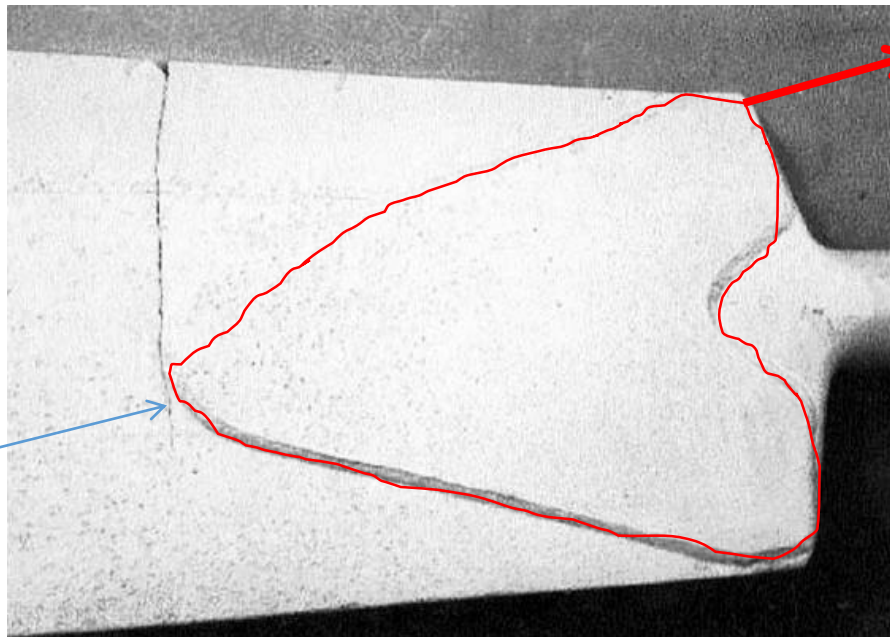
- Satisfied from the existing approaches of asset management if they make profit
- Fair Enough! Not Wise why???
- Very likely, they will be behind in coming years if they won't update with the trends of technologies !





Spectrum of Responsibilities of an Asset Manager

- Highly Multidisciplinary
 - Engineering (Identification of the root cause of the failure)
- Example of a fan blade:



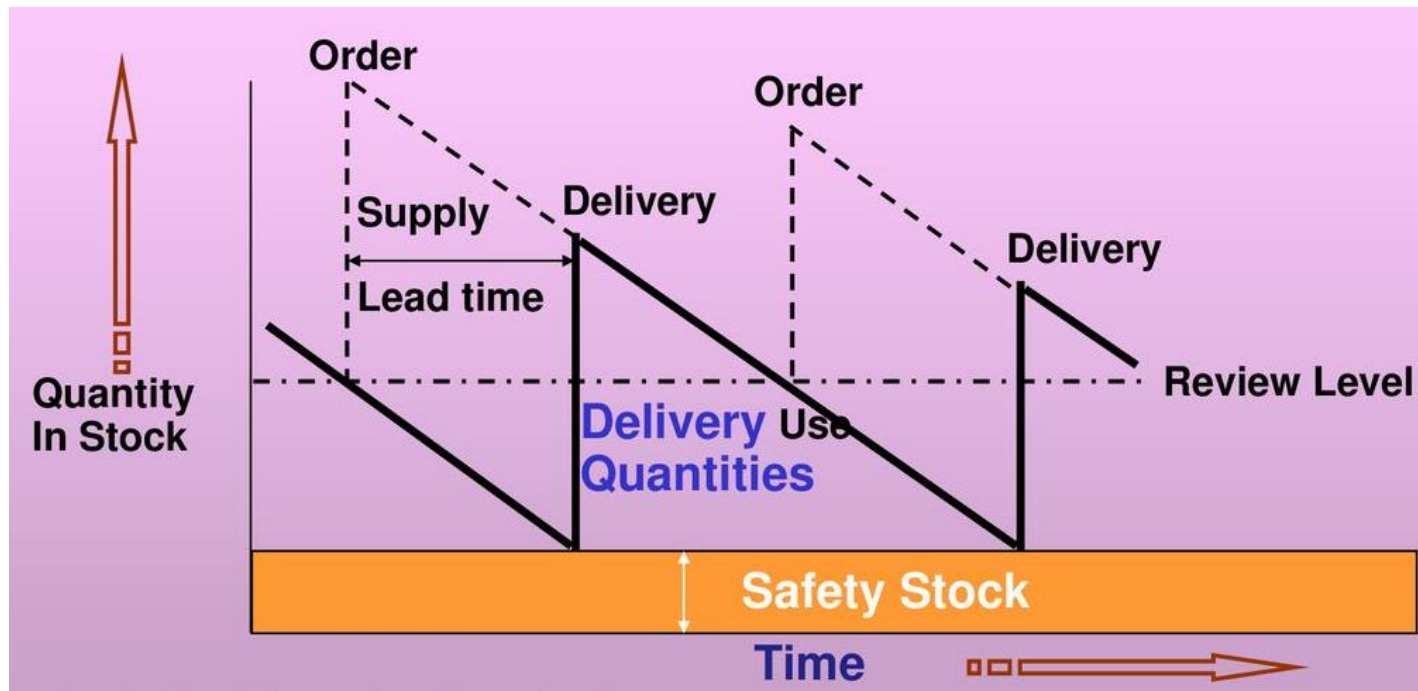
Reinforcement of blade material is possible caused stress concentration at the pt of crack initiation

Pt of crack initiation



Spectrum of Responsibilities of an Asset Manager

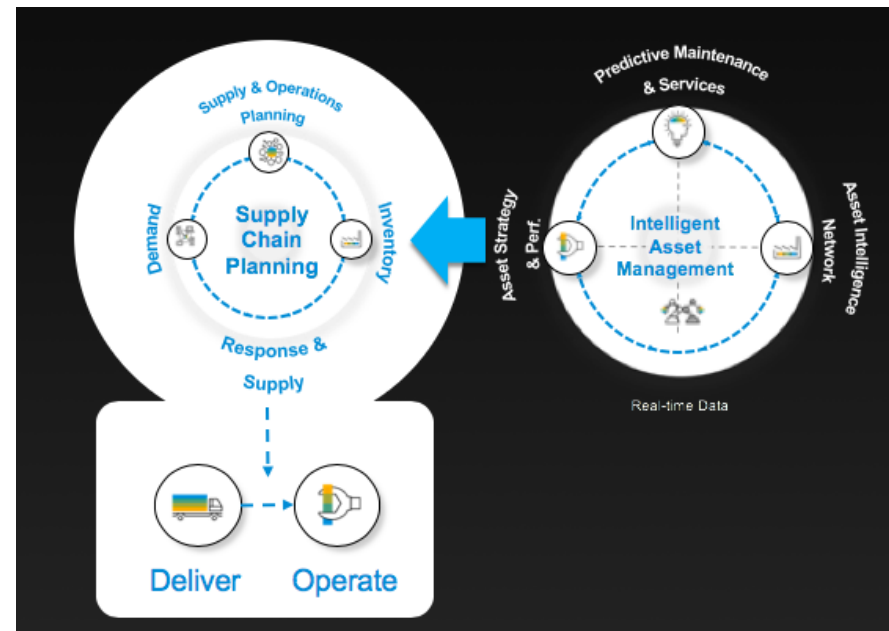
- Highly Multidisciplinary
 - Management (Inventory and lead time calculation)



Spectrum of Responsibilities of an Asset Manager

- Highly Multidisciplinary
 - Involve in Risk Assessment, logistics, Feasibility, Health and Safety
 - Work out the severity vs. economics matrix; not a layman job.
- More over, as per Robert Mobley:
 - It is an art because ‘seemingly identical problems regularly demand and receive varying approaches and actions’

- Supply chain and geo-political situation





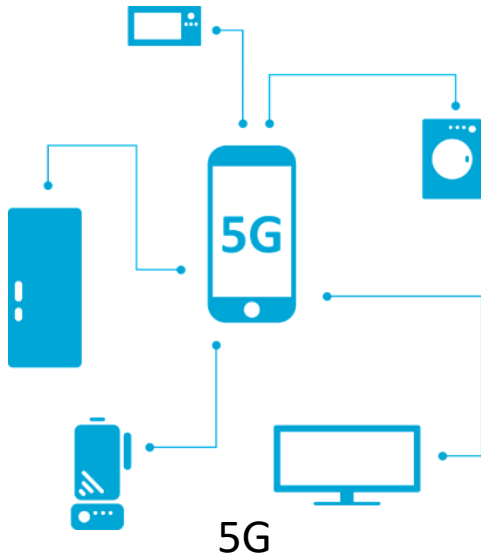
On top of all this; existing approaches of asset management will impact due to:



Automation



Artificial Intelligence



5G



Digitization



Impact of technological advancements on the above spectrum



Can use automatic vehicle to troubleshoot the location of sudden breakdown

Automation

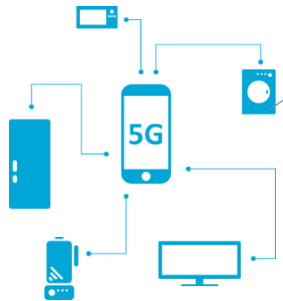
- Automatic inspection
- Automatic Repair and Replacement technologies
- Non contact based sensing will be the future

Asset Maintenance Management



Artificial Intelligence

- Tackle the issues of big data to do near real time diagnostics.
- Prognostics will be made by using AI based digital models to predict the behaviour based on design and operational specifications



5G

Will enhance the ability of data communication during Sensing, Inspection, Repair and Replacement

Will impact the diagnostics and prognostics inputs with the help of features like digital twins and non contact based digital sensing



Digitization



Adaptability - A challenge for industries

- Industries require Asset Manager to work with the existing asset and update with technology if cost and benefit allows.

- Even, cost and benefit allows, technology Integration with the existing assets is a challenge

- Misunderstanding: Need to stop the operation or rebuild the infrastructure to employ technology
- Keeping the OEM specs for servicing and asset availability; believing this expensive way will allow to cater sudden or unexpected failure..

But why defense aerospace and health sectors are far ahead in adapting technologies - no doubt in their criticality





Adaptability - A challenge for industries

- Technologies are bit advanced now; non contact based sensing will be the future; so no need of change in infrastructure.

Non contact based sensing

Data acquisition in near real time and transfer at 5G

Store in cloud; access and analyze globally

Health assessment gives indication of lead time connects with online inventory and procurement

Real time tracking and stock; logistics and legal assessments

Automatic repair; augmented reality gives support



Adaptability - A challenge for industries

- So who will win the race in future??
- Who can ensure asset availability at low cost consistently and with high reliability!!
- Future Trends are necessary to adapt



Cranfield is Bridging the Gap

- We are offering course;
 1. Foundation for future leaders for change in asset and maintenance management
 2. Maximise the value in service of complex, long-life product systems
 3. Understand the benefits of management and technical advances



Cranfield is Bridging the Gap

MSc Maintenance Engineering and Asset Management

- Intended for the international market
- For both fresh graduates and industrial personnel
- 18 similar master level courses are available across the globe
- But we aim the course graduates can transform the existing industrial culture of OEM recommended asset maintenance management to a cost-effective asset management

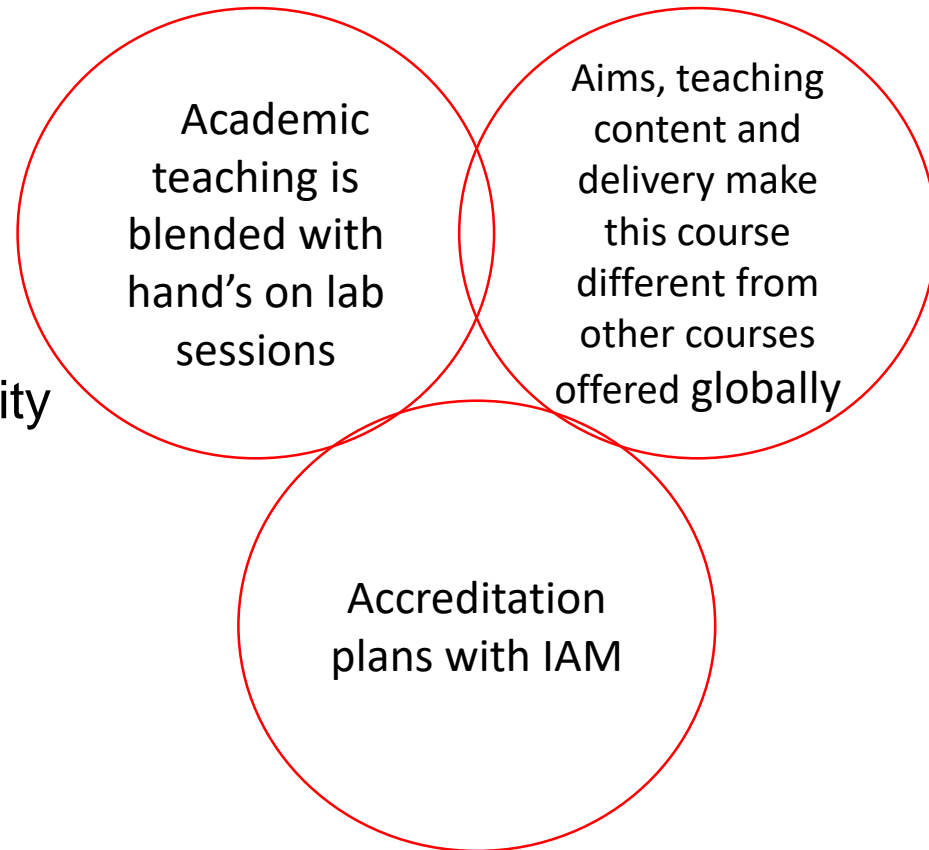




MSc Maintenance Engineering and Asset Management

Modules

- Fundamentals of Maintenance
- System Availability and Maintainability
- Failure of Materials and Structures
- Condition Based Maintenance
- Maintenance Planning and Control
- Asset Management
- Diagnostics and Prognostics
- Probability and Statistics in Risk and Reliability Engineering



See details on www.cranfield.ac.uk/meam



Thanks for listening

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