



# Aerospace Malaysia Innovation Centre

*Fostering Research & Technology Capabilities for Malaysian Aerospace Industry*

## *Aerospace IR4.0 and Digitalization*

*Bolstering Malaysia Aerospace Industry, 26<sup>th</sup> October 2021*



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**AIRBUS**



**Rolls-Royce®**

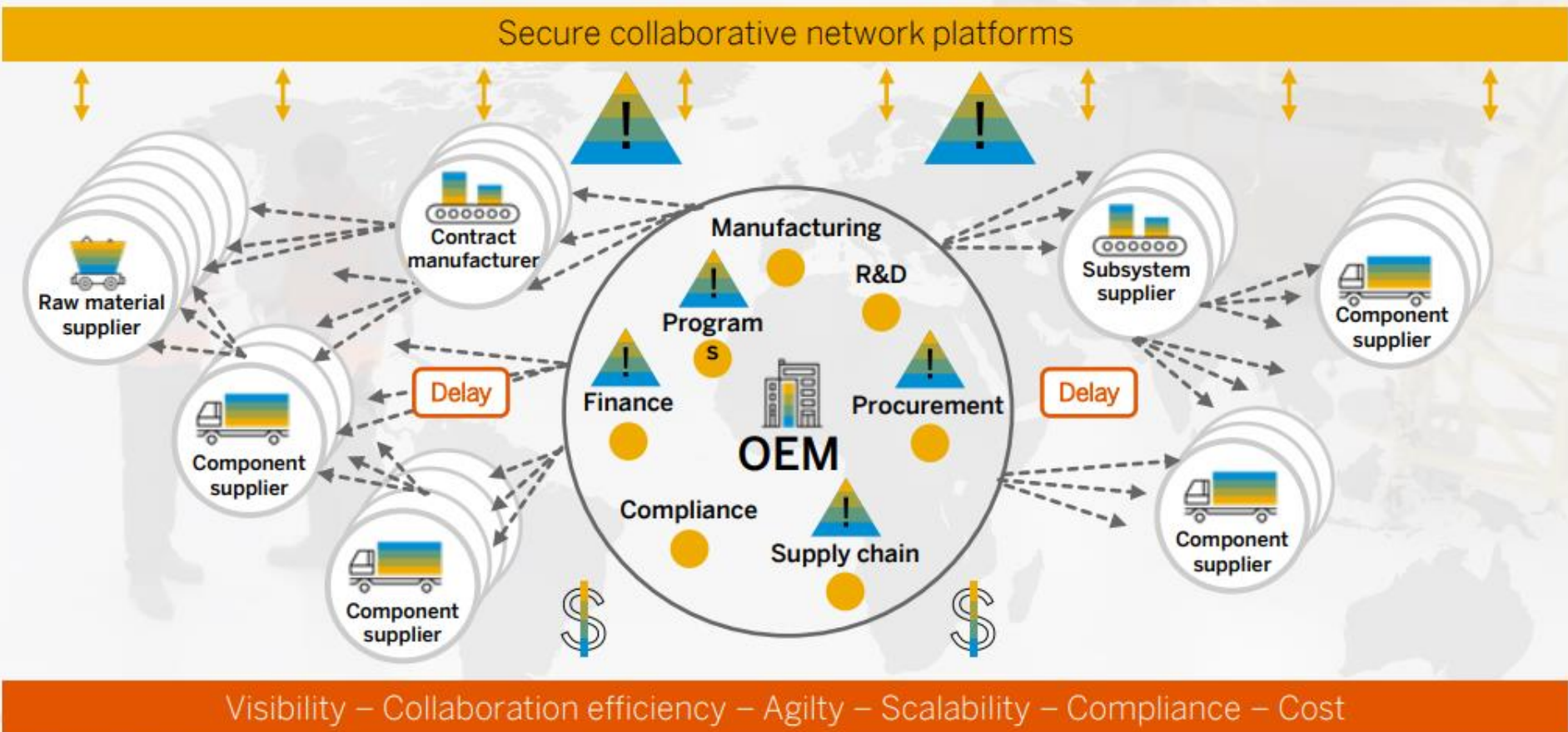


**MiGHT**  
Malaysian Industry Government Group  
for High Technology



# Aerospace IR4.0 and Digitalization (i)

Enabling more trust, more collaboration – Connectivity at every axis



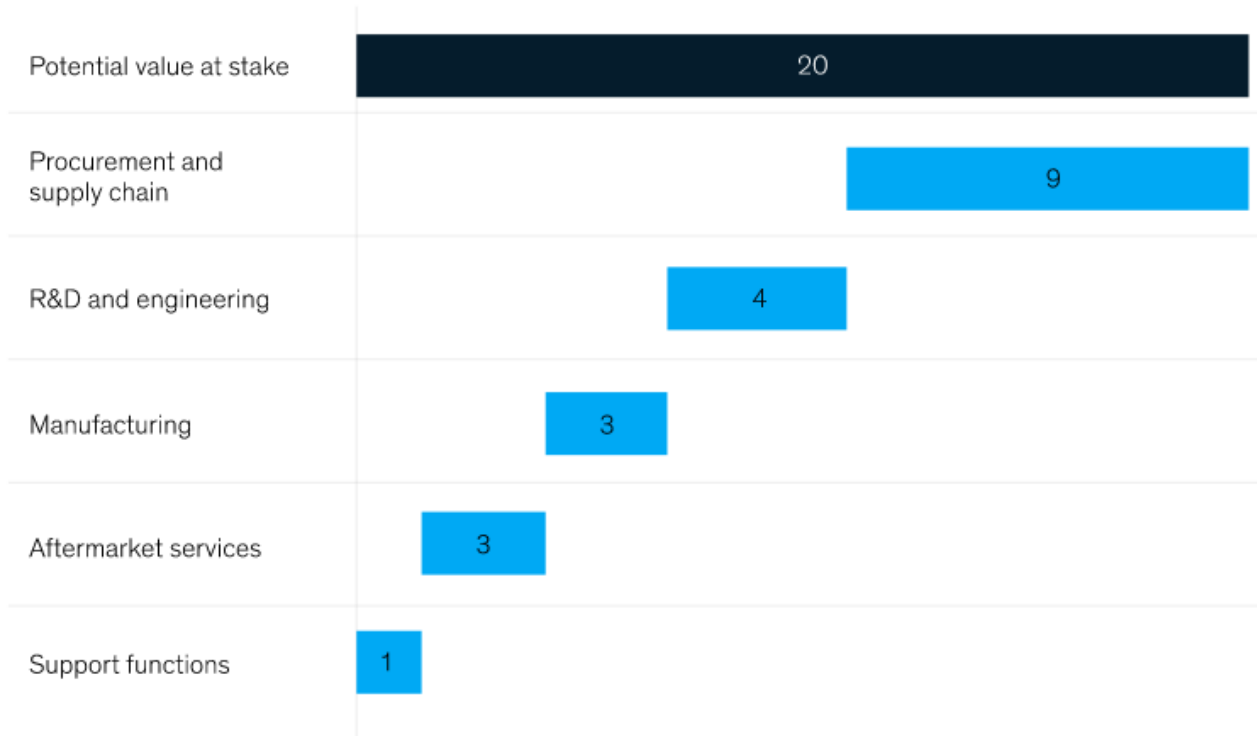
A true amalgamation of physical and cyber systems – improving resilience and reduction of disruptions across the supply chain

Source: SAP Industries White Paper | Aerospace and Defense

# Aerospace IR4.0 and Digitalization (ii)

## Unlocking \$20 billion in potential value through digitalization

Annual, \$ billion

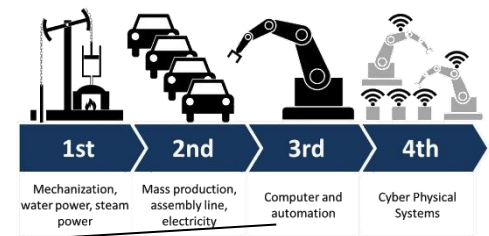


Malaysia has a potential to unlock MYR 257 billion worth of digital opportunities by 2030 – MyDIGITAL enables this potential.  
- AlphaBeta (commissioned by Google)

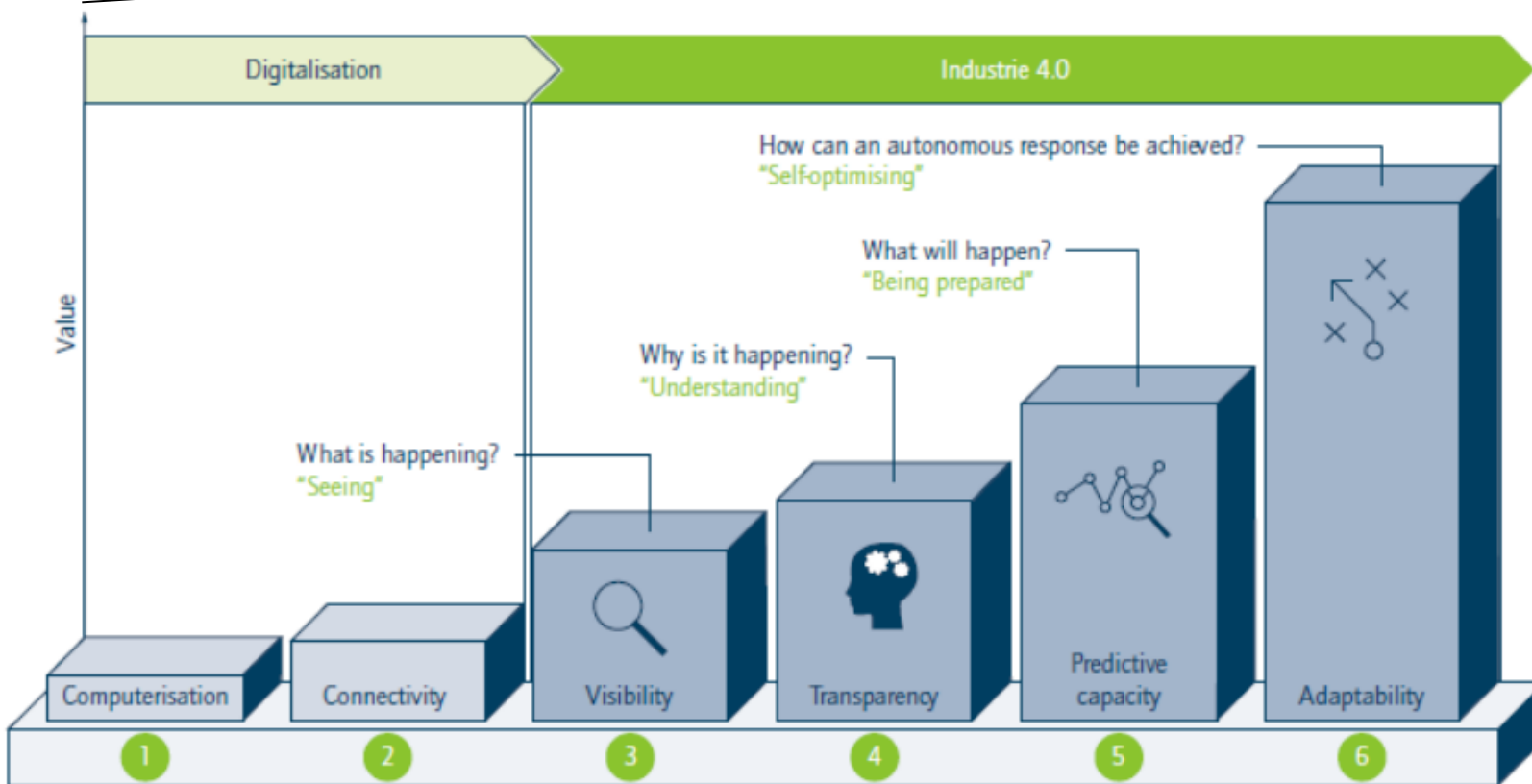
**Most aerospace & defense companies have their digital streams and advance analytics still under development and near the cusp of implementation.**

Source: McKinsey & Company “Digital: The next horizon for global aerospace and defense”

# Steps in IR4.0



Stages between 3<sup>rd</sup> and 4<sup>th</sup>



Where is Aerospace and Malaysia in this Journey?

Source: Information Technology & Innovation Foundation (ITIF) | FIR e.V at RWTH Aachen University

**AMIC, a Private-Public Partnership established in 2011 by the Government of Malaysia as an initiative to sustain the survivability and competitiveness of Malaysia's aerospace manufacturing industry particularly aerostructure**

**LEAD MEMBERS**



**GOVERNMENT SUPPORT**



**R&T THEMES**

Factory of The Future

01

02

Training of The Future

Sustainable Aviation

03



**ORDINARY MEMBERS**



**OBJECTIVES**

01

Industry Competitiveness Through R&T

02

Technology Competency

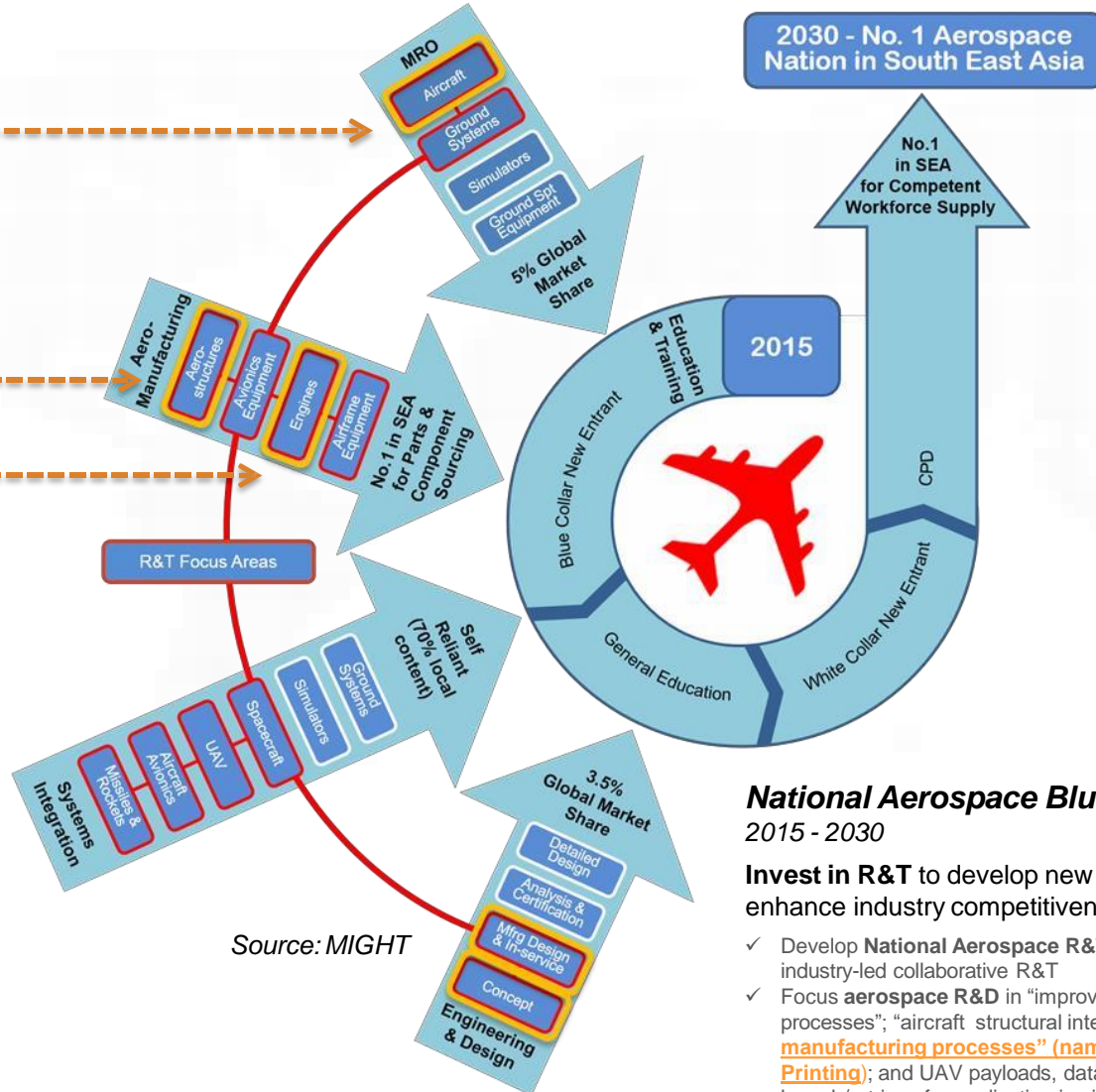
03

Exposure of Malaysian Scientist to Global Level R&T

# AMIC Key Activities Under the Government Initiatives

## AMIC Collaborations

**AIRBUS**



Source: MIGHT

## AMIC Roles in National Initiatives

11<sup>th</sup> Malaysia Plan  
Manufacturing Sector



AMIC RMK11  
Proposal Submitted  
to EPU through  
MITI

EPP 7  
Asia Aerospace City



AMIC led R&T  
initiative of AAC –  
established  
industrial labs

EPP 8  
SMEs Development



SMEs development  
through strategic  
program with OEMs

S2A  
Science for Industry



AMIC promoting  
smart partnership  
for industry  
development –  
collaborative R&T

## National Aerospace Blueprint

2015 - 2030

Invest in R&T to develop new capabilities and enhance industry competitiveness

- ✓ Develop National Aerospace R&T Roadmap to prioritize industry-led collaborative R&T
- ✓ Focus aerospace R&D in “improvements in MRO processes”; “aircraft structural integrity”; “**advanced manufacturing processes**” (namely **robotics & 3D Printing**); and UAV payloads, data link, mission system, launch/retrieve for application in civil & military
- ✓ Invest in **automation** to reduce labor content in parts & components manufacturing

# AMIC's Value



## Customers

**AIRBUS**

**Rolls-Royce**

**senior Aerospace** **UPECA**

**SPiRiT** **m&c**

**CTRM** **DRB-HICOM**

### Integrated Project Management

Management      Project Preparation      IPR Management      Funding acquisition

### R&T Capabilities

Technology scouting      Capacity building      Fostering applied R&T      Industrial approach

### Sustainable Skillsets

Agility      Communication      Dissemination      Skills & manpower accessibility







MINISTRY OF INTERNATIONAL TRADE AND INDUSTRY



# R&T Activities

## RMK11 – since 2016!

### Advance Manufacturing



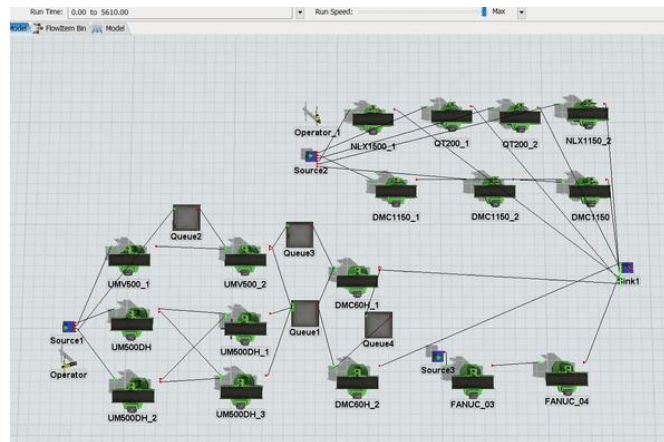
### Automation



### Collaborative Robotics



### Digitalization



# AMIC – VR Expertise

## Systematic Content Creation



Pedagogy  
Analysis

Realistic  
Content  
Creation

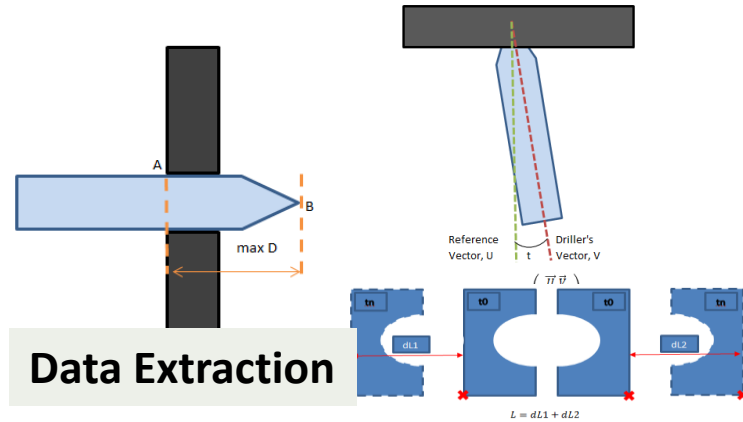
High fidelity VR  
environment  
creation

# AMIC – VR Training Expertise

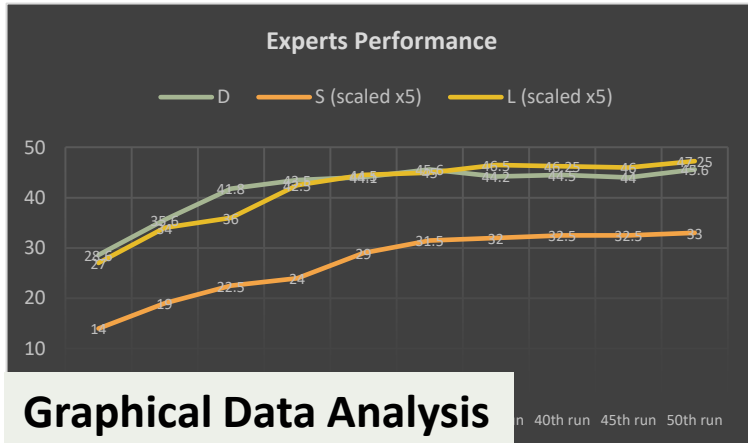
## Data Centric Profiling - VIRISTAM



Data Tracking



Data Extraction



Graphical Data Analysis

Physical Attributes Profiling

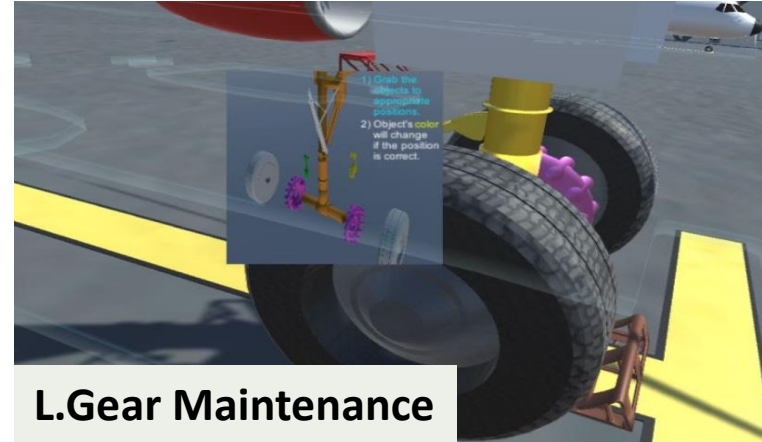
Real Time Data Collection

Data Centric Skill Training

Data Science

# AMIC – VR Simulation & Control Expertise

## Task Centric Simulation



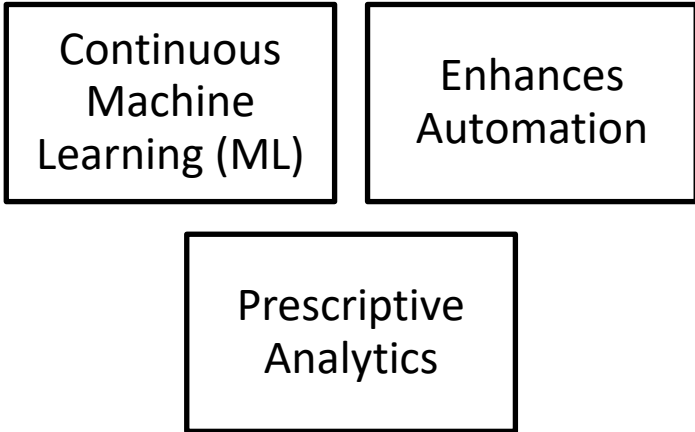
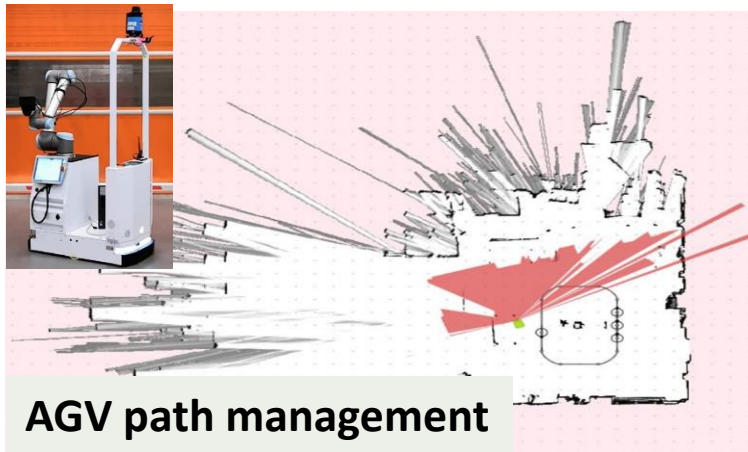
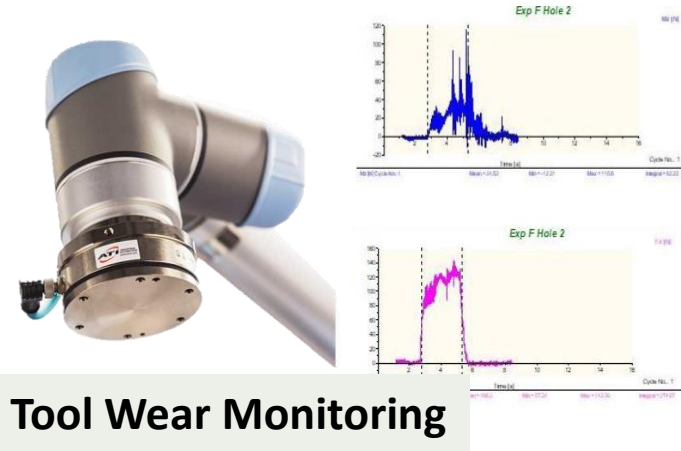
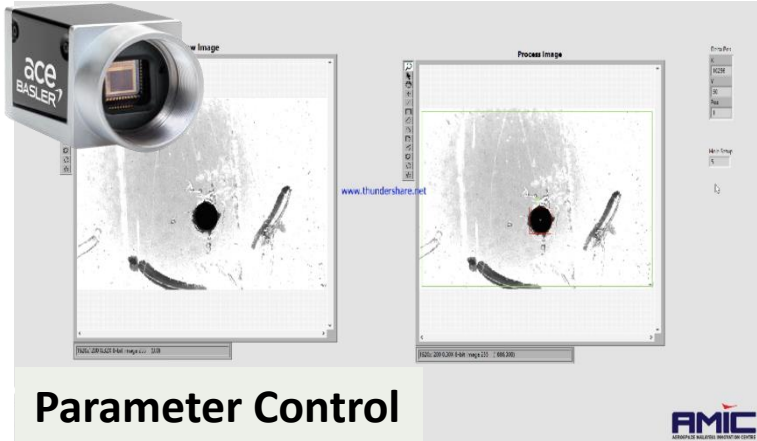
Specific Skill Focus

Customizable

Various Scenario

# AMIC – A.I & Predictive Maintenance Expertise

## Artificial Intelligence (AI)



# AMIC – A.R & Remote Assessment Expertise

## Augmented Reality (AR)



AR Display

AR Maintenance



Remote Assessment

High Fidelity  
Information  
Overlay

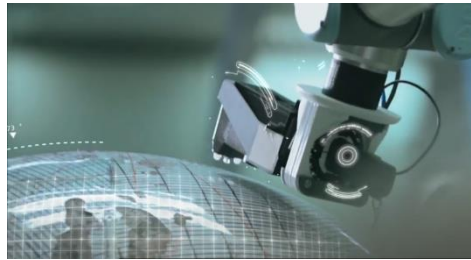
Customizable  
Information Type

Decision Making  
Support

Reduced Analytic  
Material &  
Process

# AMIC – A.R & Remote Assessment Expertise

## Augmented Reality (AR), Robotics, Maintenance



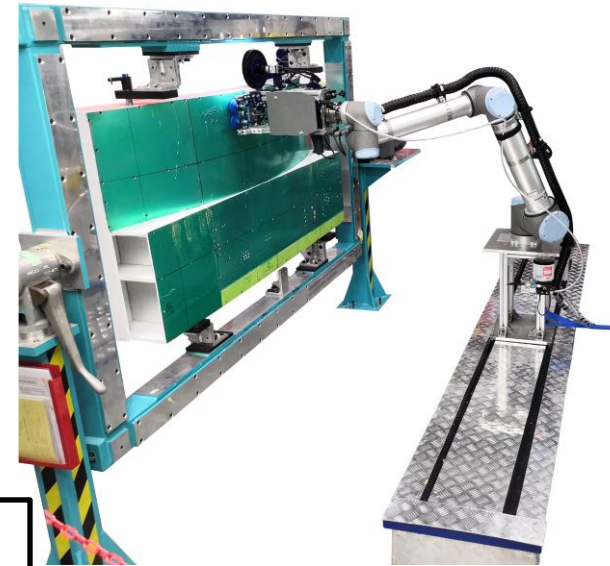
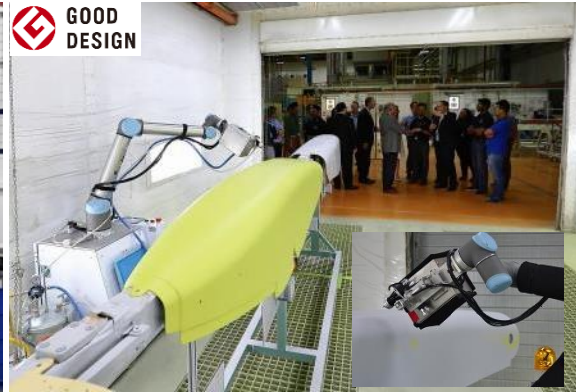
Maintenance  
Control

Automated  
Progress &  
Reporting

In-situ Reference  
& Work  
Monitoring

# AMIC – Automation & Data-Centric Manufacturing Expertise

## Collaborative Robots & Data-Centric Automation

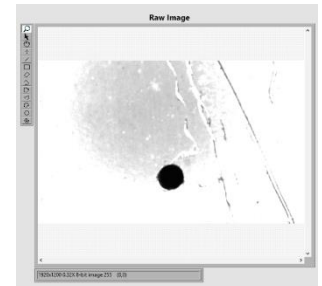
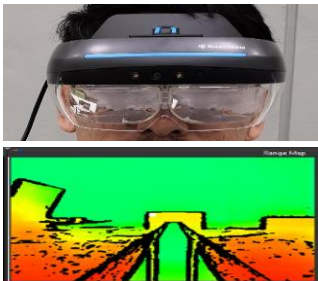


Customizable

Data-Centric

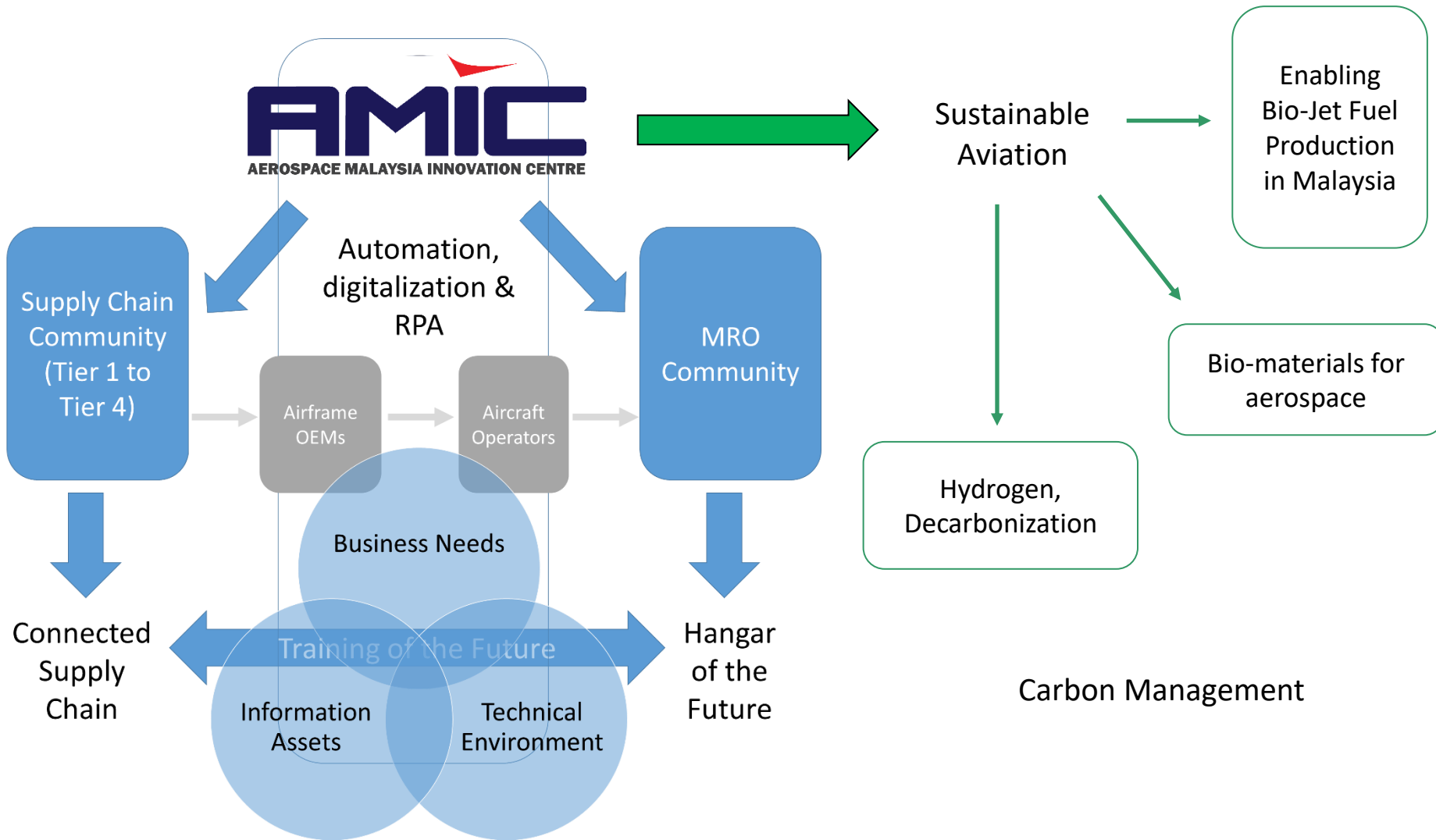
Fully  
Controlled  
Factors

Inbuild Quality  
Assurance





# AMIC – Our Digital Continuity and Sustainability Story



# AMIC – Our Key Success Factor

1. Build expertise through strategic collaboration
2. Project Delivery, through proven R&T model
3. AMIC Members and its Network
4. Approved strategic R&T roadmap
5. De-risking costly R&T developments

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AMIC's success has already seen **tangible impact** at **industrial level**. **Immediate impact** to **manufacturing** lines

**Paving the way for new technology** competence and **implementation**

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AMIC brings unprecedented value with its R&T efforts.  
Giving the aerospace industry in Malaysia cost effective development and advancements.

# THANK YOU



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