

ESA Clean Space Industry Days 2022

Space circular economy: in-orbit servicing in 2050

SPEAKERS & MODERATORS



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System Engineer



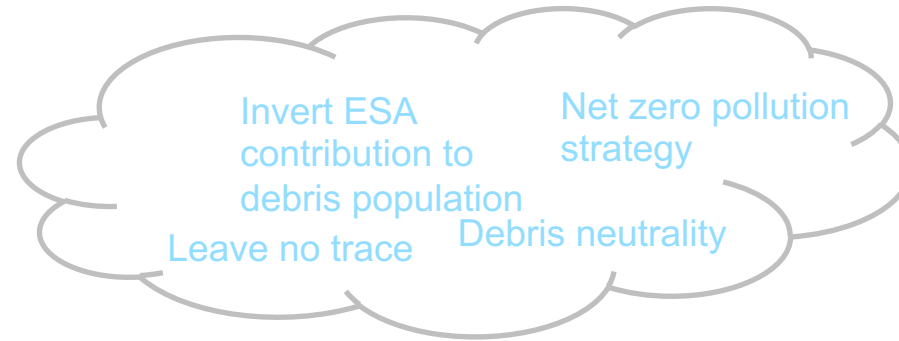
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Andrew Wolahan

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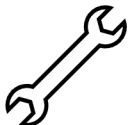
This approach is inline with the Net Zero Space charter, which was launched Nov. 12 during the Paris Peace Forum in France

Zero Debris Approach

By 2030



Design and operate for **probability of successful disposal well above 90%**



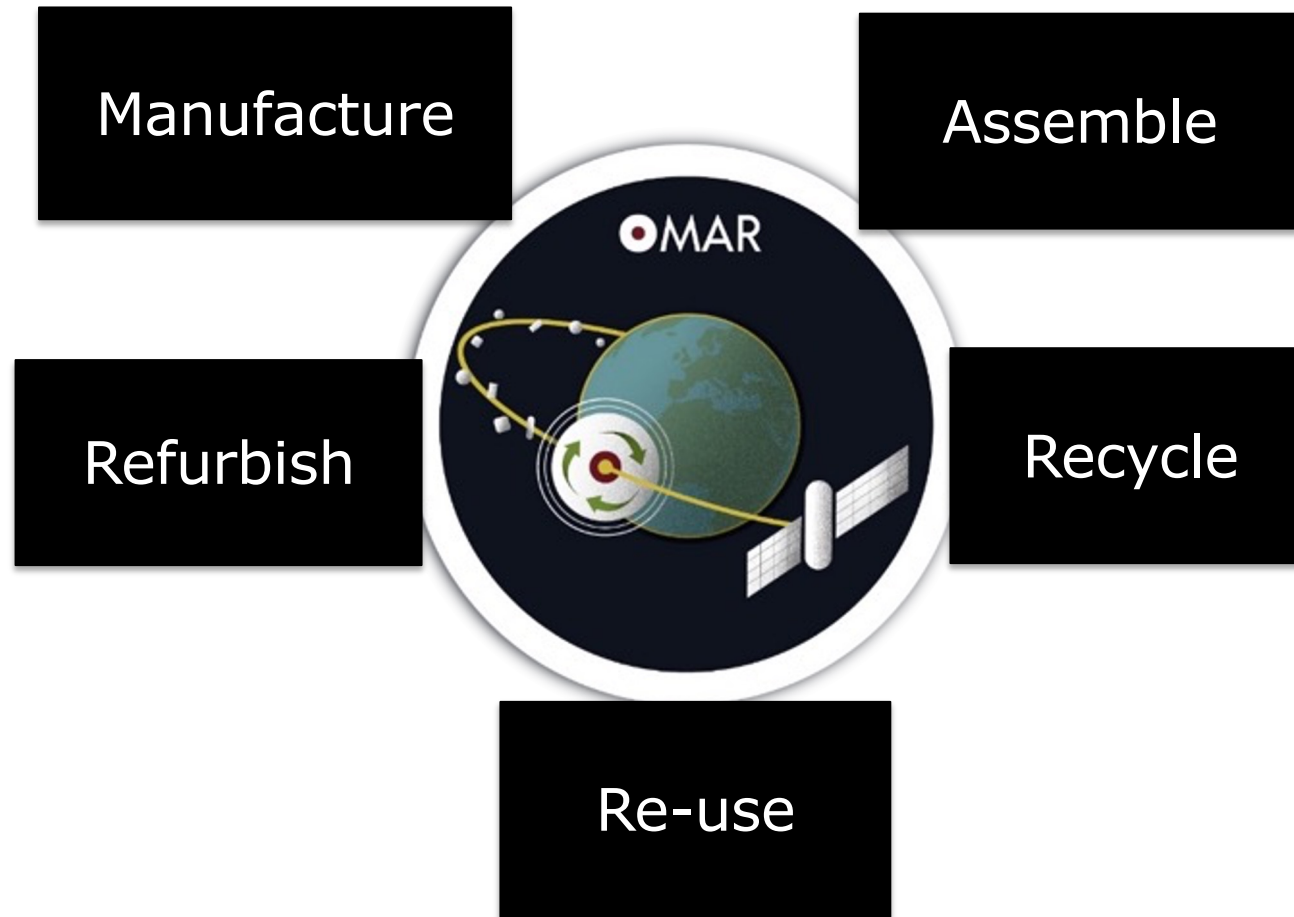
Removal services for remaining in-orbit failures

By 2050

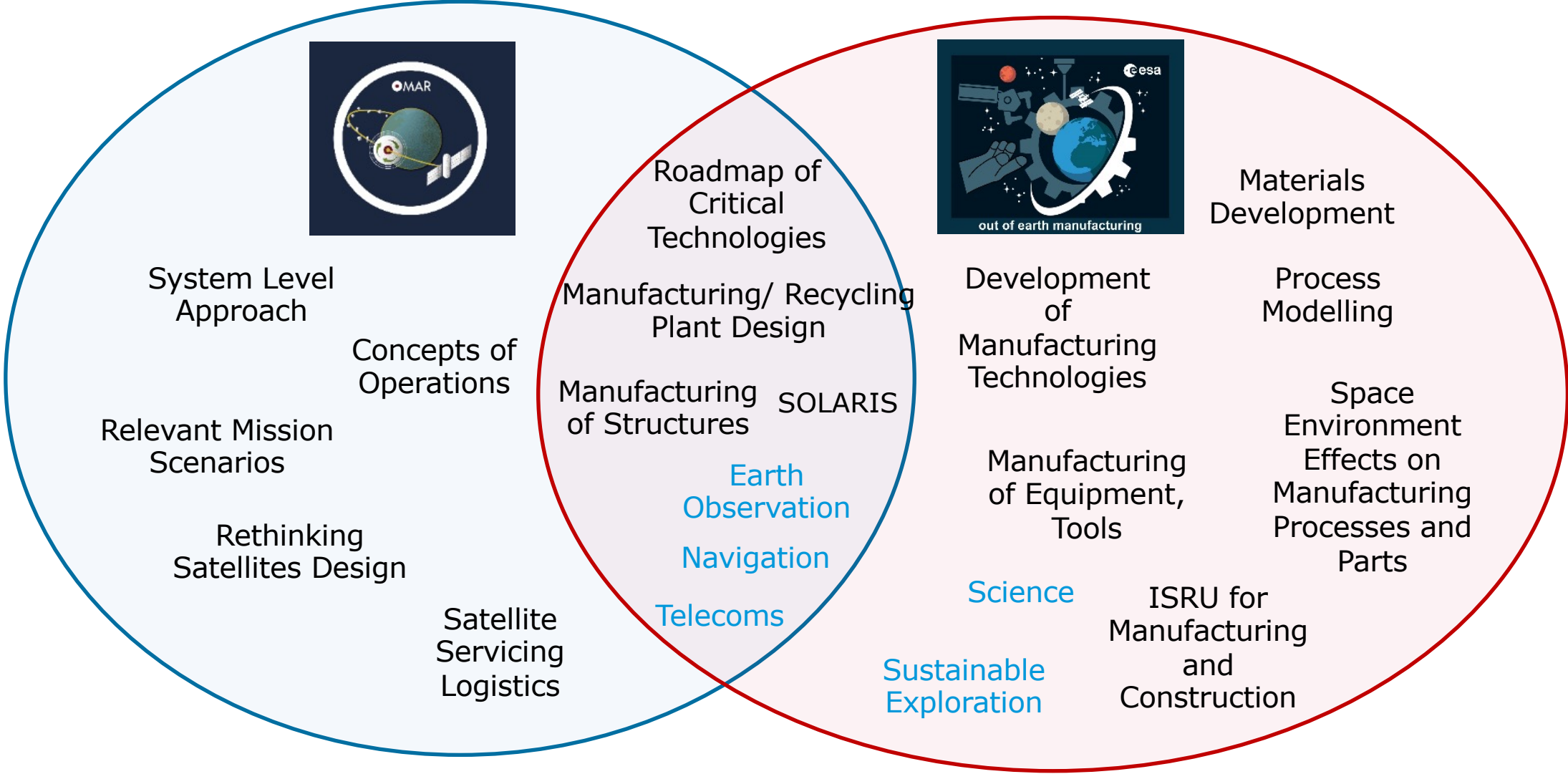


Circular economy in space:
Assembling, Manufacturing, Recycle,
Relocation, Repair, Repurpose

Current focus

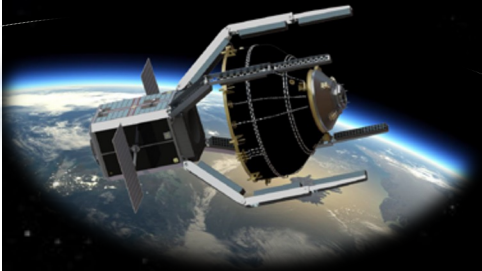


OMAR is a system approach aiming to give an overview of the most interesting applications, map the state-of-the-art and derive a roadmap for the development of the critical technologies.



ESA Vision for In-Orbit Servicing

DEBRIS REMOVAL



TRANSPORTATION



INSPECTION



2025

ADRIOS

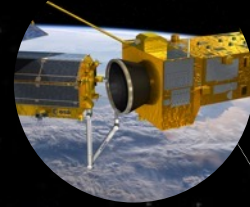
REFUELLING /
AOCS TAKEOVER



< 2030

IOS Proposal Request for CMin22

REFURBISHMENT



RECYCLING

ASSEMBLING /
MANUFACTURING



2030 +



ADRIOS will be ESA's first In-Orbit Servicing Mission, capturing and removing the VESPA Upper Part by 2025



ESA is working on the maturation of the first European In Orbit Servicing Mission for the Ministerial Conference



2022 ESA is committed to maturing technologies for other in-orbit servicing missions in the future (e.g. assembling and manufacturing robotic capabilities, capture systems, refueling systems, rendezvous sensors)

ADRIOS (Active
Debris Removal, In-
Orbit Servicing)

In-Orbit Servicing
Clearspace-1

HERA

VIGIL

COSMIC (COre,
Small Missions
Including CREAM and
Competitiveness)

Competitiveness

CORE (Space Weather, Planetary
Defence, Space Debris, Cleanspace)
Missions (Aurora Monitor, Nanosats,
VISDOMS, DRACO, NEOMIR, De-Orbiting
Kit, LMT, Apophis, CREAM, NEO Survey
System)

Questions?