



equinor

The AM future for Oil and Gas

Brede Lærum, Equinor 10.03.2020

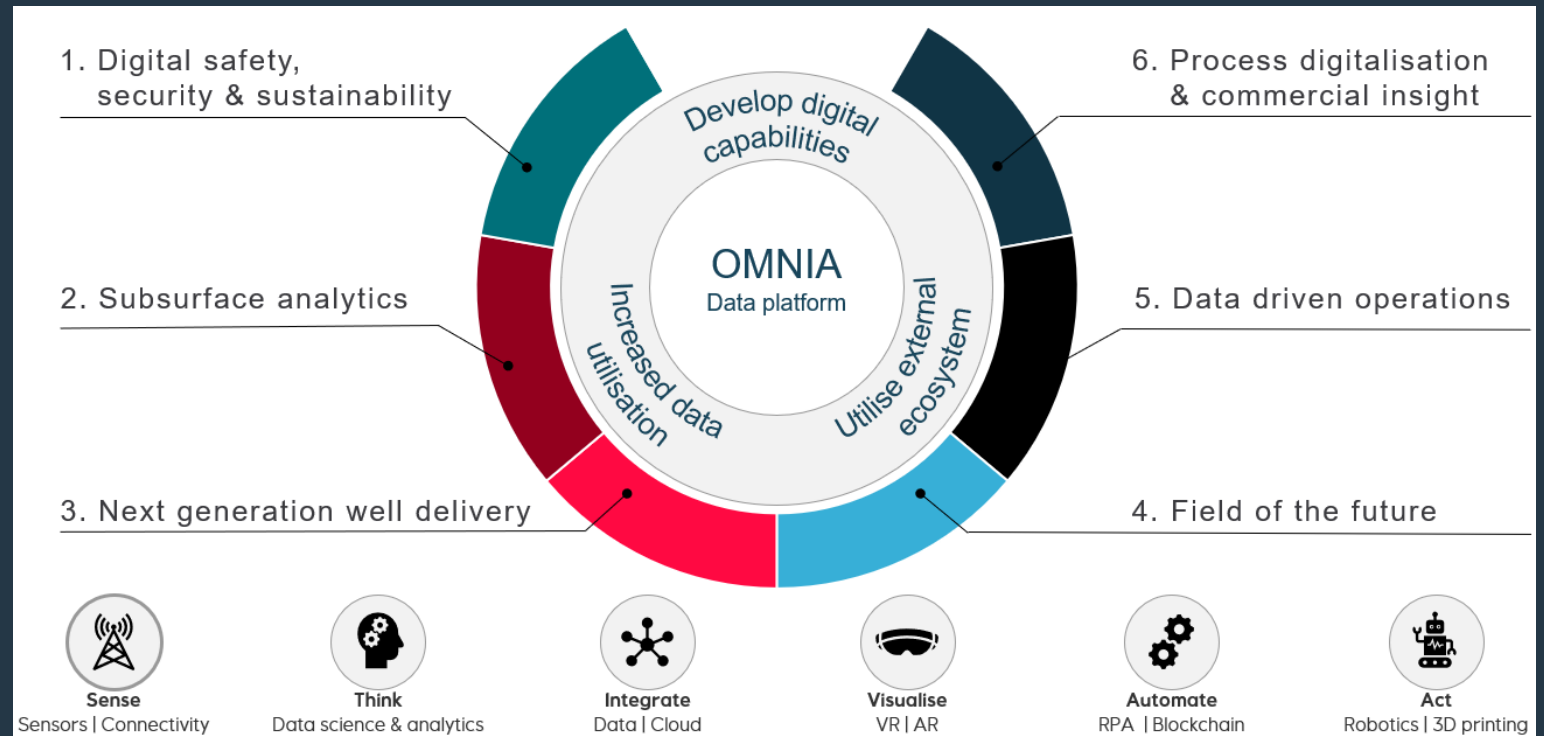
The digital energy company

Always safe

High value

Low carbon

Equinor digital roadmap

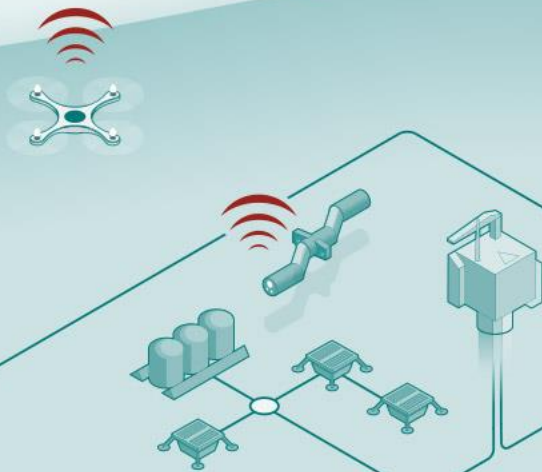


Focus areas of the O&M Digital Roadmap

Digital field workers
Transform the way we work



Drones, robotics and 3D print
Accelerate the implementation



Integrated Operations Center
Expand and develop



Data driven and efficient maintenance
Data driven decision making



Suppliers
Expert advice,
collaboration



Digital backbone enabling operations

- **Omnia** with data available anywhere, anytime
- **Connectivity** – fiber and 4G/5G connectivity to almost all assets
- **Seamless communication across all applications**, inside Equinor and with suppliers

The AM Ecosystem



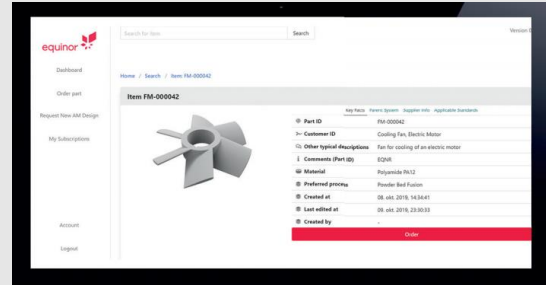
Discover problem, diagnose and register in DFW



Find part in Digital twin



Select 3D model in DI



Request offer in digital marketplace



Transport with drone



Source: Shutterstock

Certify when required



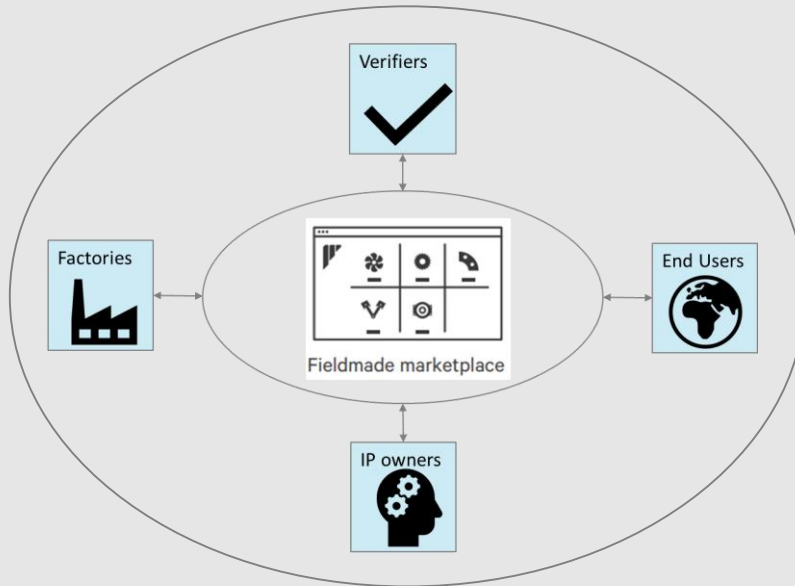
Source: Siemens

3D print part in 30 days.

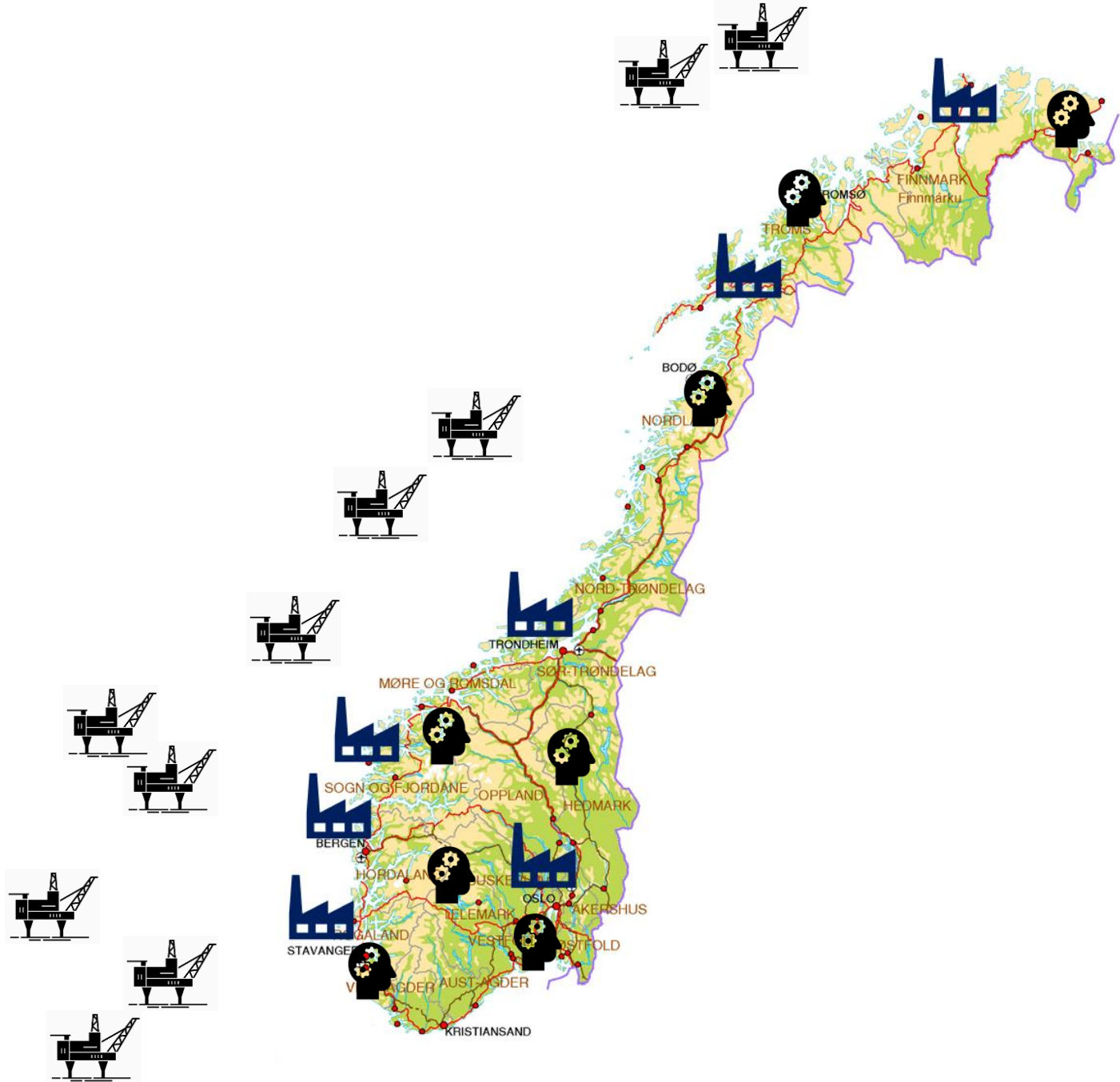


Source: 123RF

Unlock model, Blockchain

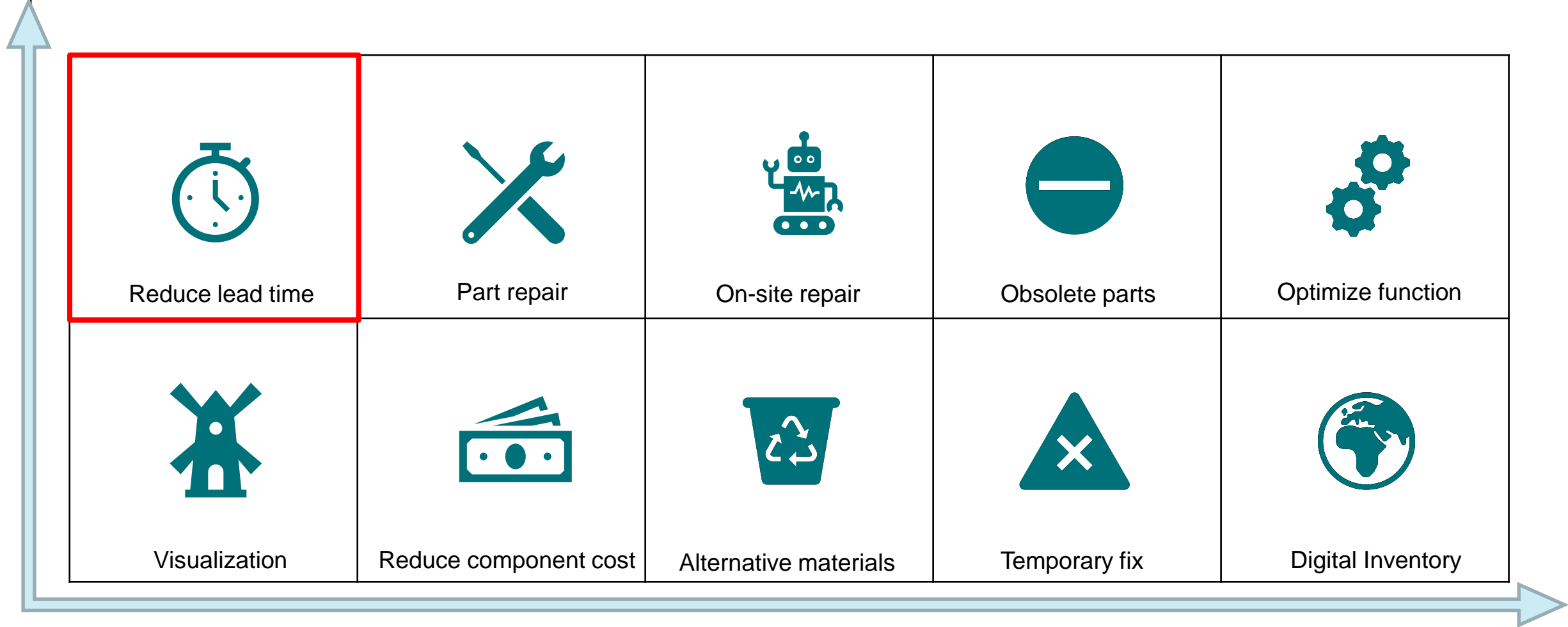


Locations



Potential of 3D print in Equinor

Reduce Environmental footprint



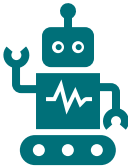
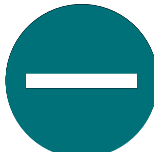








Reduce cost



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Reduce Environmental footprint



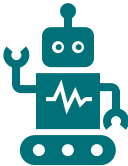
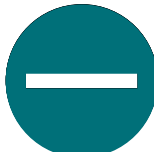






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|---|---|---|---|---|
|  Reduce lead time |  Part repair |  On-site repair |  Obsolete parts |  Optimize function |
|  Visualization |  Reduce component cost |  Alternative materials |  Temporary fix |  Digital Inventory |

Reduce cost



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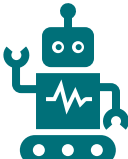
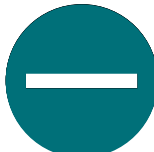






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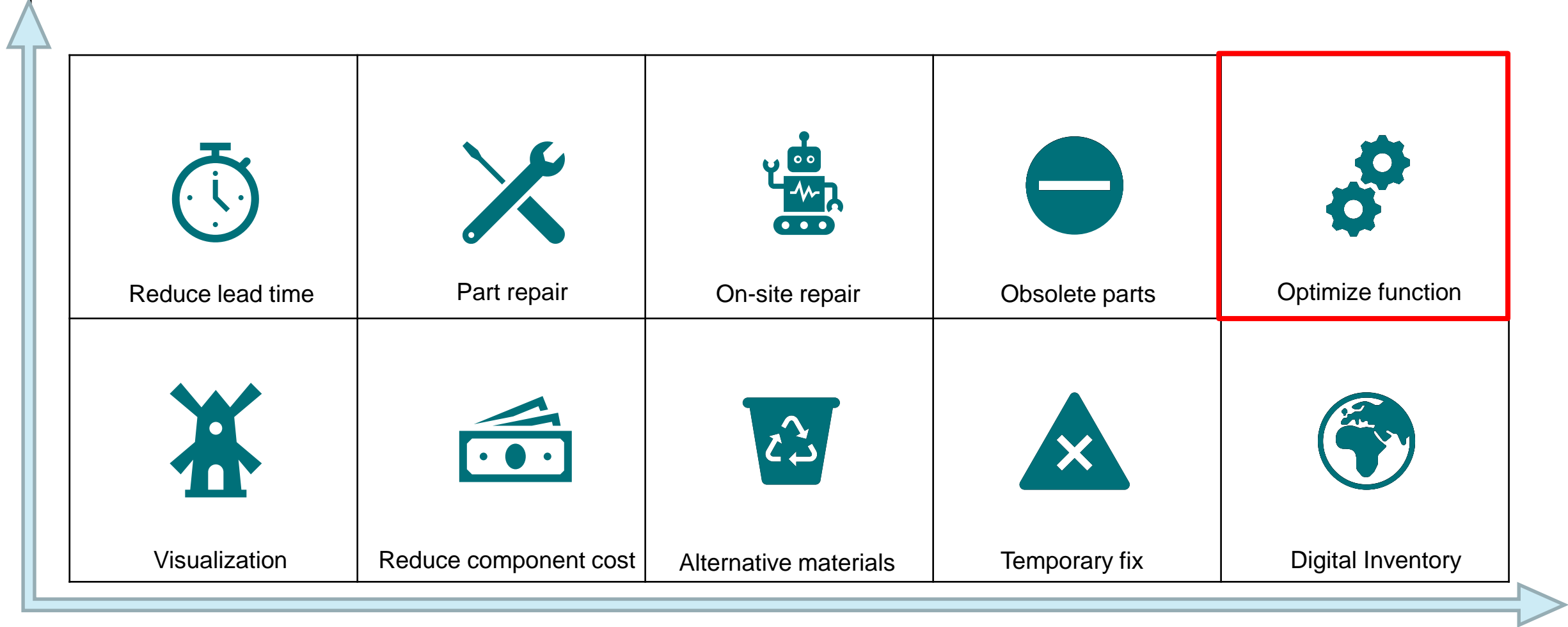
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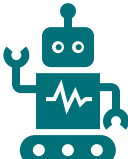
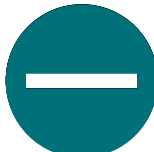








Reduce cost

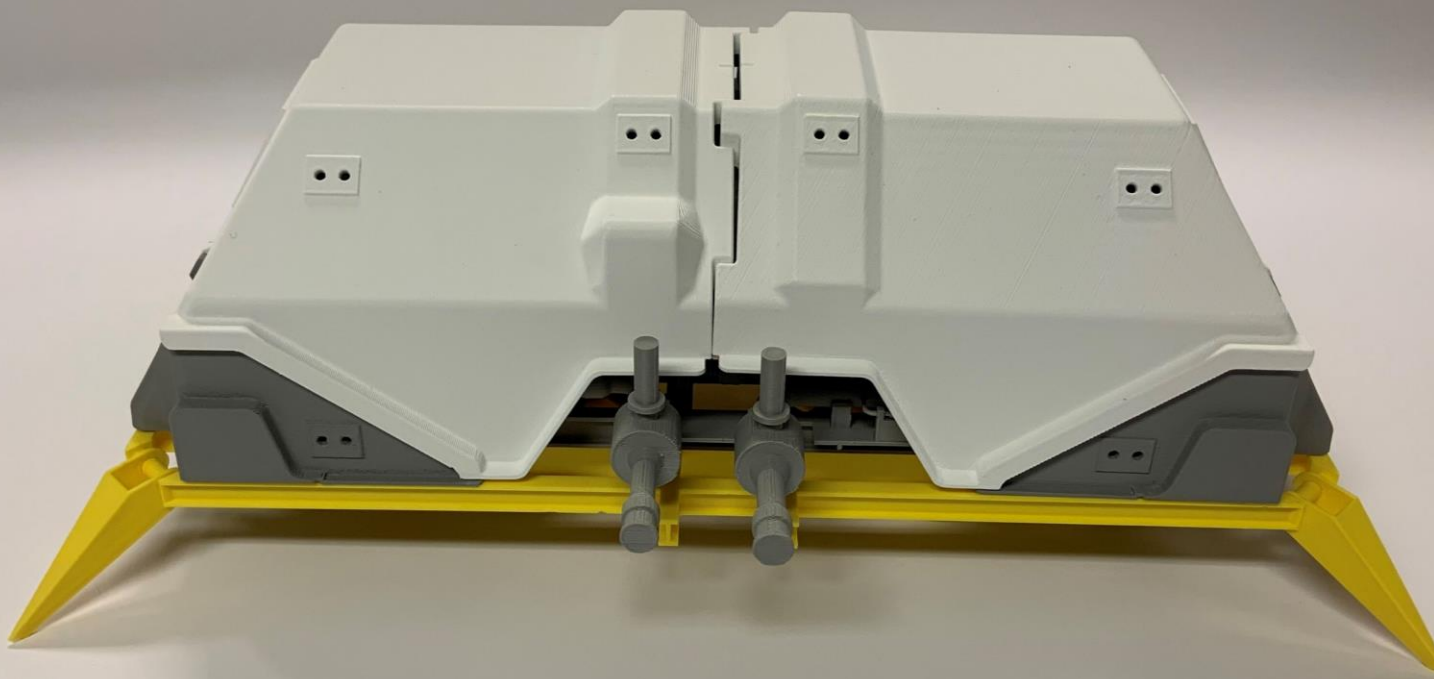


Potential of 3D print in Equinor

Reduce Environmental footprint



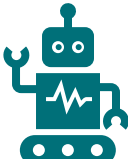
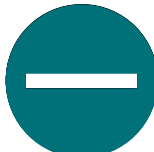






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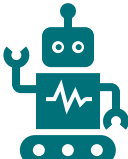
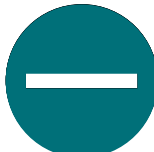






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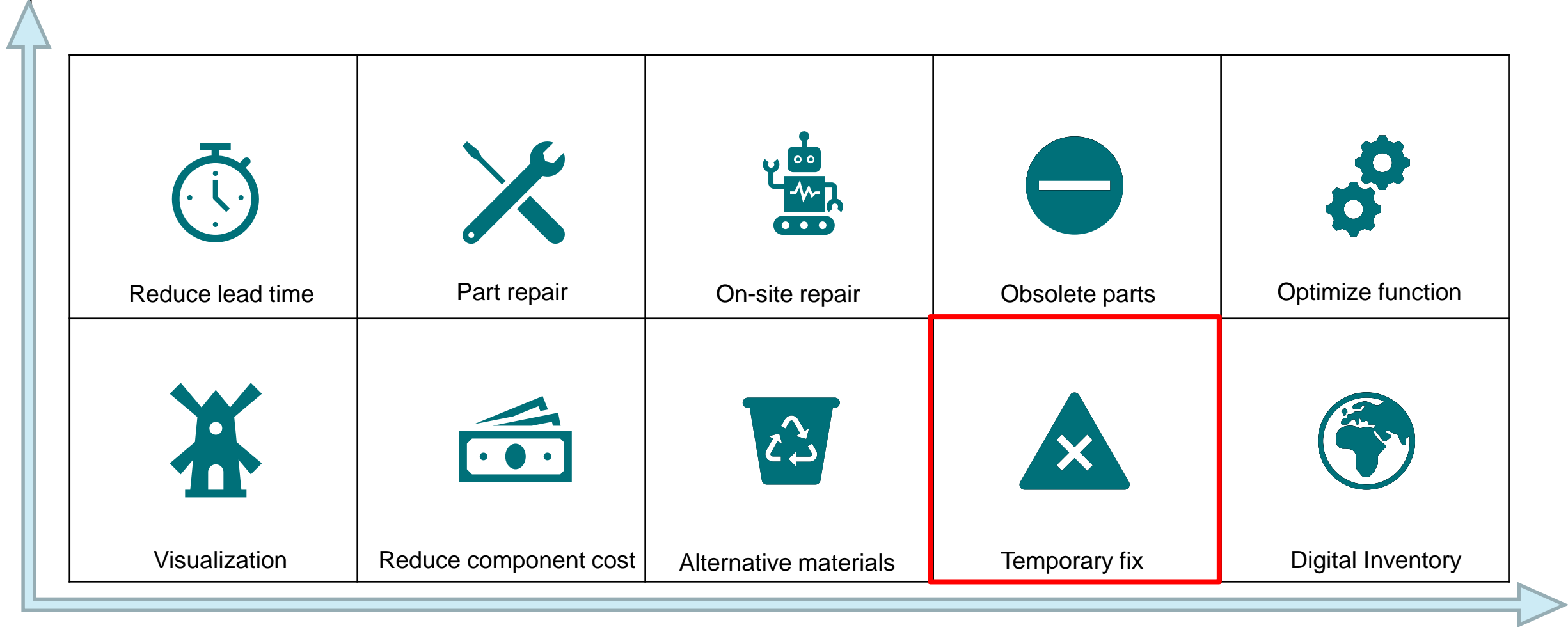
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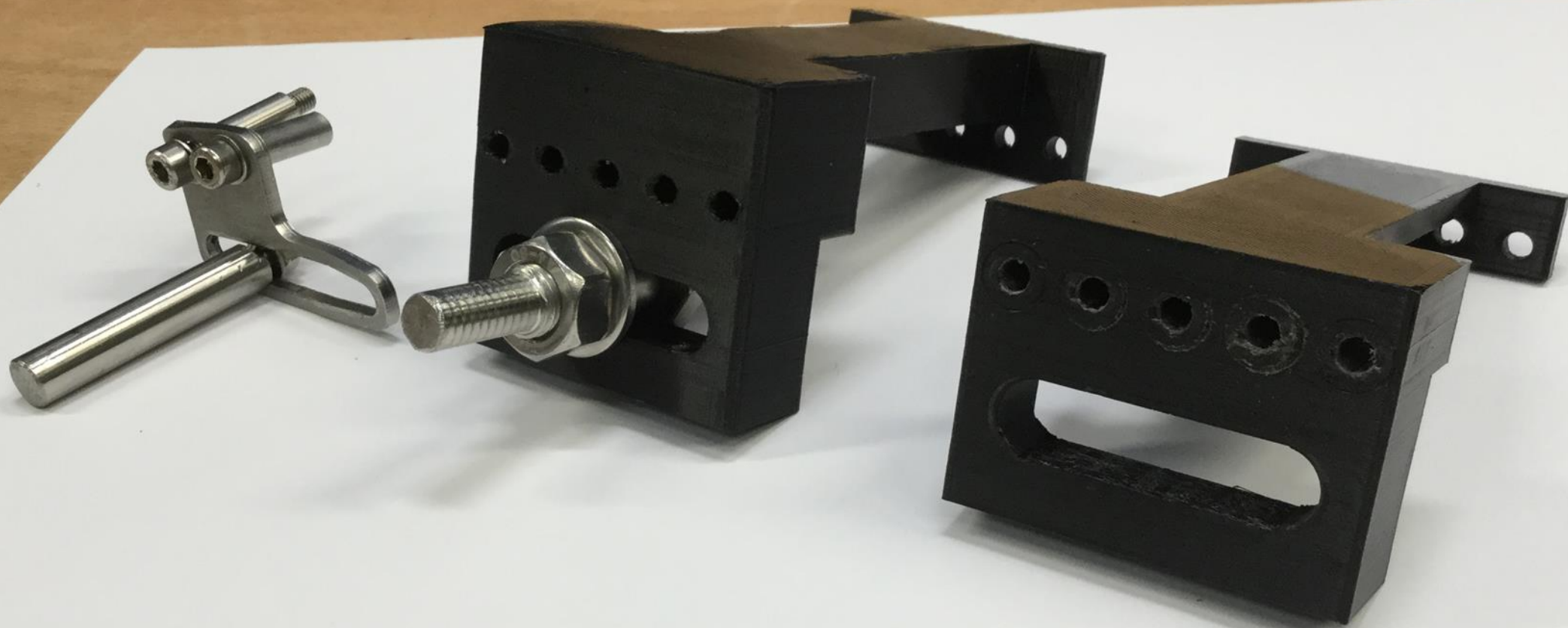


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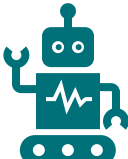
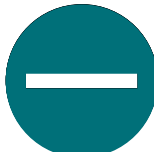








Reduce cost

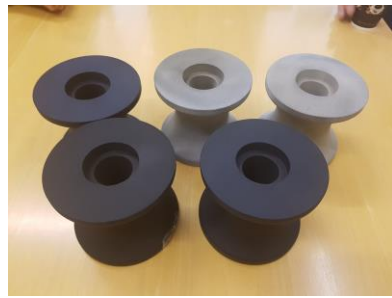
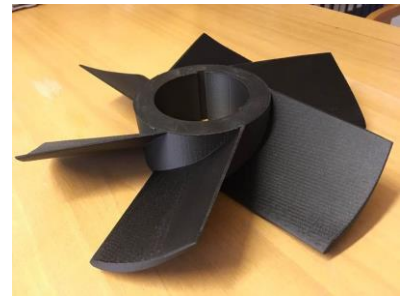
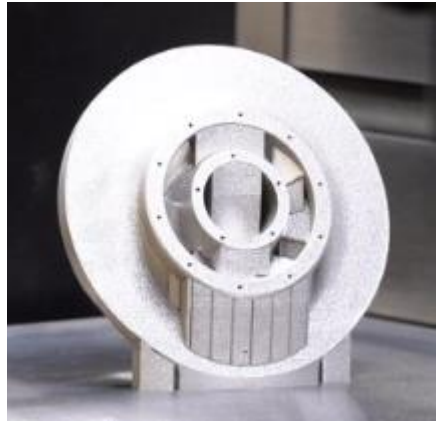
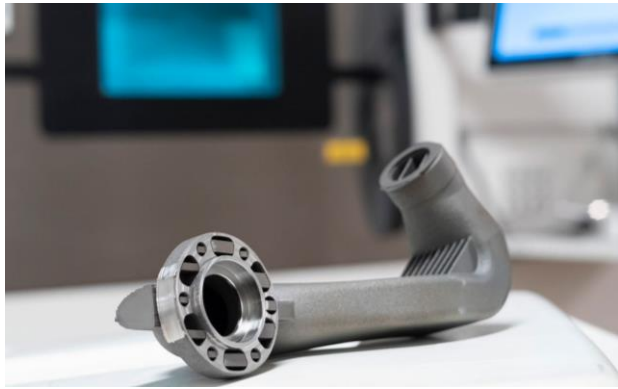
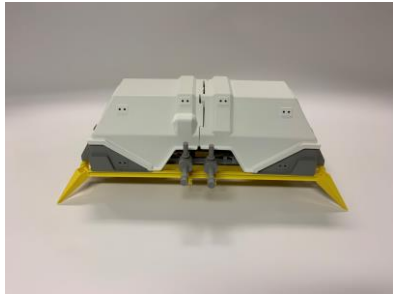


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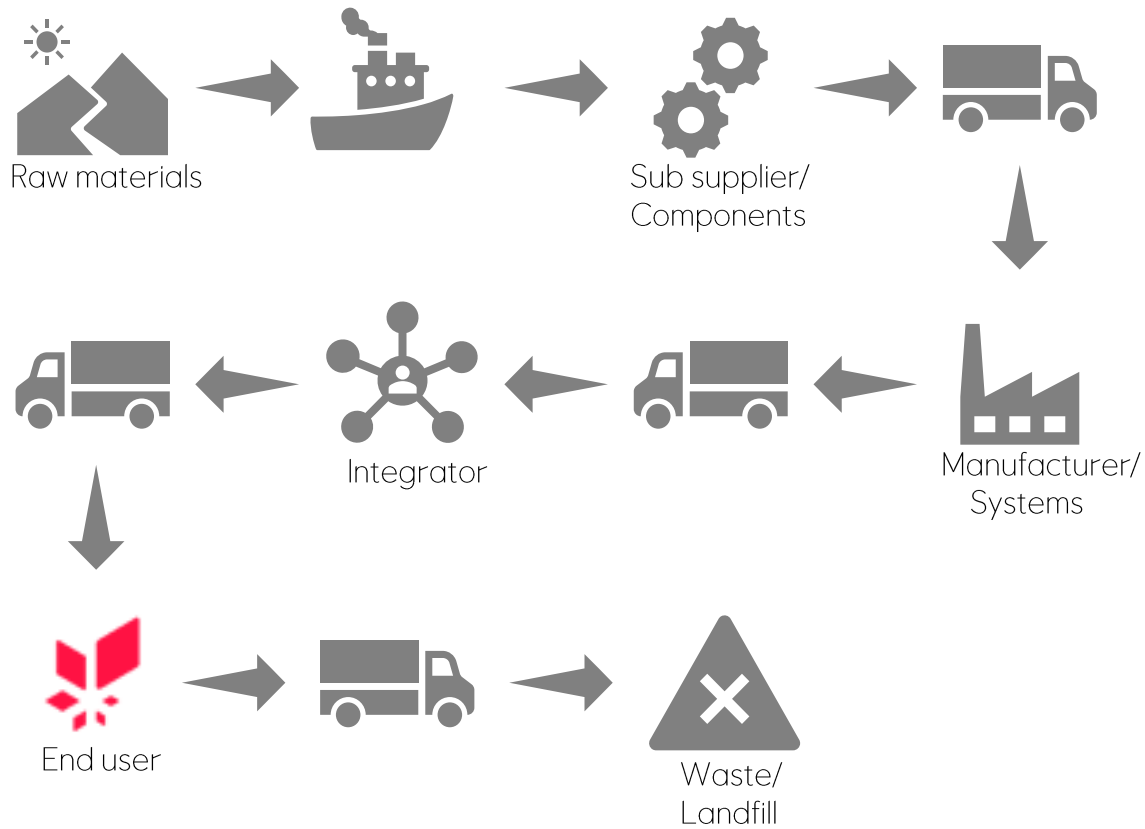
Reduce Environmental footprint

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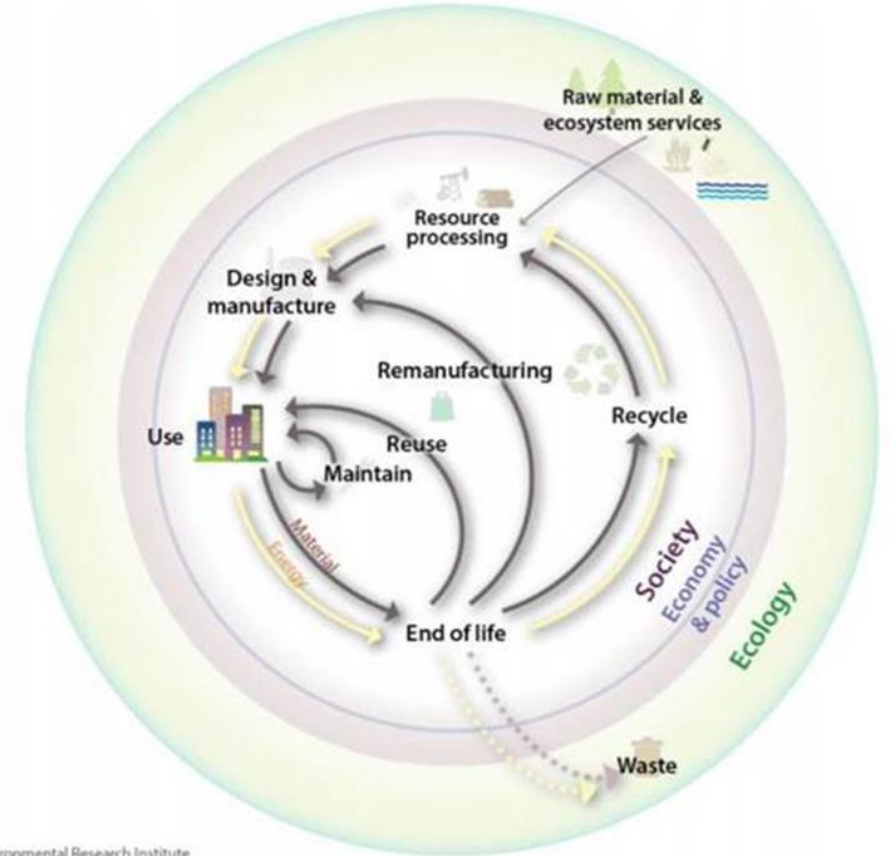
Reduce cost



From linear to circular



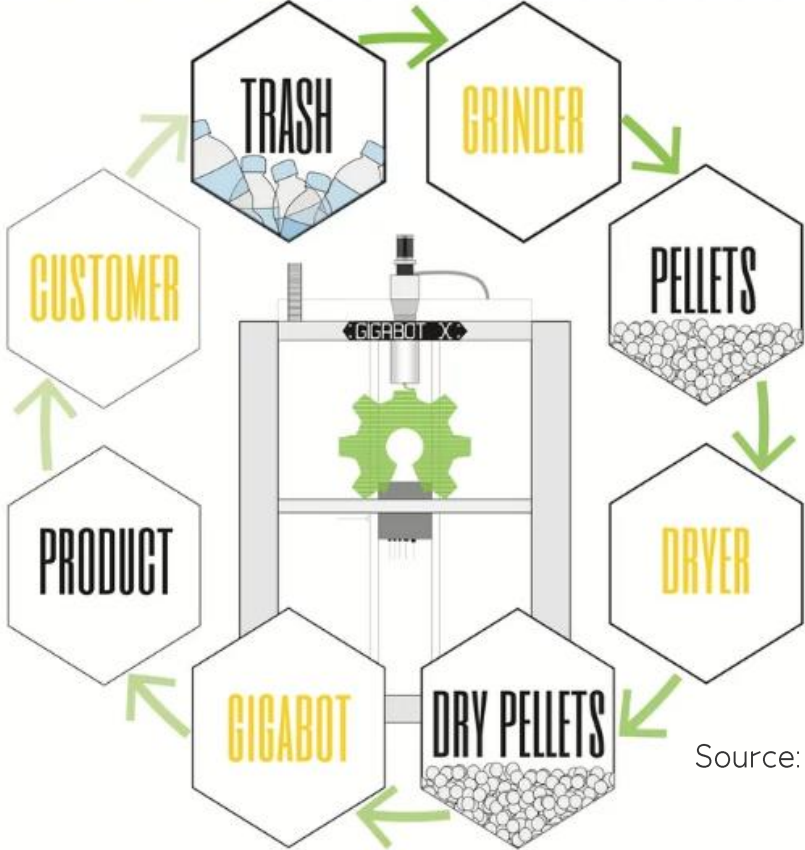
Increased value and energy



AM recycling



Source: Wikipedia



Source: All3DP

Reduced waste - Reduced use of raw materials - Reduced transport - Reduced CO2 emissions



The AM future for Oil and Gas

Brede Lærum, Head of 3D print implementation, Equinor

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