

AMC

Part Screening & Selection

Krailling

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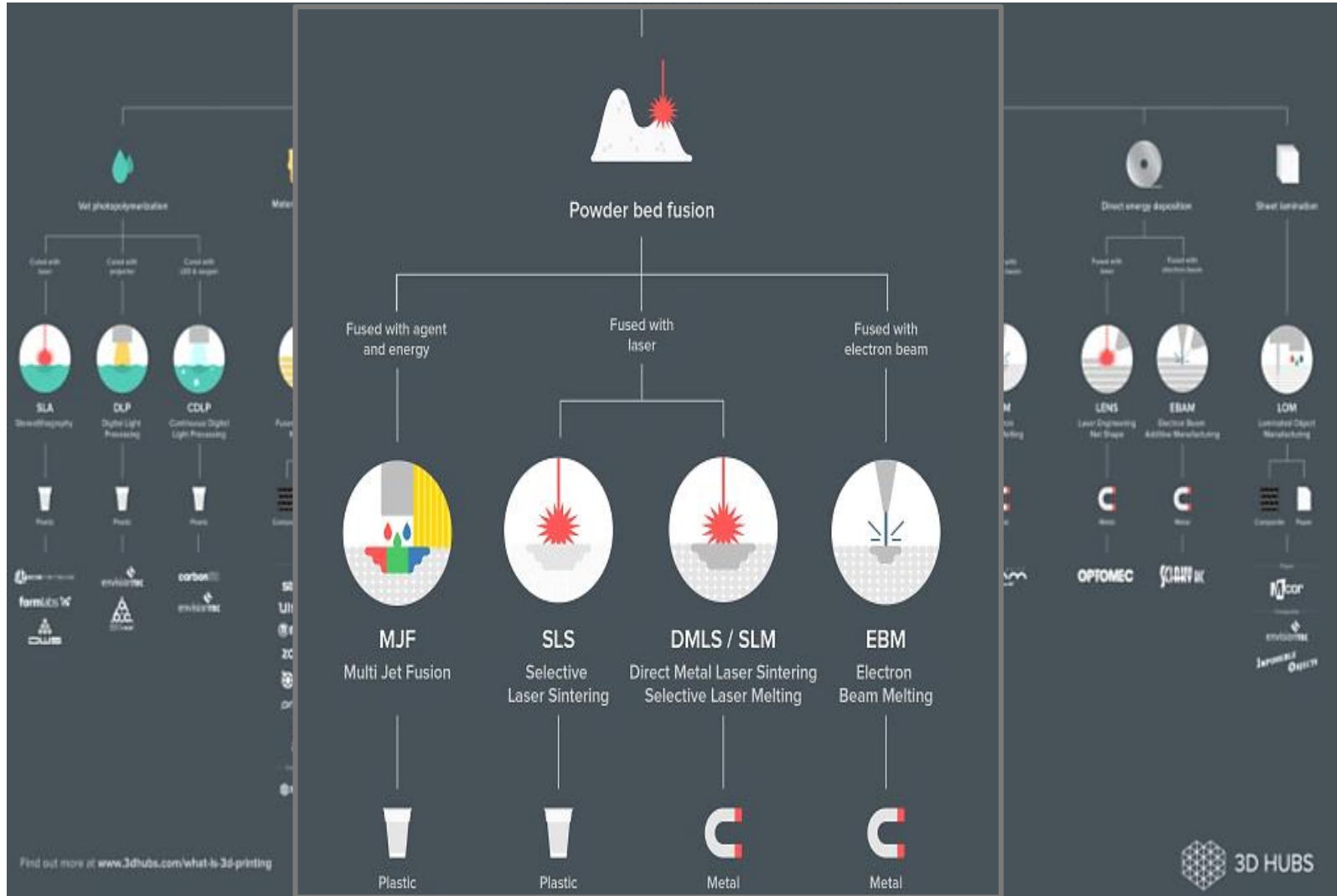


Classification of Additive manufacturing



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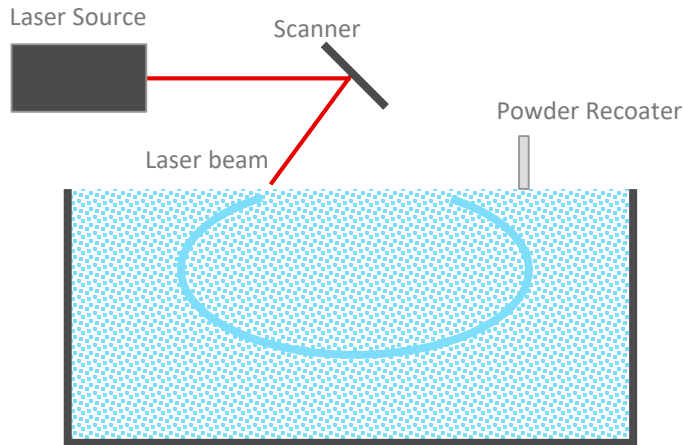
Source: 3D Hubs



Powder Bed Fusion provides the best results among Additive Manufacturing technologies



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Powder Bed Fusion

Process:

- Laser beam fuses selected areas of a powder bed

Markets:

- Rapid Prototyping, serial production

Advantages:

- High mechanical properties
- High detail resolution

Disadvantages:

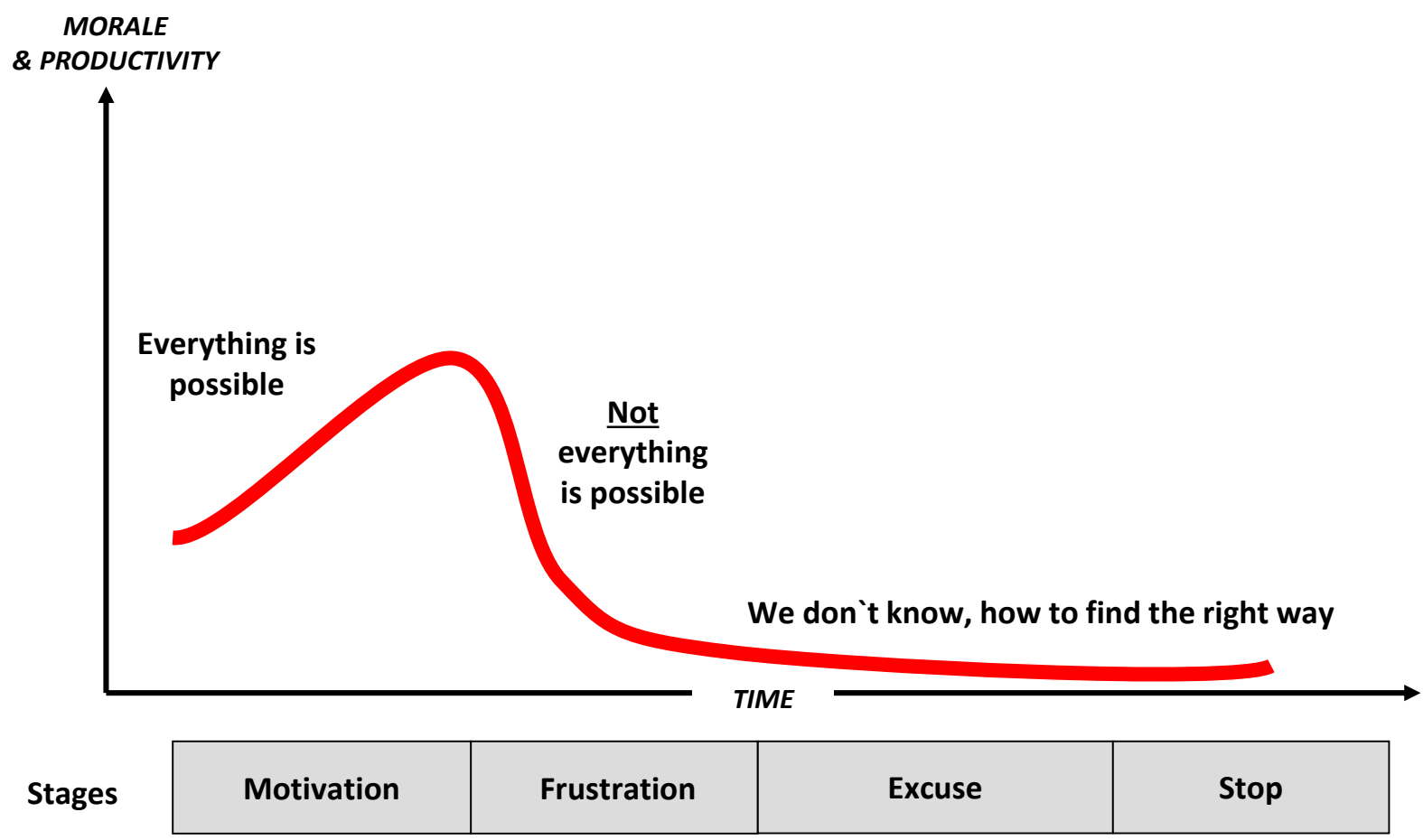
- Limited build space
- High cost



AM readiness goes through different stages, but without guidance the team might not find the way



Mood curve stages in unsuccessfully implemented AM projects

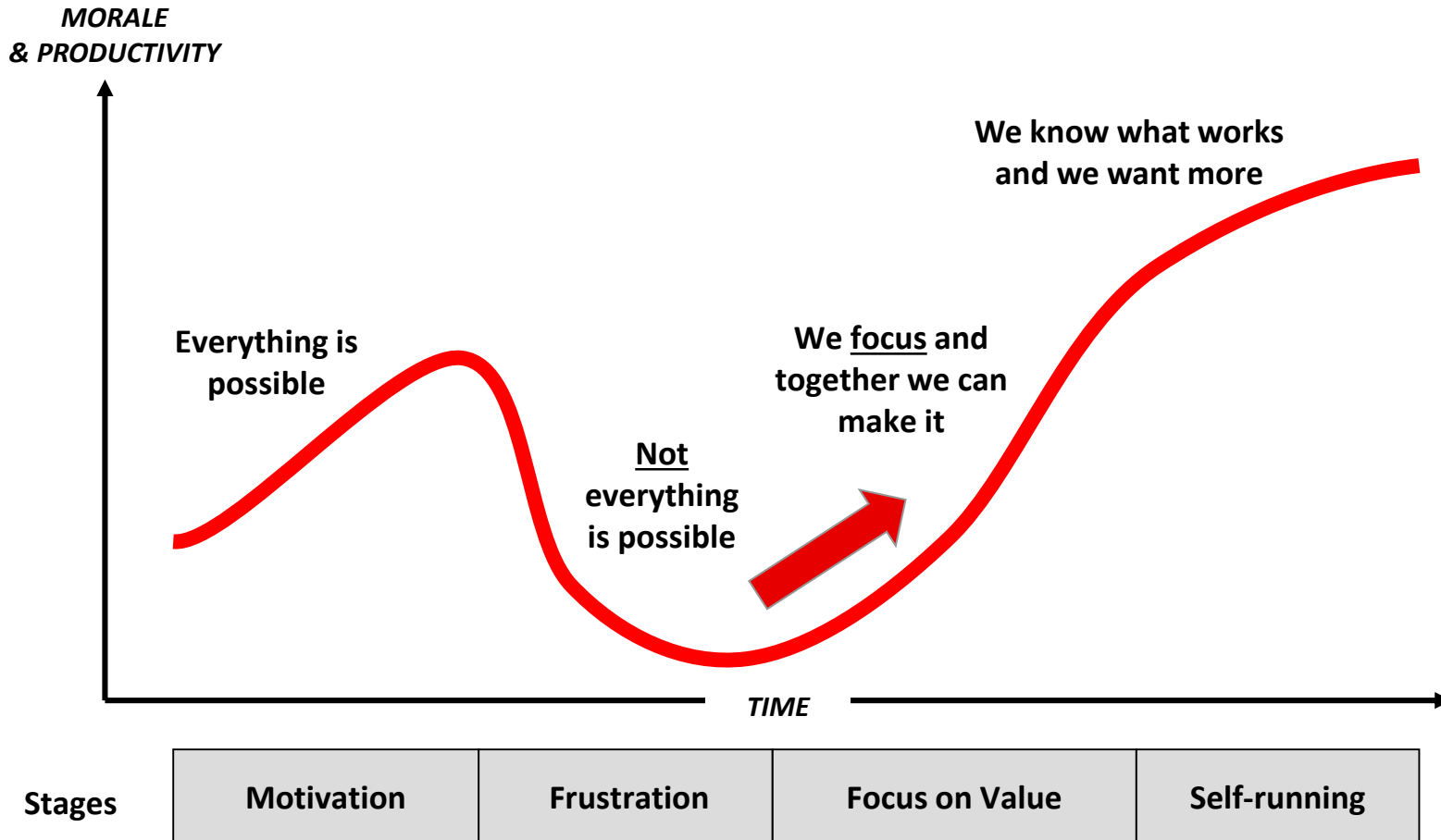


The up-swing is driven by an focused team with the right capabilities and attitude



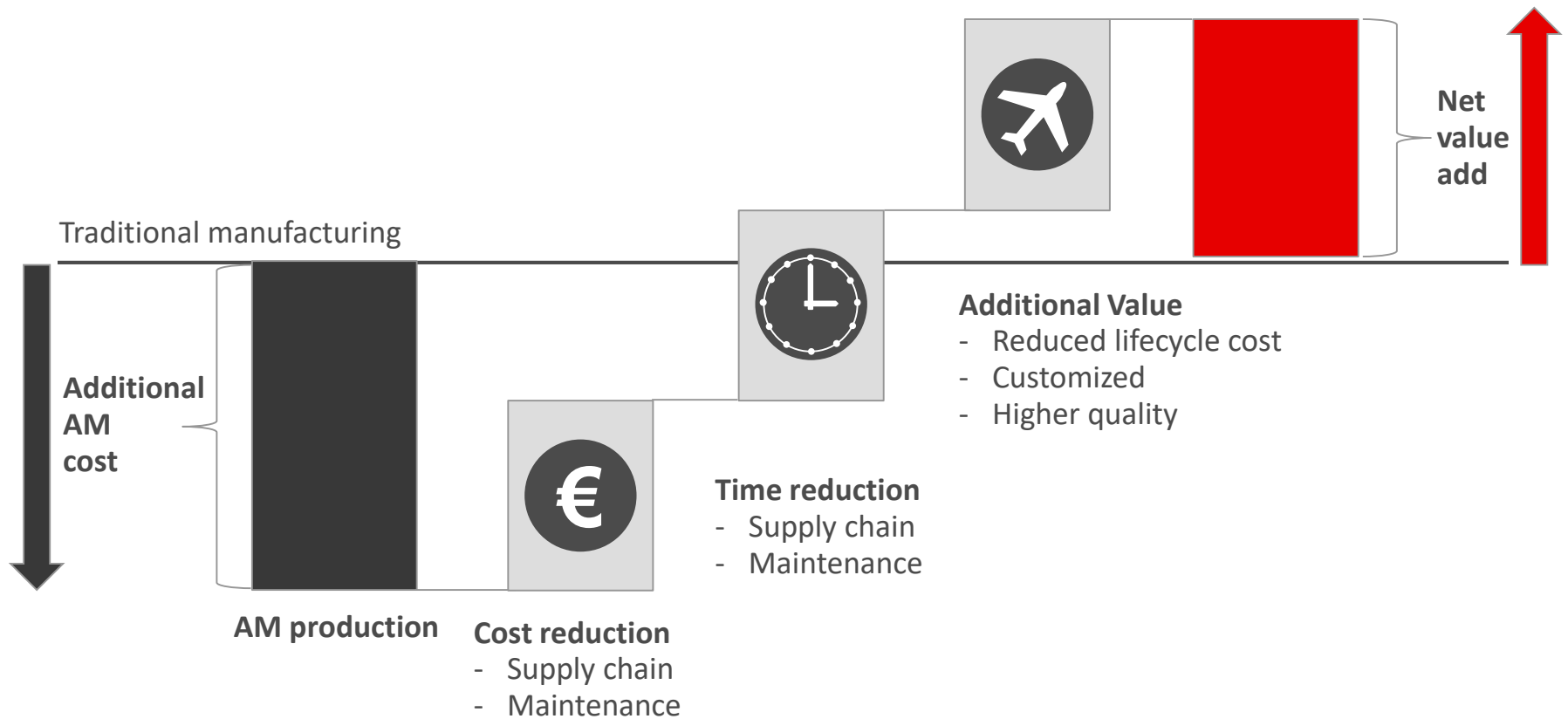
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Mood curve stages in successfully implemented AM projects



Leveraging value add through AM technology

Value Engineering by additional AM benefit



The goal is to identify parts that generate value add.

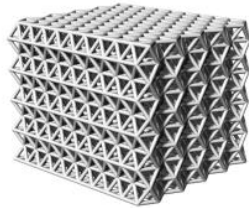
Key technical characteristics of Additive Manufacturing Technology – Freedom of Design



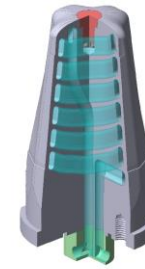
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Understanding 3D printing – AM opportunities

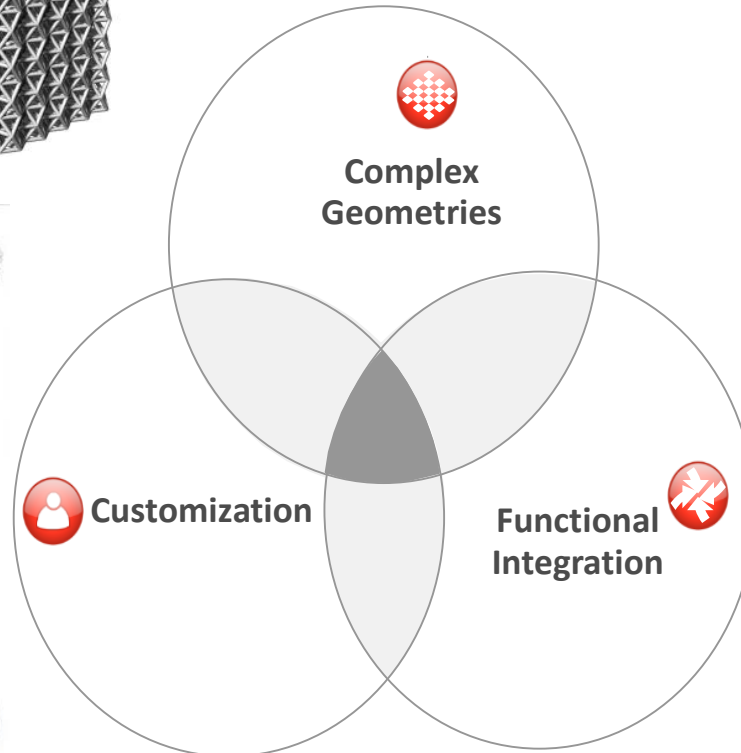
Lightweight structures



New and complex designs



Customized products



Integrated and complex functions

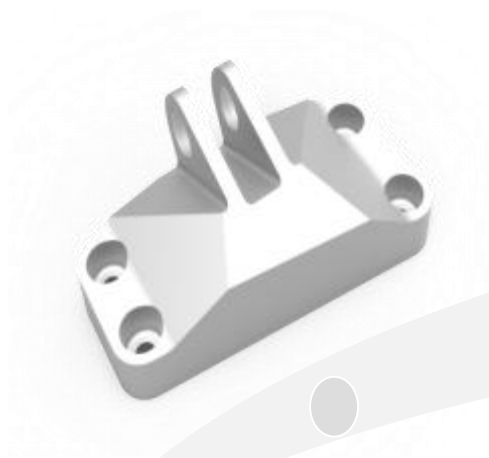


Patient specific restorations

Your AM Challenge as a Designer



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AM gives you the possibilities to **design** your part **for its function**, not for its production possibilities.

Traditional Manufacturing

- manufactured by removing material from one part
- hard integration of several functions
- **Design within the limits of producibility**

Additive Manufacturing

- Manufactured by adding material
- Easy integration of several functions
- **Design for the function of a part**

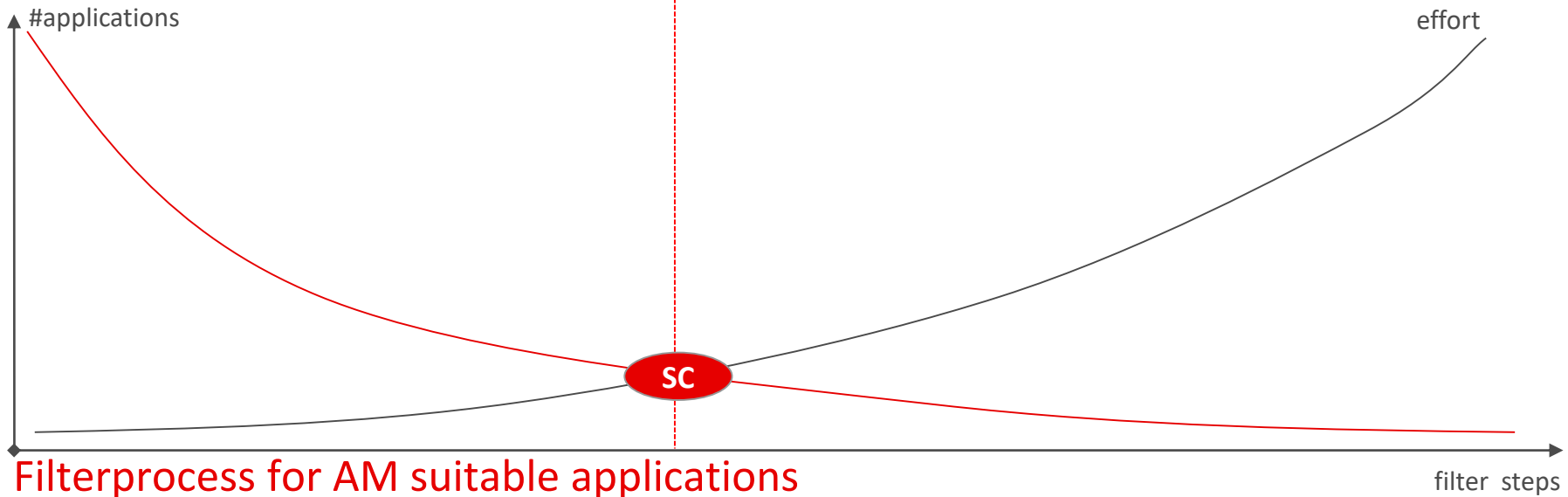
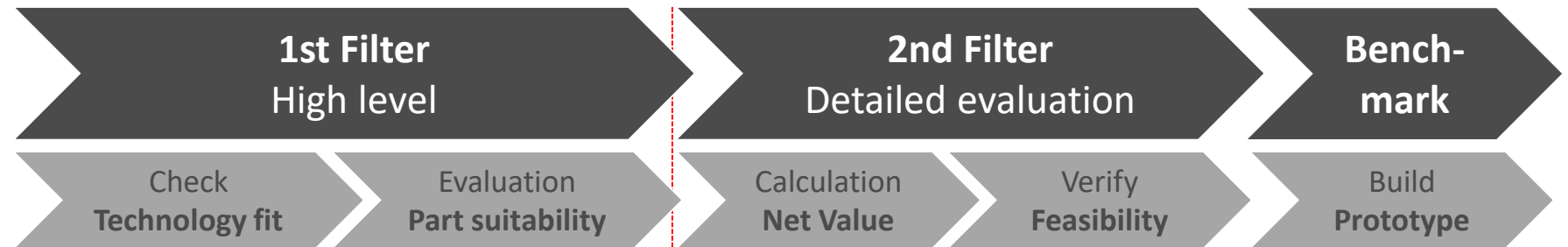
Complexity of Design

Part Selection Methodology



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3 steps approach



AM Part Score Card



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Check Technology fit

- Size
- Material
- Quality Requirement

Additional questions:

- Raw part sourcing (cast / rod)
- Number of Form and position tolerance
- Quantity
- Number of work steps

Evaluation part suitability

- Volume / Surface
- AM Complexity
- Cost per part

Pain Points Customer:

Levers AM Technology:

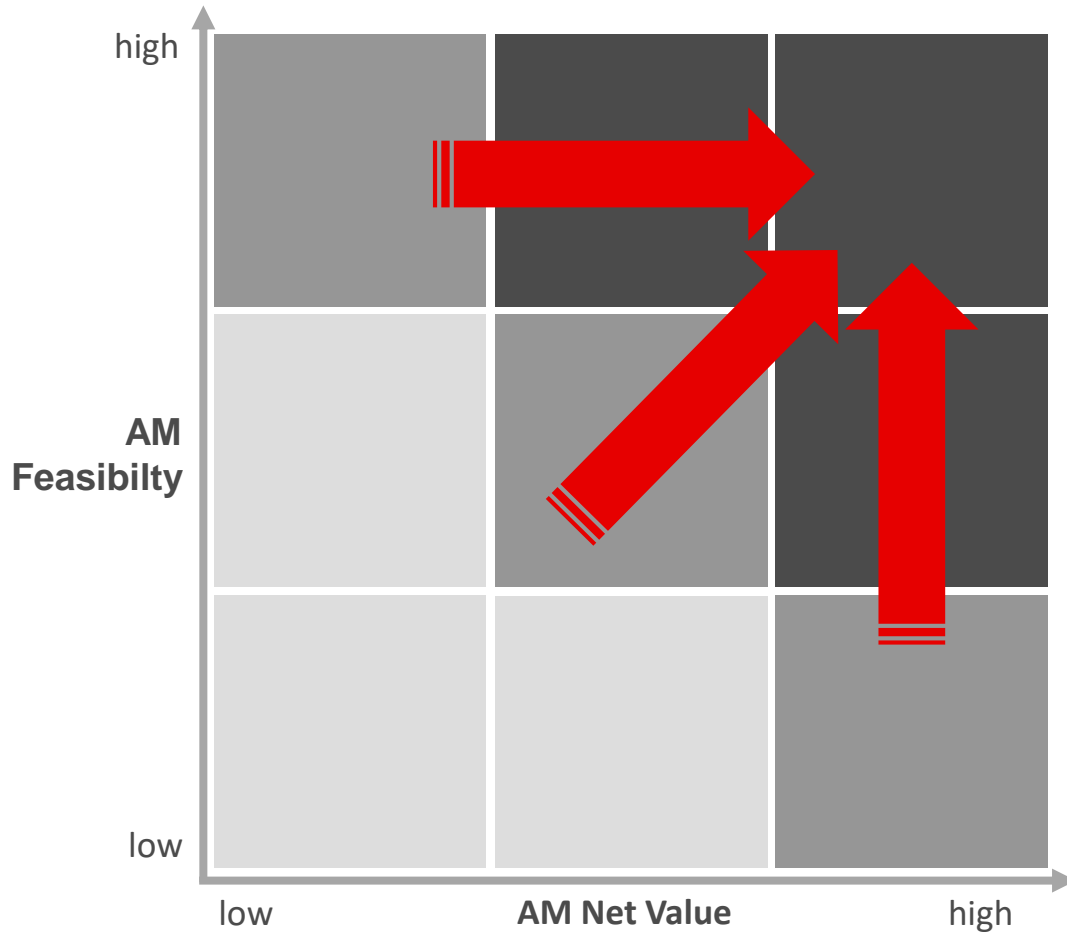
AM Feasibility

AM Net Value

AMC EcoTech Evaluation Matrix



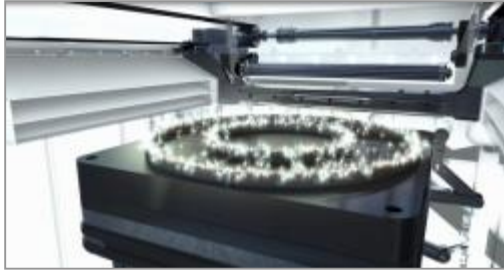
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Recommended proceeding

- Realization
- Redesign
- On hold

Building speed



The build speed will **continuously increase** based on the improvement of four main levers

- Laser power
- Number of laser per system
- Scanner speed
- Recoating speed

Automation & Integration

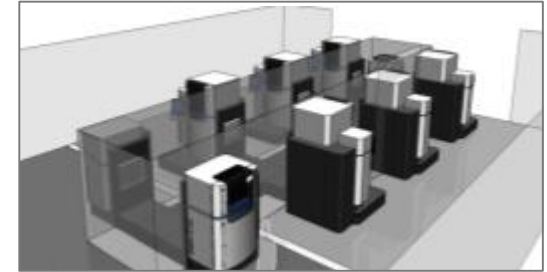


Production steps of the systems such as

- Refilling /reconditioning powder
- Machine preparation
- Job-unpacking

will become more and more **automated and integrated** into the production chain

Modularization



The System setup will become more modular, detaching different production steps such as

- Job Setup and Unpacking
- Build chamber
- Material handling

To reduce unproductive time and increase overall utilization

Increased productivity and reduced cost per part



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Thank you, for your attention!



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