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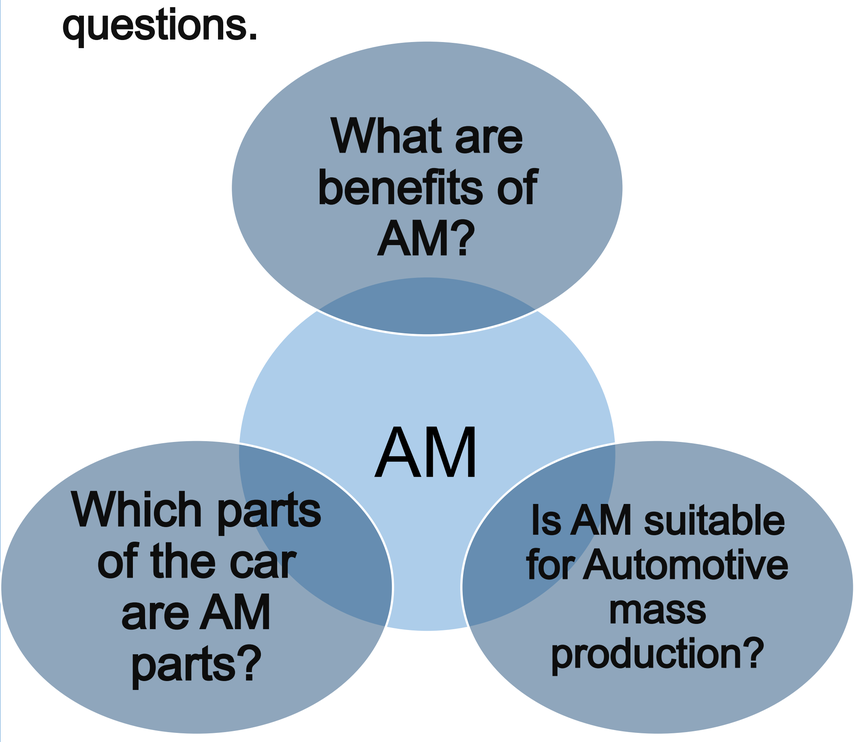
POSTER

Additive Manufacturing in Automotive Industry

Introduction

AM is described as technique of combining materials to produce items from 3D model, this study aims to Review AM in automotive industry to answer industrial and scientific questions.



State Of The Art

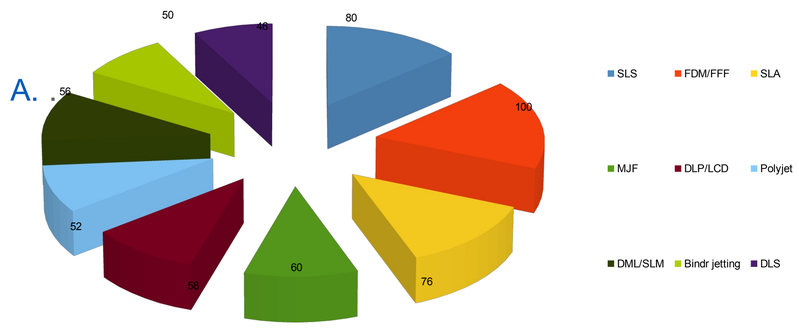
- 3D Printing has witnessed dramatic growth in Automotive Sector.
- Applications include Rapid Prototyping, Hand tools, Spare parts, Fixtures and Jigs production etc.
- “Strati” the first ever 3D printed electric car by Local Motors in 2014.
- Top Automakers are investing in the field of 3D printing to improve their product design and performance.

Materials And Technologies in AM of Automobiles

There are mainly three types of materials used in AM.

- Polymers
- Metals
- Ceramics

The different AM technologies are arranged in a pie chart according to their popularity below



Source: Statista

Opportunities and Challenges

Opportunities

- Production of Complex Parts
- Reduction in inventory costs
- Enables Tool-less manufacturing
- On Demand Manufacturing and Decentralized Manufacture Unit

Limitations

- Duration of Production higher than traditional mass production processes
- Higher cost
- Restrictions on the size

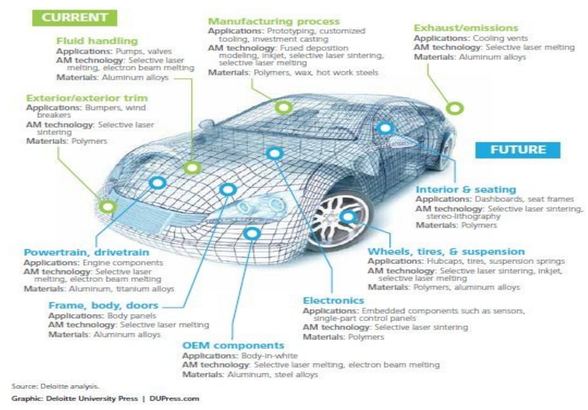
Product Development & Manufacturing

- The automotive industry is embracing new materials and technological ideas such as 3D printing in order to boost efficiency and quality.
- The rising variety of vehicle models that require adaptable and cost-effective bodywork solutions has opened up new opportunities for AM technology.

Experts in Industry & Research

- The global AM market from the year 2018 to 2024 is looking forward to expand at a annual growth rate of more than 25-30%.
- Auto-makers have recently started using additive manufacturing tools and parts production, and they have created R&D departments for AM.

Future of AM in Automotive Field



Additive Manufacturing Process Chain in Automotive Industries