

Additive Manufacturing

Disruptive Solutions through Additive Manufacturing



Additive Manufacturing (AM), or 3D printing, has evolved rapidly in recent years. As new industries embrace this technology, they are discovering many ways in which 3D printing can impact their business.

Though additive manufacturing has huge potential, implementing it is challenging, as it involves multiple facets of engineering and management that need multiple skillsets to align to make the implantation successful.

HCL addresses all the necessary elements, starting from design for additive manufacturing (DfAM), and simulation, to verification and validation, and digital workflow solutions. This makes us your best and trusted enterprise additive manufacturing solution provider.

► How can Additive Manufacturing benefit your business?

Additive manufacturing allows companies to be proactive and respond to customer requirements with speed, precision, and quality. Across a range of industries, companies realize the strength and benefits of additive manufacturing in responding to industry change and supporting how they reframe their business strategies.

Challenges	Personalization	Freedom of Design	Integrated Functionality	Sustenance	Digital Supply Chain
AM Resolution	Personalization have become a new normal. AM delivers personalized products as it not a tool-based process	Design rules for AM is unique compared to the conventional process, thus help unleash the full creativity of the designer	Combining multiple parts assembly to single piece or reduced number of parts is a breeze. Thanks for DfAM rules	Layer by layer manufacturing process helps produce parts with very minimal waste as material is added only at required areas	Process is completely driven digitally making it easy for storage and retrieval of data. Makes traceability easier task

► Additive Manufacturing Solutions for Better Products and Productivity

HCL has acquired expertise in successfully implementing various additive manufacturing solutions. Our unique additive manufacturing strategies ensure quality deliverables in a quick span of time.

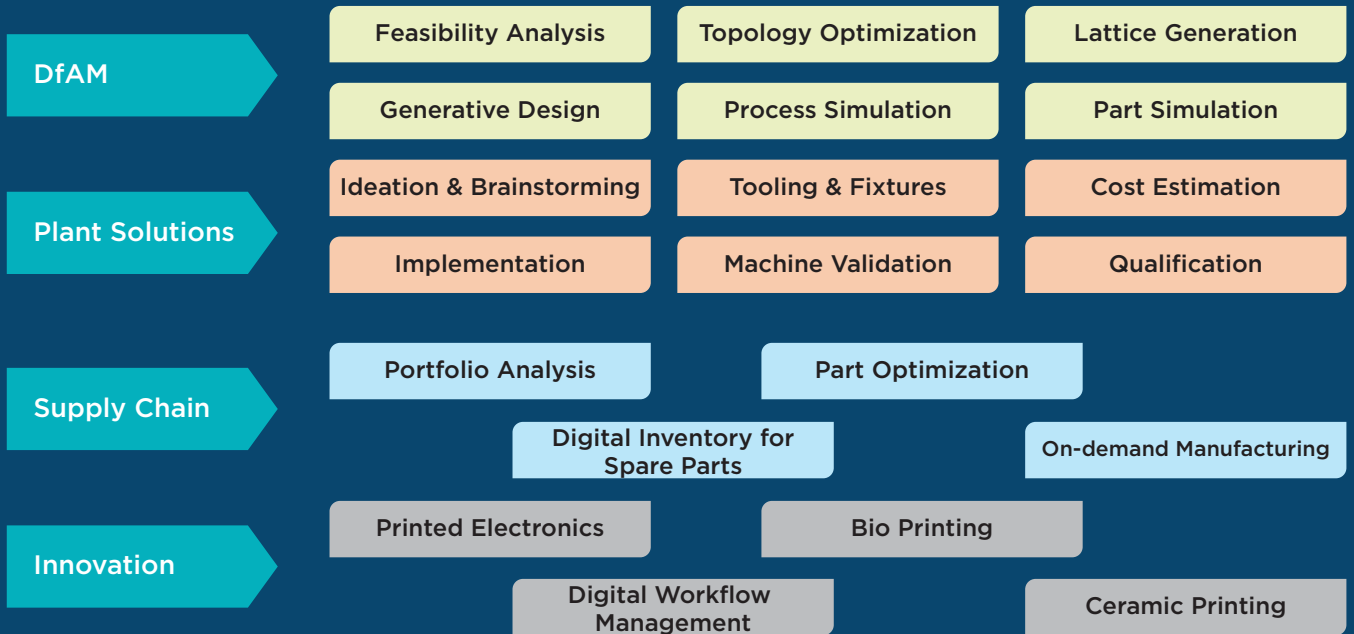
This systematic approach automatically leads to better products coupled with higher productivity



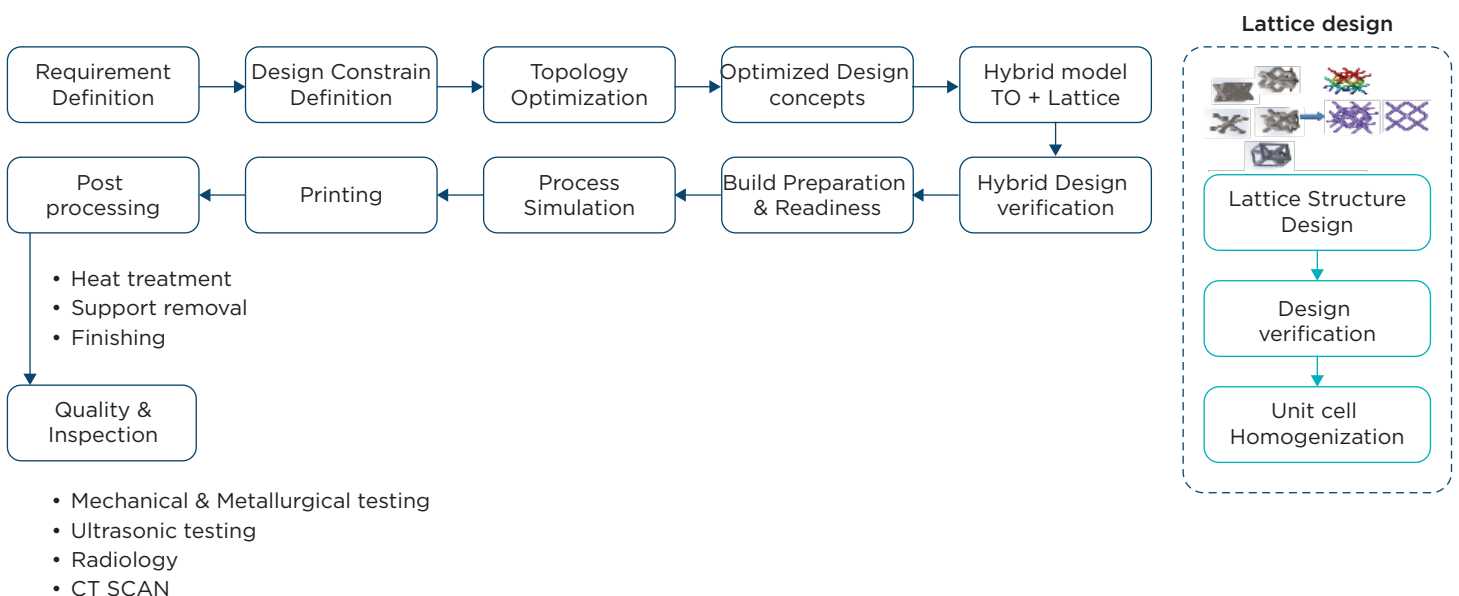
▶ HCL AM Solution and Strategies

HCL's additive manufacturing provides end-to-end 3D printing solutions. Wide-ranging solutions include understanding customer's pain points, conceptualization, product design, design for additive manufacturing, design analysis, technology selection, material selection, build optimization, process optimization, additive manufacturing, and implementation.

One main reason for HCL's success in additive manufacturing is the strategy and techniques employed to arrive at a solution utilizing the full potential of additive manufacturing. Here are the four pillars on which our AM projects are executed at HCL. Each of these pillars has its own robust DfAM framework.



▶ HCL DfAM Framework (Sample)



► Why choose HCL Additive Manufacturing Solutions

Experience

HCL works with customers across major industries to providing additive manufacturing solutions. Our customers are leading global organizations in medical devices, aerospace and defense, industrial manufacturing, and consumer products.

Expertise



Metal Additive Manufacturing	Design for Additive Manufacturing
Polymer Additive Manufacturing	Qualification and Validation
Printed Electronics	Digital Solutions
Ceramic Additive Manufacturing	AM home grown tools

Collaboration

We work collaboratively with various OEMs, AM Software Enterprise, and reputed universities


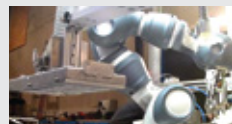
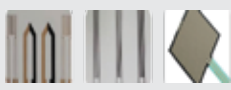


OEM			
Universities			

Tools Assets & Accelerator

Tool Expertise			People Expertise
AM Software	Simulation Software	Design Software	Core AM Engineers, SMEs in Polymer, Metal AM Technology
   	 	  	

► Success Stories and Case Studies

HCL offers additive manufacturing services to various industries such as healthcare, aerospace and defense, industrial manufacturing, automation and transportation, and consumer electronics.

INDUSTRIAL SOLUTIONS				
<h3>HEALTHCARE</h3>  <p>Topology Optimized Lattice filled Hip Implant yielding 20% reduction in weight of the implant</p>	<h3>INDUSTRIAL</h3>  <p>3D Printed Solution for End of Arm Tools for Collaborative Robots resulting in 80% reduction in weight resulting improved performance</p>	<h3>PRINTED ELECTRONICS</h3>  <p>Base Lining-Material, Equipment, Printed Part design, Test Method</p> <p>Metallic conductive, Dielectric, Piezo resistive, Conductive polymer inks</p>	<h3>AUTOMOTIVE</h3>  <p>3D Printed Automotive Door Alignment Fixture</p>	<h3>AEROSPACE</h3>  <p>Reverse Engineering to Printing of Aerospace Value body housing unit yielding a cost reduction of 50%</p>



HCL Technologies (HCL) empowers global enterprises with technology for the next decade today. HCL's Mode 1-2-3 strategy, through its deep-domain industry expertise, customer-centricity and entrepreneurial culture of ideapreneurship™ enables businesses to transform into next-gen enterprises.

HCL offers its services and products through three lines of business - IT and Business Services (ITBS), Engineering and R&D Services (ERS), and Products & Platforms (P&P). ITBS enables global enterprises to transform their businesses through offerings in areas of Applications, Infrastructure, Digital Process Operations, and next generation digital transformation solutions. ERS offers engineering services and solutions in all aspects of product development and platform engineering while under P&P. HCL provides modernized software products to global clients for their technology and industry specific requirements. Through its cutting-edge co-innovation labs, global delivery capabilities, and broad global network, HCL delivers holistic services in various industry verticals, categorized under Financial Services, Manufacturing, Technology & Services, Telecom & Media, Retail & CPG, Life Sciences, and Healthcare and Public Services.

As a leading global technology company, HCL takes pride in its diversity, social responsibility, sustainability, and education initiatives. As of 12 months ending on March 31, 2021, HCL has a consolidated revenue of US\$ 10.5 billion and its 176,000+ ideapreneurs operate out of 50 countries.

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