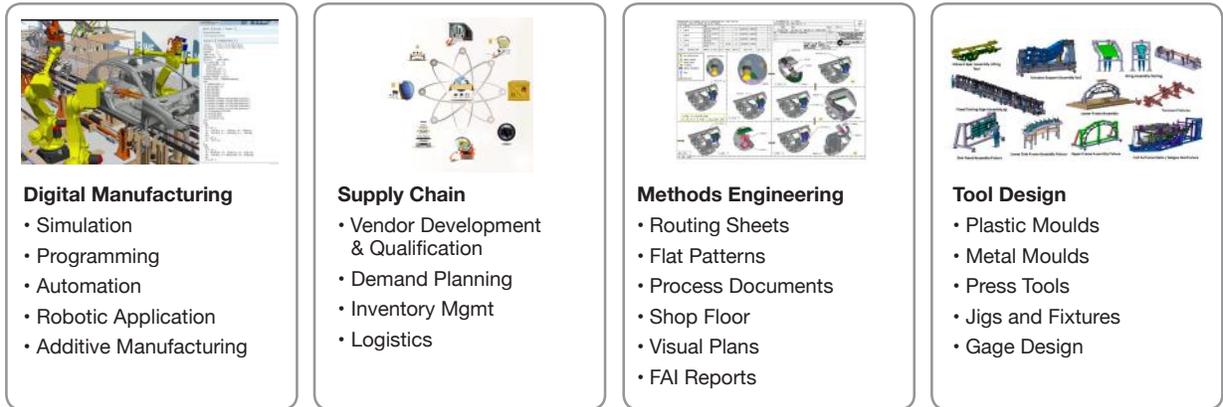


# EXPERIENCE 21<sup>ST</sup> CENTURY **MANUFACTURING**

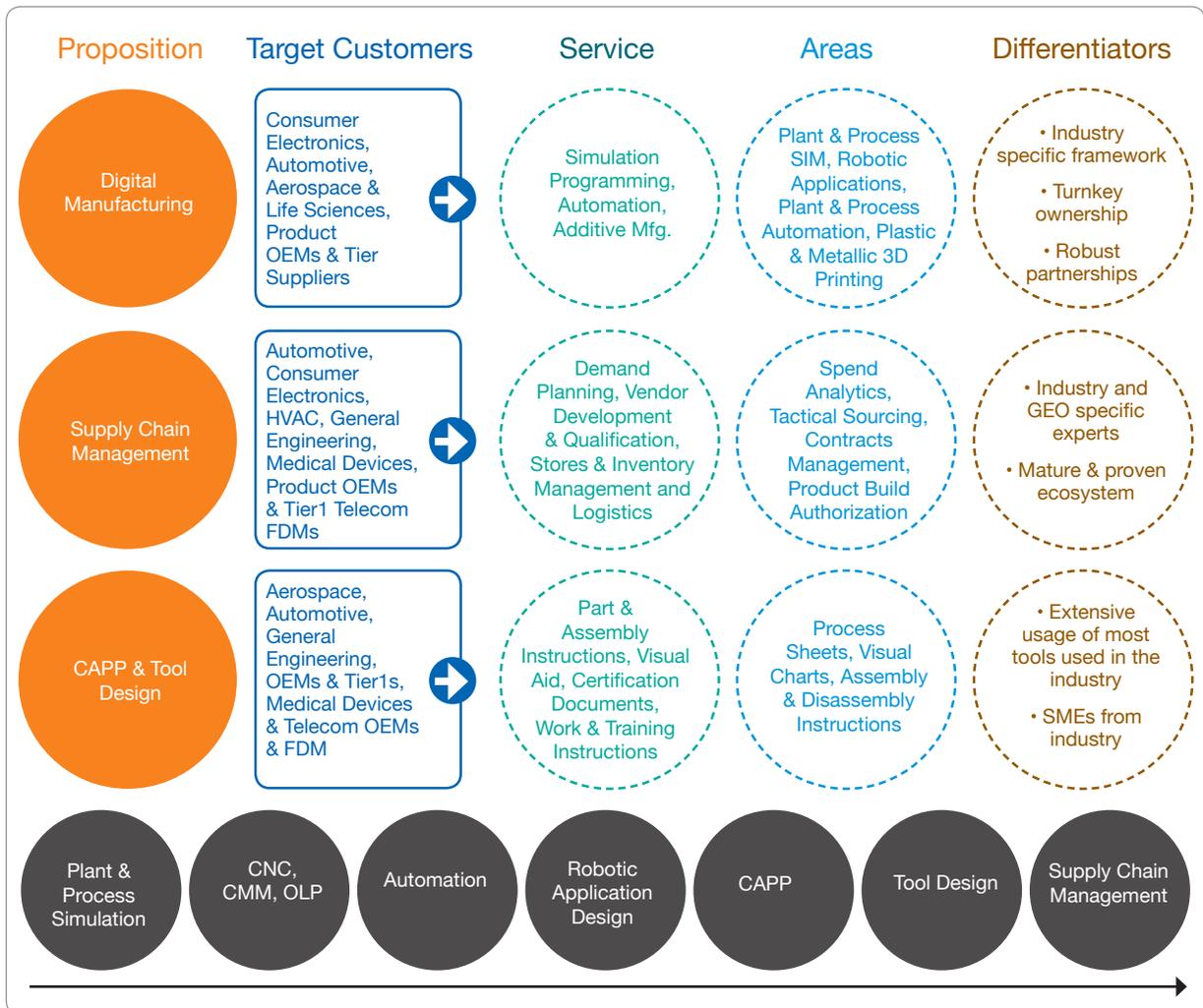
**MANUFACTURING  
ENGINEERING  
SERVICES  
BY HCL**

Digital revolution is disrupting the manufacturing space across the globe with efforts like Industry 4.0, Make in India, Made in China 2025. Advancement in Automation, Artificial Intelligence, Additive Technology and IOT, demand the depth and width of capabilities to be realized in the Digital Manufacturing space. We help our customers to complement traditional manufacturing engineering services like Computer Aided Process Planning (CAPP), Tool design, Supply chain management with latest digital technologies around Simulation, Programming & Automation (SPA), Robotics, Visual Instructions and Additive Manufacturing.

## MES PORTFOLIO



## DETAILED SERVICE OFFERING



## Digital Simulation

HCL Digital Simulation service is comprehensive proposition service, where we design, model, build and simulate the manufacturing facility for production schedule validation, bottle neck analysis, throughput analysis, station identification, process & material flow validation, robot & human process feasibility and deployment. We predominantly use Siemens Tecnomatix solutions & DELMIA from Dassault Systemes.

## Plant Layout Engineering

We work on both brown field and green field project discrete manufacturing layout definition and detailing work. We use both 2D and 3D approach for visualizing or create a mock up. Extensive application of lean process for effective spacing, gangway and material routes, and ergonomics.

## Process Engineering

We offer process design & simulation services to achieve process work flow definition and configuration. A detailed study of the product and manufacturing process by industry experts, and vendor facility. We have a dedicated team capable for doing Cost Engineering.

## Programming

Our focus here is to deliver total machining solutions using most makes of CNC machines and compilers. We also provide tool path verification files for a error free machining programs. We also specialize in CMM programming and have delivered solutions based on our customer's specific needs. We have experienced industry consultants to code OLP (offline programming) for Robots.

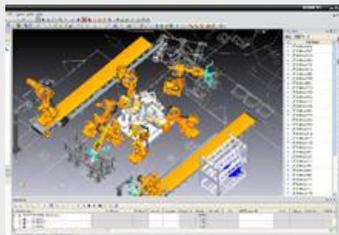
## Automation

Our manufacturing engineers are capable of optimizing the existing or new automation systems using 3D robotic work cell design using Process Simulate, Siemens Tecnomatix, RobExpert & Robcad. We study the customer requirement to develop and deliver concept solutions, automation system design & configuration. We work closely with our customers to implement and make quick changes to achieve an efficient line.

## Additive manufacturing

We have a trained team of engineers who specialize in design for 3D printing. They are conversant with FDM, DMLS, DMD, SLM & PolyJet additive manufacturing technologies. We can also realize the product samples and can help manufacturing the parts through our strategic partners Stratasys & CMTI in Bangalore, India.

## PROOF POINTS



### Process Design for automotive weld line

Designed and simulated using Tecnomatix tool to achieve product and station details (PERT), weld spot distribution, automatic weld gun selection, cycle time study, ergo study & PLP plan.



### Automation by Robotic application, Simulation of automotive weld & hemming line

Automation design & simulation for a automotive OEM with details of 3D layout definition of automation workcells, automation tools for robot placement, equipment selection, path planning and optimization, program generation and collision detection.

For more details please contact: [ers.info@hcl.com](mailto:ers.info@hcl.com)

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*Relationship*<sup>™</sup>  
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**HCL**