Virtual Manufacturing: Service offerings

- Commonality
- Engineering change management

Product design

- DFA/DFS/DFF
- Tool validation

Process design

- Torque selection
- Tooling selection
- Process flow sequencing

Product Validation

- Human validation
- Assembly validation
- MBOM validation

Process Validation

- Time study
- Line balancing

Assembly Process Planning

- Torque selection
- Torque & tooling lists
- Time standards
- Safety Equipment information (PPE’s)

Standardization

- Work instruction
- Torque & tooling lists
- Work instruction
Virtual Manufacturing

Process Validation
- Bill of Material Consumption
- Manufacturing Operation Sequence

Tooling Validation
- Torque Tool Access
- Clearance & Interference
- Human Reachability and Access

Ergonomic Validation
- Visibility
- Reachability
- Accessibility
- Safety Criteria for Fixture, Material Lifting, Torque Tooling
Robot Simulation

Safe-Robot Evaluation

- Virtual validation
- Multivariant flexibility for increased productivity
- Safe move technology

100% Safety

3 Variants

PLC controlled

100% Poka-Yoke
Assembly Simulation

- DFA
- Product assembly validation
- Tool selection
- Hand space/Tool space check
- Assembly sequence definition

Scope

- Automotive NPI – Assembly and Ergo simulation & validation

Input

- EBOM, Layout

Deliverable

- Audit/validation reports, Virtual build, Assembly simulation/Visual work instruction

Software

- DELMIA V5 – Assembly Process Simulation