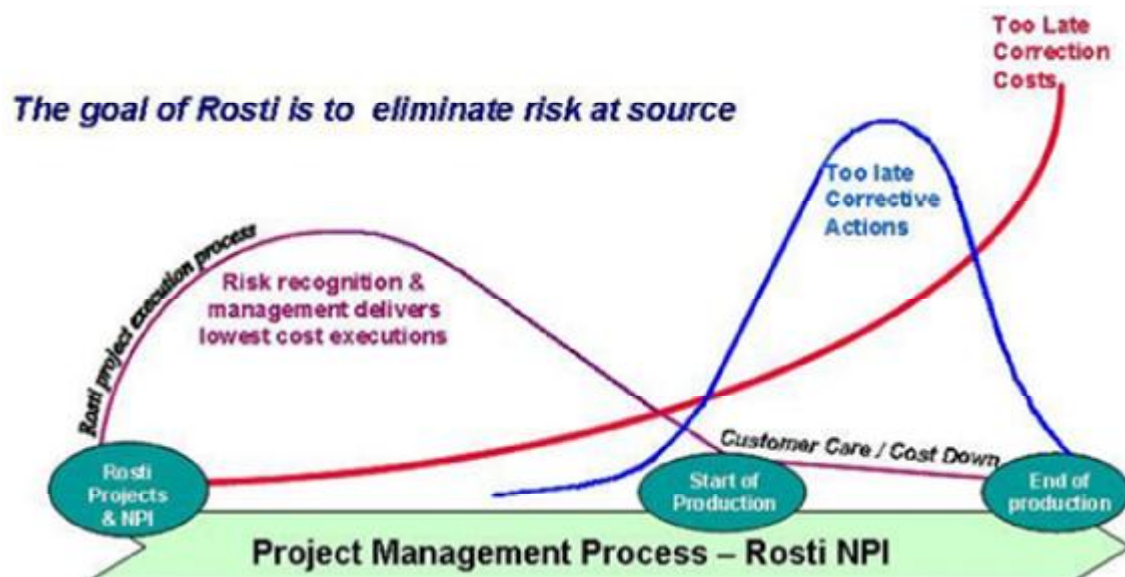


Manufacturing Strategy & Economic Environment 2009 - 2010

Over the course of 2009/2010 the role of the manufacturing company is being redefined. Customers are reviewing, re-casting and honing strategies to meet the challenges of the post financial crisis global economy. Suppliers are being re-categorised and supply chains re-configured to release new value. A window of opportunity was opened during 2009 allowing unexpected churn in supply chains the window will probably close again before the 2010 year ends and supply chains will solidify once more. Rosti is well placed and its strategy had been in place for more than 5 years continually evolving in a "value adding" direction.

Customers Requirements

There is no one definition or solution for meeting customer's needs. Customers describe their supplier's roles as: Manufacturing Partner, Solution Provider, Contract Manufacturer, OEM (Original Equipment Manufacturer), ODM (Original Development Manufacturer) and they endeavour to categorise suppliers accordingly but often customers will require strategic suppliers to fulfil roles differently on a project by project basis. However it is called customers require the ongoing reduction of "Risk" in its many forms to be coupled with competitiveness.



Competences

Rosti has focussed its strategy with a "Customer Care" policy that includes a detailed list of "must have" competences that are brought into play in whatever location is demanded by our customers globally. Those competences have to meet the following deliverables:

- Project Management
 - o Project structures.
 - o Specification of work packages.
 - o Resource planning.
 - o Time line management.

- Design Support
 - o Concept origination support.
 - o Product Cost & Development Budgets
 - o Design for Manufacture (DFM).
 - o Functional validation.
 - o Environmental integrity.
- Programme Execution
 - o Strategic processes "In House"
 - o Process design and risk analysis, 6 Sigma & DOE (Design of Experiments) procedures.
 - o Supply Chain strategy & development.
 - o Tooling & automation management.
 - o World Class HR (Human Resource Planning)
 - o Safe Start procedures.
 - o LEAN manufacturing practice developed within Kaizen workshops.
- Customer Care
 - o Service & reporting excellence.
 - o Ongoing zero PPM strategies.
 - o Ongoing cost reduction planning & timed deliverables.
 - o Ongoing strategic reviews.

Support Tools

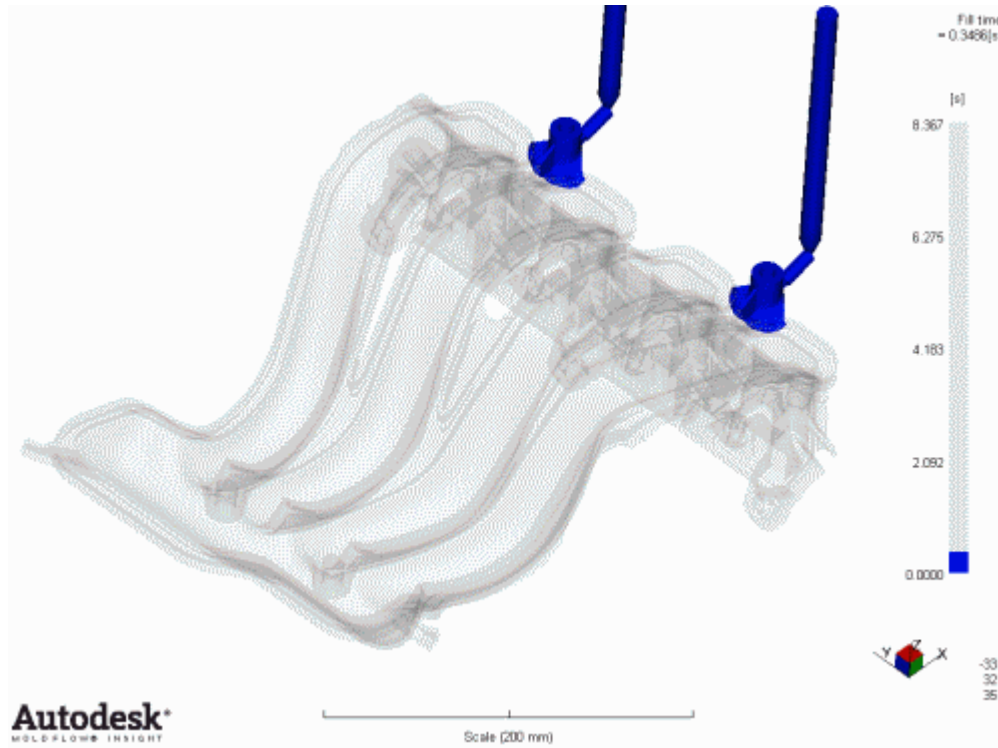
Rosti has invested strategically in leading enterprise and technical support tools to ensure that the "must have" competences above can be delivered with minimal overhead burden. The key investment areas have been:

- ERP (Enterprise Resource Planning) Microsoft Dynamics AX 2009
- CAD (Computer Aided Design) ProE, Unigraphics NX, Catia and Autodesk Mechanical.
- FEA (Finite Element Analysis) Ansys NLS (Non Linear Structural) validating functionality in design.
- AMI (Autodesk Moldflow Insight) in depth optimisation of part, tool design, cost and risk.
- AMA (Autodesk Moldflow Advisor) fast response cost-reduction and risk avoidance.

Example Case Study and Deliverable.

1. Design Support & Programme Execution

In the early phases of design, iteration is needed between commitment to a design concept, selecting manufacturing processes and optimizing a product design for manufacture. An example of Rosti inputs to this "early supplier involvement" is shown

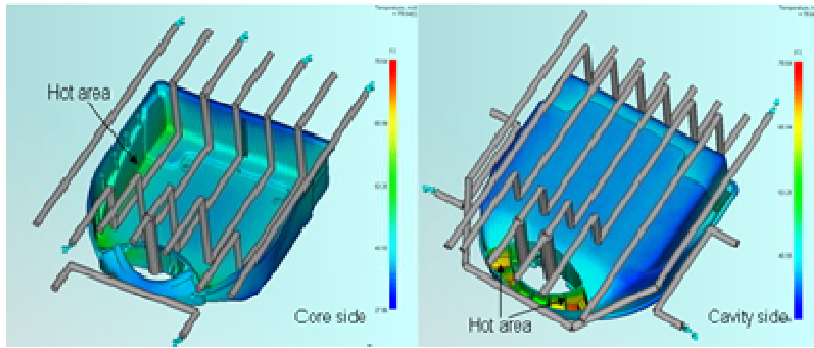


The complex automotive component above is an innovation. It is one piece of a two piece plastic inlet manifold system. Earlier generations of this assembly used more components to eliminate the complex geometry and avoid mould-ability issues. Rosti accepted the challenge of optimising the customer's concept and developing ground breaking tooling to deliver the system on time.

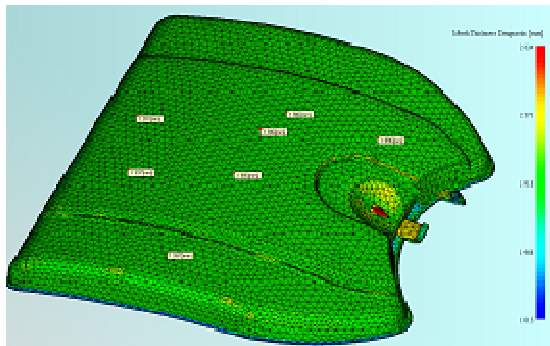
Deliverables were: Lowest achievable cost to secure an automotive competitive advantage, zero PPM failures in functionality, on time delivery of samples for integration into the vehicle, relocation of production from Europe to China for start up. All of these deliverables were achieved.

Functionality: The assembly is joined by vibration welding and becomes a pressure vessel that must be capable of withstanding severe static and dynamic loading. The assembly provides precise features for its location on the engine and for mounting further monitoring devices.

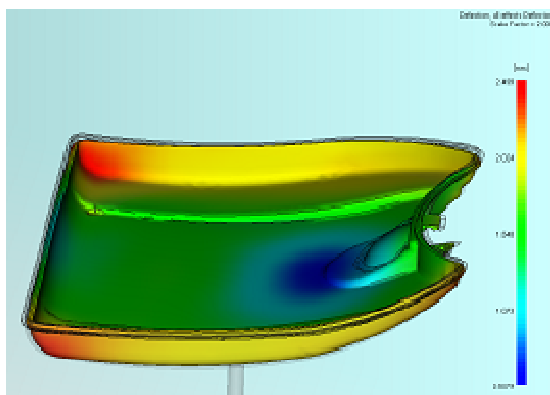
Issues Overcome were: The complex geometry generated uneven wall thicknesses which had to be removed to eliminate risk of: internal voids, uneven shrinkage and warping. The injection mould tool was a masterpiece of telescopic cores and complexity. It was essential that the tool could deliver even cooling to the part to ensure good dimensional control. Optimum component gating and process management of the resin flow fronts was mandatory to ensure that the assembly met its pressure test parameters.



Above is a typical analysis of cooling efficiency. This advanced modelling will ensure: stable geometry of the moulded part and an optimised cycle time for competitive cost.



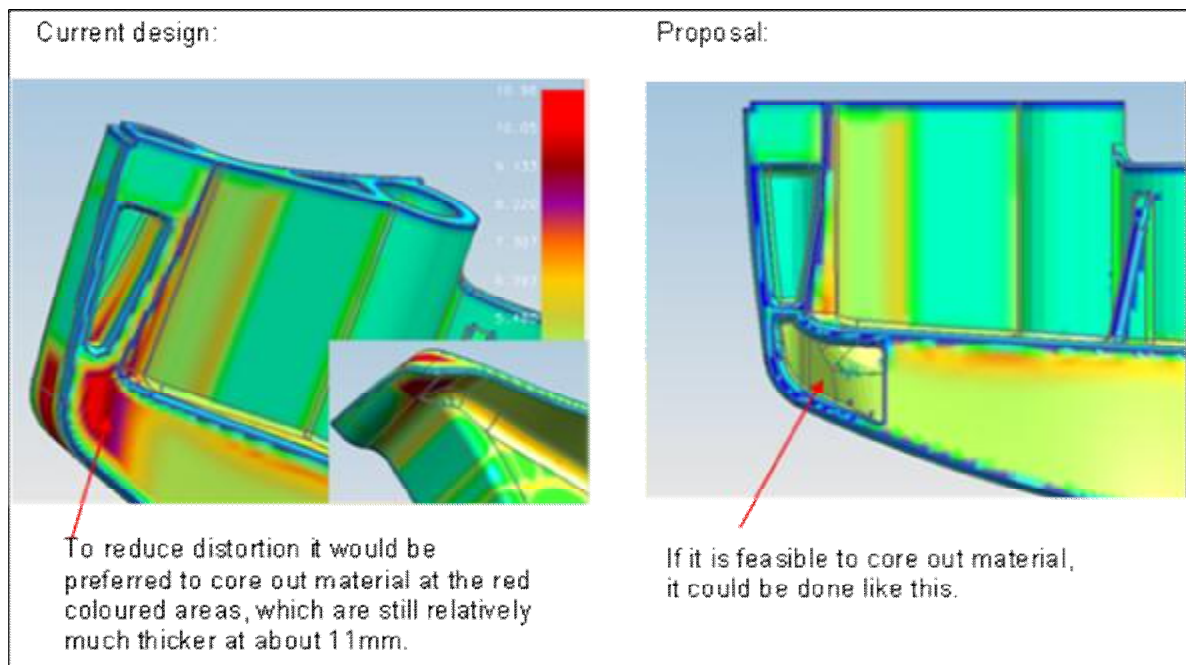
Above is a typical 3D mesh as used in both flow simulation and stress analysis packages to replicate an actual moulded part. Rosti have saved its customers significant development cost, material cost and lead time to market. Major projects can now have little or no prototyping expenses and go directly to "Hard tooling".



Above is a typical analysis of potential warp. Rosti will generate benefits such as:

- Optimum gate positions to ensure maximum possible process window
- Minimisation or elimination of weld lines and air traps.
- Uniform wall sections and weight reduction.
- Perfectly matching interfaces in assembled components.
- Long term stability of assemblies.

Rosti has earned a high reputation for the assistance we give to our customers design teams. An example of our input is shown below. The results of our analysis are very often modelled into solutions for implementation by our customer. The service is total: Identify the Risk, Quantify the cost of failure, Develop the Solution, Support the Implementation.



2 Design Support and Project Management

Customers from time to time relocate their centres of excellence sometimes even between continents. Rosti has supported new design teams on a multi-centre basis while they create new products. In 2008 Rosti overhauled its NPI (New Product Introduction) process to ensure that the very best practices available were incorporated globally. Rosti provides a seamless flow of technical analysis and guidance for the programme decision makers this in turn creates high quality information for the project implementers.

Rosti believes that because of the benefits which accrue part and process analysis is a core competence that must be available continuously to all of its sites. Whether engineers enquire regarding; new processes, design changes, new tools or new materials or the Rosti sales team enquire on behalf of a new customer they will get a timely state of the art report with attention to the detail

of how to optimise a solution either directly or via a specific design of experiments.

Conclusion

Rosti is bringing the highest quality of technical support to its entire global operations a benefit to its customers in every region. The systems that Rosti operates and its ability to deploy them globally will delivers a step change in customer expectations of Suppliers. Competitiveness is delivered at the concept stage and every execution stage of product development and manufacture.