

**APPENDIX 1.****FORESIGHT SUMMARY: 2004 – MAGNESIUM****BUSINESS DRIVERS VERSUS TECHNOLOGY NEEDS**

<b>BUSINESS DRIVER</b>	<b>ISSUES</b>	<b>TECHNOLOGY &amp; INNOVATION NEEDS</b>
<b>Market competitiveness</b>	Cost of conversion to product  Corrosion resistance	Optimised casting processes Wrought alloys with faster extrudability, easier formability, etc. High volume production technique development. More corrosion resistant alloys. Techniques to eliminate galvanic corrosion. Low cost surface treatment for protection and aesthetics
<b>Superior product characteristics/Brand differentiation</b>	Application of Mg for lightest weight solutions  Increased knowledge base for cost effective product design in Mg Light weighting in automotive  Light weighting in aerospace  Improved medical devices  Mg in consumer products/electronics	Improve public awareness and perceptions of Mg. Education of potential users Lower cost alloys with improved properties and performance. Application of state of the art forming processes. Material and performance data for effective modelling and design of components. High temperature alloys for transmissions. Alloys with better crash deformation characteristics. Improved joining techniques. Improved components by rheoforming/casting. Lower cost corrosion resistant alloys. Demonstrators for use in airframes/interiors. Exploit light weight and biocompatibility to develop new implant devices Exploit EMR shielding and damping advantages. Cost effective decorative coatings
<b>Material sustainability</b>	Recycleability  Use of hydrogen as a non-polluting transport energy source	Identification, segregation of EOL vehicle scrap. Efficient recycling of EOL scrap to high purity standard. Special Mg alloys to utilise high hydrogen storage capacity in portable storage systems

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<b>Environmental concerns</b>	<p>Minimising automotive engine pollution.</p> <p>Reduced energy consumption</p> <p>Elimination of greenhouse gas emissions in manufacturing processes</p>	<p>Use of lightweight Mg engine and transmission components.</p> <p>Use of Mg for weight reduction in automotive bodies/chassis.</p> <p>Minimum weight Mg components in road/rail transport bodies.</p> <p>Replacement of CFC, HFC protective gases with cost effective alternatives</p>
<b>Changing Demographics and lifestyles</b>	<p>Supporting an ageing population</p> <p>Sporting and leisure equipment</p>	<p>Lightweight Mg appliances for elderly and disabled.</p> <p>Lightweight robotic aids.</p> <p>Disseminate relevant material and performance data to manufacturers</p>