

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

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

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Environmental concerns	<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>
Changing Demographics and lifestyles	<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>