Auto leads MEMS momentum

The promise of minute integration of mechanical and electrical devices has been with us for many years and MEMS has been tipped as the next big thing for some time. Now the reality is catching up with the hype but not necessarily in all the areas observers imagined.

There is no technical challenge to building many of the MEMS devices conjured up in the mind of engineers and researchers around the world. The potential uses that are being explored infiltrate almost every aspect of the technological world. In the future MEMS will be one of the drivers that pushes technology into new arenas of influence. They will become more pervasive in our everyday lives. The main reason many of the imagined devices are not with us is the economic need to be able to manufacture these devices in enough volume that the cost of manufacturing delivers a return.

This is why there is a keen eye on the ongoing development of MEMS manufacturing on current manufacturing platforms, especially semiconductor manufacturing. There are many similarities between MEMS and semiconductor manufacturing but the major difference is the shape and size of the finished product. Semiconductor devices tend to be a simple rectangular shape but a MEMS device can be almost any shape in the finished product. This places greater pressure on the packaging and assembly of MEMS to develop novel methods of mass production when the shape of the device changes from run to run.

Thank goodness for the automobile industry that has provided enough of a market for MEMS devices to be made in considerable volume that interest, research and development continued. Without the cash not a great deal happens and the automobile example has shown the evidence that MEMS provides enough improvement for the risk of investment.

As editor of this title I come across an enormous range of MEMS based products that are entering the market or in development. It constantly amazes me how many different industries will be affected by the introduction of MEMS devices. In many cases the basic design or idea is relatively simple but MEMS based manufacturing provides new methods to develop devices that will provide reliable and extremely sensitive feedback to aspects of our daily life we cannot either see nor rarely notice.

It will be some time before MEMS devices provide enough manufacturing volume for companies to develop MEMS specific solutions but the evidence of the development is through a number of industries. The sheer number of government based MEMS development centres around the world show how much potential is seen in the burgeoning industry. My only concern that much of the research will not be interconnected leading do duplication and a waste of research resources. The semiconductor industry has shown that this level of industry can no longer operate in isolation so collaborative programmes need to be encouraged with pro-active participation.