

New ideas in 22 parts

Previewing a NMW 2011 workshop on generating new manufacturing ideas

By Dr John Blakemore

Innovation is the key idea shaping business strategy this decade – and it's easy to see why. The challenges facing manufacturers (overseas competition, margin squeeze and environmental pressures, to name a few) are beyond the range of old-school management thinking. Today's challenges demand that leaders think in very different ways, and conceive previously unimagined strategic options.

The good news is that most technological innovation can be characterised as changes to one or more of 22 different aspects of products, in order to better meet customer needs.

The 22-part formula applies to most new product advances: even those that seem revolutionary, such as Ben Lexcen's iconic winged keel that was held as the reason Australia II famously won the America's Cup race of 1983. (I was privileged to meet Ben Lexcen just before Australia's victory, which is still celebrated as a win for a small country – Australia – against the most powerful nation on earth in a battle of technology and brain.)

Clearly, Ben clearly thought outside the square, by designing the boat to sail more effectively to windward, overcoming the apparent disadvantage of a shorter waterline length with the sharper rake between waterline length and overall length.

But how did he come up with the idea? I'm not going to suggest he applied the 22 part formula outlined below. But by applying that formula retrospectively to the winged keel, we can see a process that any manufacturer can use as a starting point their own product and process improvements.

The 22 aspects include properties; space; order; energy; shape; movement, friction; magnetism (attraction or affinity); gravity; dissecting; fragmenting; self-service; copying; coatings; blending; phases; solvents' oxidation; potential; combination; multi-use and prevention.

Below is a summary of how some of these properties might have been applied by Ben Lexcen during the development of the famous winged keel.

Table: Some of the 22 Creative Ideas Applied to Australia II

	A Change	B Example	C Result
1.	Properties	No change as far as we know. Both Liberty and Australia II were made from the same or similar materials.	No difference
2.	Space	Australia II was lighter than Liberty since she was a smaller boat and therefore would be faster.	Less volumetric displacement for Australia II therefore she would be faster.
3.	Order	The major variables would have been listed and prioritised.	Sail Area and weight are probably the most significant, so once again Australia II with more sail area and being lighter would be faster
4.	Energy	Greater lift to windward would be generated by the winged keel as it heeled since the depth to width ratio would be greater.	Australia II would be faster to windward and suffer from less leeway.
5.	Shape	Shape of the wing on the keel had to be downwards to gain maximum benefit	Better, faster and more uniform tacking by Australia II
6.	Movement	Keel would effectively act as a stored energy spring as the yacht	Australia II would be faster.

		heeled	
7.	Friction	Australia II as the smaller boat would have less wetted surface area therefore less friction	Australia II would be faster.
10.	Dissecting	Dissecting the major variables and prioritising enabled the analysis to come up with a superior design	Thinking outside the square and ignoring the age old idea that the boat had to be longer to faster.

To be successful in the future, businesses will need to undergo continuous innovation in process, product and service delivery – and people in our industry will need to use all the idea generating tools available.

The creative ideas listed above might just spark some new thoughts for manufacturers – and will serve as a springboard to deeper analysis for those attending the Future Innovations workshop at National Manufacturing Week.

Dr John Blakemore has consulted to more than 400 companies – including Australia and the world’s largest organisations – on business improvements. He has been listed in Who’s Who in the World since 1995 for his contribution to International Management Consulting – and in 2007 was voted one of the Top 10 Engineers in Australia for Engineering Innovation, by the Professional Institution of Engineers.

John will be hosting a workshop at NMW 2011 (May 24 – 27 at the Melbourne Convention Centre) on ‘Future Innovations’ – at which he will expand on how manufacturers can generate new ideas. For more information, visit www.nationalmanufacturingweek.com.au