



Perfection in design

Too often an alternative design seems inconceivable where familiar objects are concerned. Murdoch Mactaggart learns of a company founded on commercialising the lateral thinking behind a stylish new design for a venerable office and household object.

ANTOINE DE SAINT EXUPÉRY REMARKED that a designer knows when he has achieved perfection - not when there is nothing left to add but when there is nothing left to take away. Albert Einstein held a complementary view, remarking that any intelligent fool can make things bigger, more complex and more violent but that it takes a touch of genius - and a lot of courage - to move in the opposite direction. Good functionality is also a critically important aspect of good design.

"I'd been studying at Imperial College in 2009 and at the same time Min-Kyu Choi was studying design at the Royal College of Art, literally across the road, when we met." explains Matthew Judkins, MD of Made in Mind. "Min-Kyu was then working on his end-of-year project, looking at improving the design of an everyday object. Thinking about the problem he came up with a sketch, the first articulation of what we now call the Mu. We put our heads together, decided to move things on from concept to business and so we established Made in Mind that same year."

"Functionality is a key feature but it's a design-led product and the aesthetics are really important"



Matthew Judkins

The Mu, its name as compact as the product and got as a result of an open competition, is a USB charger version of a 13 amp plug which, through ingenious folding, reduces to a block about half an inch thick. Despite achieving dimensional reduction of more than 70% on the standard UK plug the Mu is fully functional, meets the required BS 1363 standards and seems satisfactorily robust. This first version of the product, a USB charger, has a socket for a standard lead for a smartphone, tablet, or similar device.

Trends and markets

"A question we approached early on was what products to create from the starting point of the concept we'd developed." says Judkins. "We looked at market trends and also at efficient routes to market. The trends for USB charging products are very much on the rise so it made sense commercially to do that. And for this type of product there are actually two markets - selling direct through retail channels or looking at wholesale, getting the product bundled in with other products The Mu complements the general focus on slimmness beautifully. It's also a genuinely beautiful product and compared with a smartphone it's not an expensive addition."

"The key thing about funding is to get the timing and the proposition right"

"A further benefit is the number of market locations. For historic reasons around fifty countries use the UK style plug - Hong Kong, Singapore, Malaysia, pretty much the Middle East in its entirety, north Africa, among others. So that's a large potential market and by building a solid product for the UK initially we can then extend to different products for different countries."

From concept to product

Moving from concept to production can be time consuming and expensive. It involves initial design, proofs of concept around the mechanics and functionality, and testing for standards compliance. You need also to ensure that appropriate intellectual property



protection is in place, typically not only for designs and trademarks but also for product and manufacturing processes.

"To take something from sketch to mass manufacture you need a series of proofs of concept and we do our concept work here in the UK at the Royal College of Art and at University College, London, using rapid prototyping techniques. When those proofs show what we need we can then move on to specialist engineering companies, in our case in Switzerland, to get more detail into the proofs of concept and then finally we can move to the full mass manufacturing, done for us in South Korea." adds Judkins.

"Min-Kyu is from South Korea and that's helpful because he can embed himself into the factory to get the product just the way he wants it. Functionality is obviously a key feature but it's a design-led product and as the aesthetics are really important that's one of the reasons we needed to interact efficiently with the manufacturing company."

Cash in stages

This attention to important detail is expensive but Made in Mind appears to have taken a clear and well-considered path to funding as well as to design and manufacture. Judkins has an Executive MBA from Imperial College, has won awards for entrepreneurship and for venturing, and has experience with raising funding for and growing successful start-ups, later exiting profitably. His approach, therefore, was to raise funding in appropriate stages beginning with just enough to start and to get to the stage when the company could seek support for producing a proven product with a clear market demand rather than for a concept with relatively unknown potential.

"There are three big cost areas:" explains Judkins "prototyping and manufacture, intellectual property, and finally time and staff costs. IP is fundamental because by way of functionality alone we're producing a commodity item and so we need to ensure we're not developing something for someone else just to start to use free. We funded things in stages, beginning in an incubator affiliated with Imperial College where we got start-up cash sufficient for the initial prototyping and our first suite of patents. Then in 2011 we marketed ourselves for angel investment and raised around half a



million pounds, sufficient for the tooling side of things and to launch the product."

"The key thing about funding is to get the timing and the proposition right. If we'd gone for funding before we'd refined the concepts around the design and got some IP in place then it might have been difficult so we developed the proposition as much as we could, bootstrapping things and funding some of it personally. This meant we could approach investors and say, look, this ready to go, would you like to join us? And they did. At the moment the tax advantages for angel investment are brilliant and as our business is EIS approved we've attracted a lot of investors."

Despite the clear potential of the product and despite Judkins having just exited a successful business sold to a multinational, something which had won him a couple of Enterprise Innovation awards from major banks, Judkins was unable to get any bank support.

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"Unfortunately banks just don't back early stage funding. If you're generating revenue and you've got clear commercial traction banks will probably come in - but then you probably don't need them. It's uncertain to me what role banks actually play in our state and I'm not sure on what criteria they actually lend. There may be enthusiasm at branch or regional level but then it gets kicked upstairs to evaluate risk and seems invariably to come back negative."

Importance of design

Asked about competitors Judkins stresses the importance of design and aesthetics. "Typically you'll have two approaches - an engineering approach, which usually results in a fairly ugly if functional product, or one where the designer will think first about the aesthetics and then work out how to engineer the product. The challenge there is that you end up with a long product development process because the mechanical design is usually more difficult. But it's not just about building a functional product but also about making accessories that people want to buy and own and in that space I think we've carved out a good position. People talk about the Mu and show it off to their friends and that's a good position for us."

The plug itself is not just stylish and slim but presented in a thin, elegant package, off-white with silver and grey lettering which also acknowledges Robin Freeman as the person who came up with the name Mu. The company has won several awards including Designer of the Year and, recently, one offered by Ingenious Britain.

"There's three significant steps in developing a product," adds Judkins "Our core, the activity we're best at, is around product design, innovation, IP and creating a suitable business model. Then there's the manufacturing and the selling, activities which in our case rely on outsourcing and partnerships. And I think this is generally true for British businesses. Where we can really make a difference is through the innovation and the thinking side of a business and so as a country that's where our focus should be."

Venerable and functional

The 13 amp plug, now ubiquitous in the UK and widely used across the world, is older than many would first guess. It first appeared in 1946 with the related standard, BS 1363, dating from 1947. Initially used for new installations the 13 amp plug had all but displaced its predecessors by the 1970s.

Unlike these earlier plugs where the different current ratings - commonly 15 amp, 5 amp and 2 amp, although there was also a 30 amp version - were of different physical sizes and so not interchangeable in use the 13 amp plug comes in a single size with an improved range of safety features. It manages varying loads by using different ratings of fuses to complete the circuit and requiring sockets to be designed with shutters over the earth connection so that, theoretically at least, only properly compatible plugs will fit.

The functionality, robustness, general safety and the flexibility in use of the 13 amp plug is acknowledged and many millions are in daily use. However these are bulky objects, some 4.5cm, or approaching two inches, in each dimension and are hardly objects of elegance or beauty. The difficulty in designing a more stylish and compact version lies principally in the characteristics mandated by standards of the three prongs both spatially and in their individual physical dimensions. This apparently necessary bulk of individual plugs in turn dictates the physical characteristics of collections of sockets and so has major space-use impacts, perhaps particularly in kitchens and in offices, as well as on packaging.