What's driving **design?**

What are the first questions you ask about any new design project?

SK: What is the client looking to achieve? Obviously, the answer is always 'to make more money', but how you achieve that: whether it's by increasing market share, cost reduction or increasing competitive advantage and the perceived value of products. Understanding those goals is the first element.

The other key thing is to understand who's using it and why they're using it. What are their problems with it? Why do they use competitor products? Once you understand those areas of differentiation, you understand the opportunities to deliver advantages.

MC: We ask a series of questions and try to cover all six factors that cover design: Does the concept or design meet real user needs? Is the enabling technology appropriate to what we're trying to do? If it's not, someone else will compete with something that is appropriate or cheaper or whatever. Is the supply chain behind the product appropriate? Does the product fit the business strategy of the company you're working with? Does the product display the values of the brand? Is the product going to fit into the market you're aiming it at?

What we try and do is look at the thing holistically. You can't just look at the engineering; you can't just look at the IP; you can't just look at the technology. You could get all those things right, but if one of the other things is wrong, you're not going to get the return on investment. The customer is always the most important thing. It's very tempting in a technology space to fall in love with a nanotechnology or a photovoltaic solar panel, but at the end of the day, you have to bear in mind that the customer is paying, so – no
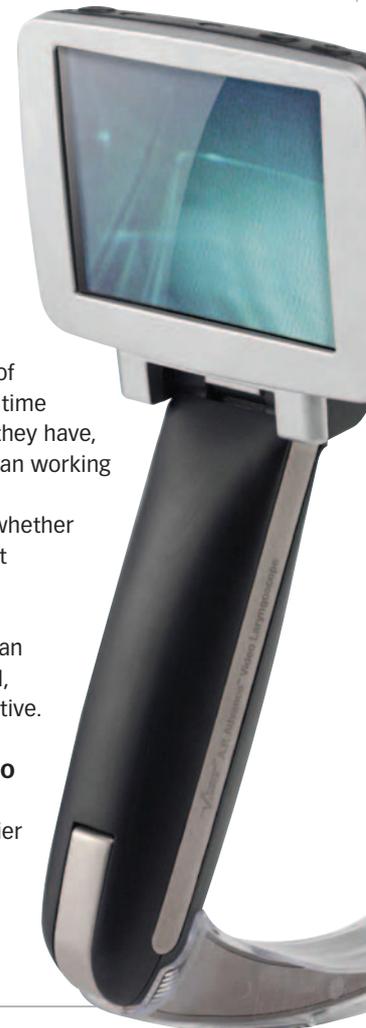
matter how great the technology – that's where you've got to start.

EW: We're up near the higher end, so there are likely to be compelling reasons to come to Cambridge Consultants. One of those reasons tends to be that time to market is compelling, so there's a need to get there quickly. One of the things I often ask to determine whether it's our type of project is to ask whether the client has time to get it wrong and have another go. If they have, then they can probably do it cheaper than working with us.

One of the other points I look for is whether the project is multidisciplinary. If it's just software coding, for instance, there are cheaper places to do it, but if there are elements of software, mechanical, human factors, design interface and if it's novel, then we really start to become competitive.

What are the biggest obstacles to successful design?

MC: Corporate lethargy – It's much easier to do nothing than something. The risks are lower, it's cheaper. Markets are changing all the time, but people don't notice slow changes, which makes it

Paul Fanning asks representatives of some of the UK's leading design consultancies what trends, drivers and technologies are affecting product development.

Mike Cane
Founding Director
Cambridge Design
Partnership

Stephen Knowles
Managing Director
Industrial Design
Consultancy

Eric Wilkinson
Chief Operations Officer
Cambridge
Consultants

easier to do nothing because slow changes don't force you to do something. In product development, you've got to inspire people to do it and give them confidence. That can only be achieved by good preparation and good analysis.

The other one is understanding what customers want, which is more difficult than you'd think. Customers react to what's around them and to what they've already got, but if you want to make a step change, you need to really understand their motivations rather than their current reactions, so you need processes to allow you to do that.

SK: The big influencing factors we see when facing a new design are, in common with many industries: 'Better, cheaper, quicker', basically. Those in various combinations are the biggest things.

The obstacles are where there is not enough time or money to make the improvements you'd like to. But you have to cut your coat according to your cloth.

EW: One of the things that can cause the wheels to come off down the line is if there are unclear objectives. We're often starting with a relatively clean sheet of paper and different parts of the client organisation can get carried away and start putting in objectives that they don't really want and that no-one will actually pay for, but that seem like a good idea at the time.

Right from the start we try to make sure that they can make whatever we're designing. So our project managers are trained to find out where the product will be manufactured and to ensure that any parts or subsystems we build in are either in their parts bin already or can be sourced from their approved supplier list.

What trends do you see emerging in design?

MC: Emerging economies are opening up big new markets for companies, but those markets have very different drivers. So there's a challenge there of 'India has 10% p.a. growth, but what do Indians want to buy? And how do we make it at a price that makes sense?

Sustainability is a key one as well. We're seeing that as a must-have feature. Ten years ago, one in ten projects had sustainability as a key feature, but it's every project now.

The other trend is open innovation. We're finding customers are much, much more comfortable with doing innovative, product development projects with diverse teams – using external teams and companies, outside technology. Previously, large companies did tend to want to do everything in house, but there has been a change. There's now a much more flexible approach

SK: There is now integration between CAD and manufacture. Obviously, the technology has been around for a while, but it's now more widely adopted. It's becoming much more common to skip the engineering drawing stage and go straight from the 3D CAD to the finished part.

Sustainability is another one. With some clients with niche products, it doesn't tend to be a major factor in terms of their design planning, whereas when you move into the more fast-moving consumer goods or medical devices that are made in their millions or hundreds of thousands then it's a very big issue.

EW: If I had to pick out one, it would be that people expect technology to be accessible now. The area that's having the biggest impact is medical technology, where it's no longer enough to receive a treatment, people are interested in the experience of getting it and how easy it is to get.

The other trend is the massive explosion in interconnectivity and what it offers you. Not only does it enhance the user experience by offering additional functionality, but it can offer major user benefits as well. The ability of product companies to become service companies by virtue of technology is increasingly important to much of our client base. No longer can you ship a product and that's it. If a customer is taking advantage of services you offer by virtue of interconnectivity, then their relationship with you is much greater than if they just replace the product every few years.

How has the economy affected how you design?

MC: From our perspective, the various ups and downs of the economy have made things much more volatile. The underlying demand for the products is still there, but companies tend to be much more prone to get cold feet and projects tend to get delayed. They don't go away, they just get delayed.

Companies will do nothing and then, when competitive pressures just get too strong, they'll do all the projects at once, which means that work comes in huge peaks and troughs. There's not a reduction in activity, it's just more volatile.

SK: In the current economic climate, people are tending to be more unsure about projects and are therefore tending to delay making decisions until it's almost too late.

The other trend is that people will start a certain part of the project and then will put it on ice for six months. Then they'll say 'Go!' again. This usually comes down to business risk and available cash in the current economic climate.

EW: Our business model is about getting people to market quickly and offering business advantage. In the past, our customers have tended to include a number of well-funded start-ups. Today, we're

seeing fewer start-ups, but the big blue-chip companies are still pressing on with great enthusiasm because they recognise that having differentiated products offers real commercial advantage.

What is the key to a great design?

MC: Great design works on many levels. It's very unusual that you get a great design that has one outstanding feature and that's it. Typically in great designs, everything is done well and that requires the holistic, multi-disciplinary approach .

You've got to get the software great, as well as getting the mechanical engineering, the design and everything else really great. You have to be a jack of all trades and expert in all of them to create a great design.

SK: The difference between good and ordinary design is the extent to which the way the user interacts with the product is taken into account. That is the real key to whether a product delivers satisfaction, dissatisfaction or real delight with an item.

There are lots of different strands to pull together and it's about bringing those strands together to deliver a product that delivers more than expected

EW: I like to see elegant, balanced design. Something where I can see that the different demands on the design have all been met. I don't particularly like things where expense is no object. I'm much more admiring if something has been designed to a price point and with the capacity for upgrades while also making it fabulous. For instance, I find elegantly designed four-seater cars much more impressive than two-seater cars. If you're designing something of one and a half tonnes, then only carrying two people just seems like lazy design to me.

It's about finding that overlap between elegance, simplicity, price point, upgradeability, low-cost manufacture and high-quality. I admire designs like that.

Can you give an example of design from your company of which you're really proud?

SK: The Video Laryngoscope we developed really encompasses all the best aspects of design. A surgical instrument used in anaesthesia, it delivers real benefits to the users and the patient being intubated as it is less likely to break teeth and create trauma.

It's also making life easier for the anaesthetist. It's a really beautiful product that you really want to hold and that's all combined with all the technology that's inside. It's the way in which the technology, the human side and the aesthetics come together to deliver a top-quality product.

EW: We did an inhaler for an Indian company called SunPharma, who wanted to launch a product as good as anything on sale from established western manufacturers that was better in terms of usability and they wanted to do it quickly. I think we really hit the nail on the head there in terms of the way it looked felt and performed.

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