

Introduction

Better, Faster, Cheaper is what today's consumers expect. And largely, this is what they are getting. Through developments in technology and trends such as lean, JIT and outsourcing to low- cost base countries, products have never been as feature-packed, affordable and developed so quickly and in so many varieties as they are today. So if consumers are getting what they want, what else can business do to win their custom? Like the Pyramid of Human Needs, once consumers get the basics, they want the extras, then the intangibles, products that not only perform, but delight, and products with which they can engage and express their identity. What they want are the things that a good design process delivers.

Today I'd like to go beyond the premise that design is good for business. It is and I'll be demonstrating this with a case study. But done well; design applies innovation to produce a powerful and virtually unassailable competitive advantage for businesses. Industrial design creates the kind of breakthrough products that engage with, delight and enrich their consumers.

But first an introduction to our company and in turn what industrial design is all about.

About CobaltNiche

CobaltNiche is one of Australia's largest product development consultancies and we operate across Australia as well as internationally. Approx 20% of our work is now for overseas-based clients. Our in-house professional team includes industrial designers, product design and mechanical engineers, with additional associates within our building providing complimentary services in automation engineering, branding design, electronics and software engineering.

We use both of the worlds leading computer aided design systems and have developed a number of our own unique idea generation tools some of them based on de Bono techniques and checking systems to ensure quality as well as innovation.

This is a selection of some of our recent work, some of which like the Vic Police booze bus have won recent Australian Design Awards. Our work covers a range of industry sectors including medical devices for Heartsine, scientific instruments for Varian and automotive and electronic products for first-tier suppliers such as Siemens VDO and Bosch. We also develop high-volume consumer products such as all of the new homewares for OatesClean as well as packaging design for companies such as Amcor, CUB and Cadbury-Schweppes.

Whilst this is a diverse range, I hope you can see the common thread is putting innovation into manufactured products whatever their type.

Industrial Design is...

So what is industrial design? Its the application of innovation to mass produced products, from everyday things like your kettle to specialist equipment like an aircraft seat.

We consider the way a product is made, the way it looks and the way consumers use it. Although mechanical engineering is our nearest professional cousin, industrial design also combines more of the fuzzier social sciences such like psychology, aesthetics and creative problem solving to our skill set. Usually we work within

multidisciplinary teams, which can include engineering, marketing, manufacturing, software and installation people.

The Case Against

So if design is so good, I thought I'd confront some of the reasons stopping businesses from using it.

Firstly, design is still relatively unknown and mis-understood by Australian businesses. And of the design disciplines industrial design is the least known. The reason for our lack of profile is largely self-created, but this is changing. Especially in Victoria where the state government has been consistently promoting and recognising the design industry. And recently a growing number design-effectiveness articles written by harder-nose business writers in newspapers and magazines such as Newsweek, BRW, the Australian and the Fairfax press have begun appearing regularly

The second reason is cultural. Unlike some European countries, Australia does not have a long crafts or manufacturing tradition. There is no Australian version of household product brands such as Nokia, Sony or Dyson. Australians generally and manufacturers in particular often see design as costly fluff and only use it begrudgingly. Again our own design community is partly to blame, with a small but high-profile segment of the design industry producing indulgent and technically unaccountable products- like the funky kettle that scolds you when you pour from it.

However the culture is changing and within my career I've witnessed the change where manufacturing businesses that are prospering in Australia are focussed on high-value, niche or global markets, companies like Resmed, Cochlear, Sunbeam and RipCurl. These businesses recognise that to compete with the world's best they have to be innovative and use design as a point of differentiation.

And the last barrier companies have to using design is the perceived cost. To address this I'd like to go through an example.

Cost of Product Development

This chart shows the total cost of a new product development. For a typical, moderately simple product, let's call it a Widget this may total about \$200K. The cost of development is made up of services such as design, engineering and prototyping (shown here in shades of blue). Tooling and set-up costs to produce the new product's moulds and machinery is shown in yellow and is easily the biggest single cost. The client's own internal resources are shown in Red although these could be substantially higher for more complex products.

At this point in a product's life production, lavish launches and income from sales is a long way away and the costs for design services are easy to challenge. But apart from faster-to-market which I'll get to later the real benefits and savings are still to come, for although the cost of development may seem high, when compared to the Widget's total direct cost of production over its lifetime, including materials, assembly time and processing then the cost of development is tiny anywhere between less than 1 and 5% for most products. Most importantly good, commercially-focused design can simplify and reduce the cost of manufacturing to deliver massive savings in production costs over the product's life. Using some real numbers if through design intervention alone we reduce the cost of production for each Widget by a very conservative 10% to say \$9 per part, over a product life of 50000 Widgets for 5yrs the total savings is \$250K or an ROI of over 400% on the original Design & engineering services.

And when we add the total cost of marketing and distribution the cost of development is even smaller and the benefits of professional design services become even more compelling. Because on top of the reduced costs

and return on investment, the positive income and market positioning benefits of being first or fast to market are massive.

Also, those 'designed-in' intangibles and user features that I spoke about earlier, significantly help to market the Widget. As I'm sure all you involved in marketing know; it's that much easier to sell a product that someone already likes.

And finally at the risk of labouring the point, this chart shows the potential savings (shown in yellow) increasing with each Widget produced after say the first 50,000 units compared to the fixed cost of design services.

Now with that I hope the myth of design being a cost to business has been well and truly busted, I'd like to quickly show a real example of a project which delivers all of the kinds of benefits I've spoken about.

Case Study

The story starts with JD Macdonalds core hand dryer platform. Throughout its lifetime and up until it was replaced, the 1000 series was by-far Australia's best selling Hand-dryer, helping the company achieve a market share of approx 48%. It would be fair however to acknowledge that throughout its life it faced only mediocre competition. Not content with this level of success, in 2003 JDM approached CobaltNiche to develop its replacement, what was to become the Sirocco series.

Given time constraints I won't formally go through our design process. Suffice to say that we do have a method that includes a number of stages and tools to ensure we understand our client needs, develop a broad range of innovative alternatives and ensure technical and engineering integrity that gets the product to market within the shortest timeframe. Instead I'd like to show a couple of snap-shots from key stages of this project. Following research and understanding the technical requirements, our process in this project was to develop a range of alternative ideas through quick sketches. Unlike others we avoid designing using computer too early, these early ideas are still done by hand. From a broad sweep of possible ideas, and with client input we began to focus on a preferred direction. During the concept stage we are already considering Assembly, materials and tooling as well as

as well as styling issues. Technical and engineering details are explored at least conceptually until this point which concludes the Design phase, where a preferred design is agreed and defined to a preliminary level. Once a design direction is set the project changes gear. We call this stage product Engineering to differentiate the different approach required. This involves more detailed research and development and often different people to join the project team. This stage often uncovers lots of new issues which need to be resolved and these sub-problems require just as much creativity and innovation as the earlier stages. Although we didn't for this project sometimes we need to make rough engineering mock-ups to prove a particular design detail will work in real life. The engineering stage largely involves modelling all of the product's parts and subassemblies into CAD. This creates a virtual part able to be analysed and optimised for strength, mechanical interference, stress and mouldability. Later this CAD model data is directly used to prototype the parts using laser-based prototyping technologies and to cut tool-steel for moulding production. Our CAD models allow higher precision and faster processes and shapes that up to recent times could only have been imagined.

The End Result

Compared to its predecessor the new Sirocco series is indeed Better, Faster and Cheaper.

Better in a number of ways:

- World's best water-resistance meaning the dryer is impervious to over-zealous cleaners who wash-out bathrooms with high-power hoses

- More intuitive to users like you and I by angling the sensor so that it activates when your hands are under the nozzle and not lost and hunting around under the unit.
- Easier to install by keeping all electrical components off the main external case

Faster by providing stronger airflow when we made the fan and cowling aerodynamics smoother producing more hot air from the same motor and fan

Cheaper. Well, actually not exactly cheaper as the dryer has more features and higher quality finishes. In line with the increased perception of quality the range is sold at a 20% premium compared to the old model and therefore achieves a higher margin. Also with design and logistics measures, manufactured assemblies and inventory have been simplified so that most model variations can be created within the assembly line or during installation from common parts.

And the bottom line; sales for the new range are up 15% compared to the old and have helped JDM lift its market share to over 60% of the Australian market.

Conclusion

So, in conclusion

Design is about, big-picture solutions and detail creativity. Its about practical problem solving and applying innovation to physical solutions

Good industrial design adds profit by reducing manufacturing costs, getting products to market sooner and creating the opportunity to increase the price point for commodity products

Lastly, Industrial design creates breakthrough products made by market leaders