

IDEO Masters of Innovation

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Foreword

Picture the scene. It is spring 1982 and I am sitting drinking beer late on a Friday afternoon in a converted garage in Palo Alto, northern California, with two British industrial designers, Bill Moggridge and Mike Nuttall, who are themselves recently arrived in Silicon Valley. Their design firm, ID TWO, an offshoot of Moggridge Associates in London, has had a busy week. One of many. High-tech entrepreneurs in the area urgently need designers to turn their ideas into marketable products and ID TWO is on a roll.

Moggridge is working on the design of the world's first portable computer, the GRiD Compass, and is struggling with the configuration of the folding screen – a design that will later become the international standard. Less than a mile away, a close collaborator of the firm, engineer David Kelley, is developing the world's first computer mouse for Apple.

We crack open another beer. I am in Palo Alto on an assignment from *Design* magazine. The brief is vague. Talk to designers at the cutting edge of the computer industry. We know something is stirring in Silicon Valley, but what exactly? Can Moggridge, Nuttall and their peers – with their offbeat academic style and playful enthusiasm for electronics – really be at the forefront of a revolution in how we will all live and work? Can a group of laidback designers and engineers in jeans really respond to the corporate needs of the greatest aggregation of venture capital in the world?

As we chat in the fading light, Moggridge and Nuttall aren't convinced they're on the verge of great things, but they're certainly curious about it. They've followed their instincts across the Atlantic and a warm evening in northern California with a full order book is a better place to be for an industrial designer than in recession-ravaged Britain. I drink to that.

We part company and I head off to San Francisco to interview Bruce Burdick, the well-regarded designer of a new system for Herman Miller. 'Keep in touch,' Moggridge calls out, as I stagger off into the night, impressed and intrigued by what I've seen and heard...

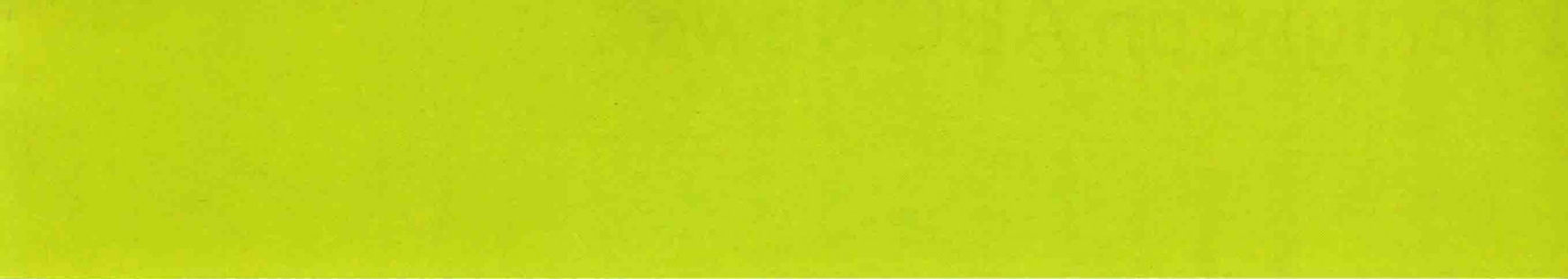
Well, I did keep in touch and this book is a result. Bill Moggridge, Mike Nuttall (who set up his own practice) and their collaborator David Kelley worked more and more closely together during the 1980s as Silicon Valley boomed. In 1991 they joined forces to create IDEO.

Another scene. Early 1991, Bill Moggridge in his London office, with a long list of names for the new design firm, trying them out on all his friends and contacts. He's raided the Thesaurus and he wants me to tell him what I think. 'How about Moggridge Nuttall Kelley?,' I suggest, ignoring his list. 'No way,' says Moggridge. 'We want to get away from design personalities. Do something completely different. Develop a totally new innovation process. Here, what about Ideo? It's Greek for idea, you know.'

The rest, as they say, is history. In Silicon Valley, where IDEO has most vividly expressed its innovation talents, that history has unfolded rapidly. This book presents a picture of one of the world's most creative and technically sophisticated design firms on its tenth anniversary. It sets out to capture a decade of IDEO's ideas, experiments and achievements, but as you see, its roots go back much further than that.

I am indebted to Ingelise Nielsen and Tim Brown in London for their special help and support in developing this publication; also to Whitney Mortimer, Scott Underwood and Lynn Winter in Palo Alto, and Simon Cowell at publishers Laurence King, for their expertise and advice. But, perhaps most of all, I am grateful for that first beer in a garage in Palo Alto...

Jeremy Myerson
London, Autumn 2000



1 Tonight on ABC News...

We went to the largest and probably the most innovative product design firm in the world and gave them the toughest problem we could think of

Ted Koppel, ABC News

Views of the shopping trolley prototype (right) created for the ABC News documentary. The project addressed such issues as manoeuvrability, shopping behaviour, child safety, maintenance and future check-out technology in a rapid-fire demonstration of IDEO's innovation process.

On the evening of 9 February 1999, something remarkable happened on American network television. Instead of the usual half-hour news programme devoted to the latest narcotics bust, political fundraising scam or school shooting, one of the largest US networks, ABC News, devoted its entire 30-minute Nightline news documentary to the issue of how to design new products. The programme, called 'The Deep Dive', focused exclusively on the creative development process of a group of designers in Silicon Valley, described by ABC News anchorman Ted Koppel as 'probably the most innovative product design firm in the world'. That firm was IDEO.

The thrust of the documentary was simple. ABC News threw down the gauntlet to IDEO chief executive officer David Kelley to design and construct a more innovative shopping trolley in just five working days. It was a tough brief. Millions watched coast to coast to see what IDEO's multi-disciplinary team of designers, engineers, researchers and anthropologists would come up with at their headquarters in Palo Alto, northern California. Could they work wonders in just one week to find a way round a familiar but daunting design problem? Or would their limitations in designing for the real world be ruthlessly exposed by the cameras?

It was a gamble, but IDEO rose to the challenge. The team not only built a better shopping trolley in just five days, but also revealed a unique process of innovation that went against the grain of all that corporate America has traditionally stood for. The impact of the ABC Nightline documentary not only confirmed the unrivalled international status of IDEO as multinational industry's busiest, boldest and best-known innovators; it also showed its counter-cultural tendencies. Since engineer David Kelley founded the organization in 1991, IDEO has been on a mission not just to serve business, but to reform it.

Kelley himself signalled as much right at the start of the ABC News programme when he explained that the key characteristics of American industry were to defer to the boss, to climb the corporate ladder and to discourage chaos. At IDEO, he had set this kind of thinking on its head, because all of these things held back innovation. 'Is the boss always going to have the best ideas? Not likely,' snorted Kelley, adding that you've got to hire people who don't always listen to you and that status should be about who comes up with the best ideas, not where they are in the corporate pecking order. As for chaos, 'we encourage craziness because it sometimes leads to the right ideas'.

IDEO's radical theories were put to the test on the shopping trolley project. Did it matter that the firm had not worked in this retail area before? Apparently not. 'We're not actually experts in any given area,' explained Kelley, 'but we're experts in the process of how you design stuff. A toothbrush or a tractor or a space shuttle or a chair, it's all the same to us.'

This is how the shopping trolley project panned out in front of the cameras. Day one saw Kelley and project leader Peter Skillman introduce the task to a large and noisy IDEO team and swiftly orchestrate a focus on key design issues such as safety and security: apparently 22,000 child injuries a year are caused by shopping trolleys, they can travel at 35mph in a gusting wind in a parking lot and they are frequently stolen to serve as mobile storage or barbecues.

Is the boss always
going to have the
best ideas? Not likely



The designers were then urged to get out of the studio and talk to people who use, make and repair shopping trolleys – another point of difference from mainstream business practice, which tends to value people who are always visible at their desks. 'It's much more useful to get out into the world,' said Peter Skillman, describing the actions of his team as 'people going out to the four corners of the world and coming back with the gold keys to innovation'. At the end of the day, the team reassembled to share these keys: existing shopping trolleys were hard to steer, expensive to maintain, easy to steal, difficult to load and unload, and unhygienic and dangerous for young children.

Day two was devoted to feeding the insights gleaned from shoppers, store owners and trolley manufacturers into a brainstorming session known as the 'deep dive' – a total immersion in the problem. Such brainstorming sessions at IDEO, it was explained to ABC News viewers, run with just five rules: one conversation at a time; stay focused; encourage wild ideas; defer judgement; and build on the ideas of others. Ideas poured out from this session and were pasted on the walls in a series of Post-it notes. The team then voted on their favourite ideas. 'Enlightened trial and error succeeds over the planning of the lone genius' was how one participant summed it up.

Eventually, under the direction of Kelley and Skillman, the 'deep dive' resulted in the formation of four separate groups to focus on four different problems: shopping; safety; checkout; and finding what you are looking for in the store. Calling on IDEO's extensive in-house modelmaking and rapid prototyping facilities, each group built a working prototype to express their ideas and address a certain problem. These concepts were reviewed and the best ideas went forward into a second round of prototypes. Another review, another round of prototypes and so it went on.

We encourage craziness
because it sometimes
leads to the right ideas

IDEO works on product development for some of the world's major high-tech corporations. Shown here, the Dell Optiplex, reflecting a new design language for Dell computers and accessories.



Building crude, approximate but usable models that can be evaluated in use was shown to be central to the IDEO design process, encapsulated in the motto 'fail often in order to succeed sooner'. Another key factor was the working studio environment itself: quirky, personalized, creative, with suspended aircraft wings, bicycles on ropes and not a standard corporate workstation in sight. 'Being playful is hugely important to being inventive,' explained David Kelley. 'Fresh ideas come faster in a fun place. People here are encouraged to build their own work areas.'

By day three the IDEO team was ready to assemble the final design incorporating all the best elements to emerge from its free-wheeling, multi-disciplinary approach. Over the next two days, a completely new-style shopping trolley took shape. And on day five, as promised, after a night of frantic welding and finishing, it was triumphantly revealed to the Nightline TV audience.

The new trolley was designed to cost the same to manufacture as a traditional one, but it was different in every other way. In concept, it was a steel frame without a basket, incorporating a push handle and side hooks for free-hanging shopping baskets. The thinking behind this was that the trolley would be worthless without a basket and therefore less desirable to steal. A set of small, modular, plastic hand baskets that stack in the metal frame was provided to enable shoppers to protect sensitive items by placing them in different baskets and to leave their 'shopping centre', taking just a small basket to far corners of the store to shop for certain goods. The smaller baskets also eliminated the need to reach into one deep one when putting items into the trolley, producing them at the checkout or loading them into the car.

The new trolley incorporated a moulded plastic child seat, wide enough to carry two children and with a central drawbar to secure them when pulled down. A play surface for children and a writing surface for adults was set into the drawbar. Other notable features included steerable back wheels, so enabling the trolley to be steered sideways out of a tight spot in the store, and a rubber sleeve around the frame to eliminate damage to cars in the parking lot. Looking to the future of shopping, IDEO designed a high-tech scanner in a side holster for the time when shoppers can scan in their own purchases and avoid the checkout queue. The scanner could also provide an audio link to store personnel for advice on where to find items.

Enlightened trial and error succeeds over the planning of the lone genius

IDEO worked with Korean manufacturer Samsung to develop Samsung TotalMedia, a concept project for a home/office multimedia device which combines computing with audio/stereo, telephone, TV and video game playing.



Not only did the new trolley offer a host of innovative features and improvements, it looked great too. Store personnel interviewed by ABC's reporter said the IDEO design needed refinement (which was unsurprising given the short timescale involved) but that they really liked it. They clearly identified with the problems it was trying to solve.

By going behind the scenes at IDEO, the Nightline documentary revealed an innovation blueprint for US industry based on the ideas that chaos can be constructive, the boss doesn't have all the answers and that teamwork, not hierarchy, is all-important. The programme also brush-stroked in a number of other major themes, such as the way IDEO has pioneered the coming together of a range of design, engineering and human science disciplines under the umbrella of innovation; its unique culture and environment, which has enabled it to sell not just the results of its innovation process, but the process itself to large corporations; its track record in designing more than 3,000 products for industry worldwide; its growing focus on designing the experience of using a product or service, not just the object itself; its willingness to develop speculative concepts, often at its own cost, which take risks and advance thinking in key areas; and finally, its determination to act as a prototype for the product design firm of the future, rethinking what design practice is all about in the 21st century. All of these themes are discussed in subsequent chapters of this book, and illustrated with relevant projects from IDEO's extensive portfolio.

IBM Aptiva Mini Tower:
IDEO created the
industrial design for this
computer processing unit.



Today there are around 350 IDEO staff worldwide – a beguiling mix of industrial designers, engineers, computer scientists, cognitive psychologists, human factors specialists, modelmakers and interaction designers of electronic media. The firm has an annual turnover of \$60 million and a client list that reads like a global 'who's who' of industry: Nike, Pepsi, Amtrak, BMW, NEC, Steelcase, Seiko, Samsung, GM/Hughes, Yamaha, Canon and Nissan are just a dozen of the 200 or more major companies with whom IDEO has worked. ABC News went to the largest and most influential product design firm in the world and gave it the toughest problem it could think of. And the wheels didn't come off the trolley.

Being playful is hugely
important to being inventive.
Fresh ideas come faster in
a fun place

Shopping trolley designed in just five days for Nightline TV documentary on ABC network. A large American television audience watched the way in which the firm's multi-disciplinary team of designers, engineers and human science researchers worked collaboratively and swiftly to develop a completely new approach.

The result was a product which incorporated clearly identified user benefits.



In a high-profile project for Pepsi, new concepts were designed for buying and consuming cold beverages. The Twist 'n Go Cup is a 32-ounce plastic container that replaces the familiar wax-and-paper cup used for take-out drinks. The cup's distinctive features include a domed removable top, a 'sip lid' that can be

closed to prevent spills, and a moulded bottom designed to fit in car cup holders.

