Insights on Innovation

by Raymond Turner, Yvonne Weisbarth, Kenji Ekuan, Gianfranco Zaccai, Philippe Picaud, and Peter Haythornthwaite

From around the globe, six executives share their thoughts on successful innovation. It is a rich set of lessons, with comments from Raymond Turner (independent consultant—United Kingdom), Yvonne Weisbarth (Bosch Siemens—Germany), Kenji Ekuan (GK Design Group—Japan), Gianfranco Zaccai (Design Continuum—United States), Philippe Picaud (Decathlon—France), and Peter Haythornthwaite (Creativelab Limited—New Zealand).

When thinking of innovation, it is all too easy to focus on advances in consumer technology—the iPod, robot lawn mowers, or even feather-light materials like Polartec—that we take completely for granted. However, there are less conspicuous forms of innovation that affect our everyday lives, yet rarely get acknowledged.

Examples of this include odorless paint; multi-modal travel tickets; light, virtually unbreakable, plastics; knives that stay sharp; and cars that only need servicing every two years. Two particular favorites of mine in this category of unsung heroes of innovation are the simple but brilliant knife block designed by product designers Priestman Goode, and the flexible plastic holder for a six-pack of soda cans, which was first created by BIB Design.

The knife block consists of two identically shaped blocks of wood held together by magnets. The interface between the blocks is shaped in such a way that a series of narrow gaps are created, providing ideal spaces for storing sharp kitchen knives. The blocks keep the knives safe and secure but are easily separated for cleaning, something not possible with the conventional knife holder.

Lateral innovative thinking produced this knife block—a design solution that seems to solve many problems associated with traditional knife holders.
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The six-pack holder, according to Nick Butler, who was chairman for BIB Design at the time, was conceived as a way of using waste material from the production of another, unrelated, product. And look how clever it is. A flat sheet of thin, flexible plastic, pierced with large holes, sized to go over the top of the drink cans and held in place by their rims. Once in position the six cans are easily carried, and the material cost is negligible, considering the plastic was going to be thrown away. Now, that's a simple innovation, if ever there was one!

These innovation heroes have at least two features in common. The first is a response to simple human needs—cleaning, in the case of the knife block, and carrying, in the case of the six-pack holder. The second is that design is the source of each. Design is fundamental to the process of innovation, whether the focus is a new product or service, a built environment, a corporate proposition, or even a vision of the future. It is fundamental not because we like to think it is, but because history shows that at the heart of all innovation is the rigorous challenge, lateral thinking, and practical approach of the designer.

There is much written about the process of innovation. In my experience, however, business as usual is not the way to stimulate innovative thinking. If the mindset does not change, neither will the solution! Creating an environment in which challenging the status quo is actively encouraged is at the heart of the innovation process. This process needs clear, firm leadership, and it is the design leader's responsibility to do just that—to make innovation part of the business’s DNA. It is then the job of the design manager to help realize the innovative thinking.

Designers can be the source of innovative thinking, but not the exclusive source—in fact, professionals from all parts of business can be innovative. After all, a good idea doesn't care who has it.

Yvonne Weisbarth, Bosch Siemens

Selling through innovation and design has become essential in today’s fast-paced world. A good design evokes an emotional response in the client. An emotionally charged packaging of an innovation through design is critical to sustain success and to build a brand identity. Good design in combination with innovation adds value to a product, leading to an increase in sales.

One of the most challenging and innovative projects we’ve recently undertaken at Bosch Household Appliances was our new air-conditioning unit. The new unit heats, as well as cools. It also cleans, dehumidifies, and ionizes the air. Beyond that, its visual design and ease of operation are appealing. We improved the air inlet by moving it from back to front. For even more efficient distribution of air, the user can activate additional motor-driven air outlets on the sides of the unit. The air filter was also moved to the front of the housing and is consequently easier to remove and replace. A large LCD display leads the customer easily through the logic navigation menu, on which all functions, parameters, and messages are displayed. New safety features include an automatic shutoff if the water tank for dehumidifying is full or if there is a technical problem with the unit.

Innovation isn’t the domain of a single department—it is a hands-on game played by everyone. The original idea may come from anywhere in the company, but the responsibility to turn it into a profitable product rests with marketing, engineering, and design. The innovations...
for our air-conditioning unit were brought to our designers by our technical team in Spain. From there, design developed a concept strategy for the product, exploring new opportunities and checking closely to meet the needs of the technical team in Spain, as well as the wishes of the marketing department at company headquarters. Marketing and design worked on the user interface in close collaboration, improving what was there and adding to it.

Innovation for a new product is a process of give and take, with leadership and responsibilities rotating among the principals involved. To nurture and support the processes of innovation, it is crucial to anticipate changes in consumer habits with research into trends and fashions at tradeshows and fairs. Healthy competition, as well as brainstorming sessions with colleagues, can spawn a brilliant idea that leads to a new and innovative product.

Kenji Ekuan, GK Design Group

Innovation is a word often accompanied by a fantasy. A fantasy tends to get bigger unless it is contained by knowledge of what is possible. This is something designers should keep in mind.

As designers, when we consider innovation, we first have to contemplate its significance. Since designing is, at the core, the art of matching a material thing to a human—namely, to humanize the material thing and to formulate it for use in a purposeful activity—it is necessary to clearly verify some points. What is the innovation for? In what way shall we humanize the material thing—and to what effect?

I like to view innovation from the perspective of the ethics and attitude of a designer. After all, designers are responsible for the influence on the human psyche of all kinds of built surroundings. We must therefore seriously consider the truth, good, and beauty of all the objects we build. It is decadent to give in to an easy and superficial approach of so-called function and convenience.

The chemistry created between built objects and humans has historically revolved around physical comfort and efficiency. However, if the definition of innovation is taken to extremes, the result can be negative and unanticipated social and cultural changes. Mobile phones, for instance, are a wonderful innovation, but they opened up whole new avenues of criminal activity that no one expected.

In Asia, Western civilization has been a vigorous import and has reached the mainstream. We are now seeing a potential trend criticizing its influence on local cultures. Although Asian cultures, which comprise more than half the world's population, have been sucking in and digesting foreign cultures for centuries, currently the result seems to be a trough filled with opaque water! It's hard to forecast what will happen when these cultures strike out on their own.

Continuing the metaphor, this trough seems to have great potential as a cultural whirlpool of Asian civilization. But it's impossible to imagine what types of innovations might arise as a result, and consequently many designers are watching with great interest. It behooves us all to be well aware of the Asian ethos and direction in which its cultures are heading.

Gianfranco Zaccai, Design Continuum

The world is littered with innovative ideas that fell short in some critical way—that never captured the imagination (and the wallets) of customers and users. It is also littered with mediocre and, at times, overstyled solutions that misunderstood consumer needs and failed to engage them.

Design is not always innovative, yet the best designs usually contain an element of technolog-
Design and market innovation. As a result, trendy designs that are not appropriately innovative are quickly rejected. On the other hand, technical innovators, who often think of design as a cosmetic, non-essential element (at least during the early stages of the development process), often find their innovative ideas are best embraced when embodied by designs people can understand, use, and connect with emotionally. Often, a more successful embodiment comes from a “fast follower,” which then reaps most of the rewards.

Design innovation and technological innovation represent two sides of the same coin and two sides of the brain—the rational and the emotional. When design and technological innovation complement and support each other, the result is a complete, engaging, and sustainable experience.

Perhaps my favorite example of this is the Pedi-Sedate anesthesia delivery system. The Pedi-Sedate system was the brainchild of Dr. Geoff Hart, a brilliant and highly sensitive physician who theorized that using nitrous oxide on children during medical procedures could greatly reduce their discomfort, since it is administered without injection. Hart also realized that there are strong psychological factors at work within the context of medical procedures and that the true goal should be an overall reduction in children’s fear. Usually, for instance, the child is given a pre-sedative to calm him or her and then brought into a sterile field surrounded by strange equipment and medical staff wearing masks. There is little to distract them from the procedure itself. In contrast, the Pedi-Sedate headset is toy-like and allows the child to play video games or listen to music as the gas is administered. Continuum was contacted to explore this concept and to fully design and develop the system. The work was fueled in part by funding from the National Science Foundation.

Together our researchers, designers, and engineers focused on understanding the physiological as well as the emotional issues from several perspectives. The team considered scientific and regulatory issues, the needs of the healthcare professionals, the hospital infrastructure, the parents and, most important, the young patient. The result was a highly innovative product that integrates many new features inspired by emotional as well as rational considerations. Prototypes are now being used in extensive clinical testing in two North American hospitals.

The innovations achieved in this product are the result of interdisciplinary exploration of the user’s total experience as seen from multiple perspectives. Its success also owes much to the creative application of multiple skills. In a sense, the medical profession has understood this need for some time. Healthcare really addresses psychological and aesthetic issues as well as physiological issues, and thus internists, psychologists, and plastic surgeons are all potential contributors to the well-being of the individual. Design innovation requires complementary skills if it is to create solutions that are appropriately innovative at all levels and that connect, through all the senses, to both sides of the amazing human brain.

Philippe Picaud, Decathlon Design

Decathlon is a leading sporting goods manufacturer and distributor worldwide. The corporate design operation, or “decathlon design,” comprises 80 designers in the domains of fashion, product and graphics; they create more than 4,000 models per year for the 65 sports proposed (ranging from bicycles to sport clothing, shoes, and so forth...)

The Pedi-Sedate anesthesia delivery system is toy-like and allows the patient to play video games or listen to music as nitrous oxide is delivered.
At Decathlon Design, we've recently introduced processes specifically to support innovation. This development comes from the creation of a project management structure, as well as the enhancement of the design function and culture.

Innovative solutions only come about when they run in parallel with the standard creation process. At Decathlon, we like to use an active approach to innovation, one that communicates the distinctive capability of design. Designers propose a different vision of established models and vocabularies that is contrary to the common marketing approach, which only analyses the current market situation.

One of the first products we developed in-house using the new approach was inspired by a brief to design a more comfortable fin for leisure diving. This was an opportunity to demonstrate the value of design in the creative process. Instead of giving the project directly to a single designer dedicated to the product range in question, the design manager in charge organized a workshop session with designers from a variety of disciplines and domains.

Our R&D department worked with us to identify solutions that would increase the fin’s comfort without reducing its power. The project team, made up of the product manager, an ergonomist, designers, engineers, and users worked hand-in-hand throughout the creation process. The result was the creation of an opening in the fin’s blade, allowing an ideal distribution of pressure. This makes it easier for the swimmer to stay near the water’s surface. The foot pocket is flexible and thin where the foot is most sensitive, and thicker in the section that produces the most power. The result is a very light and comfortable fin that allows a longer diving period without fatigue or muscular trauma. Our orders have increased by 80 percent since this product was brought to market.

Innovation is in the nature of design. Added to that is my conviction from the very beginnings of my career as a designer—that our job focuses on offering people a better quality of life.

Today's institutions realize the power of design in this domain. In 2002, the European Commission launched a project called Design for Future Needs (www.dfn.org) aimed at understanding the ingredients design has to employ to leverage innovation and translating them for the benefit of other disciplines. Decathlon was one of the four European companies selected to take part, in recognition of our IMAGINEW process, which addresses either a domain or a user target to identify concepts for future development.

The process begins by sharing the specific knowledge of a multidisciplinary team: information about the use and usefulness of a particular type of product, its services, and how best to sell it. The next steps include brainstorming, clustering of themes, user scenarios, and finally concept definition. The results are evaluated by a ranking of criteria identified at the first “knowledge” session. Following the selection, the concepts are translated into potential products or services; these are accompanied by an evaluation of resources and a business plan. They then enter the standard project road map for development.

The ultimate condition for innovation is the relevance of the solution for the user. In Decathlon, which owns its distribution network, we decided that the teams should be located within store locations to ensure greater intimacy with the customer. Our brands are now moving to where their sports are practiced; for example, Quechua, our mountain sports brand, is now located near Mont Blanc in the French Alps. Our designers are therefore confronted with users and their real needs daily. Observation, evaluation, and feedback are immediate.

It is noticeable that design is a discipline that identifies innovative solutions or, if the innovation comes from a technical source, that translates and gives "visibility" to the technological breakthrough. Design itself carries a leadership role in innovation and is often supported by the passion of the designer. Summarized by four
In 2000, a young woman returning from the Sydney Olympics died on arrival at Heathrow Airport and greatly heightened the awareness of the danger of deep-vein thrombosis (DVT) or, as it has been called, “economy-class syndrome.” A DVT is a blood clot, usually developed in a leg, which can lead to complications if it breaks off and travels in the bloodstream to the lungs. The Heathrow tragedy launched a plethora of devices aimed at reducing the risk of DVT. Most of these solutions were based on inflatable pads or mechanical contraptions to simulate walking—some noisy, some bulky, and few well-conceived. Primarily, their aim was to offer some form of in-flight exercise, but none of them really addressed the issues that caused DVT.

The idea for Legflo sprang from research undertaken by three leading respiratory specialists from New Zealand who had been studying the risk and incidence of air travel-related DVT as well as the physiology behind the syndrome and possible preventative measures. According to a principle known as Virchow’s Triad, the risk of DVT is increased by any of three factors: reduced blood flow, increased blood viscosity, and damaged or abnormal blood vessels. Focusing on the first factor and using simple and available components, the New Zealanders developed an approach that actively forced pooled blood in the foot to move to the leg and to cause the calf muscle (acting as a second heart) to contract. Early testing against products on the market showed they had a superior solution, but that it fell short of being a marketable answer.

Creativelab was engaged to take the principle and design and develop a product that met airline criteria, demonstrated improved exercise benefits, gained full acceptance of medical experts, was low-cost, lightweight, and durable, and had a “life after flight.” The design process involved comprehensive testing of each solution via Doppler ultrasonography to measure venous blood flow. The resulting final design is a two-part, injection-molded product—a rigid shell and a flexible skin with nodules to massage the underside of the foot. Not only is the product of a minimal size and stackable, but comprehensive medical testing has shown that it offers a marked improvement over competing devices.

Innovation and design go hand in hand, in that the design process inevitably involves innovation. But not all innovation involves design. Innovation tends to focus on the development of a new means of, or a device for, achieving a particular purpose. And while innovation may create a workable solution, that solution may not be suitable for the market or capitalize on the opportunity. In this relationship, design’s primary role is to interpret the intentions of innovation and to create a solution that addresses or forecasts human needs and ensures that the solution is fit for use and production.

Innovation grows from the ability to identify need or opportunity. It occurs through many means, from pure serendipity to rigorous design. The research undertaken by doctors Beasley, Holt, and Hughes is to date the largest, most comprehensive study into DVT risk and incidence worldwide.

Legflo is designed to help alleviate deep-vein thrombosis (DVT), often called “economy-class syndrome.” The product was the result of a design and innovation collaboration between three highly respected respiratory medical researchers and Creativelab (Auckland, New Zealand).

Legflo features a light but robust base and a co-molded flexible synthetic rubber skin that serves to massage and stimulate the underside of the foot. The action of pointing and lifting the toes while gently pressing the sole of the foot onto the rounded surface of the product forces the blood up into the calf muscle (which works like a second heart), thus maintaining good blood flow.
Innovation necessitates a balance between logical and illogical creativity. It demands the ability to ask the right questions and spot the right answers. Environments and conditions can fertilize, facilitate, and help implement innovation. But the most potent nurturers of innovation share a passionate belief in the mission and the ability to identify latent needs and opportunities. They tend to be in the right place at the right time, demanding and empowering leadership, encouragement, and processes that facilitate “fermentation” and don’t shrink from urgent deadlines.

Innovation tends to be considered the province of the scientist, researcher, inventor, and engineer, and their approach, by necessity, is likely to be systematic. However, introducing a designer at the outset of the innovation process increases the likelihood of “radical” thought, of ensuring both a micro and macro perspective, of a focus on environmental issues, human needs, and user requirements, and of the generation of holistically considered, but marketable, solutions. Design is an innovative process, but equally important it is the means of unifying solutions (and companies) with people’s hearts and minds.

Legflo was realized through the vigorous efforts of medical science coupled with a systematic approach to innovation and the spontaneous and pragmatic innovation that occurs through the design process.

**Author Bios**

**Raymond Turner** is an independent consultant specializing in design leadership and management. He is retained by BAA to provide design leadership for their Heathrow Terminal 5 project; by the New West End Company to lead the development of a new masterplan for revitalizing London’s West End; by Transport for London, where he is helping to create design management guidelines; and by a major development company for which he is creating a new city-center master plan incorporating a significant rail and bus interchange. He is also nonexecutive chairman of Bradley McGurk Partnership, an Irish-based branding and design management consultancy.

For nine years, Turner was group design director of BAA, the world’s largest private airport company, which owns and operates airports in the UK (including Heathrow and Gatwick) and in the US, Italy, and Australia. He was responsible for ensuring that the company’s large design investment was aligned to realizing its corporate mission to be the most successful airport company in the world.

Turner has an honorary doctorate of technology from London Guildhall University and a First Class Honors degree in industrial design from Leeds; he is also qualified in mechanical and electrical engineering. A fellow of the Chartered Society of Designers, he is also a member of the advisory council of the Design Management Institute (DMI) in Boston and chair of DMI Europe.

**Yvonne Weisbarth** is the design manager for air conditioner, warm water, and personal care products for Bosch Siemens. Previous to this, she worked as an industrial designer for Busse Design Ulm, where she designed products for SmithKline Beecham, Tripus, Pflugbeil, Stihl, Alape, and Klöckner Möller, and for Yellow Design in Pforzheim, Germany, for clients such as SmithKline Beecham and Sara Lee. She is a graduate of Art Centre College of Design in Pasadena, California, and has also worked as a freelance designer for the film industry in the United States and Germany.

**Kenji Ekuan** is chairman of the GK Design Group and has designed motorcycles for Yamaha, the table dispenser for Kikkoman soy sauce, the Komachi bullet train, and much more. Currently, he serves as a senator on the International Council of Societies of Industrial Design (ICSID). He is also a member of the executive board of the Japan Design Foundation and is chairman of Design for the World, a nonprofit international association aimed at using design for humanitarian causes. Ekuan is an honorary member of the Japan Industrial Design Association. He served as the executive chairman for the Japan Organizing Committee of ICSID ‘73’s Kyoto Congress and as the general producer of the World Design Exposition in Nagoya in 1989.

Ekuan’s work has received ICSID’s Kolin King Award (1989), the Worlddesign Award (IDSA, USA) 1988, and the Lucky Strike Designers Award in 2003. In 2004, he was awarded the Insignia of Commander in the Order of the Lion of Finland in 2004. He is the author of The Aesthetics of the Japanese Lunch Box (MIT Press).
Gianfranco Zaccai is president and CEO of Design Continuum, a Boston-based international design consultancy, which he founded in 1983. In 1986, Design Continuum Italia was established in Milan, and Design Continuum Korea was launched in Seoul in 1999.

Born in Trieste, Italy, Zaccai and his family immigrated to the US at the height of the Cold War and settled in upstate New York. There, Zaccai went to high school and later to Syracuse University. Upon graduation, he turned down the opportunity to work in Detroit as an automotive stylist in order to focus his career on user-focused industrial design for medical products. Prior to founding Design Continuum, Zaccai was director of corporate design for Instrumentation Laboratory Inc., a leading manufacturer of medical and diagnostic instrumentation.

Zaccai and his firm's work have been acclaimed by many national and international organizations. He has won awards for design excellence from ID: Industrial Design Magazine and the Industrial Designers Society of America, including a special Design of the Decade award for long-term success in the market. In addition, he received the Compasso d'Oro from Associazione del Disegno Industriale (ADI); the iF Seal of Excellence from the iF Industrie Forum Design in Hannover, Germany; the Premio SMAU Industrial Design Award from Smau, Milan, Italy; the Special Theme Prize of the 1994 Nagaoka Shinanogawa Technology International Design Competition (Japan); the Apex (American Product Excellence) Award; and a Presidential Award for Design Excellence from President Clinton for the Egis Explosives Detection System. His designs have been showcased in numerous publications and exhibitions including Design in Plastics, Product Design 1, and Product Design 3, and the Product Design Exhibition at Ketonah Gallery.

For many years, Zaccai has been an active member of the Industrial Designers Society of America (IDSA). In addition to serving as northeast district vice president, he was chairman of the IDSA IDEA 90 Design Awards jury. Zaccai has also been juror for Business Week's IDEA Awards, and served as a juror for ID Magazine's Annual Design Review. He has served on the jury of the Korean Industrial Design Awards, the Japan Industrial Design Prize (JIDPO), and the Red Dot Awards in Essen, Germany. In 2005, Zaccai will serve as juror for the Braun Prize.

Zaccai is committed to lifelong learning and teaching. He is currently a member of the faculty at SDA Bocconi School of Management, in Milan. He has conducted workshops for Samsung at the company's Innovative Design Lab (IDS) in Seoul, Korea, and has delivered a series of lectures for the Korea Institute of Industrial Design Promotion (KIDP). He has also lectured at the Design Management Institute, the Corporate Design Foundation, the Danish Design Council, MIT's Product Design Class in its School of Engineering and the Sloan School of Management, Cornell University's Johnson School of Management, Harvard Business School, Harvard Graduate School of Design, Northwestern University's Kellogg School of Management, and others too numerous to mention.

Zaccai has been a member of the faculty at The Massachusetts College of Art and The Boston Architectural Center. He has spoken at international conferences and workshops in Finland, Sweden, Uruguay, Brazil, Italy, Japan, Taiwan, Korea, India, Mexico, Columbia, Chile and the UK. Zaccai holds a degree in industrial design from Syracuse University. He was recognized as a Distinguished Scholar of the University in June 2000. Zaccai also holds a degree in architecture from The Boston Architectural Center.

Zaccai is chairman of the board of directors of the Design Management Institute.

Philippe Picaud is design director for Decathlon Design. His mission is to develop the company's in-house brands, differentiating their individual offers and creating a seductive range of products for sports practitioners at all levels. His team includes more than 80 designers.

Picaud's career began with his graduation from ENSAD (Ecole Nationale Supérieure des Arts Décoratifs) in 1979, after which, armed with a grant from the French government, he set off for the United States to procure a master's degree in industrial design from Syracuse University. He then began his professional career in Paris, followed by two years in South Africa as part of an English design team working for CI Industries. On his return to France, Picaud spent seven years as European design manager for Texas Instruments before joining Alcatel Mobile Communications in Paris, where he established an in-house design operation. In 1996, he was a named design director for the Philips branch of the telephone system. That business evolved, and
in 1998 he set off once again for the US, as part of the management team for the joint venture Philips/Lucent.

Very active in the profession, Philippe is currently on the advisory boards of both the Design Management Institute and ENSCI (Ecole Nationale Supérieure de Création Industrielle) in Paris.

**Peter Haythornthwaite** of Auckland, New Zealand, is the owner and principal of Creativelab, a multidisciplinary design consultancy, partner in Equip, a design integration consultancy, and an adjunct professor of design at Victoria University, Wellington. He founded Artifakts, a design-based desk accessory manufacturer, as well as a number of design-based manufacturing companies. For 21 years, Haythornthwaite ran Peter Haythornthwaite Design, a multidisciplinary design consultancy. Previous to that, he served as the head of the design department at the University of Auckland. He is also a former senior designer with Henry Dreyfuss Associates in New York.

Haythornthwaite is the recipient of numerous international and national design awards, and his work has been broadly published and exhibited. He has twice been president of DINZ (the Designers' Institute of New Zealand) and is also a co-writer of the Design Scoping Review, a comprehensive research paper on the state of design in New Zealand, written for that country’s department of trade and enterprise. More recently, he was a member of the New Zealand government’s Design Taskforce initiative, established to develop an informed and enabling strategy for NZ businesses.

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