MICHAEL SHAMIYEH ‹
and DOM Research Laboratory (Ed.)

# CREATING DESIRED FUTURES

## How Design Thinking Innovates Business «

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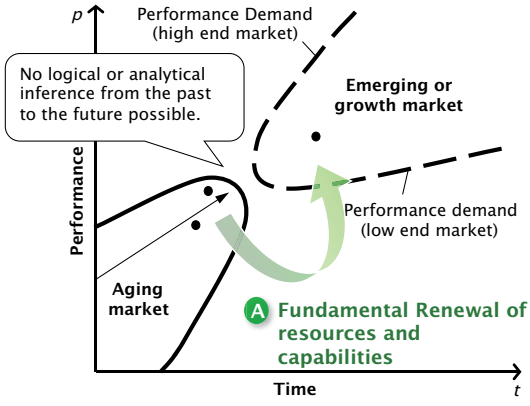


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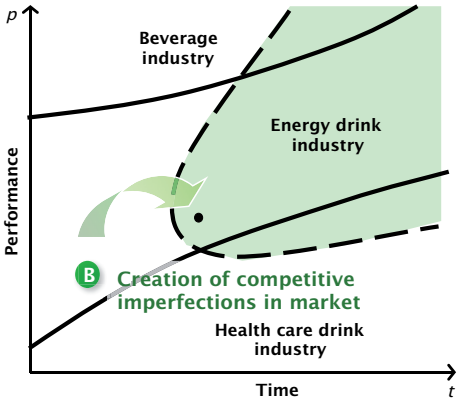


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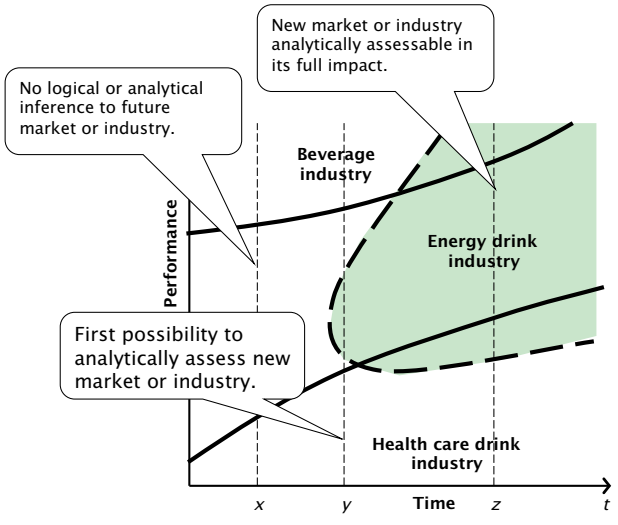



2 Assessing the Future

# FOREWORD ‹ Michael Shamiyeh

## Mechanisms of Discontent

*"Most corporate strategy problems and governmental policy problems are at least as ill structured as problems of architectural or engineering design. The tools now being forged for aiding architectural design will provide a basis for building tools that can aid in formulating, assessing, and monitoring public energy or environmental policies, or in guiding corporate product and investment strategies."*
Herbert Simon (1986)

Every economic organization or institution is faced with two basic challenges: Executing its current business objectives in order to survive today's challenges, and adapting those objectives to threats and opportunities to survive the challenges of tomorrow. As Axelrod and Cohen (2000) have shown recently in "Harnessing Complexity," or Drucker (1969) in "The Age of Discontinuity" some decades ago, executing and adapting are the absolute essentials for any design in living systems. In a world that is increasingly driven by faster cycles of change, the risk of eventually destroying a business by merely continuing what one is doing—that is, in failing to adapt to a changing internal or external environment simultaneously—is higher than ever today. In other words, an organization is continuously called upon to identify what it must avoid at all costs to avert self-destruction and to explore strategies for potential moves with respect to current objectives (Beinhocker, 2007; Collins & Porras, 2002; Peters, 1997; Peters & Waterman, 1982).



**RECENT HISTORY REVEALS THAT IN A WORLD THAT IS INCREASINGLY DRIVEN BY FASTER CYCLES OF CHANGE, THE NEED TO RADICALLY REMAKE—AS OPPOSED TO JUST MODIFY OR OPTIMIZE—A BUSINESS TO ONGOING ENVIRONMENTAL CHANGES IS HIGHER THAN EVER TODAY.**

Take the music industry as an example. The shift from stereo records to compact discs certainly did not demand a fundamental redesign of the very business model of selling music. For people engaged in this business, it was not necessary to substantially alter existing capabilities or to acquire new ones. That is to say, this particular change of the music's medium did not necessitate a deep transformation of the knowledge and skills required to create and replicate capabilities needed by the business such as procedures for ordering new inventory, advertising and accounting among many other activities. Despite the negligible need for some new shelves or record players, existing orders and channels of interaction between consumers, distributors and manufacturers simply remained unchanged for the most part. On the other hand, the transformation towards online music stores necessitated a radical remaking of the business model. It totally changed the means, ends and processes the music industry was accustomed to. Engaging in such a business means acquiring completely new combinations of resources to create value.

Confronted with such disruptive situations, the managerial practice of problem solving—of trying to "fix" something established that is suddenly broken—becomes misleading if not unfeasible. It entices someone to seek something one does not wish to go away rather than to create something one really desires to exist. The distinction between the two is fundamental. In problem solving, in analytically identifying flaws in existing situations, established products, processes or organizational structures are adapted to a changing business environment; in creation, energies are spent in establishing those resources that possibly generate value in light of a vision a business is seen as evolving towards in the future. Hence, whereas the former attempts to modify or optimize prevailing knowledge, skills and capabilities, the latter is forced to ask a new set of questions about how to run the business.

But for other reasons, the managerial practice of problem solving becomes misleading, particularly in the context of organizations facing disruptive situations. Men and women trained in business schools tend to take insights gathered from either directly observable facts or past evidence as a source for successful problem solving. It is assumed that possible futures are to be derived from what has been

established. Nevertheless, such an approach is entangled in a series of shortcomings with regard to creating desired futures.

First, though people do not analyze their way into the future (neither on the basis of what has been established, nor on the basis of an analysis of something that does not exist), an inference from an analytic examination of prevailing or past circumstances does not necessarily successfully predicting upcoming futures. By the same token, one cannot expect people to lead organizations towards the creation of something radically new that they do not need now but rather tomorrow (Christensen, 2000). As Apple founder Steve Jobs put it, "People don't know what they want until you show it to them"(Kahney, 2008).

**IN OTHER WORDS, PEOPLE CANNOT SERIOUSLY ANSWER QUESTIONS REGARDING AN INTEREST IN FUTURE PRODUCTS OR SERVICES THEY HAVE NEITHER DIRECTLY NOR INDIRECTLY EXPERIENCED.**

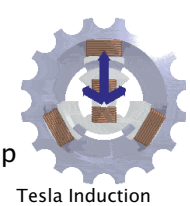
To give an example: For managers in the beverage industry or its biggest competitor, the health care drink industry, it was not possible to analytically assess the upcoming new energy drink industry with Red Bull at its forefront. Certainly, various trends in society may have indicated the need for drinks that are able to quickly energize people—for example, in light of the growing demands placed on people in all spheres of life, beginning from school to business life. However, indications did not tell industry executives the means by which to energize people. Aside from Dietrich Mateschitz's energy drink, there could have been many answers to this demand, starting from more traditional offerings such as coffee or tea all the way to various kinds of drugs. Even industry experts were unable to predict the success of this sector. When consultants were asked by Red Bull founder Dietrich Mateschitz to give their insights into the drink, their reaction was devastating. The drink was considered to be extremely bad, the sticky-sweet taste horrible, and the argument that the drink energizes body and soul regarded as completely irrelevant. Today the success of this industry is well known; with growth rates of about 50% a year, it is one of today's fastest growing sectors (Heller, 2007).

Second, a focus on problem solving entices the problem solver to exploit the potential of established situations (rather than those he imagines). Henderson and Clark (1990), among others (Cyert & March, 1992; Nelson & Winter, 1990), have shown that organizations build knowledge and capability around the recurrent tasks they perform. The sort of skills and knowledge an organization accumulates in its history thereby determines the choices about which technological problems it would solve and which it would avoid. For example, in the early days of the automobile industry, there was a great deal of experimentation. Cars were built with gasoline, electric or steam engines, with steering wheels or tillers, and with wooden or metal bodies. Aware of the virtues of the horse-drawn carriage in muddy streets, engineers even tried to place engines on front axles without success because the weight of the engine hampered steering. However, once these phases of experimentation were brought to an end, core design concepts of how major functions are performed and how certain components are integrated became accepted. The established core design concept for the car then encompassed the use of a gasoline engine that was connected to the back wheels through a transmission and a drive train, and was mounted on a frame rather than on the axles. Hence, once core concepts of automobile design had been accepted, engineers did not re-evaluate previous decisions in every subsequent design; rather, initial sets of components were refined and elaborated.

**PAST EXPERIENCE IN GRADUAL ELABORATION MOLDED ENGINEERS' INFORMATION FILTERS AND ENTICED THEM TO IMMEDIATELY IDENTIFY WHAT IS MOST CRUCIAL IN THE INFORMATION STREAM.**

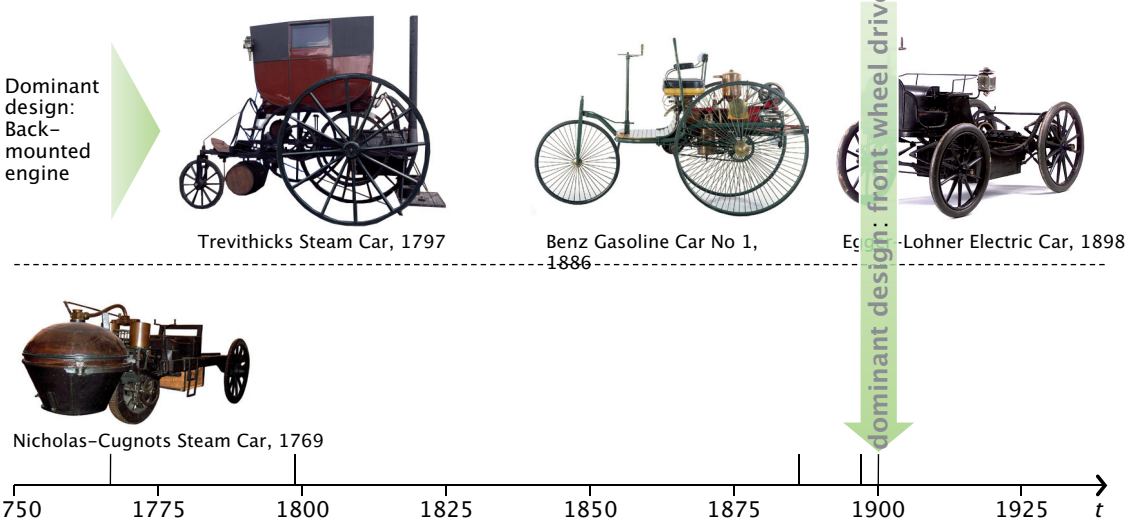
This led to the situation in which, for about 150 years, the automobile industry ceased investment in imagining alternative configurations of the established set of components—for example, to imagine a front-wheel drive. It

- An organization's communication channels develop around those interactions that are critical to its task.
- Information filters of an organization also embody its core knowledge.
- Information filters and communication channels develop and help engineers to work efficiently.

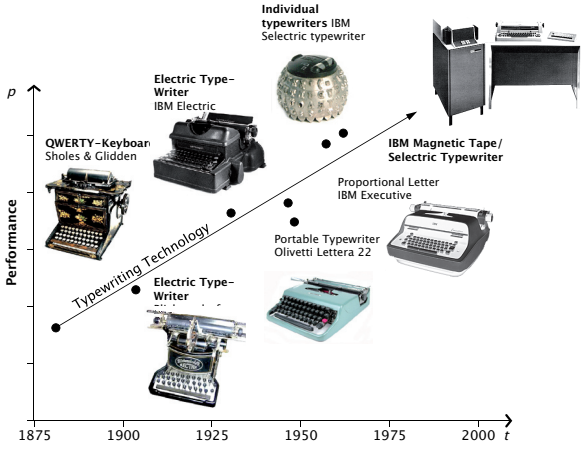


Tesla Induction motor

Lohner-Porsche Wheel Hub Car, 1900




4 Gradual evolution/revolution of dominant car design

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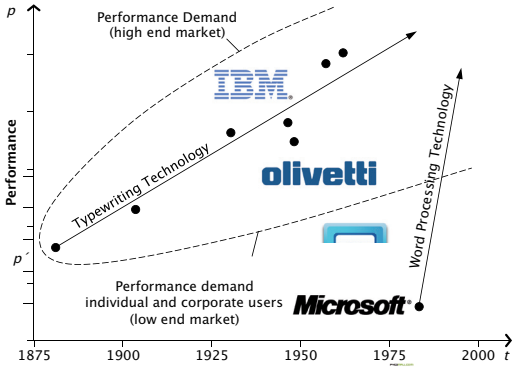


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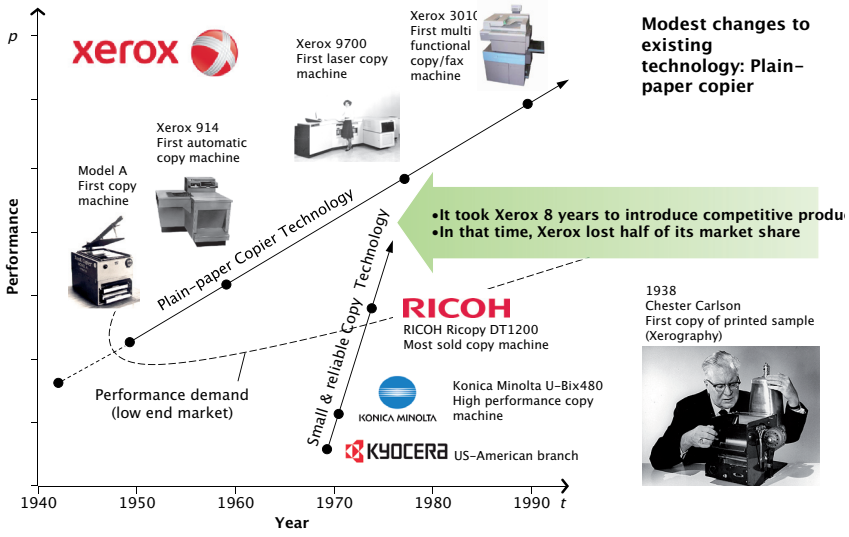
The gradual automation of writing and editing, and the refinement (sustaining) of the technology

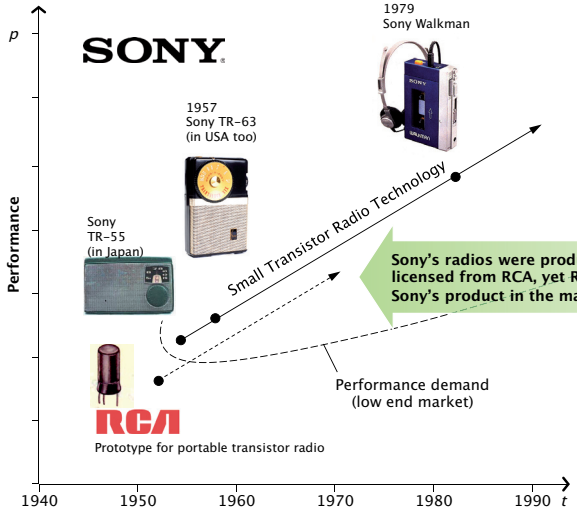



**Modest changes to existing technology: Plain-paper copier**

1938
Chester Carlson
First copy of printed sample
(Xerography)



7 Problem of Market Analysis




**Modest changes to existing technology: Small Transistor Radio**

8 Problem of Market Analysis

was up to young entrepreneur Ferdinand Porsche to ignore past experience and to imagine the first front-wheel drive by proposing to attach an induction motor directly to the wheel hubs. By doing so, he not only reduced the transmission's loss of engine power by half but also succeeded in inventing the first four-wheel drive and the world's first hybrid car ("Das Elektormotorautomobil Lohner-Porsche," 1900).
A similar case can be made for IBM and Olivetti. Both organizations, whose knowledge, skills and capabilities grew tremendously in the wake of the gradual refinement of typewriting technology, were unable to decipher the emergence of word processing technology. Even a close look at their customers did not provide information necessary for both companies to recognize the emergence of the disruptive technology of word processing. This leads us to the next limitation of common managerial practice.



## THIRD, DIRECTLY OBSERVABLE FACTS DO NOT NECESSARILY MAKE SENSE AT THE TIME THEY ARE GATHERED.

The case of Xerox and small tablet copiers, and the case of Sony's transistor radio are two examples. Xerox pioneered the plain-paper copier by inventing the industry's core technologies. In the late 1940s, the company released the first copy machine. By carefully listening to its customers, Xerox gradually improved copier machines over subsequent years by adding features such as automatization, speed enhancement, laser printing technology, colour, or other functions such as fax. However, in the mid-1970s, Xerox was confronted with competitors offering copiers that were much smaller and more reliable than the traditional product. The new product, which required little new scientific or engineering knowledge, obviously did not make sense to Xerox, which always stays close to its customers. Despite the fact that Xerox invented the core technologies and had enormous experience, the competitive products captured half of Xerox's market share. It took Xerox almost eight years to introduce a competitive product (Clark, 1985).
The case of Sony is similar. RCA developed a prototype of a portable transistorized radio in the mid-1950s. Since it saw little reason to pursue such an apparently inferior

technology, it licensed the technology to Sony, which then was a fairly small company intent on gaining entry to the US market. Even after Sony's success became apparent, RCA had great difficulty matching Sony's product in the marketplace (Clark, 1985). In short, the important managerial impetus to observe and stay in touch with customers to sustain a business may provide misleading facts for handling the future, simply because the pace of progress that markets demand or can absorb may be different from the progress offered by products or services.

In summary, business is in need of new ways to create desired futures. Managerial practice of problem solving on the premises of either observable facts or past experience may be sufficient for sustaining a business; however, at times of disruptive situations, they are certainly insufficient for the long-term sustainability of the business.

**THEN, A BUSINESS NEEDS RADICAL REMAKING RATHER THAN INCREMENTAL IMPROVEMENT.**

The creative-analytical approach at work in design, on the other hand, takes for granted that the process of finding a solution to a problem will require the invention of new alternatives given certain parameters and constrains. That is, rather than directing someone's attention particularly to the problem space and its likely solution, the design approach favors creating and seizing new opportunities. It does not exploit established situations but supports paradigm shifts—radical changes of how a business is conceived in regard to existing products, processes or organizational structures. And because its goal is to create a set of actions transforming a situation from its current reality to its desired future, design becomes the very essence in today's strategic business thinking, whose very objective is to bring about those conditions most favorable to a business' future.

This book sets forth a series of contributions on design thinking broaching the issue on several grounds. It starts with a section on the relevance of the design approach for the future of management practice and education, and is followed by a section with detailed insights into its operative nature. Section three demonstrates the virtues of the design approach in the context of sustainability and shows how design is able to create a positive link between business and the environment. A series of cases are presented.

**SECTION FOUR FOCUSES ON THE BENEFITS OF DESIGN METHODOLOGY IN BUSINESS STRATEGY FORMATION. THE FINAL SECTION HIGHLIGHTS ORGANIZATIONAL REQUESTS TO SUPPORT DESIGN PROCESSES FOR INNOVATION.**

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**Andrew Bollinger ❮** Andrew Bollinger graduated from Dartmouth College in the United States in 2002 and worked with Prof. Dr. Michael Braungart at EPEA in Hamburg, Germany from 2003 to 2005. In this context, he performed research on projects relating to the application of Cradle to Cradle Design in various industries, such as textiles and automobiles. After spending a year teaching at a technical university in Hangzhou, China in 2006, Andrew undertook a Master's degree in Industrial Ecology at TU Delft and Leiden University in the Netherlands. For the past year, he has been performing research within the Faculty of Technology, Policy and Management at TU Delft, focusing on combining aspects of Cradle to Cradle and Industrial Ecology. Andrew's current research is premised on the idea that material flows exist in a complex socio-technical environment, and explores the application of simulation modeling approaches to realizing Cradle to Cradle metabolisms within such a context.



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**Jeanne Liedtka ❮** Jeanne Liedtka is a professor at the Darden Graduate School of Business Administration at the University of Virginia. Formerly the Executive Director of the School's Batten Institute, Jeanne has also served as Chief Learning Officer for the United Technologies Corporation (UTC), headquartered in Hartford, Connecticut, and as the Associate Dean of the MBA Program at Darden. Jeanne's current teaching responsibilities focus on design thinking, innovation, and organic growth in the MBA and Executive Education Programs at Darden. Jeanne's current research interests focus on exploring how design thinking can be used to enrich our ability to create inclusive strategic conversations about organizational futures. Her new book, "The Catalyst: How YOU Can Lead Extraordinary Growth," co-authored with R. Rosen and R. Wiltbank was published in March, 2009. Jeanne received her DBA in Management Policy from Boston University and her MBA from the Harvard Business School. She has been involved in the corporate strategy field since beginning her career as a strategy consultant for the Boston Consulting Group.

**John Thackara ❮** John Thackara is Director of Doors of Perception (Doors), a sustainability design network active in Europe and India. People participate in Doors who need to imagine sustainable and engaging futures—and take design steps to realize them. Founded as a conference in 1993, Doors now connects together a worldwide network of paradigm-changing designers, artists, technology innovators, and grassroots innovators. John Thackara also helps cities and regions build next-generations institutions. These enable designers, other specialists, and citizens, to learn together in new ways. A former London bus driver, and later a book and magazine editor, John was the first Director (1993–1999) of the Netherlands Design Institute. He was program director in 2007 of Designs of the time (Dott 07) a new biennial in North East England. And in 2008 he was commissioner of City Eco Lab at Cité du Design in St. Etienne, the French desing biennal. John is an associate of the social innovation incubator, The Young Foundation, and is a senior advisor on sustainability to the UK Design Council.

**Kamil Michlewski ❮** Dr Kamil Michlewski is a Senior Consultant at The Value Engineers—a strategic brand consultancy based in UK. He is an account manager and works with a number of blue-chip clients on issue ranging from global consumer segmentation to brand strategy. Dr Michlewski, previously worked as a senior strategy lecturer at Newcastle Business School. He was awarded a PhD by the School of Design at Northumbria, having completed a programme supported by University and Oxford's Saïd Business School. In his academic capacity he has published on the role of design and designers in organisational settings; dimensions of tacit knowledge and aesthetics in organisational learning. He has presented at international conferences including the European Academy of Management, European Group for Organisational Studies, Design Management Institute and European Academy of Design.

**Marco Murillo ❮** Marco began his career in commerce at age seven when he launched his first business Blackberries Inc. Marco has since worked at Nike's World headquarters as a Global Footwear Product Line Manager prior to joining Nike's European Headquarters in The Netherlands. He currently works as a European Footwear Category Manager presiding over a sizable footwear business while continually seeking and translating market and consumer insights into product solutions. Marco consults on product design and concept briefing for Nike and other non-footwear related companies. He regularly participates on behalf of Nike at industry and PR events. He most recently partook in the Fashion v. Sport Symposium organized by the Victoria and Albert Museum in London. Outside of the business world, Marco enjoys restoring vintage road bikes, cooking and collecting antique oddities. Marco holds a BA in International Management from Pepperdine University and currently lives and works in Amsterdam.

**Markus Miessen ❮** Markus Miessen (*1978) is an architect, writer and consultant. In 2002, he set up Studio Miessen (www.studiomiessen.com), a collaborative agency for spatial practice and cultural inquiry, and in 2007 was founding partner of the architectural practice nOffice (www.nOffice.eu). In various collaborations, Miessen has published books such as "The Nightmare of Participation" (Sternberg/Merve, 2010), "East Coast Europe" (Sternberg, 2008), "The Violence of Participation" (Sternberg, 2007), "With/Without—Spatial Products, Practices and Politics in the Middle East" (Bidoun, 2007), and "Did Someone Say Participate?" (MIT Press, 2006). His work has been exhibited and published widely, including at the Lyon, Venice, and Shenzhen Biennials. Miessen has taught internationally at institutions such as the AA (London), Berlage Institute (Rotterdam), Columbia and MIT. He has consulted the Slovenian Government, the European Kunsthalle, the Serpentine Gallery and the Swiss think tank WIRE. In 2008, he founded the Winter School Middle East. Miessen is a Harvard fellow, a PhD candidate at Goldsmiths, and a Professor for Architecture at the Hochschule für Gestaltung, Karlsruhe.



**Michael Braungart ❮** Michael Braungart is a chemist and founder of EPEA International ecology (1987) and co-founder of McDonough Braungart Design Chemistry (MBDC), in Charlottesville, Virginia. While completing his doctorate at the University of Hannover, he founded the international chemistry division of Greenpeace. Since 1984 he has lectured to businesses, and institutions around the world proposing critical new concepts for ecological chemistry and materials flow management called Cradle to Cradle®. In 2002, he co-authored with William McDonough, the bestseller "Cradle to Cradle: Remaking the Way We Make Things." The documentary film "Waste Equals Food" followed the success of the book. Prof. Dr. Braungart currently concentrates his efforts on collaboration with multinationals like Nike shoes, Aveda Cosmetics, Herman Miller furniture, and Method cleaning products. He has worked on issues of materials assessment, waste and energy balances, life-cycle design, design for reincarnation and designing for disassembly. Prof. Dr. Braungart was instrumental in the creation of the compostable fabric line Climatex Lifecycle, and he continues to expand the range of his consultations with companies such as Heidelberg Cement, Desso carpets, AVR van Gansewinkel, Forbo flooring, Continental Tire, and DSM.

**Michael Shamiyeh ❮** Michael Shamiyeh holds degrees from Harvard, AA London and TU Vienna and is head and professor of DOM Research Laboratory as well as CEO of Shamiyeh Associates. He concerns himself with the creation and integration of innovative business ideas in organizations. Since 2008 he investigates this topic also at the Department for Strategic Management at the University of St. Gallen. Michael has published in several international journals and books as well as popular media. He has won several national and international awards including the Innovation Prize (2008) awarded by the Austrian Ministry of Science and Research.

**Richard J. Boland, Jr. ❮** Richard J. Boland Jr. is Professor of Information Systems and Professor of Cognitives Science at the Weatherhead School of Management, Case Western Reserve University. Prior to joining the Weatherhead School in 1989, Richard Boland was Professor of Accounting at the University of Illinois at Urbana-Champaign. He has been a visiting Professor at the UCLA Anderson Graduate School of Management, and has held the Malmsten Chair at the Gothenburg School of Economics, University of Gothenburg, Sweden. Currently, he also serves as a Fellow at the Judge Business School. Professor Boland's research emphasizes interpretive studies of how individuals experience the design, implemention and use of information technologies. Some representative publications include "Perspective Making and Perspective Taking in Communities of Knowing," Organization Science (1995), "Knowledge Representation and Knowledge Transfer," Academy of Management Journal (2001), and "Wakes of Innovation in Project Networks" Organization Science (2007) which won an Academy of Management 2008 award for best published paper.



**Robert Bauer ❮** Robert M. Bauer is professor of Organization and Innovation at Johannes Kepler University, Linz. His research focuses on the management of innovation processes and the enhancement of industrial creativity—including the potential and risk in integrating management with art and design. Dr. Bauer was a visiting professor for several years at the University of Toronto's Rotman School of Management, where he developed curriculum on "Integrative Thinking". His research has appeared in major journals in North America and the German speaking realm. He has been active as a speaker and advisor in Europe and North America and is also a registered psychotherapist coaching senior executives. His writings explore the consequences of different epistemological modes for organizational design and behavior as well as for the philosophy of management and organization.

**Simon Grand ❮** Simon Grand is an economist and entrepreneur / founder and academic director of RISE Management Research at the University of St. Gallen (www.rise.ch), researching the strategic entrepreneurship and management of technological innovation and organizational change / founding partner of TATIN Strategy Innovation Zurich GmbH, developing innovative perspectives and robust solutions in the areas of strategy and innovation, change and succession, management and corporate governance, on the level of executives and owners, board of directors and management teams (www.tatin.info) / senior researcher at the Academy of Art and Design, Basel. Simon Grand is engaged in international research, publication, lecture, teaching and consulting activities, with a focus on entrepreneurial strategizing, innovation strategy, strategic change, research and knowledge management, artistic research and design fiction.

**Simonetta Carbonaro ❮** Simonetta Carbonaro is an expert in consumer psychology, strategic marketing and design management. Carbonaro has been working as senior strategic advisor for main design, fashion design and branding companies, retailing companies, IT corporations, luxury goods companies, food service brands and investment banks. In 1999 she co-founded REALISE, a business consulting firm based in Germany, where she is actively involved in values branding, strategic design and innovation management. She has been lecturing at the postgraduate design school Domus Academy in Milan and is a partner of the research pool and member of the advisory board of the internationally renowned Swiss Gottlieb Duttweiler Institute for marketing and social studies. Since 2002 she has been a professor in Design Management and Humanistic Marketing at The Swedish School of Textiles at the University of Borås.

**Sonja Zillner ❮** Sonja Zillner studied Mathematics and Psychology, and did her PHD-Studies in computer science specializing in knowledge management. For several years she has been working as project leader for technology and innovation projects at Siemens AG Corporate Technology. She is a consultant at osb Tübingen GmbH specializing in innovation and change and lecturing at University of Vienna.

**Thomas Duschlbauer ❮** Cultural theorist and lecturer at the Johannes Kepler University and University of Applied Sciences Hagenberg. Graduated in Media Science and Politics at the University of Vienna. Cultural Studies at the University of London. Several research stays in the USA and U.K. He participated in several congresses and published in scholarly magazines. Associate member of staff at the Goldsmiths College (Centre for Urban and Community Research), London.

**Ward M. Eagen ❮** Ward M. Eagen is a Senior Researcher in Design and Innovation, Institute of Innovation and Technology Management, Ted Rogers School of Management, Ryerson University. His research focuses on the design process and the morality of design in an increasingly interdependent and global landscape. Ward is interested in Immanent Design as the natural unfolding of the solution space from within the problem space guided by architectures of participation of all those impacted. Ward holds degrees in architecture and philosophy from the University of Toronto and the University of Guelph. Having worked for ten years with the premier design firm of Arthur Erickson Architects, Ward has taught design from a number of perspectives including architecture, film, photography, web design, and new media in North America and Africa.

**William McDonough ❮** William McDonough is the founding principal of William McDonough + Partners, an internationally recognized design firm practicing ecologically, socially, and economically intelligent architecture and planning in the U.S. and abroad, principal of MBDC, a product and systems development firm assisting prominent client companies in designing profitable and environmentally intelligent solutions and a Venture Partner at VantagePoint Venture Partners in San Bruno, California. Mr. McDonough is a Consulting Professor of Civil and Environmental Engineering at Stanford University. He is on the Advisory Board of the University of Cambridge Programme for Sustainability Leadership and since January 2010 Chairman Emeritus of the U.S. Board of Councilors. William has written and lectured extensively on his design philosophy and practice. With Michael Braungart he co-authored "Cradle to Cradle: Remaking the Way We Make Things."

**Wolfgang Schwaiger ❮** Wolfgang Schwaiger received a doctorate in Business Studies at the Graduate School of Management, University of Dallas, Texas. After completing his doctorate he held a number of management positions in several large industrial companies. He then joined the lare international technology firm (VA TECH) as director of corporate strategy, communication and investor relations. Wolfgang has been a visiting professor at the University of Linz and the Art University Linz. He also lectures in Restructuring and Privatization at the World Bank Economic Development Institute in Washington and Vienna. His main areas of expertise lie in the design and management of complex, long-term change processes, internal communication, innovation management, mergers and aquisitions as well as strategy development and implementation. He is a Project Manager with Königswieser & Network.