LEADING INNOVATION THROUGH DESIGN

Proceedings of the DMI
2012 INTERNATIONAL RESEARCH CONFERENCE
AUGUST 8-9 2012 - BOSTON, MA. USA

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EDITORS

ERIK BOHEMIA
Reader in Three Dimensional Design Studies,
School of Design,
Northumbria University

JEANNE LIEDTKA
Professor of Business Administration,
University of Virginia - Darden Business School

ALISON RIEPLE
Professor of Strategic Management,
Westminstter Business School

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Editors
Erik Bohemia
Jeanne Liedtka
Alison Rieple

Conference Identity Design by Sarah Essex. Sarah studies BA (Hons) Graphic Communication with Typography at Plymouth University, UK

Editorial arrangements by
Erik Bohemia, Jeanne Liedtka and Alison Rieple

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Suite 300
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phone +1 617-338-6380
e-mail: dmistaff@dmi.org
www.dmi.org

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FACT SHEET

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Design Management Institute

Design Management Institute SM
101 Tremont Street, Suite 300
Boston, MA 02108 USA
617-338-6380 Tel
617-338-6570 Fax
Email: dmistaff@dmi.org
Web site: www.dmi.org

Everything ever made by human beings first requires **Design**, and in our world today of commercial business, this in fact requires **Management**. Discovering, defining, measuring, and communicating this fascinating accomplishment is precisely the mission of the Design Management **Institute**.

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Founded in 1975, DMI is the world's leading professional organization dedicated to design management. Everything designed, be it a product, identity, interface, environment, or communication, has to be managed. Integrating the creative side (intuitive, visual thinking, designing) with the analytical side (deductive, measurable, business management) is not easy. Design management is the art and science of empowering design to enhance collaboration and synergy between "design" and "business" to improve design effectiveness.

Today, DMI is an international authority on design management with members in 49 countries. The Institute conducts research, publishes a quarterly magazine, produces teaching cases with the Harvard Business School, provides career advancement workshops, and produces professional and academic conferences.

DMI Vision:

To improve organizations worldwide through the effective integration and management of design and design principles for economic, social and environmental benefit.

DMI Mission:

To be the international authority, resource and advocate on design management.

DMI Objectives:

- Sponsor, conduct and promote research.
- Collect, organize and make accessible a design management body of knowledge.
- Educate and foster interaction among design managers, organizational executives and managers, educators, and public policy makers.
- Be a public advocate for the economic and cultural (societal) importance of design.
- Assist design managers to become leaders in their profession.

Audience:

DMI serves those responsible for, interested in, and learning about the management of design, including CEOs, business and design executives and managers, designers, creative directors, marketing directors, brand managers, educators, and students.

Focus of Content:

DMI's research, conferences, seminars, webinars, and publishing focus on managing design for business success. Topics include design, innovation, design strategy, brand design, design measurements, corporate creativity, and design as management and as leadership.

2012 Programs:

- 20 seminar sessions covering 11 design management topics.
- Four conferences in Helsinki, Portland, OR, Boston, and New York City.

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FOREWORD

The 18th academic conference hosted by the Design Management Institute (DMI) of Boston, Mass., attracted a greater number of papers than any previous conference. The event was intended to highlight the importance of the contribution of design to organisational effectiveness and success, particularly in the ways that it can improve the new product development process, contribute to better strategic thinking and decision-making, and be an important element in the leader's toolkit. The conference was a means for researchers and thinkers to celebrate the importance of design and to work towards becoming a credible and full participant in the work of organisations.

We were proud and deeply honoured to have Professor Roger Martin, Dean of the Rotman School of Business at the University of Toronto, as our keynote speaker. He has been an inspirational thinker and one of the foremost and most passionate advocates of the methodologies and thinking of design as important and under-utilised organisational resources.

Our goal was to create an inclusive conversation among academics from a variety of disciplines, including business (organizational behavior, strategy, marketing, and operations) and design management (design strategy, product design, brand identity, communications, interactive design, user experience, architecture, and environmental design). We aimed to advance the state of the art in design management research, theory, and practice, and produce a significant contribution to this exciting and fast-developing field.

Businesses are changing; manufacturers are becoming service providers and services are focusing increasingly on experiences. Organizations, in both the profit and the social sector, are seeking competitive advantage through innovation in their offerings, structure, processes, and business models. We believe that this was an appropriate time to convene a gathering of academics to take a critical look at how to bring a scholarly lens to the ways that design may help to both shape and implement innovation in these emerging developments.

The theme of the conference, "Leading Innovation through Design," clearly attracted management theorists as well as well as design theorists, as it was intended to do. The conference organisers, in locating it close both physically and in terms of time alongside the management community's main academic conference – the AOM – hoped to attract 'mainstream' management researchers to contribute to the design management research conversation. The organisers believe that design management research has been undeservedly neglected by management theorists. The result was a large number of submissions of top quality, interesting, and rigorous papers. A total of 195 submissions were received from 36 countries and 133 universities and research institutes. These submissions were blind reviewed. Approximately 45% were accepted for presentation of full papers at the conference, and are published in these proceedings.

The conference was organised around these seven themes, and both full paper presentations and poster sessions were organised into these tracks:

- Innovations in Design Research Methodologies, Management Processes
- Bridging Research and Practice in the Management of Design
- Design-Led Innovation in Business Models
- Developing Design Thinking Skills
- Design-Led Innovation in Products and Services
- Design-Led Innovation in Organizations and the Workplace
- Innovations in Design Management Education

We would like to thank a number of people and organisations who have been helpful in organising the conference and preparing this set of proceedings. These include John Tobin, VP, Business Operations, from Design Management Institute who provided exceptional support in his role as Conference Secretary. We would like to thank Esther Dudley from Plymouth University, who encourage her students to produce artwork proposals for the conference identity, Sarah Essex whose design proposals were adopted, and every member of the International Scientific Review Committee who provided their time and expertise during the review process.

This was a truly international team effort by conference committee whose members were dispersed across the world.

Conference Co-Chairs

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PAPER SUMMARIES: INNOVATIONS IN DESIGN RESEARCH METHODOLOGIES, MANAGEMENT PROCESSES, AND OUTCOMES

Hwang and Baek discuss the development of a mapping tool for analysing customers' emotional responses towards a retail environment. The tool is derived from emotional design theory and tested it in a large UK supermarket. In a retail environment, design elements should represent the brand vision that the company wants to communicate to its customers. Understanding how design elements influence customers' emotions is vital. However, such information is difficult to gather and analyse, since it requires decoding layers of emotional responses from customers The findings suggest that the tool helps designers to understand the emotional feelings customers experience in such a retail environment.

Chung presents a design process that aims to maximize user values, which extends from 'material and physical values' to 'immaterial and soft values' related to emotional and psychological values. User values can be divided into 3 groups: functional values, emotional/affective values, and psychological values

Xi propose a multidisciplinary evaluation method for demountable buildings that addresses the issues of environment, social responsibility and economic effects. The hypothesis is that the existing evaluation methods from related areas can be adapted and applied to small-scale public demountable buildings. A specific evaluation method that applies to public demountable buildings can then potentially be adapted to other types and scales in future research.

Mueller and Thoring analyze two different strategies that create innovative design or business concepts based on a user-centered approach: design thinking and lean startup. They compare process models for lean startup and design thinking and highlights the differences and similarities, based on a structured literature review. As a result specific modifications of both strategies are suggested.

Sundar and Kardes explore the role that pooled attractiveness of a design can play on preference when products are presented with standard or advanced features. Three experiments demonstrate that product design and descriptions contribute to consumer preferences. Consumers use design cues to estimate the product's perceived quality, which further influences preferences. Consumers use the presented information on features to make inferences. We see that when consumers are asked to conform, they prefer less attractive products paired with standard features or more attractive products paired with advance features.

Follett and Marra propose a model for improving knowledge exchange in order to meet the complex demands of industrial R & D in Scotland. As the UK government and public policy bodies seek routes back to economic growth, the domestic higher education sector has been identified as a source for innovation. The Scottish economy's particular weaknesses in industrial R&D mean that resultant knowledge exchange is critical..

Ma suggests that he popularity of social networks and Internet forums has provided consumers with a new way to submit complaints, which prompts companies and designers to think about what is really good quality. The paper starts with a review of *perceived quality* and then takes as a case study male users' *brand perceived quality* in the home cleaning industry of China.

Bowie says that despite design and branding having taken on a new importance in business in recent years, logo design has been studied less often. His paper addresses the topic using a quantitative approach to call into question the traditional belief that logos serve only to differentiate. It is asserted that another critical function of logos is to provide legitimacy by conforming to design norms within industries. Similarity of logos within industries is examined using analysis of trademark registration data from the United States Patent and Trademark Office. Logos of Apple Computer and Lucent Technologies are discussed as examples of ineffective and effective innovative, or "deviant," logos. Further analysis of USPTO data addresses the question of whether innovation or conformity is a better strategy in adopting a logo design.

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Del Giorgio Solfa, F. (2012). *Benchmarking Design: Multiplying the Impact of Technical Assistance to MSMEs in Design and Product Development.*

BENCHMARKING DESIGN: MULTIPLYING THE IMPACT OF TECHNICAL ASSISTANCE TO MSMES IN DESIGN AND PRODUCT DEVELOPMENT

Federico DEL GIORGIO SOLFA*

National University of La Plata

This work takes as challenge-level exploratory study in the importance, scope and dimensions of the benchmarking of product design for the state advisory in design and product development for micro, small and medium producers.
The initiative falls as the zero phase of the project made for the Admission to the Research Career of Scientific and Technological Research Commission of the Province of Buenos Aires (CIC-PBA), which is under evaluation.
Our approach comprises the sub-national policies and actions to support micro, small and medium industries (MSMIs).
This study allows us to glimpse how benchmarking can contribute design-in a system of institutional support for technical assistance MSMIs based and network-to new product designs multiply their effects.

Keywords: Benchmarking design; product development; MSMIs

INTRODUCTION

Benchmarking is a management technique, comprising a continuous process of measuring products, services and technologies for production of a particular organization, for comparison with a model organization (leader or exemplary). Has been widespread and used in the private sector, although in recent years, specific applications are being made in the public sector.

In the last decade, different governments of Europe and America are developing successfully integrated applications benchmarking methodologies in different thematic areas of public sector areas, businesses, utilities, universities, science parks, and so on. From its use in most developed countries, has become a basic component of the regulatory processes and provision of public services.

The results obtained from application of benchmarking in the public sector, have shown a development of better services and more efficient organizations with environments.

Therefore, we assume this work, which aims to make this particular perspective of the art of benchmarking and exploratory study-at-the importance, scope and possible dimensions of benchmarking design, for technical advice to state in MSMIs Province of Buenos Aires.

METODOLOGY

This exploratory study is based on the presentation of the ways existing theoretical concepts of benchmarking, we consider the benefits and features of your application, we analyze the particularities of the public sector and in a logical and synthetic route, it evaluates its application in the Province of Buenos Aires, describing a proposed operation in the structure of the CIC.

* Industrial Design Department/School of Fine Arts | National University of La Plata
Calle 28 N° 2029 | Villa Elisa B1894KFG | Argentina
e-mail: delgiorgio@fba.unlp.edu.ar
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The proposed actions are divided into two main parts: 1. the technical assistance in design and product development, and 2. The Bank of Successful Projects in Industrial Design and Design Benchmarking Network.

After the definition of benchmarking design, the main conclusions are drawn.

DEVELOPMENT

BENCHMARKING: THEORY AND APPROACHES OF THE AUTHORS

Originally the term –Benchmark- comes from the topography means a surveyors mark made on a rock or a concrete post, to compare levels. Benchmarking is a term that was originally used by surveyors to compare elevations. Today, however, benchmarking is a more restricted to the management lexicon, with the benchmark of best practice (Kouzmin et al., 1999).

Benchmarking appears in the U.S. in the late seventies, from Xerox to the need to understand and overcome their competitive disadvantages. Subsequently, other companies were highlighted with benchmarking: Ford, Alcoa, Millken, AT & T, IBM, Johnson & Johnson, Kodak, Motorola and Texas Instruments, thus becoming almost mandatory for every organization wishing to improve their products, services, processes and results.

The term benchmarking is attributed to the release of Camp where the application comes from Xerox, as a technique of self and search for best practices in order to improve the quality of their processes (Camp, 1991). This publication coincided with the distinction of National Quality Award Xerox Malcolm Baldrige, who got his quality leadership from benchmarking techniques. The award, included in its assessment, the implementation of updated and the development of benchmarks, one of the early stages of what is now considered benchmarking (Czuchry et al.,1995).

Commonly in the business sector, is known to benchmarking as a technique to meet competition and changes in processes, products or services to be more competitive, from the experiences of the leaders surveyed. Different authors define benchmarking as a process of benchmarking, continuous and systematic inter-organizational processes, products and services to implement improvements (Spendolini, 1994).

Benchmarking is an independent management strategy that integrates a set of techniques evolucionadamente quality. Therefore, it is also a technique of management innovation (Clemente & Balmaseda, 2010).

Bruder & Gray, defined as: "a rigorous and practical to measure the performance of your organization and processes, in contrast to the best organizations of its kind, both public and private, and then use this analysis to improve services, operations and situation costs dramatically." (Bruder & Gray, 1994:9).

Fischer (1994:3) defines benchmarking in terms of performance measurement: "Through a series of performance measures-patterns known as 'benchmarks' [benchmark] - a person can identify the best in class between those who perform a task in particular. Then, best practices are analyzed and adapted for use by others who want to improve their way of doing things. ".

For Pfeiffer (2002), benchmarking is not a simple comparison of indicators of an organization with another organization or with other ideals, especially not, when performed only once. It is important to compare the values derived from processes throughout the organization, continually comparing and always seek better solutions, the goal is –the learning organization-.

APPLICATION BENEFITS

The organizations are using benchmarking for different purposes. Some lie to benchmarking as part of an overall process that seeks to improve the organization. Others view it as an ongoing mechanism to keep updated (Spendolini, 1997).

This technique is very efficient for improvement in organizations, and that can be incorporated and adapted processes whose effectiveness has been proven by other organizations. For this reason, it helps organizations to make improvements quickly.

Furthermore, benchmarking is a relatively low technology, low cost and fast response, that any organization can adopt. It also seems to have enough common sense to make it easy to understand for both officers, directors, employees, suppliers, customers, and for the media and general public (Cohen & Eimicke, 1995; Cohen et al., 2008).

Typically, an organization in an attempt to identify the best in its class and duplicate or exceed their performance, you can also integrate their culture and behavior, a strong competitive spirit, pride, confidence, energy and effort improvement (Cohen & Eimicke, 1996).

Innovation is one of the direct benefits obtained from benchmarking practices and has direct impact on the ways of doing, from the incorporation of new ideas about a problem, ideas or specific applications.

BENCHMARKING IN THE PUBLIC SECTOR

According to Marchitto (2001), who has researched, developed and implemented in Italy on benchmarking in the public sector, argues that to the public, this technique may offer the right to appropriate the role of producer welfare for the community, restoring efficiency and efficacy.

In the public sector, benchmarking can be defined as the continuous and systematic process by which government-from a thorough in-depth analysis phase, individualized areas for improvement and carry out internal and external comparisons, in order to: integrate shares common objectives, consistent with the overall objectives of the State; get the cooperation between the network, in order to provide increased value to recipients, and planning to make improvements (Marchitto, 2002).

TYPES OF BENCHMARKING

For Camp (1991), there are four types of benchmarking: internal, competitive, functional and generic. Instead, Spendolini (1994) categorizes three types of benchmarking: internal, competitive and generic (functional), grouped in one category to the generic and functional benchmarking.

The internal benchmarking focuses on the comparison of internal actions to identify the best processes of the organization. The competition identifies and collects information about processes, products and services in direct competition, for comparison with our own. The generic, identifies and collects data in the same way that competitive, but other organizations that may or may not competitors.

From another perspective, can cross at these types of benchmarking (internal, competitive and functional) with other characteristics, determining the strategic, if you look at objectives, goals and organizational vision, or operational, if the research focuses on the tasks more specific and operational.

Additionally, Marchitto (2001) proposes a classification especially adapted for the civil service and is based primarily on the differentiation process: operational and strategic management.

APPLICATIONS OF BENCHMARKING IN THE PROVINCE OF BUENOS AIRES

In previous work, we surveyed and analyzed various applications benchmarking tool in the public sector through international organizations, national, subnational and local (Del Giorgio Solfa, 2011).

In the provincial public sphere, different organizations currently applying the technique of benchmarking for improvement and institutional development. In this sense, the policy applications as benchmarking, joint actions can be cross-regional and sector (Plaza Tesías et al., 2005).

In turn, these actions can be grouped into two basic types of dimensions: 1. Government support (internally); 2. Support for private organizations (external environment).

In the Province of Buenos Aires, the possible use of benchmarking at the State level includes all the Provincial Public Administration (central, decentralized and self-sufficient). According to its purpose, can incorporate benchmarking, both for the development of their own organizations and for support of other public, private or mixed, that may be subject to its regulations, controls or policies.

Under this approach, the Ministry of Production, Science and Technology could build and manage networks aimed at benchmarking and productive economic development of regions and / or production organizations (e.g. MSMIs).

Specifically, the implementation of provincial regionalization policies, benchmarking with the control board, constitute the most appropriate set of tools for monitoring the management and development indicators, as a way of assessing the impact that various policies in each region.

To facilitate these actions, from the perspective of the whole production policies-the Ministry of Production, Science and Technology benchmarking could implement policies, supporting MSMIs from:

- Development of a bibliography and methodology of benchmarking.
- Establishment of networks of provincial benchmarking (in materials production).
- Survey and systematization of technical assistance to industries.

From these actions, and particularly from the permanent disposal networks, methodologies and results achieved with the technical assistance, micro and small industries could learn, evaluate and implement best management practices in their industry (both organizational as product) systematically incorporating benchmarking between its processes.

BENCHMARKING DESIGN IN THE ORGANIZATIONAL STRUCTURE OF THE CIC

In Currently, CIC is the organization of the Ministry of Production, Science and Technology, Buenos Aires, which is responsible for promoting research and providing technical assistance through its various research centers.

Among its twenty-six centers, rescue Industrial Design Center (IDC) -created by agreement with the National University of Lanus- which acts on the translation that makes the CIC, on policies issued by ministerial portfolio.

The CDI investigation, is assisting and advising the seat MSMIs with Buenos Aires, but by its strategic geographical location and involves mainly the territorial patches of the following industrial sectors (OPPA, 2001):

- Clothing.
- Leather, footwear and leather goods.
- Furniture and parts.

Understanding that the CDI is the most immediate operational core of public policy, in research and industrial-design assistance that is targeted to the industries of strategic dimension, is that we consider as most suitable to incorporate and develop benchmarking activities.

TECHNICAL ASSISTANCE IN DESIGN AND PRODUCT DEVELOPMENT

The technical assistance MSMIs, form, in terms of industrial design, require significant resources and professional endeavors.

On the other hand, considering that these public policies, in the form of technical assistance, can not respond in a timely manner, increasing and varied demands of design and development of new products, we feel obliged to propose creative solutions to reach the as many productive organizations.

Also, from the standpoint of public administration responsible, we owe a commitment to use resources on a basis that allows us to capitalize on the present and future, the different experiences that are acquired in the processes of technical assistance in industrial design.

It is then, under this approach, the technical assistance and take a more important dimension, with the multiplier effect of digital media.

In this logic, also fits the idea that government should not assist technically in "black box" and get involved in the generation of competitive differences between companies.

Therefore, these proposed technical assistance, will endure, transparent and easy arrival to producers, is expected to collaborate with more uniform sectoral developments.

THE BANK OF SUCCESSFUL PROJECTS INDUSTRIAL DESIGN AND DESIGN BENCHMARKING NETWORK

Within the Commission, proposed the creation of the Bank of Industrial Design Successful Projects (BPE-DI) and Benchmarking Network Design.

The BPE-DI, with a smart search system, will capitalize on CDI's technical assistance in benchmarking actions undertaken.

The idea of forming a Benchmarking Network Design, which integrates the various MSMIs interested aims: to support and produce synergies cross (within and between sectors) work together (networking), facilitate the search for benchmarking partners, and assist in improving indicators of design management and new product development (Del Giorgio Solfa, 2001).

The BPE-DI and Benchmarking Network, would form a solid core to share successful experiences and find-in-industrial design at the provincial level.

DESIGN DIMENSIONS OF BENCHMARKING

The application of benchmarking of product design or simply benchmarking design, requiring different dimensions and indicators set design, which allows them to be measured and compared with other products.

Although these findings may somewhat complex and include more dimensions, we show in Table 1, we define groups in an exploratory way:

Table 1 Some dimensions of Benchmarking Design

A. Market
A.1. Price
A.2. Target
A.3. Date of entry into the market
A.4. Average life
A.5. Positioning
A.6. Sales volumes
B. Technology
B.1. Number of parts
B.2. Material / s.
B.3. Quantity of each material
B.4. Production processes
B.5. Production scale
B.6. Standardized parts
B. Dimensions
B.1. General: height, length and width
B.2. Parties: height, length and width
B.3. Anthropometric dimensions
B.4. Variable dimensions
C. Use
C.1. Physical ergonomics
C.2. Psychological ergonomics
C.3. Guarded
D. Maintenance
D.1. Cleaning
D.2. Repair
D.3. Spare parts
E. Recycling
E.1. Reuse rate
E.2. Environmental impact

Source: own.

CONCLUSIONS

In the first instance, review of benchmarking literature and the cases studied, we can conclude that it is a technique that can be perfectly applied to the CDI.

We emphasize, in the words of Camp: "The rationale for benchmarking is that it makes no sense to be locked in a lab trying to invent a new process to improve the product or service, when this process already exists." (cited in MAC, 2008:11).

On the other hand, we know that typically MiPyMIs must continually improve their products, focusing on the needs of citizens and the new challenges they face as a result.

It is in this instance, where the self-assessment, assists the CDI, the BPE-DI, Benchmarking Network Design and the subsequent comparison of productive organizations can play an important role. Benchmarking is presented as an opportunity to capitalize on the knowledge and developments that have reached other organizations throughout its existence. Perhaps its greatest benefit, is based on the discovery of new and better ways of doing things.

Course, you have to initiate a process of benchmarking involves making efforts by the organization in terms of: resource allocation, teamwork, sharing and finding information, and so on.

Therefore, the CDI, has a key role in implementing benchmarking pilot at the provincial level design.

With the ultimate aim of improving the capabilities of MiPyMIs and increase the quality of their products, we propose to revalue to make proposals for benchmarking and continuous implementation.

In short, we believe it is worth devoting resources to a benchmarking policy design in the Province of Buenos Aires. Because not only does not perceive problems, if we visualize important insights with your application.

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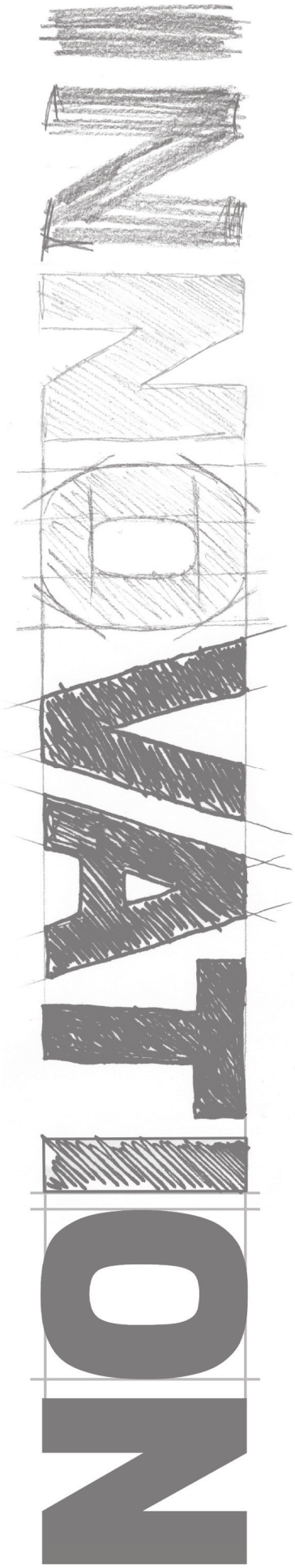

Alison Rieple is Professor of Strategic Management at the University of Westminster in London, UK. Formerly the Director of Research at Westminster's Business School, she is now the director of IDEaS—the Innovation, Design, Entrepreneurship and Strategy Research Group. She teaches strategic management, research methods and innovation management on Westminster's MBA programmes, and heads up one of the School's major corporate programmes. Alison's research interests include the management of design, innovation in the cultural and creative industries such as fashion design and music, and the factors blocking the adoption of ethical practices in international supply chains. She is the co-author (with Adrian Haberberg) of *The Strategic Management of Organizations* (Prentice Hall 2001), and *Strategic Management: Theory and Application* (Oxford University Press, 2008).

Jeanne Liedtka is the United Technologies Professor of management at the Darden Graduate School of Business at the University of Virginia. Formerly the executive director of the school's Batten Institute, a foundation established to develop thought leadership in the fields of entrepreneurship and corporate innovation, 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 book, *Designing for Growth: A design toolkit for managers*, co-authored with Tim Ogilvie, was named the winner in the management category of the 800-CEO-READ book award.

Erik Bohemia is a Reader in Three Dimensional Design Studies at the School of Design, Northumbria University, United Kingdom. As a Researcher and an Educator in the field of design, he is interested in the skills and competencies of designers and the match between these and industry requirements. Dr. Bohemia's current research explores changes associated with Globalisation and the impact of these changes on Design. This research has been used to develop an innovative international collaboration named the Global Studio http://theglobalstudio.eu/
His on-going research interest is examining product development processes in geographically distributed and cross-cultural product development teams. The Global Studio provides a platform to undertake this research and develop cross-institution and cross-disciplinary engagement.

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