

# **The New Competitiveness in Design & Construction**

**12 strategies that will drive the 21st century's  
most successful firms**

**JOE M. POWELL**

The Rice University Building Institute

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# THE NEW COMPETITIVENESS

in Design and Construction

by Joe M. Powell

Executive Director  
The Rice University Building Institute



E2008001408



John Wiley & Sons, Ltd

Published in Great Britain in 2008 by John Wiley & Sons Ltd

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West Sussex PO19 8SQ, England  
Telephone +44 (0)1243 779777

Email (for orders and customer service enquiries): [cs-books@wiley.co.uk](mailto:cs-books@wiley.co.uk)  
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Jossey-Bass, 989 Market Street, San Francisco, CA 94103-1741, USA

Wiley-VCH Verlag GmbH, Boschstr. 12, D-69469 Weinheim, Germany

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John Wiley & Sons Canada Ltd, 5353 Dundas Street West, Suite 400, Etobicoke, Ontario M9B 6H8, Canada

Wiley also publishes its books in a variety of electronic formats. Some content that appears in print may not be available in electronic books.

Executive Commissioning Editor: Helen Castle

Project Editor: Miriam Swift

Publishing Assistant: Calver Lezama

ISBN 978-0-470-06560-0

Page design and layouts by Sparks, Oxford – [www.sparkspublishing.com](http://www.sparkspublishing.com)

Cover image © [istockphoto.com/subman](http://istockphoto.com/subman)

Cover design by Paul Mitchell Design Ltd

pp. 1, 8, 9, 13, 17, 25, 32, 44, 51, 53, 58, 61, 71, 73, 76, 79, 81, 85, 87, 93, 101, 104, 105, 109, 111, 114, 117, 121, 124, 127, 131, 133, 137, 138, 145, 152, 172, 181 & 189: © [ImageZoo.com/Veer](http://ImageZoo.com/Veer)

pp. 5, 14, 20, 22, 29, 38, 47, 57, 65, 67, 98, 142, 149, 158, 162, 165 & 179: © [Photodisc/Getty/Veer](http://Photodisc/Getty/Veer)

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Printed and bound by Conti Tipocolor, Italy

**The New Competitiveness  
in Design and Construction**

## Foreword

# A REFLECTION ON SCIENCE AND INDUSTRY

Success in any science or industry relies on a complex mesh of people, technology, and economic conditions. As this book suggests, pursuing the right strategy is one aspect of this complexity. However, it is understood that an essential precondition for strategic success is effective collaboration among a project's various players. In fact, the Rice University Building Institute (RBI) was founded on the belief that collaboration in the huge building industry is so important that it is worthy of serious study. Since this subject is generally not a central focus in studies of this industry, we must turn to interactions in science, particularly to the research of historian Peter Galison, whose history of the working relations among physicists in the 20th century is not only fascinating but also extremely useful. In the end, Galison suggests that the success of the new physics and its players—the theorists, experimenters, and instrument makers—lay in their ability to maintain their individual integrity while forming hybrid coalitions, or trading zones, to achieve the desired scientific breakthroughs.

**I** take it to be the sign of vibrant life, not fragility, that the material culture of the laboratory is in flux through changing modes of collaboration, techniques, simulations, and disciplinary alliances.

---

PETER GALISON

*IMAGE AND LOGIC: A MATERIAL CULTURE OF MICROPHYSICS*

UNIVERSITY OF CHICAGO PRESS (1997)

It may be too early to argue that the successful construction of a complex building relies likewise on the general robustness of the industry combined with innovative players able and willing to form hybrid trading zones, but by using Galison's suggestions as

a frame of reference, we can begin to see more clearly what takes place in those trading zones. One thing is clear: Zones do exist, and trading among their participants is intense, often successful, but also frequently highly problematic.

Using the material culture of physicists (while being fully cognizant of the limitations of this metaphor), it seems obvious that our industry is building equipment for a panoply of uses, ranging from banks to research laboratories. Maybe less obvious, each piece of equipment is the vessel for an ongoing behavioral experiment in which the quality of the building plays an obscure role. This obscurity is the cause of much discussion and disagreement in the trading zones. In fact, success itself is a volatile subject: What may be a financially successful building may also be a disaster to work in, and vice versa.

Architects, the most likely participants to talk about their theories, are often blamed by others in the trading zones for being just that: too theoretical. But it is also clear that all the players have their own theories, from economic models to assumptions about the behavior of structural systems. All these various theories form a cluster of behaviors and attitudes that subtly infiltrate the buildings that are constructed. If, then, every completed building is an experiment from a productivity perspective, it is unfortunate that very few post-occupancy studies are done to measure that success or failure. This clearly does not bode well for the arguments made in the trading zones on the relative merit of one building type over another.

From an equipment perspective, the “banging on the bench,” as Galison calls it—or the use of the building, in our case—is equally obscure. The distance between the experimenter using a microscope and the data she produces on a physical phenomenon is much narrower than the distance between a CEO and the measurable benefits of the corner window in his office, which presumably helps him to visualize the future of the company. Again, the building industry is placed at a disadvantage by operating in a much more speculative environment. Are there ways to shorten these distances and dispel the obscurity? Most likely. The emergence of the study of buildings in use, and the context in which they came about, leading to evidence-based design are signs of a new era, one that is now clearly more scientific, demanding a better understanding of the performance of buildings as instruments to enhance our productivity and satisfaction.

Joe Powell’s book is one of many steps that are being taken toward that end at the RBI, and it recognizes that, just as in groundbreaking science, making buildings is a competitive business, and the success of the 1.5 million companies involved

is highly dependent on circumstances outside their control. Happily, and luckily, we can do something to reduce that dependence. This book has the added advantage of being part of a university business, in which unblinking research provides the fundamental basis for its own success as a trading zone. It is also clear that we have our job cut out for ourselves, since while the building industry is known for its willingness to act, it is not yet noted for its willingness to reflect.

Lars Lerup  
Dean  
Rice University School of Architecture

# DEDICATION

For Emma Kate Powell  
Who animates all of my endeavors

# ACKNOWLEDGMENTS

This book is the result of a team effort. All inaccuracies, confusing ideas, and uninspired prose were supplied by me. On the other hand, intelligent, relevant work was provided by Susan Garza, Mitchell Shields, and Jennifer Mashburn. Special recognition goes to Dean Lars Lerup for conceiving of and founding the Rice University Building Institute. And I'm particularly grateful for the 30 years of insightful, powerful wisdom shared by Ray McLaughlin and Richard Ashley. Hazardous duty pay should be provided to Helen Castle for not acting on her natural impulse to have me expelled from the planet.



# **SHAPING THE BUILT ENVIRONMENT**

One and a half million individual companies design, engineer, and construct the built environment in the United States, Britain, Canada, and Australia. What's the single most compelling concern of the owners and managers of these firms? Interestingly enough, that's exactly what we've been asking them for the last three years. The answer: "Competitiveness."

What can we learn about the constant vibration of complex interactions that exist between a firm, its customers, and its competitors? Is it possible to identify the performance characteristics that most accurately determine which firms will achieve market prominence? How will future companies design and execute their competitive strategies?

Firms that function in the AEC industry form highly interactive project teams that work closely together to design and build its buildings. But before project teams are formed, before contracts are signed, before anyone sharpens the lead in their mechanical pencils, an intensely competitive set of events takes place. It's obvious to anyone who's played the game that some companies function in this arena with forceful energy while others struggle to pick up the leftover crumbs.

Some firms compete locally, some compete regionally, some compete nationally and internationally; but interestingly enough, the keys to competitiveness are the same. The Rice University Building Institute has identified 12 areas of competitive focus that will drive the 21st century's most successful AEC firms, regardless of profession, size or location.

Since the subject is how to win more new projects, aren't we talking about marketing? Aren't we talking about sales? Marketing and sales are obviously important, but that's not what this book is about; it's about creating a competitive company. The world's most effective marketing practices will not long elevate a company that lacks "competitiveness."

## **Research**

The material in this book is based on a three-year study executed by Joe M. Powell and the Rice University Building Institute. The Institute set out to define the specific performance characteristics

that most powerfully impact competitiveness in the AEC industry.

This undertaking was made somewhat more complex by the fact that the process of shaping the built environment involves a diverse collection of professionals and disciplines. We were not interested in how any one of these groups functions in a vacuum, because they acquire their power and utility to society only when they effectively and efficiently interact. Therefore, we have chosen to investigate the AEC industry as a whole.

### **Approach**

- 1 Define “market prominence.”
- 2 Identify firms in all AEC disciplines that have achieved it.
- 3 Investigate how they did it.
- 4 Define what performance characteristics will be required of the next generation to acquire a position of market prominence.

### **Surveys**

The Institute surveyed 28 of America’s leading graduate schools of business.

### **Interviews**

The Institute interviewed 164 company principals from the fields of architecture, design, engineering, general contracting, specialty contracting, project management, and program management. We also involved representatives from the major corporations that own and manage large real estate and facility portfolios.

### **Focus groups**

The Institute invited 102 industry leaders to participate in a series of on-campus focus groups. These groups were designed to be small and highly interdisciplinary. Their interaction was fascinating and instructive.

## **The Rice University Building Institute**

### **An interdisciplinary collaboration of industry, community, and academic leaders**

Rice University has a distinguished track record in establishing and operating interdisciplinary collaborations in teaching and research. The university currently is home to over 40 research centers, institutes, and consortia.

The modern process of shaping the built environment has become so complex that needed improvements and innova-

tions lag far behind the growing challenges. Clearly, innovative approaches will be required to re-integrate what has become a fragmented process. This won't happen without the creative interaction of our most respected leaders from industry and academia.

The Rice University Building Institute provides the requisite forum in which this interdisciplinary search for innovation comes to life.

The Institute has four operational centers:

- **Research:** Defining new insights
- **Executive education:** Improving performance
- **Publishing:** Disseminating the latest findings
- **Symposia:** Hosting interactive exploration

### **Institute stakeholders**

- **Owner/user groups:** The corporations that own and use large real estate portfolios
- **AEC industry:** Architectural profession/engineering profession/construction industry
- **Building material manufacturers**
- **Financial industry:** Those who finance and insure the building development process
- **Professional advisors:** Real estate brokers and consultants/real estate attorneys/real estate accountants
- **Developers:** Investment builders and merchant builders

## **How to use this book**

You will find five types of information intermingled herein.

### **(1) Questions**

?

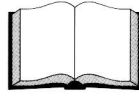
Research is about answering questions; here are the ones we asked.

### **(2) Descriptive text**



This is what we learned about each of the 12 performance characteristics found within companies that achieve market prominence.

### **(3) Book recommendations**



You will notice that each characteristic describes an element of company performance that has been studied for years by an entertaining mix of management experts and jesters. Our job here is not to present another explanation of these basic business functions, but rather to explain how you can use them to improve competitiveness. Therefore, for those interested in a more in-depth explanation, we recommend books that have achieved general recognition for their relevance.

### **(4) Industry stories**

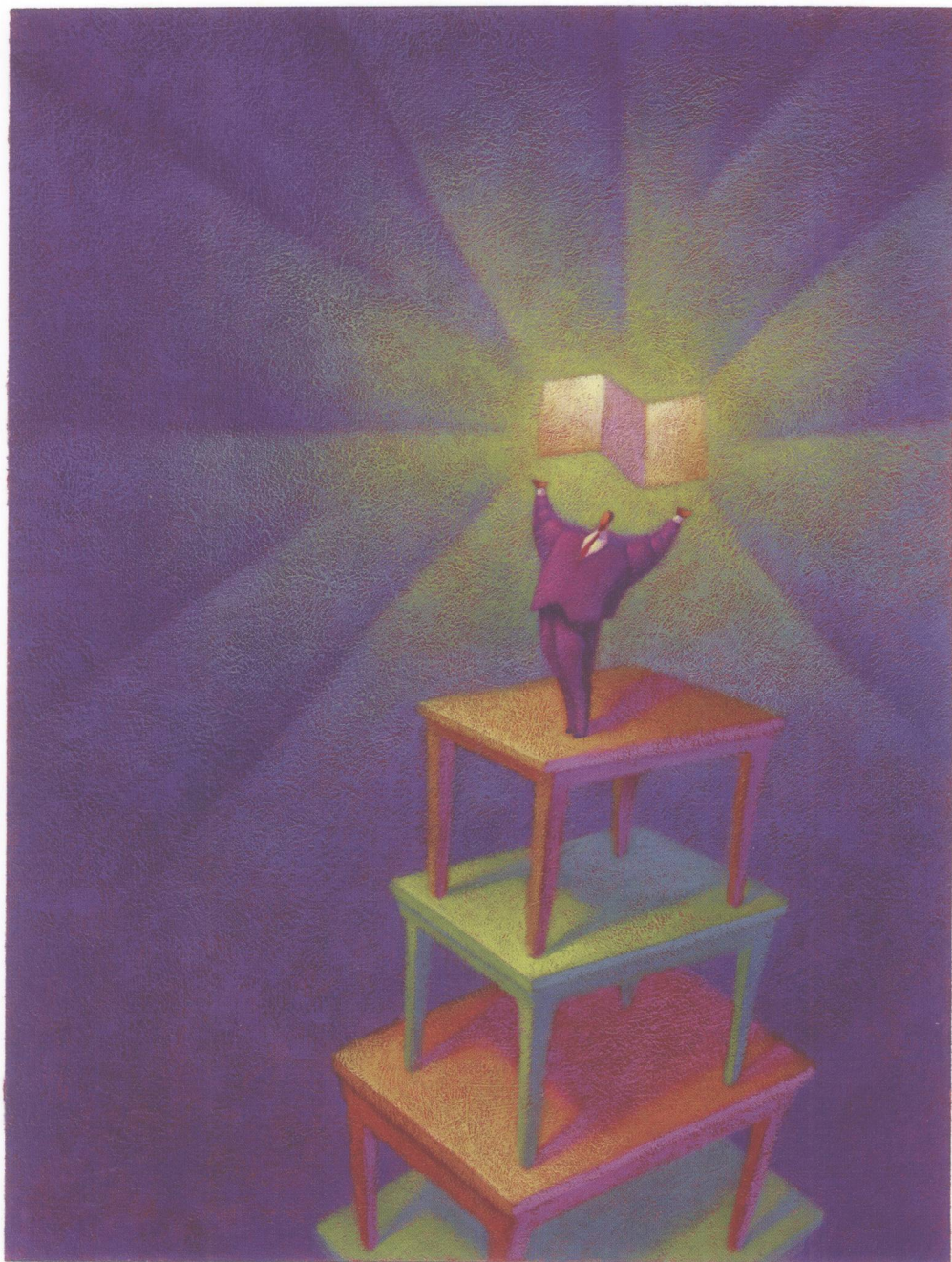
We invited industry leaders from the fields of architecture, engineering, and construction to provide personal stories illustrating their approaches.

### **(5) Industry leader comments**

Research is useless unless it finds its way, sooner or later, to utility among practitioners. Therefore, we have invited a diverse group of prominent professionals to comment on our work. Some of their opinions were non-libelous and have been integrated herein.

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Some companies in the AEC industry are able to acquire and maintain a perennially imposing presence in the marketplace. How do they do it? More importantly, how will the next generation do it?



# EXECUTIVE OVERVIEW

It's a phenomenon with which we are all familiar. Some companies in the AEC industry are able to acquire and maintain a perennially imposing presence in the marketplace. How do they do it? More importantly, how will the next generation do it?

## AEC industry

**A**rchitects, designers, engineers, general contractors, specialty contractors, major subcontractors, project managers, program managers, construction managers

Conventional wisdom tells us that architects compete against other architects, engineers against other engineers, general contractors against other general contractors, and so on. It makes sense, then, that certain competitive strategies could exist that are effective in one discipline and not in another.

We found no such thing. Selection processes and fee negotiations vary somewhat, but the basic performance characteristics that propel one firm past its competitors are the same.

What about location? Do the designers and builders in Britain face competitive forces different from those in Canada, Australia, and the US? First, we found more companies functioning successfully outside their home country than ever before. And even though we have witnessed an entertaining collection of terminologies that don't always match, the competitive forces around the world are identical.

We found the same rule of invariance with respect to company size. We were gratified to find competent, profitable, well-regarded firms of all sizes in every category. And even though size impacts the type of projects these firms pursue, the performance characteristics that matter work equally well in each.

We did uncover fascinating variations in culture, however. Behaviors that are prized in one profession will get you ridiculed in another. While these divergent experts work together everyday to solve building problems and typically have great respect for one another, they are fiercely proud of their own professional identity. The engineers don't want to act like architects, the architects don't want to act like engineers, and the builders don't want to act like either one.

**I'm not so concerned that we don't know all the answers. What worries me is that we don't know the right questions.**

LEON LEDERMAN

NOBEL PRIZE-WINNING PHYSICIST

## The important questions

Research is about answering questions. In fact, asking the right questions is the single most important part of the process. The reason that so many research findings end up being published in the *Journal of Irrelevant Findings* is that the researchers begin by asking the same questions they always ask, looking in the same places for answers that they always look, and, not surprisingly, ending up with the same tired, old ideas.

So, what are the important questions?

- 1 Since we're interested in the concept of market prominence, how shall we define it?
- 2 How did the current generation of AEC market leaders acquire their lofty positions?
- 3 What will be required of the next generation who aspire to market leadership?

### (1) How shall we define market prominence?

Achieving a position of market prominence is undoubtedly the holy grail of business performance. It's actually a more powerful experience than managing to dominate a market for a period of time. **Market dominance** is typically an exciting but brief phenomenon and usually demands a hefty modicum of chance. **Market prominence**, on the other hand, connotes an imposing position that endures. It isn't luck. It can't be achieved by commercializing the latest fad. You don't get there by being in the right place at the right time. It belongs solely to those companies who consistently and repetitively do the right things.

While it's tempting to define the term "market prominence" quantitatively, our researchers chose to utilize qualitative measures instead. We feel that the power of this term lives not on a spreadsheet, but in the hearts and minds of those entities that define a market (customers, competitors, employees). It's actually a simple matter. Take any specific market segment, survey the major buyers, the major participating firms, the appropriate professional associations, and you will quickly identify those com-



panies considered to have achieved “market prominence.” In fact, in your arena, you already know who these firms are. Here are the characteristics we measured to determine market leaders:

### **Name recognition**

Ask major participants in any market segment and they tend to repetitively mention the same names.

### **Expertise recognition**

Market leaders are successful at attaching, in the minds of major buyers, qualities associated with advanced expertise and performance, whether or not that advanced expertise actually exists.

### **Premium pricing**

Buyers honestly believe that they’re going to get more value from market leaders and are typically willing to pay for it.

### **Preferential competitive treatment**

In a competitive sales arena, clients often let market leaders skip the “qualifications” stage of the competition and go directly to the final sales presentation.

### **Prestige among employees**

Survey professionals in any defined market area and ask them about the best places to work. You will find a high correlation between market prominence and desirable work environments.

## **(2) What performance characteristics will determine the next generation of market leaders?**

Everyone knows predicting the future, no matter how much data you have, is a dicey proposition. People substantially smarter than us have perished in the attempt. Nonetheless, this project and this book are largely useless unless we can provide our readers with some insight into how future market leaders are likely to acquire prominence.

Conventional wisdom tells us that yesterday’s market leaders achieved their positions by consistently applying three practices: aggressive personal networking, effective competitive sales, and the capacity to perform as promised.

Today’s game is more complex. We believe there are 12 performance characteristics, each requiring its own executable strategy, that will be essential to consistently outperforming the competition. You will notice that we do not discuss three issues: financial stability, ethical behavior, and competent professional performance. These are assumed.

Here are the 12 performance practices that will drive tomorrow’s most competitive firms: