

MID-RANGE MANAGEMENT
THEORY: COMPETENCE
PERSPECTIVES ON MODULARITY
AND DYNAMIC CAPABILITIES

MID-RANGE MANAGEMENT THEORY: COMPETENCE PERSPECTIVES ON MODULARITY AND DYNAMIC CAPABILITIES

Series Editors: Ron Sanchez and Aimé Heene

Recent volumes:

- Volume 1: A Focused Issue on the Marketing Process in Organizational Competence; edited by Ron Sanchez and Jörg Freiling
- Volume 2: A Focused Issued on Managing Knowledge Assets and Organizational Learning; edited by Ron Sanchez and Aimé Heene
- Volume 3: A Focused Issue on Understanding Growth: Entrepreneurship, Innovation and Diversification; edited by Ron Sanchez and Aimé Heene
- Volume 4: A Focused Issue on Fundamental Issues in Competence Theory Development; edited by Ron Sanchez
- Volume 5: A Focused Issue on Identifying, Building, and Linking Competences; edited by Ron Sanchez and Aimé Heene
- Volume 6: A Focused Issue on Competence Perspectives on New Industry Dynamics; edited by Ron Sanchez and Aimé Heene
- Volume 7: Building New Competences in Dynamic Environments; edited by Ron Sanchez and Aimé Heene

RESEARCH IN COMPETENCE-BASED MANAGEMENT
VOLUME 8

MID-RANGE MANAGEMENT THEORY: COMPETENCE PERSPECTIVES ON MODULARITY AND DYNAMIC CAPABILITIES

EDITED BY

RON SANCHEZ

Copenhagen Business School, Denmark

AIMÉ HEENE

Ghent University, Belgium

SEÇKİN POLAT

Istanbul Technical University, Turkey

UMUT ASAN

Istanbul Technical University, Turkey



United Kingdom – North America – Japan
India – Malaysia – China

Emerald Publishing Limited
Howard House, Wagon Lane, Bingley BD16 1WA, UK

First edition 2018

Copyright © 2018 Emerald Publishing Limited

Reprints and permissions service

Contact: permissions@emeraldinsight.com

No part of this book may be reproduced, stored in a retrieval system, transmitted in any form or by any means electronic, mechanical, photocopying, recording or otherwise without either the prior written permission of the publisher or a licence permitting restricted copying issued in the UK by The Copyright Licensing Agency and in the USA by The Copyright Clearance Center. Any opinions expressed in the chapters are those of the authors. Whilst Emerald makes every effort to ensure the quality and accuracy of its content, Emerald makes no representation implied or otherwise, as to the chapters' suitability and application and disclaims any warranties, express or implied, to their use.

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

ISBN: 978-1-78714-404-0 (Print)

ISBN: 978-1-78714-403-3 (Online)

ISBN: 978-1-78714-923-6 (Epub)

ISSN: 1744-2117 (Series)



ISOQAR certified
Management System,
awarded to Emerald
for adherence to
Environmental
standard
ISO 14001:2004.

Certificate Number 1985
ISO 14001



INVESTOR IN PEOPLE

CONTENTS

LIST OF EDITORS AND CONTRIBUTORS	vii
EDITOR AND AUTHOR BIOGRAPHIES	ix
INTRODUCTION <i>Ron Sanchez, Aimé Heene, Seçkin Polat and Umut Asan</i>	xiii
BUILDING THEORY FOR MANAGEMENT SCIENCE AND PRACTICE: AN EPISTEMOLOGICAL PERSPECTIVE FROM COMPETENCE-BASED MANAGEMENT THEORY <i>Ron Sanchez and Aimé Heene</i>	1
OVERCOMING PATH DEPENDENCY AND “LOCK-IN” IN COMPETENCE BUILDING AND COMPETENCE LEVERAGING PROCESSES <i>Ayberk Soyer, Sezi Çevik Onar, and Ron Sanchez</i>	25
IDENTIFYING COMPETENCES AND THEIR SOURCES IN A NOT-FOR-PROFIT ORGANIZATION: THE CASE OF A HUMANITARIAN RELIEF ORGANIZATION <i>Diego Vega and Ron Sanchez</i>	45
BUILDING SUSTAINABILITY COMPETENCE FROM THE TOP DOWN: A MODEL FOR RESEARCHING AND IMPROVING BOARDS OF DIRECTORS’ INFLUENCE ON FIRMS’ SUSTAINABILITY PERFORMANCE <i>Ron Sanchez, Jeremy Galbreath, and Gavin Nicholson</i>	69

ROADMAP-BASED METHODOLOGY FOR THE FORECASTING OF COMPETENCES WITHIN AUTOMOTIVE PRODUCT DEVELOPMENT <i>Albert Albers, Lukas Krämer, and Masis Arslan</i>	109
MODULARITY IN NEW MARKET FORMATION: LESSONS FOR TECHNOLOGY AND ECONOMIC POLICY AND COMPETENCE-BASED STRATEGIC MANAGEMENT <i>Ron Sanchez and Chang Chieh Hang</i>	131

LIST OF EDITORS AND CONTRIBUTORS

- Ron Sanchez* Department of Innovation and Organizational Economics, Copenhagen Business School
Kilevej 14A – 3rd Floor
DK-2000 Frederiksberg, Denmark
email: Sanchez@cbs.dk
- Aimé Heene* Faculty of Economics and Business Administration, Ghent University
Herbakkersstraat 23, Eeklo, Belgium 9900
email: aime.heene@ugent.be
- Seçkin Polat* Department of Industrial Engineering, Istanbul Technical University, 34357, Macka, Istanbul, Turkey
email: polatsec@itu.edu.tr
- Umut Asan* Department of Industrial Engineering, Istanbul Technical University, 34357, Macka, Istanbul, Turkey
email: asanu@itu.edu.tr
- Albert Albers* IPEK – Institute of Product Engineering, KIT – Karlsruhe Institute of Technology
D-76131 Karlsruhe, Germany
email: sekretariat@ipek.kit.edu
- Masis Arslan* IPEK – Institute of Product Engineering, KIT – Karlsruhe Institute of Technology
D-76131 Karlsruhe, Germany
email: masis.arslan@partner.kit.edu
- Sezi Çevik Onar* Department of Industrial Engineering, Istanbul Technical University, 34357, Macka, Istanbul, Turkey
email: cevikse@itu.edu.tr

- Jeremy Galbreath* Curtin University, 78 Murray Street,
Perth, WA 6000, Australia
email: jeremy.galbreath@gsb.curtin.edu.au
- Chang Chieh Hang* National University of Singapore,
Faculty of Engineering, Blk E1A #06-25, 1
Engineering Drive 2, Singapore 117576
email: isehcc@nus.edu.sg
- Lukas Krämer* IPEK – Institute of Product Engineering,
KIT – Karlsruhe Institute of Technology
D-76131 Karlsruhe, Germany
email: lukas.kraemer@partner.kit.edu
- Gavin Nicholson* Queensland University of Technology,
GPO Box 2434 Brisbane, QLD 4001, Australia
email: g.nicholson@qut.edu.au
- Ayberk Soyer* Department of Industrial Engineering,
Istanbul Technical University, 34357, Macka,
Istanbul, Turkey
email: ayberk@itu.edu.tr
- Diego Vega* NEOMA Business School, 59 Rue Pierre
Tatitinger Reims, France 51100
email: diego.vega@neoma-bs.fr

EDITOR AND AUTHOR BIOGRAPHIES

Ron Sanchez received a BS in Humanities and Science, a BS in Architecture, a MS in Civil Engineering, and a PhD in Technology Strategy from Massachusetts Institute of Technology (MIT), as well as an MBA (with Honors) from Saint Mary's College in California. He has been on the faculties of University of Illinois, University of Western Australia, IMD, and (for the last 16 years) has been Professor of Management at Copenhagen Business School. He has also been a visiting professor at more than a dozen universities around the world. Professor Sanchez has published more than 20 books and 70 academic papers on competence-based management theory and practice. He also pioneered the study of strategic uses of modular architectures and has published numerous papers on various aspects of modularity in product design, market strategy, industry structure, and economic organization.

Aimé Heene is an honorary senior professor at Ghent University in Belgium. Prof. Heene teaches strategic management for private and public organizations. He has published seven books (in Dutch) on strategic management and has been co-editor of many English-language volumes on competence-based strategy. Professor Heene is co-editor of the journal *Research in Competence-based Management* and has co-chaired ten international conferences on competence-based strategic management. A list of his publications can found at <https://biblio.ugent.be/person/801000920850>.

Seçkin Polat received PhD, MSc and BSc degrees from Istanbul Technical University in Industrial Engineering. He was a visiting researcher in the Department of Management Science at University of Stirling as scholar of the British Council. He served as vice dean of Management Faculty at ITU. He took on also head of the Industrial Engineering Department at ITU. He co-authored several papers on competence-based management and organized the 3rd International Conference on Competence-Based Management in Istanbul. His research efforts are on modelling managerial issues. He is currently professor in the Industrial Engineering Department and coordinator of the Engineering Management MSc Program at ITU.

Umut Asan is currently an Assistant Professor in the Industrial Engineering Department at Istanbul Technical University, Turkey. He holds a doctoral degree (Dr.-Ing.) in Industrial Engineering from Technical University of Berlin. He published papers in refereed international journals in the areas of decision making, fuzzy sets, futures research, and competence-based strategic management. His present research interests include multi-criteria decision making, applied multivariate statistical analysis, and uncertainty modeling.

Since 1996 Professor **Albert Albers** is the head of the Institute of Product Engineering (IPEK) at the Karlsruhe Institute of Technology and established the research fields of drive systems, design-methods and design-management as well as mechatronics. He divides product development into its systems, methods, and processes. All three areas are worked on by his team in research and teaching in order to satisfy the complexity of today's product development. About 50 scientists are currently researching at the IPEK with a range from fundamental research to applied science in cooperation with industry. Professor Albers is also well involved in teaching, in particular by restructuring the content of teaching and by applying new teaching methods which especially aim at teaching professional skills.

Masis Arslan is a doctoral candidate at the Institute of Product Engineering under the supervision of Professor Albers. His work within the research group of design methods and management focuses on strategic R&D management and especially the management of complexity in product generation engineering within the context of the integrated product engineering model.

Sezi Çevik Onar is an Associate Professor in the Industrial Engineering Department of Istanbul Technical University (ITU) Management Faculty. She earned her BSc in Industrial Engineering and MSc in Engineering Management, both from ITU. She completed her PhD studies at ITU and visited Copenhagen Business School and Eindhoven Technical University during these studies. Her PhD was on strategic options. Her research interests include strategic management and multiple criteria decision making. She took part as a researcher in many privately and publicly funded projects such as intelligent system design, organization design, and human resource management system design. Her refereed articles have appeared in a variety of journals including *Supply Chain Management: An International Journal*, *Computers & Industrial Engineering*, *Energy*, and *Expert Systems with Applications*.

Associate Professor **Jeremy Galbreath** has a career spanning nearly 25 years in business and academia. A native of the United States, he spent a number

of years working in Fortune 50 and entrepreneurial start-ups there, mainly engaged in business development and corporate and business unit strategic planning. After moving to Australia in 2002 and completing a PhD, he began his academic career at Curtin University in Perth. He lectures in strategy, international business, and entrepreneurship at the Curtin Graduate School of Business. His research interests are at the intersection of corporate governance, strategy, innovation, sustainability, and regions. He holds a PhD from Curtin University, an MBA from Colorado State University, and BSc and MSc degrees from Ball State University.

Chang Chieh Hang received the PhD degree in Control Engineering from the University of Warwick, England, in 1973. Professor Hang has been with the National University of Singapore since 1977, serving as Head of the Department of Electrical Engineering, Deputy Vice-Chancellor of the University in charge of research, and most recently as the founding Head of Division of Engineering and Technology Management. From 2001 to 2003 he was seconded to (Singapore) Agency for Science, Technology, and Research to serve as its Executive Deputy Chairman. His current research interest is in Innovation Policy & Strategy. Professor Hang has received numerous awards for his leadership and contributions to science and technology development in Singapore.

Lukas Krämer is a doctoral candidate at the Institute of Product Engineering under the supervision of Professor Albers. His work within the research group of design methods and management focuses on product generation engineering, strategic R&D management, and especially the management of organizational competences within R&D.

Gavin Nicholson is an Associate Professor of Accountancy at Queensland University of Technology. In addition to researching, lecturing, and developing materials in the areas of governance policy and practice, Gavin is an experienced director, governance researcher, and board consultant. He has published extensively and currently oversees several large research projects aimed at understanding how boards operate. Gavin has provided advice on corporate governance and strategy to listed and large public companies, government owned corporations, statutory authorities, not-for-profit organizations, and local government.

Ayberk Soyer is an Assistant Professor in the Department of Industrial Engineering at Istanbul Technical University. He received his PhD in Industrial Engineering from Istanbul Technical University in the year 2007 where he also received both his BSc and MSc. During his PhD studies, he

visited the Marketing Department at Technical University of Berlin as a guest researcher. His current research interests include Strategic Management, Competition Management, Management and Organization, Human Resources Management, Simulation, and Project Management. He worked as a researcher and consultant in various industry and research projects.

Diego Vega is an Assistant Professor of Logistics and Supply Chain Management at Neoma Business School (Reims, France) and Researcher at the CRET-LOG research center (Aix-Marseille University). He is an Industrial Engineer and holds a PhD in management sciences: specialty on logistics from the Aix-Marseille University. His research interests include humanitarian logistics and supply chain management, temporary organizations, and competence-based strategic management. Assistant Professor Diego Vega is the corresponding author and can be contacted at: diego.vega@neoma-bs.fr.

INTRODUCTION

Ron Sanchez, Aimé Heene, Seçkin Polat, and Umut Asan, Editors

The avowed goal of the Competence-Based Management (CBM) movement since its beginnings in the 1990s has been the development of a body of theory that is both scientifically rigorous and at the same time directly applicable to the practice of management. Pursuit of this goal has led CBM researchers to introduce a new conceptual foundation for developing management theory, to employ a range of standard and novel empirical research methods, and to assist forward-thinking managers in implementing innovative management approaches.

One broad finding to emerge from nearly a quarter century of CBM research within the overall stream of research in management is that the search for “grand theory” in conventional research in management – i.e., theory that is uniformly applicable to all management contexts – has fallen on the horns of a seemingly intractable generality–particularity dilemma. Simply put, management theory that is intended to be generally applicable to all management contexts – and that is therefore articulated at a high level of generality – almost invariably proves problematic to apply to particular situations. The logical impossibility of applying the broad generalities and superficially plausible logic of the “resource-based view” (Barney 1991) to identifying strategically valuable resources *ex ante* is a well-known case in point (Sanchez 2010).

The dilemmas of conceptual definition and relational logic implicit in any effort to develop grand theory have led many, if not most, CBM researchers to pursue development of *mid-range theory* – theory whose foundational concepts, key causal relationships, and resulting explanations and predictions are intended to address specific kinds or categories of management contexts.

In this volume we bring together a set of CBM papers that first explain mid-range theory and then illustrate mid-range theory research approaches applied to key issues in *dynamic capabilities* and *modularity*.

The volume begins with a paper by Ron Sanchez and Aimé Heene on *Building Theory for Management Science and Practice: An Epistemological Perspective from Competence-Based Management Theory*. The authors elaborate and contrast the intent and methods of grand theory *versus* mid-range theory building processes. They then explain the generality–particularity dilemma that afflicts various ideas aspiring to become grand theory in management today, most notably the “resource-based view.” The authors then suggest that refocusing research in management on developing mid-range theory may not only lead to theory that is directly applicable in specific management contexts, but may also lay the foundation for future integration of contextual mid-range theories that could give rise to grand theory that is applicable across management contexts.

In the second paper in the volume, Ayberk Soyer, Sezi Çevik Onar, and Ron Sanchez examine the challenge of *Overcoming Path Dependency and ‘Lock-In’ in Competence Building and Competence Leveraging Processes*. The authors argue that to achieve sustained competitive success, a firm must be able to apply its current competences well, while also continuously renewing its competence base. They suggest, however, that self-reinforcing managerial and organizational mechanisms can arise from a firm’s competence leveraging processes that may work against launching and sustaining competence renewal processes. The authors focus on certain managerial behaviors that may create path dependencies that result in an organization becoming “locked-in” to its current competence leveraging, resulting in failure to renew competences and eventually in competitive failure. They suggest ways in which firms can build dynamic capabilities that can avoid lock-ins caused by self-reinforcing managerial behaviors. A case study of successful competence-renewing processes provides insights into the nature of such dynamic capabilities.

Managing processes for both competence leveraging and competence building requires that managers be able to identify both a firm’s current competences and the new competences their firms could build. In their paper *Identifying Competences and Their Sources in a Not-For-Profit Organization: The Case of a Humanitarian Relief Organization*, Diego Vega and Ron Sanchez argue that not-for-profit organizations have essentially the same *systemic* requirements for survival and success as for-profit organizations. They then report a case study of competence identification and analysis in Médecins Sans Frontières (MSF), a highly successful, global humanitarian relief organization. Analysis of the systems created by MSF for responding quickly to life-and-death crises around the world not only identifies key processes and enabling capabilities that are the basis for MSF’s much-admired

competence in humanitarian relief, but also suggests a systems-analysis methodology for identifying competences in any organization.

To build new competences, organizations must be willing to undergo organizational change—often significant and even fundamental organizational change. Managing fundamental change in an organization requires leadership from management from the “top” (boards of directors) down to managers at the working level. In their paper on *Building Sustainability Competence from the Top Down: A Model for Researching and Improving Boards of Directors’ Influence on Firms’ Sustainability Performance*, authors Ron Sanchez, Jeremy Galbreath, and Gavin Nicholson develop a model for researching how a board of directors may influence an organization’s ability to build new social and environmental sustainability competence. Their model explores how two forms of *board capital* (a board’s *human capital* and its *social capital*) and three aspects of a board’s *information processing* (its patterns of information search, discussion and debate, and information absorption) are likely to affect the sources of *cognitive flexibility* that a board needs to recognize and respond to a need for improved sustainability performance. They also suggest how an organization’s *strategic flexibility*—as represented by its current endowments of *resource flexibilities* and *coordination flexibilities*—may moderate the relationship between a board’s decision to adopt sustainability performance goals and an organization’s subsequent achievement of those goals. The authors further suggest that the model they develop in their paper may also be used to research the influence of boards on many, if not all, forms of strategic organizational change.

Building new competences requires not just a capability to manage organizational change, but also a capability for identifying the new competences an organization should build. In their paper on *Roadmap-Based Methodology for the Forecasting of Competences within Automotive Product Development*, Albert Albers, Lukas Krämer, and Masis Arslan suggest how ongoing processes for systematic identification and analysis of strategic gaps in a firm’s current competences (compared to the competences it will need in the future) can lead to clear identification of new *capabilities* the firm needs to acquire or develop. Their paper describes a roadmap-based methodology for forecasting an organization’s future competence needs—and from that, identifying the specific capabilities a firm will need in order to have the competence(s) to meet expected market demands in the future. This methodology is illustrated through a case of a German luxury car manufacturer who uses a modular architectural framework for identifying and analyzing capabilities present and future.

Finally, in their paper *Modularity in New Market Formation: Lessons for Technology and Economic Policy and Competence-Based Strategic Management*, Ron Sanchez and Chang Chieh Hang appraise the ways in which use of *closed-system proprietary product architectures* versus *open-system modular product architectures* may influence the dynamics and resulting trajectories of development and growth in new product markets. They compare the evolutions of new markets in China for (i) gas-powered two-wheeled vehicles and (ii) electric powered two-wheeled vehicles to suggest that new product markets based on proprietary product architectures versus open-system modular architectures are likely to result in very different patterns and speeds of new market formation. They then suggest that new product markets based on open-system modular product architectures call for new approaches to the strategic management of innovation and product creation. They also suggest that technology and economic development policies that favor use of open-system modular architectures may provide important new stimulus to new market formation and related economic development, as well as enabling bottom-of-the-pyramid innovation processes, frugal engineering, and development of low-cost product variations for developing economies.

Taken together, the papers included in this volume confirm the power of the CBM perspective to deliver fundamental contributions to future-oriented, predictive strategic management theory, research, and practice by presenting rigorous and relevant mid-range theory and research approaches applied to dynamic capabilities and modularity.

BUILDING THEORY FOR MANAGEMENT SCIENCE AND PRACTICE: AN EPISTEMOLOGICAL PERSPECTIVE FROM COMPETENCE-BASED MANAGEMENT THEORY

Ron Sanchez and Aimé Heene

ABSTRACT

In this paper we examine some fundamental epistemological issues in building theory for applied management science, by which we mean theory that can be usefully applied in a scientific approach to management research and practice. We first define and distinguish “grand theory” from “mid-range theory” in the social and management sciences. We then elaborate and contrast epistemologies for (i) building “grand theory” intended to be applicable to all cases and contexts, and (ii) building “mid-range theory” intended to apply to specific kinds of contexts. We illustrate the epistemological challenges in building grand theory in management science by considering important differences in the abilities of two “grand theories” in strategic management – industry structure theory and firm resources

theory – to support development of conceptually consistent models and propositions for empirical testing, theoretical refinement, and application in management practice. We then suggest how a mid-range theory building approach can help to achieve integration of the two grand strategic management theories and improve their ability to support empirical testing, theory refinement, and application of theory in practice. Finally, we suggest how the competence-based management (CBM) perspective provides the foundational concepts needed to build both mid-range theory and (potentially) grand theory in strategic management that can be usefully applied in management science.

Key Words: Applied management science; mid-range theory; epistemology; strategic management theory; competence-based management

INTRODUCTION

Management has often been characterized as a field of study rather than a discipline within the social sciences. Perhaps the most defensible reason for this characterization is that after more than 60 years of formal research and theory development, the various fields of management that aspire to be a science have yet to achieve an orthodoxy of established, well integrated theory that is the hallmark of a true discipline. Indeed, current research in management often seems more prone to proliferate unconnected concepts and frameworks than to converge towards a common theoretical foundation. Institutional factors – such as the tendency to reward specialization in research rather than theoretical integration – may explain part of this trend.

In this paper, we suggest some fundamental epistemological reasons why theory building processes in strategic management that are capable of producing useful theory for applied management science are likely to be grounded in specific competitive contexts, rather than applicable to all competitive contexts. By “useful theory for applied management science,” we mean theory that can be usefully applied by managers in pursuing a scientific approach to management practice.

We begin our analysis by defining and contrasting “grand theory” and “mid-range theory” in general, and then in the context of strategic management theory in particular. We examine some central epistemological challenges in building grand theory and mid-range theory in the social sciences. We then

suggest that the most well known theory building initiatives in strategic management thus far – theories based on *industry structure* and *firm resources*, respectively – have been exercises in grand theory building. We illustrate the epistemological challenges in building grand theory by evaluating the abilities of the two grand theories in strategic management to support development of *theoretically consistent models and propositions* for guiding empirical testing, theoretical refinement, and application of theory in management practice. Through this discussion we attempt to clarify some basic epistemological reasons why strategic management theory founded on the concept of industry structure has proven to be more amenable to development, refinement, and application than strategy theory focused on firm resources.

We then revisit the epistemological challenges involved in building mid-range strategic management theory. We suggest that key concepts developed in the competence-based management (CBM) perspective provide the conceptual foundations for a structured approach to mid-range theory building that could set an important new agenda for strategic management research, theory development, and application in practice. We also suggest how the mid-range theory building enterprise that we propose could also enable the eventual integration of other strategic management theories, including those addressing industry structure and firm resources.

“GRAND THEORY” VERSUS “MID-RANGE THEORY” IN STRATEGIC MANAGEMENT¹

Any analysis of theory building processes in any field of study must recognize the fundamental differences in objectives and methods for building “grand theory” versus “mid-range theory” (Merton, 1968). *Grand theory* seeks to articulate propositions – essentially, assertions of cause-and-effect relationships – that broadly apply to all cases and contexts within some phenomena of interest addressed within a field of study (Sanchez, 2008). In the context of strategic management as a field of study, grand theory undertakes to identify and understand the essential environmental and/or firm-level variables that most fundamentally determine how successful an individual firm will be in its competitive interactions with other firms – no matter what the competitive context of the firms involved. Success in developing grand theory is demonstrated empirically by the ability to use grand theory to predict competitive outcomes no matter what combinations of environmental or firm-level variables characterize a given competitive context.

By contrast, *mid-range theory* seeks to identify the environmental and/or firm-level variables that determine competitive outcomes in *specific kinds of contexts*, where theoretically important differences in kinds of “contexts” may be defined by environmental factors (Porter, 1986; Hambrick, 1983), firm-level factors (Barney, 1986, 1991; Amit and Schoemaker, 1993), or combinations of both kinds of factors (Sanchez, 2008). Success in developing mid-range theory is therefore a demonstrated ability to use theory to predict competitive outcomes in specific kinds of contexts distinguished by their distinctive combinations of environmental and/or firm-level variables.

Boudon (1991) suggested that grand theory building enterprises rest on the philosophical assumption that the world – or at least the part of the world whose phenomena are addressed by a grand theory – is consistent in the influences to which it is susceptible, in the cause-and effect relationships that follow from those influences, and in resulting behaviors in the face of various influences. By contrast, mid-range theory building rests on a deep assumption that the world can be a “mottled” place in which the influences to which some phenomenon is subject vary from one context to another, that different cause-and-effect relationships may therefore obtain in different contexts, and that the behaviors to be expected or predicted will vary from one context to another. In effect, Boudon suggests, the kind of theory building one might undertake would be influenced by one’s view of the world as fundamentally consistent and immutable, on the one hand, or inherently contextual and variable, on the other.

In this discussion, we do not ground our evaluations of the usefulness of grand theory or mid-range theory for applied management science in the exigencies of either ontological world view. Rather, we analyze both modes of theory building from a pragmatic perspective that seeks to evaluate the relative ability of each kind of theory to support practical application in management science. To add concreteness to our analyses, we examine possibilities for developing and applying grand theory versus mid-range theory in the field of strategic management.

Throughout this discussion, our focus is on understanding the important epistemological differences and challenges in building grand theory versus mid-range theory in strategic management, and in their differing potential for useful application in management science.

Grand Theory Building

Grand theory seeks to understand, explain, and predict phenomena without regard to the specific circumstances of an individual instance or context. For

a theory to apply to all cases and contexts, the concepts used to build the theory must be articulated at a high level of abstraction.² In the scientific approach to theory building and refinement, essential conceptual abstraction leads to some important epistemological challenges.

The scientific method for building, evaluating, and refining theory rests on empirical testing of predictions derived from a theory, followed by refinements of theory suggested by empirical findings (Sanchez, 2008). Because grand theories are necessarily articulated in highly abstract terms, however, they are essentially conceptual statements of cause-and-effect relationships that cannot be tested directly (Sanchez, forthcoming). Rather, theories are “tested” indirectly by deriving *models* that apply the theory to some context of interest and thereby enable the further derivation of some contextually dependent *propositions* (predictions of outcomes). Since propositions are also conceptual statements that cannot be tested directly, they must be “translated” into *hypotheses* that can be tested empirically by introducing measurable constructs to represent the concepts invoked in the propositions. Thus, the process of using grand theory to predict outcomes in all contexts requires elaboration of models that clarify what the abstract statements of a grand theory correspond to in various contexts of analysis from which propositions have been or will be derived. In this sense, models and the propositions that are derived from models form the conceptual bridge between the high abstractions of grand theory and the generation of testable hypotheses in a given research context.

In this regard, both the nature and the level of abstraction used in articulating a theory significantly determine the difficulty encountered in assessing and refining a theory through systematic, scientific testing.³ If the abstractions used to articulate a theory enable relatively clear and unambiguous identification of their “real world” counterparts in various contexts of empirical interest or application in practice, then it should not be necessary to develop various models interpreting the implications of a grand theory in specific contexts of interest. Rather, it should be possible to derive, more or less straightforwardly, one model or a limited number of closely related models that enable derivation of closely related propositions and derived hypotheses that can then be tested systematically in various contexts of interest, as suggested in **Figure 1**.

If a grand theory can be “translated” into testable hypotheses through use of a limited number of models that require the introduction of only minor context-dependent variables, then the findings of the empirical tests undertaken in various contexts are more likely to lead to a consistent view as to whether the predictions of the theory are supported or not. When empirical tests of hypotheses derived from a grand theory yield consistent confirmatory results,

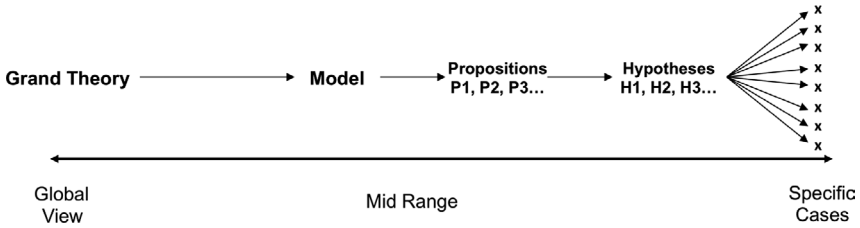


Figure 1. Well Articulated Abstractions in Grand Theories Do Not Require Multiple Models to Derive Testable Hypotheses for Researching Specific Cases

the grand theory may be regarded as well articulated as to both the substance of its representations and the quality of the abstractions used in its representations. Thus, the defining characteristic of a grand theory that is amenable to further development and to practical application in management science is that it requires only a limited range of closely related models to generate hypotheses that, taken together, lead to generally consistent results in testing the theory’s explanations and/or predictions across various contexts of interest.

However, a grand theory may also be poorly articulated, in the sense that the abstractions used in the theory allow many different interpretations as to their “real world” counterparts in various contexts. In this case, the research process is likely to proliferate models incorporating many different interpretations of the theory’s abstractions, as well as many different contextual factors thought to be relevant in various contexts, as suggested in **Figure 2**. The proliferation of models is likely to result in the derivation of propositions with significant variations in their conceptual content. From these a broad diversity of hypotheses may be derived, leading to empirical findings that lack consistency in both the constructs used to research various contexts and the

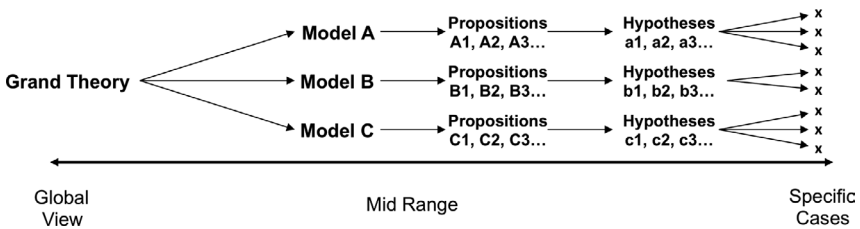


Figure 2. Less Well Articulated Abstractions in Grand Theories Require Multiple Models to Derive Testable Hypotheses for Researching Specific Cases

interpretations of empirical findings. When ambiguities in the abstractions used in a poorly articulated grand theory lead to a proliferation of models, propositions, and hypotheses that lead to inconsistent predictions and findings, attempts to develop the grand theory through systematic, scientific testing are likely to stall when faced with a growing body of irreconcilable empirical findings.

Mid-Range Theory Building

Mid-range theory building rests on the assumption that in contexts that may be distinguished by various identified characteristics, different kinds of cause-and-effect relationships involving different kinds of variables will obtain, leading to a need for development of “mid-range” theories to predict the outcomes that will be distinctive to each context. Because mid-range theory tries to identify the different kinds of contexts in which different combinations of variables and cause-and-effect relationships will lead to different outcomes, mid-range theory building necessarily takes place on the conceptual middle ground between the high-level abstractions of grand theory and the specificities of individual cases and contexts. As suggested in **Figure 3**, the epistemology of mid-range theory building involves developing theoretical statements applicable to defined contexts – i.e., statements of cause-and-effect relationships encompassing at least some context-specific variables (but also potentially including concepts and variables that may be “imported” from other theories, both grand and mid-range).

Mid-range theory building may include exercises in “grounded theory building” intended to develop insights into various contexts of compelling interest or perceived importance – such as previous strategy research into

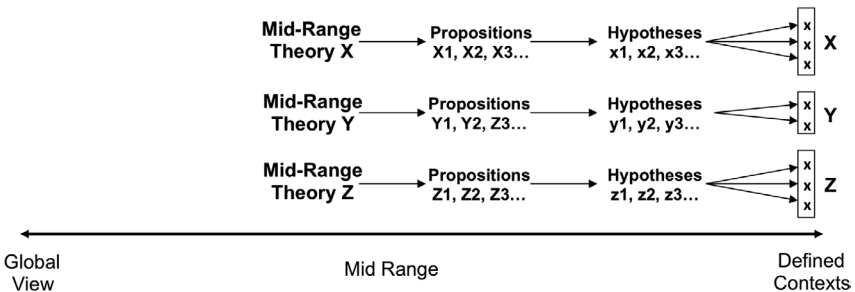


Figure 3. Mid-Range Theory Addresses Defined Contexts

the use of modularity in product strategies (Sanchez, 1995; Sanchez and Mahoney, 1996) or current research into the emergence of “open innovation” processes (Chesbrough, 2003; Christensen, 2005). However, mid-range theory building may also serve as the primary engine of theory building in a field of inquiry, especially if researchers recognize the possibility that some phenomena of interest may take different forms in different contexts (distinguished by unique combinations of variables and resulting cause-and-effect relationships). If mid-range theories prove successful in generating models, propositions, and hypotheses that lead to consistent empirical tests and interpretations of results within the various contexts defined and studied in the field, then the collective outcomes of its mid-range theory development processes may be accepted as an adequate theoretical foundation for the field.

When a field has achieved stable, consistent results in empirical testing of its mid-range theories, attention may then turn to the potential for building grand theory (or at least more broadly applicable theory) by synthesizing or integrating mid-range theories.⁴ As suggested in **Figure 4**, the first step in this process is likely to be efforts at theoretical synthesis, whose intent is to establish that the collection of mid-range theories in a field form a coherent set of compatible theoretical statements. Successful theoretical synthesis may then lead to efforts to achieve theoretical integration of the mid-range theories into a single grand theory. If the theoretical integration is successful, the mid-range theories that have been the source of the grand theory may come to be regarded as models (“special cases”) elaborating the application of the newly articulated grand theory in various contexts. In this epistemological process, a grand theory may be “born” (nearly) fully formed *ex ante*, in the sense that theoretical refinements derived from empirical testing of mid-range theories are imported and infused into the grand theory during its articulation, rather

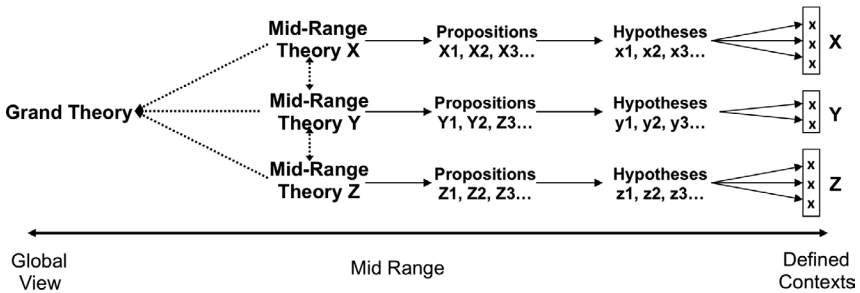


Figure 4. Mid-Range Theories May Provide Basis for Theoretical Synthesis and Integration in Developing Grand Theory

than developed *ex post* through the derivation of models and propositions and testing of hypotheses after its articulation.

Processes for building mid-range theory face two epistemological challenges. As noted earlier, the central epistemological challenge in articulating and developing grand theory is invoking abstractions that enable the derivation of conceptually consistent models and propositions to bridge between the theory and individual empirical cases and thereby enable theoretically consistent empirical outcomes. In mid-range theory building, a similar epistemological challenge concerns the level of abstraction of the concepts on which a mid-range theory is founded – i.e., the concepts used to distinguish what are thought to be significantly different contexts for the purpose of mid-range theory building. On the one hand, the conceptual criteria used to distinguish and characterize different kinds of contexts must be sufficiently abstract to enable the identification of distinct *categories* of contexts, each of which embraces a significant set of individual cases that can be consistently addressed theoretically. At the same time, the criteria must be sufficiently specific to enable unambiguous classification of an individual case as belonging to a given category or not (Boisot and Sanchez, 2011). Thus, the viable level of abstraction in mid-range theory building is one that enables definition of categories of contexts (i) within which consistent behaviors can be observed and consistent predictions made, and (ii) to which individual cases can be unambiguously assigned.

A second epistemological challenge will be encountered when researchers in a field of inquiry undertake to build grand theory by synthesizing and integrating its existing mid-range theories. To support eventual theoretical synthesis and integration, the criteria used to define categories of contexts for mid-range theory building must leave no “conceptual voids” in the contexts addressed by mid-range theories. In the long run, the categorization of contexts should become theoretically complete, in that no individual cases are left unrecognized and unaddressed by the categories established by the mid-range theory building process.⁵

This latter challenge highlights the critical roles of taxonomies and typologies in building mid-range theory (McKelvey, 2006). A *taxonomy* establishes categories empirically, through close observation of some phenomena of interest. In effect, a researcher looks for *patterns of observed differences* in individual cases that appear to be associated with – and that may lead to an explanation of – observed differences in behaviors within some phenomena of interest. A *typology* approaches categorization conceptually rather than empirically. It invokes *a priori* concepts (usually imported from other theories)

to predict different categories of contexts that are expected to exhibit consistent differences in their observed behaviors. Taxonomic approaches may lead to incomplete categorization of contexts simply because researchers have not observed all possible contexts, while typological approaches may fail to address important contextual differences that are not recognized *a priori* in the concepts of invoked theories. Nevertheless, to lay the foundation for eventual theoretical integration, in both taxonomic and typological approaches the common goal is the *comprehensive categorization of all types of contexts* pertaining to some phenomena of interest.

TWO GRAND THEORIES IN STRATEGIC MANAGEMENT: INDUSTRY STRUCTURES AND FIRM RESOURCES

We now illustrate the aforementioned epistemological challenges in building grand theory and mid-range theory for management science by examining two grand theories in the field of strategic management. The development of the two grand theories considered here may be broadly divided into two periods: (i) the late 1970s and 1980s, in which strategic management theory became dominated by “industry structure” theory borrowed from industrial organization economics and most notably advanced by Porter (1982, 1986); and (ii) the 1990s and beyond, during which the “firm resources” perspective emerged, derived from the early work of Penrose (1956) and Wernerfelt (1986) and most notably promoted by Barney (1986, 1991). Both of these major theory-building initiatives in strategic management have articulated theory intended to explain outcomes of competitive interactions between firms in all contexts; both initiatives have therefore been exercises in grand theory building.

To illustrate the epistemological challenges in developing grand theory in strategic management, we now consider the epistemological successes and failures of each of these grand theories.

Industry Structure as Grand Strategic Management Theory

The industry structure approach to strategy theory essentially seeks to explain and predict success in competitive interactions among firms by the *position* that a firm occupies in its *industry structure*. An industry structure

is essentially defined by the concentration of market shares among the competitors in an industry, ranging from monopolistic or oligopolistic industries dominated by one or a few players to “fragmented” industries composed of many small players. A firm’s position in an industry structure is defined by its market share relative to other players. When a firm has an advantageous position in an industry – i.e., large market share relative to other players and to the total size of the market – industry structure theory predicts that the firm will have market power that enables it to set and maintain profitable prices and will therefore enjoy high profitability relative to less favorably positioned players. The basic prediction of industry structure as grand theory is therefore that favorably positioned firms will enjoy competitive success – defined as sustained above-average profitability in its industry (Porter, 1980).

As grand theory, industry structure enjoyed an extended period of theoretical success both in predicting the relative profitability of firms and in spawning a sustained process of theory development examining various strategies for improving and using a firm’s industry position. Derived research led to specific management applications of industry structure theory in strategies based on preemptive capacity expansion, erection of barriers to entry to keep new entrants from diluting a current industry structure, and using price competition to “discipline” new entrants that challenge a firm’s established position. The extended period of theory development enjoyed by industry structure can be attributed to two fundamental aspects of industry structure theory.

First, there is substantive merit, demonstrated through extensive empirical testing, in its core proposition of a cause-and-effect relationship between industry position and profitability. Second, industry structure theory has had a solid conceptual foundation demonstrated by the relatively unambiguous abstractions on which the theory is based. The key concepts of industry structure and firm positions within an industry structure are clear and do not require the proliferation of conceptually divergent models to clarify the meanings of these key concepts or their predicted outcomes in different competitive contexts. Thus, especially in the 1980s, industry structure theory was able to build both a substantial base of consistent empirical research that supported its basic predictions and a set of clear managerial prescriptions for achieving success in industry competition.

However, industry structure theory also illustrates the principle that “no grand theory is perfectly grand,” at least in the social sciences. In effect, this principle holds that even a theory that explicitly intends to be applicable to all cases will have inherent limitations on its applicability that are imposed by the inherently limited scope or “reach” of the abstractions on which it is based. In the case of industry structure theory, these limitations became apparent in

the late 1980s and later, when its basic assertion that “firm positions defined by relative market share determine firm profitability” began to lose its predictive power. As industries underwent significant technology changes that led to the emergence of new product concepts and even new industries, new firm-specific variables such as speed in developing products and the ability to use technologies synergistically across product lines became important determinants of profitability – for small and large firms alike (Sanchez, 1995; Sanchez, Heene, and Thomas, 1996). As industries became more dynamic technologically, these capability properties of firms became better predictors of firm success than established market shares.

In addition, as many traditional product categories began to disappear, the boundaries of many industries became increasingly difficult to define, thereby making empirical testing of the predictions of industry structure theory problematic in emerging market contexts based on new product concepts that cut across traditional industry boundaries. An important example would be today’s ubiquitous “smart phones” that combine mobile communication, internet access, photography, video, audio recorders, GPS location, and other functions previously provided by different industries with their own distinct sets of competitors and market positions.

Given the unambiguous meanings of the essential abstractions on which industry structure theory is founded, there has been little or no conceptual basis for theorists to extend industry structure theory to include new firm-specific capability variables like development speed, strategic flexibility, and other dynamic aspects of individual firms. The theoretical outcome of the new dynamics driving many competitive environments since the 1980s has been that industry structure theory is now generally recognized as addressing well only the “special case” of industries with stable product concepts, stable market demands, and stable technologies (Sanchez, 1996, 2008). Thus, through ongoing empirical testing over some decades, what was once regarded as a solid grand theory for strategic management has eventually been shown to be a good “mid-range theory” applicable to a specific category of competitive context.

Firm Resources as Grand Strategic Management Theory

In the late 1980s, the gradually discovered inability of industry structure theory to predict the profitability of firms in all industries led to the realization of the need to recognize and address new, potentially important sources of firm success other than their industry positions defined by relative market share.

Strategic management theorists began to look to the distinctive resources and capabilities of firms as a new basis for predicting competitive success and thus for building new grand theory for strategic management. Drawing on early analyses by Penrose (1956) and Wernerfelt (1984), Barney (1986, 1991) proposed a set of ideas under the banner of the “Resource-Based View” (RBV) intended to comprise a grand theory for strategic management.⁶ We next consider some basic epistemological successes and failures of firm resource theory.

As with all grand theories, the abstractions used to frame ideas for predicting how firm resources determine firm success have substantially affected both the reach of firm resource theory and its further development and refinement, although in quite different ways. As defined by Barney (1991), a resource includes virtually anything that can help a firm achieve and maintain “efficiency and effectiveness” in its markets:

...firm resources include all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. [sic] controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness. (Barney, 1991: p. 101)

A strength of this broad conceptualization of firm resources is its comprehensive reach – all firms and other kinds of organizations have some kinds of resources that are at least potentially useful in maintaining efficiency and effectiveness. The nearly universal reach of the firm resource concept not only helps to explain widespread efforts to apply firm resource concepts in strategic management research, but also the penetration of firm resource theory to other areas of management studies, such as marketing, operations management, human resources management, and other fields of inquiry.

On the other hand, the concept of *resource* advanced by Barney and used by many other RBV researchers is based on such loose abstraction – actually, more a “laundry list” of possibly important resources than a real conceptual abstraction – that there is no *ex ante* conceptual criterion in Barney’s definition of resources for distinguishing when something is a resource that contributes to efficiency and effectiveness and when it is not. In an attempt to rectify this problem, Barney elaborated a VRIO framework for identifying the resources that enable a firm to sustain efficient, effective, and (presumably therefore) profitable operations. In this later formulation, Barney suggests that resources that are valuable, rare, inimitable, and organizationally embedded are the ones that enable a firm to sustain profitable operations. Subsequent analyses have shown that the VRIO framework is also afflicted with major conceptual ambiguities and logical contradictions, so that efforts

to apply the VRIO framework to clearly identify the resources that are strategically valuable for firms collectively or individually is not only a virtual impossibility *ex ante*, but is also highly problematic and inevitably conjectural *ex post* (Priem and Butler, 2001; Sanchez, 2008).

The epistemological consequence of the inherent ambiguities and contradictions in Barney's conceptualization of resources has been – predictably – a proliferation of models based on different researchers' interpretations of strategically valuable resources in various firm and market contexts. Each model has had to introduce substantial new conceptualizations in an effort to distinguish the resources that are strategically valuable in a given firm and market context.⁷ These models have led to the derivation of a plethora of firm- and market-specific propositions and hypotheses. Such models, propositions, and hypotheses are inevitably idiosyncratic to the individual firms or markets studied – as well as to the individual researchers who must decide what additional conceptualizations of resources and competitive contexts need to be included in their models in order to identify the strategically valuable firm resources in each case studied. Thus, the epistemological outcome of the empirical results accumulated under the banner of firm resource theory has been a cacophony of findings that lack any consistent *ex ante* conceptual representations or tests for strategically valuable resources that could form a coherent basis for further development and refinement of firm resource theory in strategic management (Sanchez, 2008).

BUILDING MID-RANGE THEORY IN STRATEGIC MANAGEMENT THAT WILL BE USEFUL IN APPLIED MANAGEMENT SCIENCE

We now suggest how a structured approach to mid-range theory building in strategic management could overcome the substantial epistemological limitations now facing the field's two aspirants to grand theory status – industry structure and firm resource theories – and lead to theory that can be applied in practice.

We start by noting that industry structure theory continues to explain well competitive outcomes in industries characterized by stable markets, technologies, structures, and boundaries, but has demonstrated much less ability to predict outcomes in dynamic market and technology environments with changing industry structures and boundaries. From this we draw two important conclusions: (i) Mid-range strategy theory building should recognize different competitive contexts distinguished (at minimum) by rates of change in market demands

and available technologies, with resulting changes in industry structures and boundaries; (ii) The variables used to predict firm success cannot be limited to internal firm resources alone, but must include external factors such as industry positions, at least in stable contexts with definable industry structures.

Turning to firm resource theory, we note the proliferation of empirical research under the RBV banner that inevitably shows (*ex post*) that some firm-specific resources are arguably the reason for (or a significant contributor to) a firm's success. However, we also note the lack of sufficient conceptual precision and consistency in identifying strategically valuable resources in this research required to further develop the ability of firm resource theories to predict *ex ante* the specific resources or kinds of resources that will contribute to firm success in various contexts. From this we conclude that the conceptualization of resources must be substantially clarified and elaborated beyond Barney's loose notions, most importantly by creating taxonomies and/or typologies of resource types that would have differential abilities to contribute to firm success in various kinds of competitive contexts.

We also note the RBV in particular and firm resource theory in general have largely overlooked a fundamental aspect of resources in strategic management theory – i.e., that it is the *use of resources* that enables resources to contribute to firm success, not the mere possession of an endowment of resources (Penrose, 1956; Sanchez, Heene, and Thomas, 1996). We therefore conclude that any mid-range theory that attempts to relate resources to firm success must include at least the basic factors affecting a firm's use of resources – i.e., the *capabilities* that a firm can bring to bear in using its resources, the organizational processes a firm uses to *coordinate* its resources and capabilities in value creation processes, the *management processes* a firm uses to attract, retain, support, direct, and motivate its resources, and the *strategies* that a firm adopts to target and deploy its resources and capabilities in its markets. Only when the RBV and other perspectives on firm resources recognize the fundamental importance of how various firms use their resources can these ideas hope to become a useful theory in applied management science.

A COMPETENCE-BASED MANAGEMENT APPROACH TO BUILDING USEFUL MID-RANGE STRATEGIC MANAGEMENT THEORY

We now consider how the foundational concepts in competence-based management (CBM) theory provide the essential conceptualizations needed to

develop mid-range theory for strategic management that can be useful in applied management science. We also suggest how such a process may not only remedy the current impasse in the further development of firm resource theories, but also provide a foundation for the eventual synthesis and integration of industry structure and firm resource perspectives within strategic management theory.

CBM Conceptual Building Blocks for Mid-Range Theory Building

From its inception in the early 1990s, the competence-based management (CBM) movement has maintained a strong theoretical and empirical focus on elaborating the essential elements needed to compose and maintain viable value-creation processes in firms and other organizations (Sanchez, Heene, and Thomas, 1996; Heene and Sanchez, 1997). This focus has led to the development of a set of essential, fundamental concepts for representing firms and thereby for identifying sources of strategically significant firm heterogeneity (see Figure 5). These conceptual building blocks of course include *resources*, which are recognized as being both firm-specific (internalized) and

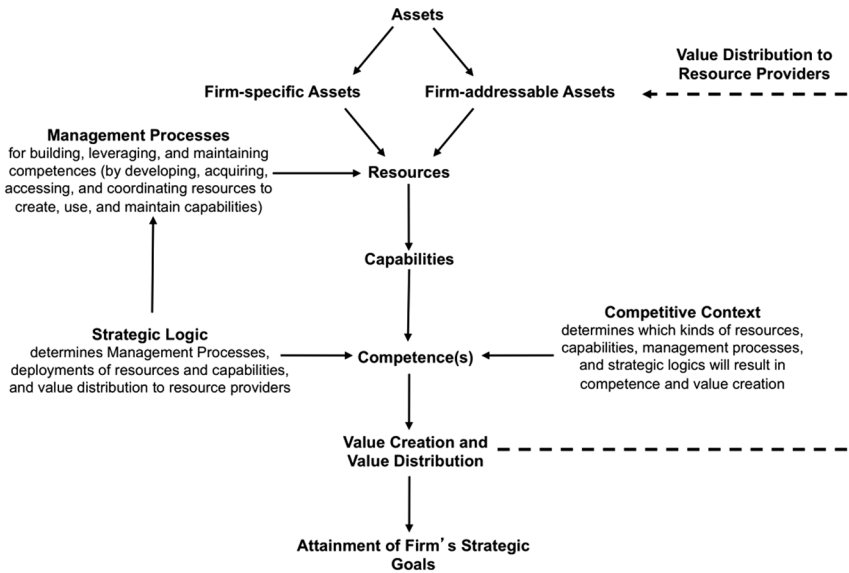


Figure 5. Essential Concepts for Representing Firms in the Competence Perspective (Source: Sanchez 2008)

firm-addressable (outside the firm), but also include these essential conceptual elements for representing firms (Sanchez, Heene, and Thomas, 1996):

- *capabilities*, defined as repeatable patterns of action in the use of resources;
- *management processes*, defined as processes for attracting, developing, motivating, coordinating, and deploying a firm's resources and capabilities;
- *strategic logic*, defined as an organization's operative rationale for sustaining value creation and distribution through its deployments of its resources and capabilities in its markets;
- *competence*, defined as an organization's ability to sustain coordinated deployments of resources and capabilities in ways that help an organization to achieve its goals.

Further, fundamental to the CBM perspective is the view of firms as *open systems* of interrelated resources and capabilities, coordinated through management processes designed to carry out a strategic logic. In CBM theory, concepts of both *strategic logic* and *management processes* to carry out a strategic logic are regarded as necessary elements in representing the *system of prevailing ideas and practices* in each firm that determine how a firm will try to detect and respond to – or possibly create – opportunities for value creation in its environment. The emphasis in CBM theory on the ideas – the *intellectual variables* – that are sources of firm heterogeneity reflects the importance accorded by CBM theory to the cognitive processes of managers that guide firms, and to the resulting view that any useful representation of firms in strategic management theory would be incomplete without explicitly considering the ways in which *ideas* motivate a firm's use of resources and capabilities.⁸

A further premise in CBM theory is the view that competitive environments vary in fundamental ways – and therefore that the resources, capabilities, management processes, and strategic logics that a firm will have to use to achieve and maintain competence will vary with the kind of competitive environment the firm chooses to compete in. Sanchez (1996, 2008) proposed a taxonomy of three basic types of competitive environments – stable, evolving, and dynamic – that would call for significantly different kinds of resources, capabilities, management processes, and strategic logics to achieve competitive success.⁹

A focus of current CBM theory development is therefore using CBM concepts to identify sources of firm heterogeneity that are strategically important in each type of competitive environment. For example, Sanchez (1996, 2008) has proposed a typology of three viable alignments of specific kinds of firm resources, capabilities, management processes, and strategic logics with the proposed three basic types of competitive environments (see **Figure 6**). Each

		<i>Competitive Contexts</i>		
		<i>Stable</i>	<i>Evolving</i>	<i>Dynamic</i>
<i>Key Concepts in Strategic Logic</i>		<ul style="list-style-type: none"> • Strategic (pre-emptive) commitment to specific assets • Achieve low costs through economies of scale • Efficient use of existing technologies in low-cost production of standard products • Vertical integration to gain control of inputs and outputs • Defense of market positions 	<ul style="list-style-type: none"> • Identification and adoption of next generation products and technologies • Optimal timing of new product introductions and technology transitions (based on financial criteria) • Repositioning of brands to align with evolving market preferences 	<ul style="list-style-type: none"> • Create strategic options that confer strategic flexibility to respond to changing market and technology opportunities • Proliferation of new product variations, rapid model turnover • Fixed-asset parsimony • Fast leveraging of intellectual assets • Firm acts as “network actuator” in organizing new value chains in technology, development, production, and market resource networks
	<i>Emphases in Management Processes</i>	<ul style="list-style-type: none"> • Hierarchical management structures to achieve tight control of processes • Increasing efficiency in use of existing technologies • Capacity expansion to achieve economies of scale and market power • Control of supply chain to create stable production environment 	<ul style="list-style-type: none"> • Efficient new product development • Acquisition and integration of new resources (e.g., human resources) • Partnering and alliances to access new market and technology resources • Organization redesign (e.g., business process re-engineering, distribution channel re-design) • Managing organizational transitions 	<ul style="list-style-type: none"> • Processes to sense and respond to changing markets and technologies • Use of modular product architectures to accelerate product development and rapidly upgrade products • Use of modular process architectures to enable rapid reconfiguration of value chains • Management of multiple distribution channels
<i>Key Capabilities</i>	<ul style="list-style-type: none"> • Process optimization (design) • Process control (operations) • Financing large-scale investments 	<ul style="list-style-type: none"> • Conventional marketing research • Technology roadmapping • New product development • Managing partner relationships 	<ul style="list-style-type: none"> • Modular design • Real-time market research • Coordination of multiple network-based development processes 	
<i>Key Resources</i>	<ul style="list-style-type: none"> • Large scale production facilities • Process technology knowledge • Sources of low-cost inputs • Stable (captive) customer base 	<ul style="list-style-type: none"> • Relationships with lead users • Technology gatekeepers • Market and industry reputation • Partner relationships 	<ul style="list-style-type: none"> • Current modular platforms • Knowledge of and access to resource networks • Reputation as capable network actuator 	

Figure 6. Viable Alignments of Firm Characteristics with Three Competitive Contexts (Source: Sanchez 2008)

of these proposed alignments defines a distinctive “strategy environment” in which qualitatively different kinds of resources, capabilities, management processes, and strategic logics are required to achieve competitive success. Each viable alignment of firm resources and capabilities with a competitive environment proposed by Sanchez (1996, 2008) constitutes a mid-range theoretical proposition that is amenable to empirical testing, theoretical refinement, and application in practice.

If mid-range theory building is undertaken in this vein, then in the long run we will see if such research lends support to these propositions or to analogous propositions suggesting viable alignments of specific kinds of firm characteristics with types of competitive environments. If empirical support for such propositions is forthcoming, then the scientific application of such mid-range strategic management theory in practice would begin by a firm’s managers identifying the type of competitive context the firm faces (or could choose to participate in). Once managers have determined the type of competitive environment the firm will face, the task of strategic managers would then be to attract to and develop in their firm the kinds of resources,

capabilities, management processes, and strategic logic that would be well aligned with the type of competitive environment their firm faces. The application in practice of such mid-range theory in strategic management practice is suggested in **Figure 7**.

Accordingly, important objectives for researchers interested in helping managers apply such mid-range strategic management theory in practice would include developing methods that managers can use (i) to correctly identify the type of competitive environment their firm will face, (ii) to monitor the firm’s strategic environment to determine if new types of competitive contexts are emerging, and (iii) to identify and develop the specific kinds of resources, capabilities, management processes, and strategic logics that would provide the best chance for success within identified types of competitive environments.

Potential for Eventual Theoretical Integration of Industry Structure and Firm Resources Perspectives

The mid-range theory building approach suggested above would intrinsically link representations of competitive contexts to sources of firm heterogeneity in predicting competitive success. Thus, mid-range strategic management theory building of the sort enabled by CBM theory (as proposed above) may also offer fertile ground for achieving an eventual integration of “external”

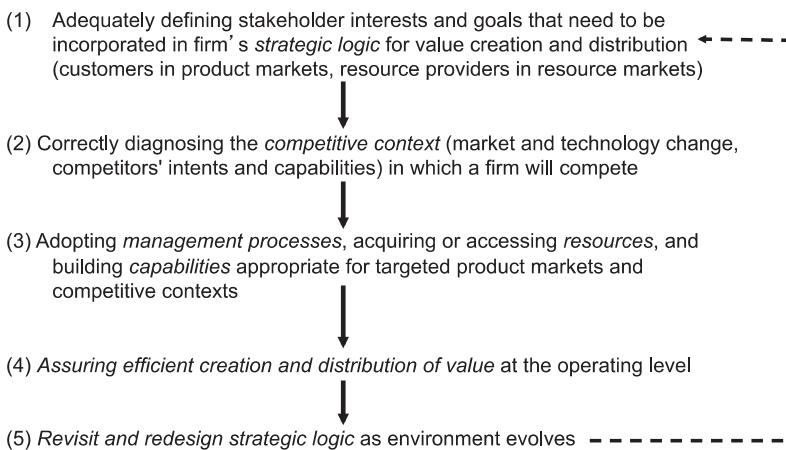


Figure 7. A Potential Future View of the Strategy Process

industry structure and “internal” firm resources perspectives in strategic management theory. Such a prospect could enable and invite significant useful elaborations of current industry structure and firm resources theories.

On the one hand, research into types of competitive environments could suggest how the concept of *industry structure* currently grounded in a Porterian, industrial organization focus on market shares and production capacities (important characteristics in the stable environment type in Figure 6) could be extended to include more dynamic aspects of industry environments, like rates of change in available technologies and derived product concepts. The concept of a firm’s *position* in an industry may similarly be expanded to include more dynamic aspects of a firm’s interactions with its markets, such as the rate at which a firm develops new technology platforms for new kinds of products, the rate at which a firm introduces new product variations, and the breadth of market coverage a firm seeks to achieve by offering product variations.

On the other hand, research clarifying the different roles of resources, capabilities, management processes, and strategic logics in firms’ value creation processes could suggest ways in which the current exclusive focus on “resources” (loosely defined) could be extended to include the full range of essential sources of firm heterogeneity. Although some important characterizations of different types of resources, capabilities, and management processes have already been suggested (Sanchez, 2004, 2008, 2012), the mid-range theory building process suggested above could eventually lead to the development of more complete taxonomies and typologies clarifying the different kinds of resources, capabilities, management processes, and strategic logics needed to compete successfully in different types of competitive contexts.

Let us imagine that future research refines our understanding of both the basic types of competitive environments and strategically important sources of firm heterogeneity, and further that research confirms the strategic necessity of achieving correct alignment between defined types of environments and specific kinds of firm resources, capabilities, management processes and strategic logics. If this happens, the result will be a *de facto* integration of external industry structure and internal firm resources perspectives in strategic management. Note, however, that such an integration would be accomplished not at the grand theory level, but at the mid-range theory level, where appropriate elaborations of the two grand theories can finally be integrated theoretically to produce useful mid-range strategic management theory directly applicable to a finite number of alternative “strategy environments.”

CONCLUSION

If the structured approach to developing mid-range strategic management theory that we have proposed does eventually achieve theoretical integration of industry structure and firm resource theories, such integration could bring a welcome measure of theoretical coherence and applicability in practice to a field of management study that is presently noted largely for its theoretical pluralism, conceptual fragmentation, and lack of useful *ex ante* prescriptions for strategic managers. Launching and sustaining a structured mid-range theory building process would require a core group of scholars willing to work together on refining concepts for developing taxonomies and typologies of competitive environments and for representing strategically significant sources of firm heterogeneity.

In sum, this paper suggests that the foundational concepts of competence-based management (CBM) theory developed during the last two decades offer the most promising framework for developing strategic management theory that can claim a place among theories that are demonstrably useful in applied management science.

NOTES

1. The discussion in this paper draws on and extends the authors' 2010 paper "Grand Théorie et Théorie Intermédiaire en Stratégie: Une Perspective Epistémologique" published (in French) in *Revue Française de Gestion*, Volume 36 No. 204, pp. 105–126.

2. As Boisot and Sanchez (2011) point out, abstraction increases the generality of a concept (i.e., expands its potential domain of applicability), while particularity or concreteness increases the specificity of a concept (i.e., limits its domain of applicability).

3. Abstraction in theory building is a process of representing some entity by what are thought to be its *essential properties* and ignoring any particularities thought to be of no consequence in making statements of cause-and-effect relationships involving the entity either generally or in some context of interest. Abstraction is done well when it enables recognition of the essential properties of an entity in its "real world" counterparts; abstraction is done poorly when its representations of an entity do not enable ready recognition of its real world counterparts.

4. A theoretical *synthesis* would show that certain mid-range theories are theoretically compatible – i.e., that there are no fundamental contradictions in their predictions – and thus are complementary over some domain of application. A theoretical *integration* would show how the mid-range theories all emanate from a single theoretical statement articulated at a higher level of abstraction. Metaphorically speaking, theoretical synthesis establishes that some mid-range theories fit together well, like the interlocking pieces of a picture puzzle, while theoretical integration

shows that what appear to be different mid-range theories are in fact cut from the same (conceptual) cloth (Sanchez, forthcoming).

5. In this regard, it is not just nature, but also the unnatural process of building theory about nature, that abhors a vacuum.

6. Although Barney (1986, 1991) and others have latterly referred to the ideas advanced by Barney under the RBV banner as “resource-based theory,” the term “theory” cannot be used correctly to characterize RBV ideas. The RBV ideas advanced by Barney and others have been shown by numerous analyses to fail to articulate clear statements of cause-and-effect relationships that enable *predictions* of which firm resources will lead to firm success (largely due to the RBV tautology problem in identifying firm resources that can be sources of firm success – see Priem and Butler, 2001 and Sanchez, 2008). Thus the term *firm resource theory* in this section refers broadly to the notion that firm resources determine firm success, and not to any specific set of concepts and ideas advanced under the RBV banner in the strategic management literature.

7. Indeed, Barney (1991:106) advises researchers to import “environmental models of competitive advantage” and “traditional SWOT analyses” to identify strategically valuable resources.

8. We note here the high irony in the fact that very little research in strategic management actually uses defined *firm strategies* as an independent variable to predict firm successes or failures.

9. In this taxonomy, *stable* environments are those characterized by stable technologies and market demands. *Evolving* environments are those with known directions of change in technologies and/or market demands. *Dynamic* environments are those with significant change in technologies and market demands with significant irreducible uncertainty about the direction of those changes. More recently, the taxonomy has been refined to propose a typology of four environmental types that recognize stable, two types of evolving, and dynamic environments (Sanchez, 2012).

REFERENCES

- Amit, R., and Schoemaker, P. (1993). “Strategic assets and organizational rents,” *Strategic Management Journal*, Vol. 14 No. 1, pp. 33–46.
- Barney, J. (1986). “Strategic factor markets: Expectations, luck, and business strategy,” *Management Science*, Vol. 32 No. 10, pp. 1231–1241.
- Barney, J. (1991). “Firm resources and sustained competitive advantage,” *Journal of Management*, Vol. 17 No. 1, pp. 99–120.
- Boisot, M. & Sanchez, R. (2011). “Organization as a Nexus of Rules: Emergence in the Evolution of Systems of Exchange”, *Management Revue*, Vol. 21 No. 4, pp. 378–405.
- Boudon, R. (1991). “What middle-range theories are,” *Contemporary Sociology – A Journal of Reviews*, Vol. 20 No. 4, pp. 519–522.
- Chesbrough, H. (2003). *Open Innovation: The New Imperative for Creating and Profiting from Technology*. Cambridge, MA: Harvard Business School Press.
- Christensen, C. (2005). *The Innovator’s Dilemma*. New York: Harper Business Essentials.

- Hambrick, D. (1983). "An empirical typology of mature industrial-product environments," *Academy of Management Journal*, Vol. 26 No. 2, pp. 213–230.
- Heene, A. and Sanchez, R. (Eds.) (1997). *Competence-Based Strategic Management*. (Strategic Management Society series) Chichester: John Wiley & Sons.
- McKelvey, B. (2006). *Organizational Systematics: Taxonomies, Evolution, and Classification*. Berkeley, CA: University of California Press.
- Merton, R. K. (1968). *Social Theory and Social Structure*. New York: Free Press.
- Penrose, E. (1959). *The Theory of the Growth of the Firm*. Oxford: Oxford University Press.
- Porter, M. (1980). *Competitive Strategies: Techniques for Analyzing Industries and Competitors*. New York: Free Press.
- Porter, M. (1985). *Competitive Advantage*. New York: Free Press.
- Priem, R. L. and Butler, J. E. (2001). "Is the resource-based "view" a useful perspective for strategic management research?" *Academy of Management Review*, Vol. 26 No. 1, pp. 1–19.
- Sanchez, R. (1995). "Strategic flexibility in product competition," *Strategic Management Journal*, Vol. 16 No. S1, pp. 135–159.
- Sanchez, R. (1996). "Strategic product creation: Managing new interactions of technology, markets, and organizations," *European Management Journal*, Vol. 14 No. 2, pp. 121–138.
- Sanchez, R. (2004). "Understanding competence-based management: Identifying and managing five modes of competence," *Journal of Business Research*, Vol. 57 No. 5, pp. 518–532.
- Sanchez, R. (2008). "A scientific critique of the resource-based view (RBV), with competence-based remedies for the RBV's conceptual deficiencies and logic problems," *Research in Competence-Based Management*, Vol. 4, pp. 3–78.
- Sanchez, R. (2012). "Architecting organizations: A dynamic strategic contingency perspective," *Research in Competence-Based Management*, Vol. 6, pp. 7–48.
- Sanchez, R. (forthcoming). *Philosophy of Science for Management Research*, manuscript in preparation.
- Sanchez, R. and Heene, A. (2010). "Grande théorie et théorie intermédiaire en stratégie: Une perspective épistémologique," *Revue Française de Gestion*, Volume 36 No. 204, pp. 105–126.
- Sanchez, R., Heene, A., and Thomas, H. (Eds.) (1996). *Dynamics of Competence-Based Competition*. Oxford: Elsevier Pergamon.
- Sanchez, R. and Mahoney, J. T. (1996). "Modularity, flexibility, and knowledge management in product and organization design," *Strategic Management Journal*, Vol. 17 (winter special issue), 63–76.
- Wernerfelt, B. (1984). "A resource-based view of the firm," *Strategic Management Journal*, Vol. 5 No. 2, pp. 171–180.