# Patient-Focused Network Integration in BioPharma

## Strategic Imperatives for the Years Ahead


Rob Handfield, PhD

CRC Press
Taylor & Francis Group

# Patient-Focused Network Integration in BioPharma

## Strategic Imperatives for the Years Ahead

# Patient-Focused Network Integration in BioPharma

## Strategic Imperatives for the Years Ahead

**Rob Handfield, PhD**


CRC Press
Taylor & Francis Group
Boca Raton London New York

CRC Press is an imprint of the
Taylor & Francis Group, an **informa** business

CRC Press
Taylor & Francis Group
6000 Broken Sound Parkway NW, Suite 300
Boca Raton, FL 33487-2742


Version Date: 20130429

International Standard Book Number-13: 978-1-4665-5548-8 (eBook - PDF)

# Contents



 

# Preface

This book started out as an interesting set of conversations with some very insightful and intelligent people. For twenty-five years I've studied supply chains in almost every industry, including oil and gas, automotive, electronics, industrial production, and even financial services. And every time I met with executives, I heard the same statement: "We're different—you don't understand." But in the end, after spending enough time with these executives, it became clear that the same principles of supply chain management applied. Perhaps a different context, different terminology, but in the end, the same rules applied.

When I started dabbling in healthcare, I originally encountered the same sets of objections. "Healthcare is different," I would hear, "After all, you have to consider the patient." But as I spent more and more time with healthcare executives, I only rarely heard the patient mentioned in the discussion. More often than not, the discussion focused on *compliance, reimbursement*, *diagnosis-related groups* (DRGs), and other terms that had very little to do with patient care. And as I studied the industry more, it became clear that organizations in the healthcare value chain, from the patient through hospitals, wholesalers, through insurance payers, manufacturers, and finally research and development (R&D), were not very well connected at all. In fact, they each seemed to be operating independently, and the patient was often the very last parameter mentioned in the debate.

This led me to engage in a series of research projects, the culmination of which are the seven chapters in this book. Each chapter can be read as a stand-alone piece of research. However, the common theme throughout the book is that of the need for a life sciences network evolution. This is depicted as a common thread—the *healthcare supply chain maturity model*, which is described in the second chapter of the book. The book explores the proposition that in order to sustain itself, parties in the healthcare network will need to coevolve, and form a more fluid and streamlined approach to healthcare that is focused primarily on the patient. This proposition is further supported by extensive research I've conducted over the last five years through executive interviews, surveys, focus groups, and multiagent simulations. Together, I hope they provide a set of insights to help guide executives toward a sustainable healthcare network.

# Acknowledgments

There are several people who are worth mentioning, who were not only instrumental to this research, but highly supportive and directly contributed to the insights contained in this book. They include Christian Rosetti, Bill Welch, and Dick Kouri from North Carolina State University; Robert Lechich from Pfizer; Brian Daleiden at Tracelink; Steve Day and Phil Priest of GSK; Lou Arp from Eisai; Joydeep Ganguly, Karen Arnold, Rob Ciamarra, and Ben Matthews from BiogenIdec; Allen Esses from DataPros; Tom Nash and Dr. Tom Fasciewski from Ministry Healthcare; Gene Schneller from Arizona State University; Josh Feldstein from CAVA; and countless others. I also want to thank North Carolina State University for granting me the sabbatical that allowed me to actually sit down and finish compiling the book. Of course, many thanks to my wife Sandra, for her support, as always.

 

# About the Author

**Rob Handfield** is the Bank of America University Distinguished Professor of Supply Chain Management at North Carolina State University and director of the Supply Chain Resource Cooperative (SCRC; http://scm.ncsu.edu). He earned his PhD in operations management from the University of North Carolina at Chapel Hill and a BSc in statistics from the University of British Columbia.

The SCRC is the first major industry–university partnership to include student projects in the MBA classroom in an integrative fashion, and has had seventeen major Fortune 500 companies participating as industry partners since 1999. Prior to this role, Handfield was an associate professor and research associate with the Global Procurement and Supply Chain Benchmarking Initiative at Michigan State University from 1992 through 1999, working closely with Professor Robert Monczka.

Handfield is the author of several books on supply chain management and healthcare, and has published many scholarly articles on the subject. He is considered a thought leader in the field of strategic sourcing, healthcare supply chains, supply market intelligence, and supplier relationship management. He has spoken on these subjects across the globe, including China, Azerbaijan, Turkey, Latin America, Europe, Korea, Japan, Canada, and other venues.

# 1

# *Patient-Focused Network Integration in the Life Sciences*

The biopharmaceutical and healthcare industry as we know it today is going through a massive change that is sending shudders to the massive onslaught of baby boomers entering retirement and what lies ahead. The reason for this change has its origins in the past sins of the industry to some extent, but also in the macroeconomic factors associated with the global economy and political regulation of the industry. This book argues that one of the key foci of executives in the life sciences and in healthcare needs to be on network integration. Very simply, all parties in the healthcare value chain network must align their strategic plans to derive innovation solutions. It is only through true collaboration and innovative aligned thinking that the parties in the drug development, distribution, payer, and provider network can deal with the incredible complexity and massive challenges that face the ecosystem.

*Our thesis is that patient-focused network integration is the only path for the life sciences industry to evolve and thrive.* For years, enterprises in the life sciences have focused on negotiating and contracting with their immediate supply chain partners upstream or downstream. Wholesalers negotiated with hospitals and group purchasing organizations, manufacturers with wholesalers, contract manufacturers with big pharmaceutical manufacturers, clinical trials with contract research organizations—and the list goes on and on. The missing element in all of these discussions has been the patient.

Patient-centric network integration is a new concept to these entities. It is a complex approach, that requires working with other parties who deliver and administer medicines to patients, not just the developers and manufacturers of the medicine. It also requires thinking beyond the immediate tier above or below your position in the supply chain.

Pulling together enterprises that seek to align objectives across the extended supply chain to drive operational improvement, innovation, joint outcomes, and aligned performance metrics is *critical*. If the patient is not the focal point of these metrics and outcomes, there is little chance that the industry can overcome the infrastructural barriers that have been constructed over thirty years of business relationships between payers, providers, and producers, who have focused solely on negotiating with one another. To these organizations, the notion of change, pay for performance, and personalized medicine is a frightening concept indeed.

## INTRODUCTION: AN INDUSTRY IN FLUX

This book was developed over an eight-year period, based on interviews, conference presentations, one-on-one discussions, and review of multiple research papers, presentations, books, and articles. We met with hundreds of executives from biopharmaceutical manufacturers, insurance companies, and healthcare providers. We sought to obtain clear perspectives from multiple parties in the chain, including manufacturers, group purchasing organizations, retail pharmacies, hospital pharmacies, physicians, consultants, academics, clinical researchers, third-party logistics providers, pharmacy benefits managers, and others. Over the eight years, the level of anxiety has been mounting considerably, culminating with the angry response to President Obama's healthcare act in 2010, and the ensuing set of debates and political posturing that is taking place today in 2013.

The leader of the United States is facing a difficult road ahead. Although there are certainly flaws in the Obama healthcare legislation, this book is not going to take on the task of enumerating these flaws, nor is it our intent to encourage repeal of the Healthcare Reform Act. The objective here is to understand the historical context of the life sciences value chain, describe the current set of challenges facing the industry, and establish the agenda for change that lies ahead. Moreover, our position is that *Obamacare*, as many critics have named it, is really nothing more than a manifestation of what is happening globally in the healthcare ecosystem. There is a need for radical change, not so much in the provider policies, or the reimbursement process, or the drug approval process, but rather in the very elements of the value creation process that exists in the healthcare

network. Current business models for the life sciences are not sustainable, and doing nothing in this case will serve only to allow patient care to suffer, costs to escalate, and drive the system to financial insolvency. This view is not just an opinion—a multiagent simulation model shows it to be the case.

## A Multiagent Simulation View

The proposal that doing nothing to the current system will drive collapse has been validated by simulation findings, using multiagent-based simulation.* Using current models of biopharmaceutical development, the research suggests that the evolution of the current operating model, when carried out, results in complete insolvency and collapse.

A multiagent system involves interplay among multiple interacting agents. Although individual agents may follow a simple strategy, it may result in complex evolution of the system. Therefore, multiagent system (MAS) methodology can be used to analyze systems that are too complex to be solved using alternative methods (traditional mathematical or statistics). Application of MAS is ideal for problems whose solution is dynamic, uncertain, and of a distributed nature.

The research we carried out suggests that in the end, the current model of manufacturer consolidation (e.g., big pharma becoming bigger) is not effective (see Figure 1.1)

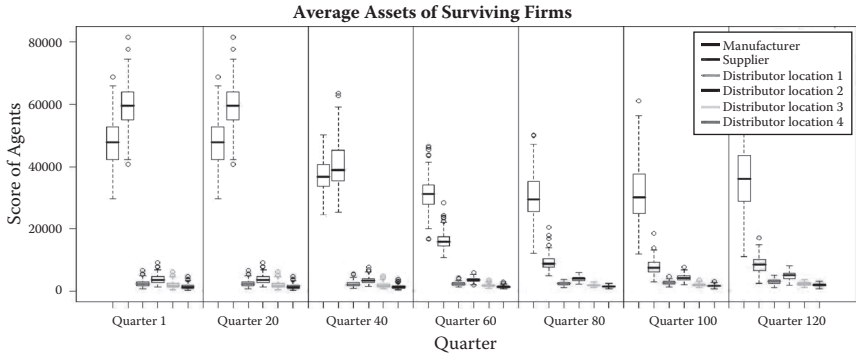


**FIGURE 1.1**
Multiagent simulation results.

* Guarav Jetly, Christian Rosetti, and Robert Handfield, "A Multi-Agent Simulation of the Pharmaceutical Supply Chain (PSC)," *Proceedings of the POMS 20th Annual Conference*, Orlando, FL, May 1–4, 2009. Baltimore: POMS, 2009.

According to our model, when manufacturers consolidate, they can't cover the cost of supporting their large asset base—plants, equipment, research laboratories, administration, and so on, as blockbusters begin to drop out of patent protection. Although their research productivity increases as they grow, as measured by the number of drugs released by individual manufacturers, the productivity of the supply chain diminishes. Drug sales represent a fixed pie, as only blockbusters will support the cash drain from larger assets. Because blockbusters are increasingly less likely to occur, it doesn't take a genius to determine where this ends up. The dramatic long-term results are shown in Figure 1.2.

In the simulation, merger activity is based on the acquirer's determination that the acquisition will perform above itself as well as above the industry average. As appears to be the case in reality, the agents assume that past performance in drug development is a good predictor of future performance. The acquirer examines each manufacturer based on the number of drugs it has released in the past two years. Unfortunately, by that time the drug is approaching its maximum sales. The larger manufacturer has a greater chance at creating a drug over many iterations. Results show that over the course of a sample of 177 iterations (e.g., cycles) however, the manufacturer is not assured that this increase in new drug development is greater than the number of drugs developed by large manufacturers.

Policy makers are tempted to regulate manufacturer prices in order to decrease their share of supply chain profits and pass savings on to consumers. Our findings show that this form of regulation may have a limited impact. Currently, manufacturers are spending in excess of 20% of

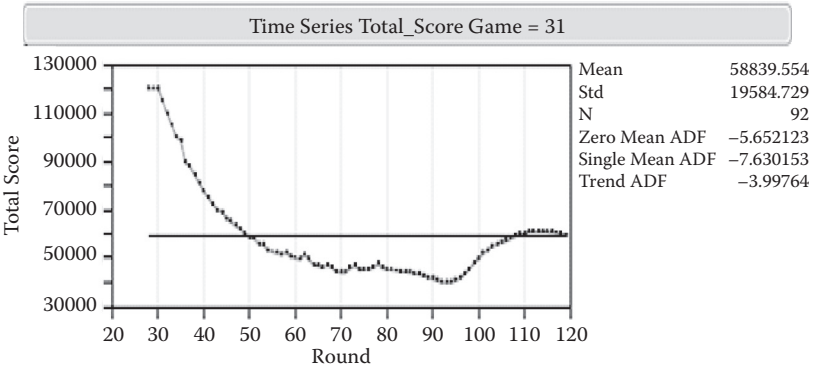


**FIGURE 1.2**
Results: Supply chain performance over time.