Corporate Innovation: Disruptive Thinking in Organizations

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CORPORATE INNOVATION

Disruptive Thinking in Organizations

Donald F. Kuratko
Michael G. Goldsby
Jeffrey S. Hornsby

ROUTLEDGE

CORPORATE INNOVATION

Effectiveness is the underlying theme for this introduction to disruptive innovation. The book tells the manager, or student, what they need to know in transforming the thinking in an organization to an innovative mindset in the twenty-first century.

Corporate Innovation explains the four stages of the innovation process, and demonstrates how to improve skills in the innovation process, and unleash personal innovative abilities. This book also presents ways to assess the organization's attitudes toward innovation, providing insights into how to diagnose creative and innovative performance problems in the organization. Beginning with an overview of concepts involved with an innovative organization today, this book explores the fundamental aspects of the individual, the organization and the implementation. An I-Organization is a combination of:

- I-Skills developed within individuals
- I-Design thinking functions needed to shape innovation
- I-Teams that emerge from the HR perspective of structuring the appropriate climate
- I-Solution needed to provide a foundation for implementing any innovative ideas.

Essential reading for students of corporate innovation, corporate ventures, corporate strategy, or human resources, this book also speaks to the specific needs of active managers charged with the expectation of enhancing the innovative prowess of their organization.

Instructors' outlines, lecture slides, and a test bank round out the ancillary online resources for this title.

Donald F. Kuratko is the Jack M. Gill Distinguished Chair and Professor of Entrepreneurship at Indiana University-Bloomington, USA.

Michael G. Goldsby is the Chief Entrepreneurship Officer and Stoops Distinguished Professor of Entrepreneurship at Ball State University, USA.

Jeffrey S. Hornsby is the Henry W. Bloch/Missouri Endowed Chair of Entrepreneurship at University of Missouri-Kansas City, USA.

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Donald F. Kuratko, Michael G. Goldsby, and Jeffrey S. Hornsby

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To my wife Debbie and my daughters Christina and Kellie, who have been the light of my life and the inspiration for all my career accomplishments.

—Donald F. Kuratko

To my grandparents, Ivis and Mary Ann McNeely and Nora Ellen Goldsby, who provided support and encouragement at every stage of my life and career.

—Michael G. Goldsby

With loving thanks to my wife Peg and children Dan, Brigid, and Michael. Your love and support are major reasons for my accomplishments.

—Jeffrey S. Hornsby

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PREFACE

Disruptive Innovation in Organizations

Whether you want to become a successful innovator within your organization or develop an environment that spawns an innovative mindset, this book can be helpful to you. Accomplished entrepreneurs create successful new ventures and implement them successfully. To do this consistently takes a blend of entrepreneurship, creativity, innovation and knowing how to make teams work effectively. The concepts behind corporate innovation mirror many of these same principles.

This book will help you develop an understanding of an innovative organization, the specific processes involved in corporate innovation, and how to assess your organization's readiness for entrepreneurial activity and innovation. It will help you learn how to get more ideas successfully to market and how to write effective innovation plans for the implementation of innovative ideas. As opposed to simply entrepreneurship or technology entrepreneurship, the principal focus of this book will be new product and service innovations. What distinguishes structures for innovation from the processes for innovation will be explored. The corporate innovation process chapter will examine the various stage gate and other non-linear models in the new product development literature. Finally, since it is about "disruption" in today's industries, we explore the outcomes that are being accelerated and specify the kinds of metrics that are involved.

Innovation has long been associated with entrepreneurship and now it is an imperative for organizations to grasp. This book helps you to understand innovation by explaining the four stages of the innovation process, how to improve your skills in the innovation process, and unleash your personal innovative abilities. In addition, you will find ways to assess the organization's attitudes toward innovation, giving you insights into how to diagnose creative and innovative performance problems in the organization.

For specific areas of interest, we present a quick guide for subtopics within the book.

If your area of interest is to . . .	*Read Chapter(s)*
• get a basic understanding of an innovative organization (I-Organization)	Preface, 1, 2
• understand the process of corporate innovation and innovative design	2, 5, 6
• learn about individual ideation and innovation (I-Skills)	3, 4
• develop excellent innovation teams (I-Teams)	8, 9
• increase the innovative performance in an organization	3, 4, 5, 6, 7
• get more new ideas successfully to market	7, 10, 12
• learn analytics to measure innovative readiness	
• write effective innovation plans	11

Objectives of the Book

Corporate Innovation provides an introduction to transforming an organization from the "old" way of thinking to the newer "innovative" ways of thinking and acting. The basic fundamentals of integrating and managing an innovative climate within the organization are explored. This book was developed based on the concepts needed for handling disruptive innovation confronting any organization. Transforming into an innovative organization requires a combination of the needed innovative skills that must be developed. Beginning with the general understanding of concepts involved with an innovative organization today, this book then explores the fundamental aspects of the individual, the organization and the implementation. An *I-Organization* is a combination of *I-Skills* developed within individuals, the *I-Design* thinking functions needed to shape innovation, the *I-Teams* that emerge from the HR perspective of structuring the appropriate climate, and the *I-Solution* needed to provide a foundation for implementing any innovative ideas. The book is designed for collegiate or executive education markets. This text is designed for courses in corporate innovation, corporate ventures, corporate strategy, or human resources that involve three distinct but related constituencies. First, the textbook is designed to be useful to professors who related the latest research to each topic as they teach the course. Second, the textbook has been written for students to *read*. The subject matter is presented in an interesting, easy-to-understand style. Finally, the specific needs of active managers charged with the expectation of enhancing the innovative prowess of their organization have been considered. The book's coverage of the key aspects of developing and implementing innovation from the employees' perspective will help them to improve their management effectiveness on the job. Thus, the chapters ahead provide deeper insights into the ways in which twenty-first-century organizations can handle disruptive innovation by transforming their thinking towards continual innovative performance.

Distinguishing Features

A number of distinguishing features make this book informative, up to date, and useful.

Comprehensive Organization

The book has four distinct parts. Each part has a unique subtitle to indicate to the student or practicing manager what is really involved in the chapters ahead.

Part 1 includes an introduction that provides an examination of the challenges of disruptive innovations that are plaguing today's organizations. We use the term *I-Challenge* to signify the new challenges awaiting managers. Part 1 then discusses the various ways individuals find innovative opportunities in organizations through the basic concepts of entrepreneurial thinking. The overall process of corporate innovation and entrepreneurship is discussed from the standpoint of new product and service innovations. We have called this entire part the *I-Organization* in order to characterize the overall nature of the chapters.

Part 2 presents the ideation and innovation techniques from an individual perspective. Individual creativity and innovative skills are highlighted in these chapters. We have called this part *I-Skills*, which describes the emphasis placed on the development of skills. How these skills transfer to the process of innovation is a focus of this part.

Part 3 outlines the elements of design thinking that are needed for innovation. The design thinking process stages of *define, research, ideate, prototype, choose, implement*, and *learn* are covered. This *I-Design* part focuses on how to shape and model the innovative idea into tangible form for customer development and lean start-up.

Part 4 explains the elements needed from an organizational or corporate environment perspective. The climate, structure and HR challenges are all examined in this part. The basic structures used for new product and new process innovations are also examined. We call this part *I-Teams* to signify the focus on development of the right personnel in the right form in order to advance innovation.

Part 5 deals with the implementation of innovative ideas. This part focuses on understanding some key analytics that can be used to measure innovative readiness as well as how ideas move from initial stages to commercialization (or market). "Accelerating" innovation will be explored from the outcomes perspective with specific metrics presented. Developing effective innovative venture plans is presented in order to have a final tool that can be used for eventual implementation. This indicates the level of emphasis placed on the planning approach in the implementation of innovation.

In addition this part focuses on the challenge of maintaining the momentum in an organization once innovation begins. Attention is directed to unique challenges confronting managers from a human resource perspective as well as a strategic perspective. We call this part *I-Solution* to represent the final conclusion of this book.

The subject matter of the book moves from consideration of innovative organizations in general to the very specific needs of individual managers charged with this challenge. The underlying theme is effectiveness; that is, the book tells the manager what they need to know in transforming the thinking in an organization to an innovative mindset in the twenty-first century.

Pedagogical Aids

Illustrations

Numerous tables, charts, and exhibits present data, summarize information, and reinforce important concepts.

Italicized Terms

Key terms and concepts are highlighted with italics when they are introduced and explained.

Chapter Summaries

Every chapter concludes with a concise, point-by-point summary of key topics.

Review and Discussion Questions

Relevant questions address the major chapter concepts at the end of each chapter.

Suggestions for Further Reading

Numerous notes refer readers to primary sources of information—most of them journal articles. These readings can be used to supplement the book material and as sources of information for writing projects.

Index

A comprehensive index helps students locate information and specific names efficiently.

PowerPoint Slide Deck (available online)

A complete set of PowerPoint slides to assist instructors cover the critical elements of each chapter.

Instructor's Manual

A set of lecture outlines and complete test bank will accompany this book.

Interest-Based Features

Innovation-in-Action

To stimulate the thinking of innovation within organizations, the story of a successful innovative company is featured in each chapter. Many of these boxed inserts

have been adapted from key innovative companies featured in *Fortune*, *Business Week*, *FSB*, and *Fast Company* magazines or websites.

A List of Suggested Innovation Cases

At the end of the book in the Appendix is a list of suggested case studies with information for how to obtain them. The problems posed in these cases are comprehensive and they call for the application of all the material in the chapters as well as the student's experience and prior education.

A Complete Innovation Plan

A complete innovative venture plan (GSK in Africa) is provided at the end of the textbook. This is provided as a guide for the manager searching for the exact look and style of a successful plan.

ACKNOWLEDGMENTS

We are grateful to a number of individuals in the development of this book. First, our deepest appreciation goes to our families, from whom we took away so much time to pursue this project. Our wives, Debbie, Peg, and Beth, have our love and gratitude for their support and motivation for all of our publishing endeavors. Second, our respective centers, the Johnson Center for Entrepreneurship & Innovation at Indiana University's Kelley School of Business, the John H. Schnatter Institute for Entrepreneurship and Free Enterprise at Ball State University, and the Regnier Institute for Entrepreneurship & Innovation at the UMKC's Henry W. Bloch School of Management, for their continued support of our entrepreneurial endeavors. Third, specific individuals that provided invaluable contributions and deserve special recognition would include: Sandy Martin and Mandy Priest from the Johnson Center for Entrepreneurship & Innovation at Indiana University's Kelley School of Business; Dr. Rob Mathews and Margo Allen from the John H. Schnatter Institute for Entrepreneurship and Free Enterprise; and the Student Ambassadors from the Regnier Institute for Entrepreneurship & Innovation at the UMKC's Henry W. Bloch School of Management. Finally, the professional editing team at Routledge/Taylor & Francis Group including: Meredith Norwich, Senior Editor; Erin Arata, Editorial Assistant; and Cathy Hurren, Senior Production Editor. Our deepest gratitude to all of these professionals who helped turn this book into a reality. Finally we express our gratitude to our Deans at Indiana University (Idie F. Kesner), Ball State University (Jennifer P. Bott), and University of Missouri-Kansas City (Brian Klaas), who have supported our innovative efforts.

Dr. Donald F. Kuratko
Indiana University
Dr. Michael G. Goldsby
Ball State University
Dr. Jeffrey S. Hornsby
University of Missouri-Kansas City

ABOUT THE AUTHORS

Dr. Donald F. Kuratko (known as Dr. K) is the Jack M. Gill Distinguished Chair of Entrepreneurship; Professor of Entrepreneurship; Executive & Academic Director, Johnson Center for Entrepreneurship & Innovation, The Kelley School of Business, Indiana University–Bloomington. Dr. Kuratko is considered a prominent scholar and national leader in the field of entrepreneurship. He has published over 200 articles on aspects of entrepreneurship, new venture development, and corporate entrepreneurship. His work has been published in journals such as *Strategic Management Journal*, *Academy of Management Executive*, *Journal of Business Venturing*, *Entrepreneurship Theory & Practice*, *Journal of Operations Management*, *Journal of Product Innovation Management, Small Business Economics, Journal of Small Business Management*, *Family Business Review*, and the *Journal of Business Ethics*. Professor Kuratko has authored 30 books, including one of the leading entrepreneurship books in universities today, *Entrepreneurship: Theory, Process, Practice*, 10th ed. (Cengage/SouthWestern Publishers, 2017), as well as *New Venture Management*, 2nd ed. (Routledge, 2018), *Corporate Entrepreneurship & Innovation*, 3rd ed. (South-Western/Thomson Publishers, 2011), *Innovation Acceleration* (Pearson/Prentice Hall Publishers, 2012), and *Entrepreneurial Leadership* (Edward Elgar Publishers, 2013). In addition, Dr. Kuratko has been consultant on corporate innovation and entrepreneurial strategies to a number of major corporations. Dr. Kuratko was also the co-founder and served as Executive Director of the Global Consortium of Entrepreneurship Centers (GCEC), an organization comprising over 300 top university entrepreneurship centers throughout the world. Under Professor Kuratko's leadership and with one of the most prolific entrepreneurship faculties in the world, Indiana University's Entrepreneurship Program has consistently been ranked as the number 1 university for entrepreneurship research by the *Global Entrepreneurship Productivity Rankings*; number 1 university for Global Entrepreneurship Research in a *Journal of Small Business Management 12 year analysis for entrepreneurship research productivity*; the number 1 University Entrepreneurship Program in the United States (public universities) by *Fortune*; as well as the number 1 Graduate Business School and the

number 1 Undergraduate Business School for Entrepreneurship (Public Institutions) by *U.S. News & World Report*. In addition, Indiana University was awarded the National Model MBA Program in Entrepreneurship for the MBA Program in Entrepreneurship & Innovation. Professor Kuratko's honors include the George Washington Medal of Honor; the Leavey Foundation Award for Excellence in Private Enterprise; the NFIB Entrepreneurship Excellence Award; and the National Model Innovative Pedagogy Award for Entrepreneurship. In addition, he was named the National Outstanding Entrepreneurship Educator by the U.S. Association for Small Business and Entrepreneurship; selected as a USASBE/Justin Longenecker Fellow; named one of the Top Entrepreneurship Professors in the United States by *Fortune*; and named a 21st Century Entrepreneurship Research Fellow by the Global Consortium of Entrepreneurship Centers. Dr. Kuratko was honored by his peers in *Entrepreneur* magazine as one of the Top Entrepreneurship Program Directors in the nation for three consecutive years, including the number 1 Entrepreneurship Program Director in the nation. The U.S. Association for Small Business & Entrepreneurship honored him with the John E. Hughes Entrepreneurial Advocacy Award for his career achievements in entrepreneurship and the National Academy of Management honored Dr. Kuratko with the Entrepreneurship Advocate Award for his career contributions to the development and advancement of the discipline of entrepreneurship. Professor Kuratko has been named one of the Top 25 Entrepreneurship Scholars in the world and was the recipient of the Riata Distinguished Entrepreneurship Scholar Award. He was the inaugural recipient of the Karl Vesper Entrepreneurship Pioneer Award for his career dedication to developing the field of entrepreneurship and in 2014 he was honored by the National Academy of Management with the Entrepreneurship Mentor Award for his exemplary mentorship to the next generation of entrepreneurship

Dr. Michael G. Goldsby is the Chief Entrepreneurship Officer, Executive Director of the John H. Schnatter Institute for Entrepreneurship and Free Enterprise, the Stoops Distinguished Professor of Entrepreneurship, Professor of Management, and Director Emeritus of the Entrepreneurship Center and Program at Ball State University. He teaches creativity, innovation, and design in the university's nationally ranked undergraduate and graduate programs in entrepreneurship. Ball State University's Entrepreneurship Program and Center earned national rankings under his leadership, including: top 20 in *Business Week*, *Success*, and *Entrepreneur* magazines; and top 10 in *U.S. News & World Report*'s elite ranking. Professor Goldsby has produced 35 refereed journal articles. He is also the co-author of *Innovation Acceleration* (Prentice Hall) and *Design-Centered Entrepreneurship* (Routledge). His research has been reported in many international media outlets, such as ABC, NBC, CBS, MSNBC, CNN, and the Associated Press. His study on entrepreneurship and fitness was covered by *Runner's World*, *Prevention Magazine*, *Muscle and Fitness*, and *Health Magazine*, among others. His video series *The Entrepreneur's Toolkit* was released by the Great Courses, and is available on DVD, CD, and digital download. The Great Courses is a professionally produced series of lectures featuring the top 1 percent of professors in the country in their area of expertise.

Dr. Goldsby attained his undergraduate degree in business economics and public policy from the Kelley School of Business at Indiana University, his master's degree in economics from Indiana State University, and his doctorate in strategic management and business ethics from the Pamplin College of Business at Virginia Tech. While at Virginia Tech, he was awarded the Jack Hoover Award for Teaching Excellence. Professor Goldsby is a certified Professional Innovation Advisor, holding Level IV certification with Basadur Applied Creativity. He is a member of many management professional organizations, and has served as vice president and a member of the board of directors for the United States Association of Small Business and Entrepreneurship (USASBE), of which he has received a distinguished service award. He also serves on the advisory board of the Ball State Innovation Corporation. He has been a co-principal investigator of three major research grants: The Ball State/U.S. State Department Entrepreneurship Project for Afghanistan, the U.S. Navy/Department of Defense Military 2 Market Technology Transfer Program, and the Launch Indiana Initiative with the Indiana Office of Small Business and Entrepreneurship and Office of the Lieutenant Governor. He is also the founding executive director of the John H. Schnatter Institute for Entrepreneurship and Free Enterprise.

Dr. Goldsby's current research interests focus on design, innovation, and applied creativity. In his spare time, Professor Goldsby enjoys athletic pursuits, such as running, triathlon, weightlifting, rock climbing, golfing, hiking, skiing, swimming, and cycling. He has completed 25 marathons, including eight Boston Marathons, and enjoys training and competing in Ironman triathlons.

Dr. Jeffrey S. Hornsby is the Executive Director of the Regnier Institute for Entrepreneurship and Innovation and Chair of the Department of Global Entrepreneurship and Innovation at the University of Missouri–Kansas City. He also holds the Henry Bloch/Missouri Endowed Chair of Entrepreneurship. He has authored or co-authored 75 refereed journal articles and 87 proceedings articles. His work has appeared in the top journals in entrepreneurship and management including *Strategic Management Journal, Journal of Applied Psychology, Journal of Business Venturing, Entrepreneurship Theory and Practice*, and *Journal of Operations Management*. His research has earned five conference "best paper awards." Recently, Dr. Hornsby and his co-authors were recipient of the *Journal of Operations Management* Ambassador Award for the best cross-discipline article in the past five years. It was awarded at the 2016 Academy of Management Meetings. In addition to this current book, Dr. Hornsby has co-authored six books, entitled: *New Venture Management*, *Innovation Acceleration: Transforming Organizational Thinking*, *New Venture Management: The Entrepreneur's Roadmap*, *The Human Resource Function in Emerging Enterprises*, *Frontline HR: A Handbook for the Emerging Manager*, and *Training Systems Management*. He is co-editor of the *Journal of Small Business Management*. Dr. Hornsby is currently on the board of the Global Consortium of Entrepreneurship Centers and the Collegiate Entrepreneurs Organization. He recently served as 2016 Conference Chair for the 2016 USASBE Conference in San Diego. He has consulted with entrepreneurial start-ups to Fortune 500 companies in the areas of business planning, leadership, human resources, high performance work systems, corporate entrepreneurship, creativity,

and innovation. Dr. Hornsby received is bachelor's degree from Miami University, M.S. from Western Kentucky University and PhD from Auburn University.

Dr. Hornsby's awards and honors include: named the Entrepreneurship Educator of the Year for the University of Missouri System; recipient of the 2016 John E. Hughes Award for Entrepreneurial Advocacy by the United States Association of Small Business and Entrepreneurship; named a United States Association of Small Business and Entrepreneurship Longenecker Fellow; named Henry W. Bloch/Missouri Endowed Chair in Entrepreneurship and Innovation at UMKC 2013; named Jack Vanier Chair of Innovation and Entrepreneurship, Kansas State University 2008; founded the Center for the Advancement of Entrepreneurship at Kansas State University 2008; selected as the 2004 University Outstanding Faculty Member for Ball State University; Ball State University Graduation Commencement Speaker Summer 2005; and named Ball Distinguished Professor of Management, Ball State University 2004.

PART 1

The Innovative Organization (*I-Organization*)

1

UNDERSTANDING THE INNOVATIVE MINDSET

Wealth in the new regime flows directly from innovation, not optimization; that is, wealth is not gained by perfecting the known, but by imperfectly seizing the unknown.

~Kevin Kelly[1]

Introduction: The "I-Challenge"

We are all confronting a global innovation challenge. The development, application, and enhancement of new technologies are occurring at a breathtaking pace and innovation is determining the way business is being conducted. As the number of new ventures, products, technologies, and patents literally explodes worldwide, established companies can either become victims of this innovation challenge or they can answer the call. The world is in the midst of a new wave of disruption in every industry, with entrepreneurship and innovation as the catalysts.

The nature of business has been transformed in this fast-paced, highly threatening, and increasingly global environment. Dramatic and ongoing changes are forcing leaders of organizations to re-examine their basic purpose and to become much more innovative with their approach to multiple stakeholders. Organizations today must continually redefine their markets, restructure their operations, and disrupt their business models. Effective companies in the twenty-first century have made the fundamental discovery that innovation drives success.[2] The ability to continually innovate (to engage in an ongoing process of entrepreneurial actions) has become the source of competitive advantage.

While innovative actions are a phenomenon that have captivated the interest of executives in many corporate boardrooms, there is a danger that managers can get too caught up in the excitement of a particular innovation or inspiring stories of individual corporate innovators. It is easy to become enamored with the idea of innovation, but

the true value of innovation lies in the extent to which it becomes a corporate strategy to create sustainable competitive advantage.[3] The early twenty-first century has been a time when innovative (or entrepreneurial) actions have been recognized widely as the path to competitive advantage and success in organizations of all types and sizes.[4] Moreover, a lack of innovative (or entrepreneurial) actions in today's global economy could be a recipe for failure.

In today's competitive landscape, the opportunities and threats happen swiftly and are relentless in their frequency, affecting virtually all parts of an organization simultaneously. The business environment is filled with ambiguity and discontinuity, and the rules of the game are subject to constant revision. The job of management effectively becomes one of continual experimentation—experimenting with new structures, new reward systems, new technologies, new methods, new products, new markets, and much more. The quest remains the same: sustainable competitive advantage. Innovation and entrepreneurial actions represent the guiding light and the motivating force for organizations as they attempt to find their way down this path.

Achieving innovation (and entrepreneurial actions) is not something that you as a manager can simply decide to do. Corporate innovation must be understood by each individual and there must be a realization that it does not produce instant success. It requires considerable training, time, and investment, and there must be continual reinforcement. By their nature, organizations impose constraints on innovative behavior. To be sustainable, innovative thinking must be integrated into the mission, goals, strategies, structure, processes, and values of the organization. The managerial mindset must become an opportunity-driven mindset, where actions are never constrained by resources currently controlled.[5] We call this the "innovative mindset."

Although some earlier researchers concluded that innovation (entrepreneurship) and bureaucracies were mutually exclusive and could not coexist,[6] today we find many researchers examining innovation within the enterprise framework.[7] Leading strategic thinkers are moving beyond the traditional product and service innovations to pioneering innovation in processes, value chains, business models, and all functions of management.[8] Thus, innovative attitudes and behaviors are necessary for firms of all sizes to prosper and flourish in competitive environments.

Developing a corporate innovative philosophy provides a number of advantages. One is that this type of atmosphere often leads to the development of new products and services and helps the organization expand and grow. A second is it creates a workforce that can help the enterprise maintain its competitive posture. A third is it promotes a climate conducive to high achievers and helps the enterprise motivate and keep its best people.

This new millennium has been characterized as an age of instant information, ever-increasing development and application of technology, disruptive changes, revolutionary processes, and global competition. It is now an age filled with turbulence and paradox. The key descriptive words used about this new "innovation challenge" of the twenty-first century are: *dreaming*, *creating*, *exploring*, *inventing*, *pioneering*, and

imagining! We believe this is a point in time when the gap between what can be imagined and what can be accomplished has never been smaller. It is a time requiring innovative vision, courage, calculated risk-taking, and strong leadership. It is simply answering "*the innovative challenge of the twenty-first century*." Thus, the "I-Challenge" confronts all organizations today.

Innovative Thinking

The constantly changing economic environment provides a continuous flow of potential opportunities *if* an individual can recognize a profitable idea amid the chaos and cynicism that also permeates such an environment. Thousands of alternatives exist since every individual creates and develops ideas with a unique frame of reference. Thus, *innovative thinking* has become a critical skill for the twenty-first century. During the last two decades, the entrepreneurial flame has caught on throughout the world, with the world's economies searching for the free enterprise solution through innovative development.

However, *innovative thinking* goes beyond the mere creation of business. The characteristics of seeking opportunities, taking risks beyond security, and having the tenacity to push an idea through to reality combine into a special perspective that permeates innovative individuals. Innovative thinking can be developed in individuals. This mindset can be exhibited inside or outside an organization, in profit or not-for-profit enterprises, and in business or non-business activities for the purpose of bringing forth creative ideas. As one author stated, "Ideas come from people. Innovation is a capability of the many. That capability is utilized when people give commitment to the mission and life of the enterprise and have the power to do something with their capabilities."[9]

Thus, innovative thinking is an integrated mindset that permeates individuals and organizations in an effective manner. Let's examine exactly what innovation is and how this mindset can be nurtured in individuals.

The Concept of Innovation

Innovation, Creativity, and Entrepreneurship

The terms *entrepreneurship*, *creativity*, and *innovation* are sometimes used interchangeably, and while that is understandable, it can be misleading. Creativity and innovation are very similar concepts, but there are some differences. Creativity is typically described as the process of generating new ideas, while innovation takes creativity a step further by being a process that turns those ideas into reality. Innovation is often the basis on which entrepreneurship is built because of the competitive advantage it provides. Innovation is a key function in the entrepreneurial process. Researchers and authors in the field of innovation and entrepreneurship are, for the most part, in agreement with renowned consultant and author Peter F. Drucker about the concept of innovation:

> *Innovation is the specific function of entrepreneurship. . . . It is the means by which the entrepreneur either creates new wealth-producing resources or endows existing resources with enhanced potential for creating wealth.*[10]

Thus, innovation is the process by which entrepreneurs convert opportunities (ideas) into marketable solutions. Innovation is a process that transforms ideas into outputs. It is the means by which entrepreneurs become catalysts for change.[11] The emerging perspective by researchers in the field of innovation is to define innovation in the broadest context possible, as in this specific example:

> *Innovation is the process of making changes, large and small, radical and incremental, to products, processes, and services that results in the introduction of something new for the organization that adds value to customers and contributes to the knowledge store of the organization.*[12]

There are numerous alternative definitions of *innovation*. One popular alternative is to present innovation as an invention that has been exploited commercially.[13] Innovation can also be viewed as the systematic approach to creating an environment based on creative discovery, invention, and commercial exploitation of ideas that meet unmet needs. However, there are millions of innovations that are often much smaller in scale, do not involve an invention, or are not necessarily exploited in the same commercial sense. Therefore, one simplified alternative definition might be:

Innovation = Creativity + Exploitation

In this sense innovation becomes the composition of creative thoughts and the determination to implement those ideas into a marketable concept. Since there are numerous ways in which individuals apply creative thoughts into exploitation of opportunities, there also are numerous ways to categorize innovation.

Categorizing Innovation

Types

The term *innovation* can be associated with physical products, processes that make products, services that deliver products, and services that provide intangible products. Thus, the basic types of innovation relate to products, processes, and services.

Product innovation is about making beneficial changes to physical products.

Process innovation is about making beneficial changes to the processes that produce products or services.

Service innovation is about making beneficial changes to services that customers use.

Methods

Whether it is product, process, or service, there are four basic methods that describe the ways that innovation will take place. These extend from new inventions to modifications of existing products or services. In order of originality, these are the four methods:

- *Invention:* the creation of a new product, service, or process, often one that is novel or untried. Such concepts tend to be "revolutionary."
- *Extension:* the expansion of a product, service, or process already in existence. Such concepts make a different application of a current idea.
- *Duplication:* the replication of an already existing product, service, or process. The duplication effort, however, is not simply copying but adding the entrepreneur's own creative touch to enhance or improve the concept to beat the competition.
- *Synthesis:* the combination of existing concepts and factors into a new formulation. This involves taking a number of ideas or items already invented and finding a way so together they form a new application.[14]

Trajectories

The final way to categorize innovation is through the trajectory that the innovation takes. In this manner there are three major trajectories for innovation: radical, incremental, and disruptive.

Radical innovation is the launching of inaugural breakthroughs such as personal computers and overnight mail delivery. These innovations take experimentation and determined vision, which are not necessarily managed but *must* be recognized and nurtured. These are considered changes at a significant magnitude. The term *radical* often refers to the level of contribution made to the efficiency or revenue of the organization.[15] Radical innovation can transform the industry itself by changing the existing market and developing the next industry wave.[16] Undertaking radical innovation can bring dramatic benefits for an organization in terms of increased sales and profits, but it also carries intensive resource requirements as well as greater risk. Consider pharmaceutical companies that can invest more than $1 billion in drug development with no guarantee that it will ever make it to the marketplace. However, one major drug breakthrough could be worth billions of dollars every year once it makes the marketplace.

Incremental innovation refers to the systematic evolution of a product or service into newer or larger markets. Examples include the typical improvements and advances in current products and services. Many times the incremental innovation will take over after a radical innovation introduces a breakthrough. The structure, marketing, financing, and formal systems of a corporation can help implement incremental innovation. Although radical innovations often make headlines, most organizations spread the risk associated with innovation by also looking for incremental innovations to their products, processes, and services. Incremental innovation is less ambitious in its scope and offers less potential for financial gains to the organization,

but consequently the associated risks are reduced. Incremental innovations consist of smaller initiatives, making them easier to manage than their radical counterparts. However, organizations may have to undertake numerous incremental innovations to achieve the necessary growth.

Disruptive innovation goes beyond radical innovation and transforms business practice to rewrite the rules of an industry. In other words, the business practice of an entire industrial sector could be changed radically. Disruptive innovation often occurs because new sciences and technology are introduced or applied to a new market that offers the potential to exceed the existing limits of technology.[17] (The largest modern disruptive technology to emerge has been the Internet.) Research laboratories and universities are usually a good source of disruptive technologies. Many companies work in cooperation with universities in order to develop the latest disruptive technologies, which can take many years to develop, wait for the outcome of this type of technology, and choose the potential successes that demonstrate market adoption. Organizations must be careful in pursuing the correct disruptive innovations to pursue because the wrong technology can waste scarce resources and place the organization in a position of significant competitive disadvantage. Researchers note that organizations often struggle to achieve a successful balance between developing radical and disruptive innovations while still protecting their traditional business operations.[18]

Misconceptions of Innovation

The entire concept of innovation conjures up many thoughts and misconceptions. It seems everyone has an opinion as to what innovation entails. We present some of the commonly accepted innovation misconceptions, along with reasons why these are misconceptions and not facts:[19]

- *Innovation is planned and predictable*. This statement is based on the old concept that innovation should be left to the research and development (R&D) department under a planned format. In truth, innovation is unpredictable and may be introduced by anyone.
- *Technical specifications must be thoroughly prepared*. This statement comes from the engineering arena, which drafts complete plans before moving on. Thorough preparation is good, but it can sometimes take too long. Quite often it is more important to use a try/test/revise approach.
- *Big projects will develop better innovations than smaller ones*. This statement has been proven false time and time again. Larger firms are now encouraging their people to work in smaller groups, where it often is easier to generate creative ideas.
- *Technology is the driving force of innovation success*. Technology is certainly one source for innovation, but it is not the only one. There are numerous sources for innovative ideas, and while technology is certainly a driving factor in many innovations, it is not the only success factor. Moreover, the customer or market is the driving force behind any innovation. Market-driven or customer-based innovations have the highest probability of success.

Innovation and Learning

Innovation is a process that needs to be managed within an organization. This includes activities such as encouraging ideas, defining goals, prioritizing projects, improving communications, and motivating teams. For organizations to sustain their mission, they must continuously innovate and replace existing products, processes, and services with more effective ones. Focusing on innovation as a continuous process acknowledges the effect that learning has on knowledge creation within the organization. Learning how to innovate effectively entails managing knowledge within the organization and offers the potential to enhance the way the organization innovates.

In addition, entrepreneurs must "learn" from their experiences as well. An organization that can continuously learn and adapt its behavior to external stimuli does so by continuously adding to its collective knowledge store. Researcher Andrew C. Corbett has identified the importance of acquiring and transforming the information and knowledge through the learning process. His research was able to lend credence to the theories about the cognitive ability of individuals to transform information into recognizable opportunities.[20] So, how an organization acquires, processes, and learns from the prior knowledge that it has gained is critical to the complete innovation process.

The Innovative Mindset In Individuals

In recognizing the importance of the evolution of innovative thinking into the twenty-first century, one integrated definition of entrepreneurship acknowledges the critical factors needed for this phenomenon:

> *Entrepreneurship is a dynamic process of vision, change, and innovation. It requires an application of energy and passion towards the creation and implementation of new ideas and creative solutions. Essential ingredients include the willingness to take calculated risks—in terms of time, equity, or career; the ability to formulate an effective venture team; the creative skill to marshal needed resources; the fundamental skill of building a solid business plan; and, finally, the vision to recognize opportunity where others see chaos, contradiction, and confusion.*[21]

This definition demonstrates that innovative ability is a process that each and every individual could choose to pursue. Today's current generation of the twenty-first century may become known as "Generation E" because they are becoming the most entrepreneurial and innovative generation since the Industrial Revolution. Every person has the potential to pursue their ideas and become an innovator. Exactly what motivates individuals to make a choice for innovative thinking has not been identified, at least not as one single event, characteristic, or trait. However, there has been some research associated with specific skills and characteristics.

In the simplest of theoretical forms for studying innovation, innovators cause innovation. That is, $I = f(i)$ states that innovation is a function of the innovator. Thus, an examination of known entrepreneurial or innovative characteristics does help in the evolving understanding of innovative thinking. Below are some of the most commonly cited characteristics.

Determination and perseverance: more than any other factor, a total dedication to success as an innovator can overcome obstacles and setbacks. Sheer determination and an unwavering commitment to succeed often win out against odds that many people would consider insurmountable. They can also compensate for personal shortcomings.

Achievement drive: innovators are self-starters who appear to others to be internally driven by a strong desire to compete, to excel against self-imposed standards, and to pursue and attain challenging goals. This need to achieve has been well documented, beginning with David McClelland's pioneering work on motivation in the 1950s and 1960s.[22] High achievers tend to be moderate risk takers. They examine a situation, determine how to increase the odds of winning, and then push ahead. As a result, high-risk decisions for the average businessperson often are moderate risks for the well-prepared high achiever.

Goal orientation: one clear pattern among innovators is their focus on opportunity rather than on resources, structure, or strategy. They start with the opportunity and let their understanding of it guide other important issues. They are goal oriented in their pursuit of opportunities. Setting high but attainable goals enables them to focus their energies, to selectively sort out opportunities, and to know when to say "no." Their goal orientation also helps them to define priorities and provides them with measures of how well they are performing.

Internal locus of control: successful innovators do not believe the success or failure of their idea will be governed by fate, luck, or similar forces. They believe their accomplishments and setbacks are within their own control and influence and they can affect the outcome of their actions. This attribute is consistent with a high-achievement motivational drive, the desire to take personal responsibility, and self-confidence.

Tolerance for ambiguity: innovators face uncertainty compounded by constant changes that introduce ambiguity and stress into every aspect of the innovation. Setbacks and surprises are inevitable; lack of organization, structure, and order is a way of life. Yet successful innovators thrive on the fluidity and excitement of such an ambiguous existence.

Calculated risk taking: as discussed in the "myths" section below, successful innovators are not high-rolling gamblers. When they decide to explore an idea, they do so in a very calculated, carefully thought-out manner. They do everything possible to get the odds in their favor, and they often avoid taking unnecessary risks. These strategies include getting others to share inherent financial and business risks with them.

Tolerance for failure: innovators use failure as a learning experience. The iterative, trial-and-error nature of becoming a successful innovator makes serious setbacks and disappointments an integral part of the learning process. The most

effective innovators are realistic enough to expect such difficulties. Furthermore, they do not become disappointed, discouraged, or depressed by a setback or failure. Many of them believe they learn more from their early failures than from their early successes.

High energy level: the extraordinary workloads and the stressful demands innovators may face place a premium on energy. Many innovators fine-tune their energy levels by carefully monitoring what they eat and drink, establishing exercise routines, and knowing when to get away for relaxation.

Creativity: creativity was once regarded as an exclusively inherited trait. Judging by the level of creativity and innovation in the United States compared with that of equally sophisticated but less creative and innovative cultures, it appears unlikely this trait is solely genetic. An expanding school of thought believes creativity can be learned. Innovations often have a collective creativity that emerges from the joint efforts of teams of individuals.

Vision: innovators need to have a vision or concept of what their idea can be. Not all innovators have predetermined visions for their innovations. In many cases this vision develops over time as the individual begins to realize what the firm is and what it can become.

Researchers have continued to examine the psychological and cognitive aspects of entrepreneurs which have helped to expand our understanding of the innovative mindset.[23] New characteristics are continually being added to this ever-growing list. At this point, however, let us examine some of the most often cited entrepreneurial characteristics. Although this list admittedly is incomplete, it does provide important insights into the innovative mindset.[24]

The Motivation for Innovation

Although innovation can be characterized as the interaction of the skills that we listed in the previous section, it is the "motivation" towards innovative behavior that is most important.

The quest for innovative thinking as well as the willingness to *sustain* that thinking is directly related to an individual's *entrepreneurial motivation*. In that vein, one research approach examines the motivational process an entrepreneur experiences.[25] Examining the motivation to sustain entrepreneurial behavior is an effective analogy to the process of innovative behavior. Figure 1.1 illustrates the key elements of this approach.

The decision to behave entrepreneurially (or innovatively) is the result of the interaction of several factors. One set of factors includes the individual's personal characteristics, the individual's personal environment, the relevant business environment, the individual's personal goal set, and the existence of a viable business idea.[26] In addition, the individual compares their perception of the probable outcomes with the personal expectations they have in mind. Next, an individual looks at the relationship between the entrepreneurial (or innovative) behavior they would implement and the expected outcomes.

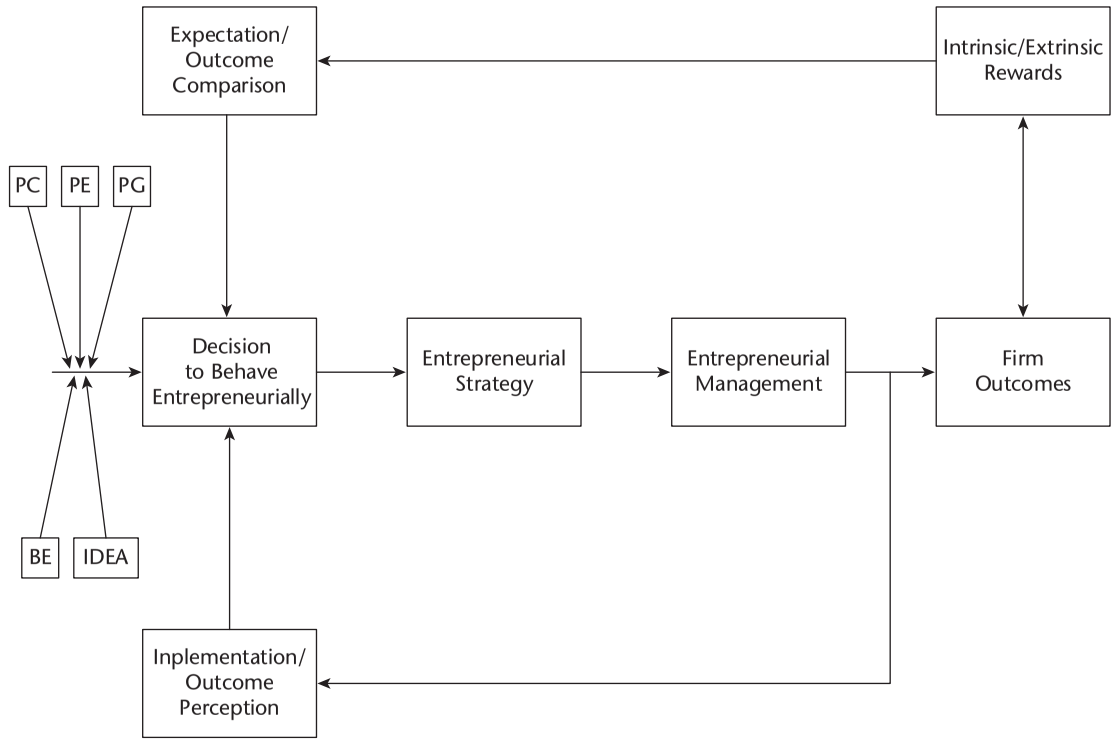

FIGURE 1.1 A Model of Entrepreneurial Motivation.

According to the model, the entrepreneur's expectations are finally compared with the actual or perceived firm outcomes. Future entrepreneurial (innovative) behavior is based on the results of all of these comparisons. When outcomes meet or exceed expectations, the entrepreneurial (innovative) behavior is positively reinforced, and the individual is motivated to continue to behave entrepreneurially (innovatively), either within the current venture or possibly through the initiation of additional ventures, depending on the existing entrepreneurial goal. When outcomes fail to meet expectations, the entrepreneur's motivation will be lower and will have a corresponding impact on the decision to continue to act entrepreneurially (innovatively). These perceptions also affect succeeding strategies, strategy implementation, and management of the firm.[27]

Once again we see the importance of the individual in the entrepreneurial (or innovative) process. It is only through individuals that innovation can be initiated and sustained.

An Experiential View

The prevalent view in the literature is that entrepreneurs and innovators create ventures. While that is a true statement, it misses the complete process of entrepreneurship and innovation because of its narrow framing. This narrow perspective misses much of the reality regarding how ventures and entrepreneurs/innovators come into being. Researchers point out that as with a painting that emerges based on the individual interacting with, feeling, and agonizing over their creation, an entrepreneur does not simply produce a venture. Entrepreneurs do not pre-exist—they emerge as a function of the novel, idiosyncratic, and experiential nature of the venture creation process. Venture creation is a lived experience that, as it unfolds, forms the entrepreneur. In fact, the creation of a sustainable enterprise involves three parallel, interactive phenomena: emergence of the opportunity, emergence of the venture, and emergence of the entrepreneur. None are predetermined or fixed—they define and are defined by one another.[28] Thus, the perspective of the entrepreneurial or innovative experience has gained new momentum in the research of the twenty-first century.

This experiential view of the entrepreneur captures the emergent and temporal nature of entrepreneurship. It moves us past a more static "snapshot" approach and encourages consideration of a dynamic, socially-situated process involving numerous actors and events. It allows for the fact that the many activities addressed as a venture unfolds are experienced by different actors in different ways.[29] Moreover, it acknowledges that venture creation transcends rational thought processes to include emotions, impulses, and physiological responses as individuals react to a diverse, multifaceted, and imposing array of activities, events, and developments. This perspective is consistent with some of the research interested in a situated view of entrepreneurial and innovative action.[30]

Drivers (Sources) of Innovation

So, where do innovators seek out sources for the ideas and concepts that result in innovation? Most innovations result from a conscious, purposeful search for new opportunities. This process begins with the analysis of the sources of new opportunities. Renowned business consultant and author Peter Drucker noted that because innovation is both conceptual and perceptual, would-be innovators must go out and look, ask, and listen. Successful innovators use both the right and left sides of their brains. They look at figures. They look at people. They analytically work out what the innovation has to be to satisfy the opportunity. Then they go out and look at potential product users to study their expectations, values, and needs.[31] The following presents some of the most effective sources for the recognition of opportunities.

Trends: trends signal shifts in the current paradigm (or thinking) of the major population. Observing trends closely will allow an entrepreneur the ability to recognize a potential opportunity. Trends need to be observed in society, technology, economy, and government.

Unexpected occurrences: these are successes or failures that, because they were unanticipated or unplanned, often end up proving to be a major innovative surprise to everyone.

Incongruities: these occur whenever a gap or difference exists between expectations and reality.

Process needs: these exist whenever a demand arises for an answer to a particular need. Venture capitalists often refer to this as the "pain" that exists in the marketplace and the entrepreneur must recognize an innovative solution or "painkiller."

Industry and market changes: continual shifts in the marketplace occur, caused by developments such as consumer attitudes, advancements in technology, and industry growth. Industries and markets are always undergoing changes in structure, design, or definition.

Demographic changes: as mentioned above with the trends, these arise from trend changes in population, age, education, occupations, geographic locations, and similar factors. Demographic shifts are important and often provide new entrepreneurial opportunities.

Perceptual changes: these changes occur in people's interpretation of facts and concepts. They are intangible yet meaningful. Perception can cause major shifts in ideas to take place.

Knowledge-based concepts: these are the basis for the creation or development of something brand new. Inventions are knowledge-based; they are the product of new thinking, new methods, and new knowledge. Such innovations often require the longest time period between initiation and market implementation because of the need for testing and modification.

Mythology Associated with Innovators

In order to better understand "innovative thinking" we must first examine some of the damaging myths that have prevailed for years due to the lack of understanding

surrounding this concept. It should be recognized that some executives and managers reject the "entrepreneurial" concept because of certain longstanding beliefs about entrepreneurship and innovation. These myths have developed through the years and are the result of a slow emergence of research in entrepreneurship and individual innovation. As many researchers in the field have noted, the study of entrepreneurship and innovation is still emerging, and thus "folklore" will tend to prevail until it is dispelled with contemporary research findings. Listed below are five of the most notable myths with an explanation to dispel each myth.[32]

"Individuals Are Born to Innovate"

The prevailing idea that innovation cannot be taught or learned, that there are innate traits with which one must be born, has a long history. These traits include aggressiveness, initiative, drive, a willingness to take risks, creative ability, and perseverance. While these traits may certainly have an effect on an individual, they do not dictate nor predict whether one is predisposed to innovative thinking. The recognition of entrepreneurship and innovation as a discipline in universities today has helped to dispel this myth.

"Innovators Must Be Inventors"

The idea that innovators are always inventors is a result of misunderstanding and tunnel vision. While many inventors are also entrepreneurs, there are numerous entrepreneurs who encompass all sorts of innovative activity. For example, Steve Jobs did not invent the computer, but his innovative ideas have made Apple one of the leading technology enterprises in the world. A contemporary understanding of innovative thinking covers more than just invention. There must be a complete understanding of innovative behavior in all forms.

"Fitting the Innovator's Profile"

Many books and articles have presented checklists of characteristics of the successful entrepreneurs and innovators. These lists were neither validated nor complete; they were based on case studies and on research findings among achievement-oriented people. Today we realize that a standard entrepreneurial profile is hard to compile. The environment, the idea itself, and the individual have interactive effects, which result in many different types of profiles. Contemporary studies being conducted at universities across the world will, in the future, provide more accurate insights into the various profiles of successful innovators. It is more likely that successful innovators benefit from "entrepreneurial experiences" and innovative education where they can learn rather than conform to a particular profile.

"Innovation Is Being Lucky"

Being at "the right place at the right time" is always an advantage. But "luck happens when preparation meets opportunity" is an equally appropriate adage.

Prepared innovators who seize the opportunity when it arises often appear to be "lucky." They are, in fact, simply better prepared to deal with situations and turn them into successes. What appears to be luck is actually the result of preparation, determination, desire, knowledge, and innovativeness.

"Innovators Are Gamblers"

The concept of risk is a major element in the innovation process. However, the public's perception of the risk assumed by most innovators is distorted. While it may appear that an innovator is "gambling" on a wild chance, the fact is that they are usually working on a moderate or "calculated" risk. Most successful innovators work hard through planning and preparation to minimize the risk involved, in order to better control the destiny of their vision.

We present these myths to provide a background for current thinking on innovators. By sidestepping the "folklore," we can build a foundation for critically understanding the processes of innovative thinking.

However, understanding the characteristics, motivations, experiences, and myths associated with innovation is not a shield from the stress that the pursuit of innovation can produce. We must always be aware that the process of innovation may also present a "stressful" experience to individuals.

Innovation and Stress . . . Beware!

Research studies of entrepreneurs and innovators show that those who achieve goals often pay a high price.[33] As an example, in one study a majority of entrepreneurs surveyed had back problems, indigestion, insomnia, or headaches. To achieve their goals, however, these entrepreneurs (innovators) were willing to tolerate these effects of stress.

In general, stress can be viewed as a function of discrepancies between a person's expectations and ability to meet demands, as well as discrepancies between the individual's expectations and personality. If a person is unable to fulfill role demands, stress occurs. To the extent innovators' work demands and expectations exceed their abilities to perform as idea initiators, they are likely to experience stress. Innovative roles and operating environments can lead to stress.

Many times innovators must bear the cost of their mistakes while playing a multitude of roles, such as salesperson, recruiter, spokesperson, and negotiator. These simultaneous demands can lead to role overload. The innovative mindset requires a large commitment of time and energy, often at the expense of family and social activities.[34]

Sources of Stress

Researchers have identified some of the key causes of entrepreneurial stress that can be applied to the innovation process as well.[35] They include:

Insulation: long hours at work prevent them from seeking the comfort and counsel of friends and family members. Because of this insulation from others they tend not to participate in social activities unless they provide a business benefit.

Addiction to the innovation: one of the ironies of innovation is that successful innovators can become married to their ideas. They work long hours, leaving little time for civic organizations, recreation, or further education.

Perfectionist syndrome: most innovators experience frustration, disappointment, and aggravation with partners, fellow employees, customers, and investors. Successful innovators are to some extent perfectionists and know how they want things done; often they spend a lot of time trying to get other, more lackadaisical, employees to meet their performance standards. And, frequently, because of irreconcilable conflict, many partnerships are dissolved.

Achievement orientation: the innovator is never satisfied with their work, no matter how well it was done. They seem to recognize the dangers of unbridled ambition, but they have a difficult time tempering their achievement need. They seem to believe that if they stop or slow down, some competitor is going to come from behind, and everything they have built will fall apart.

Managing the Stress

It is important to point out that not all stress is bad. Certainly, if stress becomes overbearing and unrelenting in a person's life, it wears down the body's physical abilities. However, if stress can be kept within constructive bounds, it could increase a person's efficiency and improve performance.

One research study presented stress reduction techniques.[36] Although classic stress reduction techniques such as meditation, biofeedback, muscle relaxation, and regular exercise help reduce stress, there are a few techniques that can help relieve stress Presented here are six specific ways innovators can cope with stress.

Network: one way to relieve the insulation of the innovator's mindset is to share experiences by networking with other innovators. The objectivity gained from hearing about the triumphs and errors of others is itself therapeutic.

Refresh yourself: the best antidote to immersion in an innovation may be a holiday. If vacation days or weeks are limited by valid business constraints, short breaks still may be possible. Such interludes allow a measure of self-renewal.

The personal touch: innovators are in close contact with fellow employees and can readily assess the concerns of their staff. The personal touches such as company-wide outings, flexible hours, and congratulatory celebrations are many times very useful in helping other employees be not only more productive but also experience much less stress.

Gain new perspectives: countering the obsessive need to achieve can be difficult because the innovator's personality is inextricably bound in the fabric of the innovation. Innovators need to get away from their ideas occasionally and become more passionate about life itself. In other words, they need to gain some new perspectives.

Delegate: implementation of coping mechanisms requires implementation time. To gain this time, the innovator has to learn to delegate tasks. Innovators can find delegation difficult because they think they have to be involved in every aspect of the innovation. But if time is to be gained for alleviation of stress, appropriate delegation must be used.

Exercise: exercise can often be an excellent method of reducing stress for individuals. As an example, researchers Michael G. Goldsby, Donald F. Kuratko, and James W. Bishop examined the relationship between exercise and the attainment of personal and professional goals for entrepreneurs.[37] The study addressed the issue by examining the exercise regimens of 366 entrepreneurs and the relationship of exercise frequency with the company's sales and the entrepreneur's personal goals. Specifically, the study examined the relationship that two types of exercise—running and weightlifting—had with sales volume, extrinsic rewards, and intrinsic rewards. The results indicated that running is positively related to all three outcome variables, while weightlifting is positively related to extrinsic and intrinsic rewards. This study demonstrates the value of exercise regimens on relieving the stress associated with entrepreneurs and innovators.

Managing Innovative Individuals

In order to maintain this "innovative mindset," managers must assume certain ongoing responsibilities.[38] The first responsibility involves *framing the challenge*. In other words, there needs to be a clear definition of the specified challenges that everyone involved with innovative projects should address. It is important to think in terms of, and regularly reiterate, the challenge. Second, leaders have the responsibility to *absorb the uncertainty* that is perceived by team members. Innovative leaders make uncertainty less daunting. The idea is to create the self-confidence that lets others act on opportunities without seeking managerial permission. Employees must not be overwhelmed by the complexity inherent in many innovative situations. A third responsibility is to *define gravity*—that is, what must be accepted and what cannot be accepted. The term *gravity* is used to capture limiting conditions. For example, there is gravity on Earth, but that does not mean it must limit our lives. If freed from the psychological cage of believing that gravity makes flying impossible, creativity can permit us to invent an airplane or spaceship. This is what the innovative mindset is all about—seeing opportunities where others see barriers and limits. A fourth managerial responsibility involves *clearing obstacles* that arise as a result of internal competition for resources. This can be a problem especially when the innovation is beginning to undergo significant growth. An expanding and sometimes popular new concept will often find itself pitted squarely against other (often established) aspects of the firm in a fierce internal competition for funds and staff. Creative tactics, political skills, and an ability to regroup, reorganize, and attack from another angle become invaluable. A final responsibility for leaders is to keep their finger on the pulse of the innovative projects. This involves constructive monitoring and control of the developing opportunity.

Sustained efforts with innovation are contingent upon individual members continuing to undertake innovative activities and upon positive perceptions of the activity by the organization's executive management, which will in turn support the further allocation of necessary organizational antecedents.

The dynamic innovative organizations of this twenty-first century will be ones that are capable of merging strategic action with innovative action on an ongoing basis.[39] This type of innovative organization could be conceptualized in the "new thinking" that is needed by today's leaders. As has been shown in much of the recent literature, the strategic mindset must lean towards the more innovative concepts in leading organizations today. It is our belief that the basis for any organization pursuing innovation as their strategy needs to understand the concept of "innovative thinking." It is the techniques and principles of this emerging discipline that will drive the innovative organization in the twenty-first century.

Innovation-in-Action

Hiring for Creativity

According to *Inc. Magazine* there are some specific strategies that can be utilized to find creative and innovative people to work in your organization.

1. Decide Which Kind of Creativity Counts

How much creativity do you want to tolerate? You need to distinguish between "breadth creativity," which is the ability to see the big picture and draw connections or spot trends, and "depth creativity," which is creativity within a specific knowledge or skill area (such as a specific job). The type of desired creativity should be based on the creative culture of the organization. An organization may not necessarily need or want to tolerate many individuals with "breadth creativity." If not, they should focus on identifying individuals who demonstrate ingenuity in problem-solving for a specific job.

2. Attract the Brightest Lights

Market your company to prospective employees. You need to examine how your company's web pages, career pages, and other materials convey your goals and values (which should include creativity). What creative tools do you use to get the interest of creative types? Some examples cited include employee testimonials on YouTube, Facebook pages, and job descriptions that emphasize more passionate and conversational calls for talent. You should also focus on skills and experiences that demonstrate adaptability versus rigidity. Employees with varied life and job experiences are likely to act more creatively. Also, recruit from nontraditional sources. Ask your most creative employees for referrals. And consider looking outside your industry. Expertise can be acquired; creativity generally can't.

3. Put Candidates to the Test

In order to assess creative skills, utilize behavioral interviewing that requires candidates to describe on-the-job experiences that involved the skills and abilities the prospective job requires. To assess creative skill, you could ask questions such as: "Describe a recent new problem you have had to deal with in your current job and describe what you did to solve it." If the candidate has too little previous work experiences, you may also use hypothetical questions that provide possible work-related problems and ask them how they would solve them. Either way, you get job-related insights on the extent to which an applicant can apply creative problem-solving skills.

(Adapted from: www.inc.com/magazine/20101001/guidebook-how-to-hire-for-creativity.html. Originally published October 1, 2010.)

Key Terms

corporate innovation

disruptive innovation

duplication

entrepreneurial actions

entrepreneurial motivation

extension

gravity

I-Challenge

incongruities

incremental innovation

innovation trajectories

innovative stress

internal locus

process innovation

radical innovation

risk taker-gambler

tolerance for ambiguity

unexpected occurrences

Discussion Questions

1. What is innovation and how does it differ from entrepreneurship?
2. Identify the three types of innovation.
3. Describe the four methods of innovation—invention, extension, duplication, and synthesis.
4. Explain the different trajectories of innovation.
5. Identify three misconceptions about innovation.
6. Some of the characteristics attributed to innovators include internal locus of control, tolerance for ambiguity, and calculated risk taking. Discuss how these relate to the innovative mindset.
7. Explain the motivation of innovation.
8. What are the major drivers of innovative ideas? Explain and give an example of each.
9. What are the key myths associated with innovation? Debunk each.
10. What are four causes of stress among innovators? How can stress be managed?

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