
Edited by
Bharat S. Thakkar
THE FUTURE OF LEADERSHIP
Addressing Complex Global Issues

The Future of Leadership

Bharat S. Thakkar
Editor

The Future of Leadership

Addressing Complex Global Issues

palgrave
macmillan

Editor
Bharat S. Thakkar
PREM Group, Inc.
Wheaton, IL, USA

ISBN 978-3-319-73869-7 ISBN 978-3-319-73870-3 (eBook)
https://doi.org/10.1007/978-3-319-73870-3

Library of Congress Control Number: 2018931908

Cover credit: Rynaldo Toemaang/EyeEm/Getty Images

Printed on acid-free paper

This Palgrave Macmillan imprint is published by the registered company Springer International Publishing AG part of Springer Nature
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

This book is dedicated to the leaders who helped make this world a better place to live and work; and to those in the coming decades who would help make it even better for the generations to come. Special thanks are due to its contributing authors:
Aqueil, Bayo, Christiana, Deepal, Ezenwayi, George, Kadambari, Kamlesh, Kartik, Lydia, Nicolas, Sam, Sarla, and Tom

Foreword

Future leadership is all about unforeseen challenges, and we are in the midst of it. It is not something that might unfold in the future but is already happening and making waves. With rapid advances in technology, everything is changing, including the role of a leader. Those of us professionals and academicians who discern and practice it feel compelled to bring it to the attention of the wider world. This book attempts to do precisely that.

Leadership is no longer about a singularized individual at the top of the pyramid but a collectivized whole spread across a wide base because of the breathtaking changes across the world brought about by a confluence of technologies and related products, applications, and services. The preeminent force in that confluence is information and communication

technologies. That we now live in a truly real-time world where human experience, both bad and good, is instantly collectivized and shared because of the Internet has caused a fundamental shift in the way we understand leadership.

Unlike in the centuries past when leadership meant exclusive elites, mostly men, who controlled knowledge and information and therefore societies, we now live in an age where information and knowledge have been rapidly democratized in terms of access and understanding. This has, in turn, made decision making deeply informed and individualized. I am not going to dwell on the increasing danger that the rise of fact-free and fake worldview presents us even though it is something all of us ought to be concerned about because that has a direct impact on leadership.

The scope of this book is to offer a diversity of scholarly views on how leadership—corporate, political, economic, social, and cultural—has changed.

Although throughout human history the advent of technology, be it the wheel, steel, gunpowder, printing press, steam engine, light bulb, or telephone, caused unprecedented shifts in their time, what we are experiencing now because an unprecedented confluence of modern technologies, including the Internet, is incomparable to anything else so far. That is entirely because the base of the change and those who benefit from it is wider than ever before. Essentially, knowledge is democratized.

This profound shift is shaping and redefining leadership. The traditional evolution of leadership from being transformational—trust-based—to transactional—performance-based—to customer-centric—satisfaction-based—to people-centric—delight-based—is now at a stage that it incorporates all the above even as it responds to the exponential growth of technology in every walk of life.

While the human factor remains important, a vast majority of people do not consciously realize how much technology, including artificial intelligence and machine intelligence, has become so deeply woven into our lives. It is no longer possible to gainfully function in today's world without at least some rudimentary skills to operate smart systems. The most visible example of that reality is the touchscreen phones that many people now intuitively operate.

That there is so much more computerization in ordinary phones than there ever was in the Apollo program that took us to the moon is a testament to how dramatically things have changed. This change directly shapes leadership in all walks of life.

Everything is technology and technology is everything now. Even in politics the ability to get rid of intermediaries the way Twitter and Facebook have done, allowing political leaders to directly reach people, has forever altered leadership. It can often be to the detriment of society if not used judiciously but that is a separate subject outside the scope of this book.

One can argue that it is no longer possible to predict which way the future of leadership might turn in the next 50 years. It is true that anything can happen given the massive flux we all are in. At the same time, it is possible to predict broad trends in leadership. One of the distinct trends is the way technology has so deeply embedded itself into our lives. That will only get deeper.

At the end of the day, leadership is also about character, ethics, morals, truth, trust, self, discipline, communication, vision, values, passion, and lot more. The key is to understand and appreciate the impact of the democratization of technology, information, and knowledge on each of these to practice the art and the science of leadership in a new way to manage, motivate, and mobilize resources to gain productivity and efficiency of an ever-changing organization.

Oakbrook, IL, USA

Dr. Sam Pitroda
Chairman Pitroda Group

Dr. Sam Pitroda is an internationally respected development thinker, policy maker, telecom inventor, and entrepreneur who has spent over 50 years in information and communication technology and related developments. Credited with having laid the foundation of India's technology and telecommunication revolution in the 1980s, Dr. Sam Pitroda has been a leading campaigner to help bridge the global digital divide. In mid-1990s, he founded Worldtel in London and invented mobile wallet in 1996 and set up C-SAM Inc. acquired by Master Card in 2013. From 2005 to 2014, Dr. Sam Pitroda was Chairman of India's National Knowledge Commission and Advisor to the Prime minister of India with the rank of a cabinet minister. He was also Chairman of the National Innovation Council, smart grid task force, railway modernization, and public broadcast reforms. At present, he is founder, investor, and chairman of six start-ups and several nonprofit foundations.

Dr. Sam Pitroda holds over 100 patents and has published and lectured extensively in USA, Europe, India, and Latin America. His biography was published in 1992, and his autobiography "Dreaming Big" was published by Penguin in 2015.

Preface

Leadership has innately existed as long as humans have existed. Perhaps it is in the nature of life that all species consciously or subconsciously create and anoint leaders. Leadership is as much about charting a right course as it is about guiding followers along it. It is also about assuming a larger responsibility than just self and thinking of common collective goals rather than individual pursuits. Having this common understanding of leadership and its attributes, the question remains about its changing nature as the time passes. Leadership is quite different today than what it was two centuries or two decades ago. The technological advances assisted greatly in terms of the functioning of virtual businesses, offices, globalization, and the quality of human resources. This brings up a question about what would be the leadership in the future, particularly

say after a decade or so. While teaching leadership courses to doctoral students at various universities, I discovered that there appears to be a vacuum in literature about future leadership. The scope of this volume is to analyze and understand what kind of leadership would be appropriate in the changing work environment due to technological advances. This book is an attempt to present the role of leadership in next decade.

There is a famous scene in the master filmmaker Stanley Kubrick's celebrated and pioneering film "2001: A Space Odyssey" where an ape accidentally discovers the destructive power of an animal bone. As the ape realizes that the bone could also be used as a weapon, one begins to see the emergence of a key attribute of leadership—an ability to look beyond the obvious.

That is, one defining quality of leadership is bound to survive and evolve even as the idea of leadership undergoes a major transformation in the approaching future. How leadership might transform, evolve, and shape up in the next decade and beyond is a mystery. There are too many unknowns and unknowables to specifically predict how leadership will ultimately change. Nonetheless, the best we can do is to examine leadership trends as they have shifted and developed over the past decade or so and where they might be headed in the next decade and beyond.

In this context, the unprecedented democratization of information and access to a vast diversity of knowledge resulting from the information and communication revolution, one profound change stands out. Historically, leadership all over the world has meant a limited number of people controlled both information and knowledge. For centuries, they both were used as a powerful albeit nonviolent weapon by elites in all civilizations.

The advent of the Internet coupled with rapidly spreading broadband connectivity has meant that information and knowledge were freed from the shackles controlled by elites and brought into a much bigger public domain. This opening up of global connectivity has significantly diminished the potency of having an exclusive access to information and knowledge. The reality today in corporate world where a CEO and the lowest rung worker have the access to same quality of public knowledge base. This meant that it is no longer a prized attribute because both in theory and in practice in many societies across the world that distinction has been erased.

Thus, this even playing field has led to the role of leadership undergoing unprecedented change. Like fire to the fury, a remarkable proliferation of social media has created the democratization of access for the so-called ordinary folks. An ordinary citizen's ability to directly address

the most powerful and inaccessible person, such as the president or prime minister of a country via Twitter® or Facebook®, has created a unique leadership-led dynamic where it is becoming increasingly hard to tell who is leading whom.

The pervasiveness of the Internet even to illiterates and ease of its use in countries around the world have in a way broken down established wisdoms of the past centuries about who a leader is and what leadership is. A simple act of hash-tagging on Twitter® can turn an ordinary person sitting in some obscure corner of the world into a global leader even if it is for a brief time.

That brings us to another rarely discussed aspect of future leadership. There may still exist leaders in the traditional sense such as presidents, prime ministers, lawmakers, CEOs, and so on but their roles will get constantly shaped and reshaped by social media trends. The ivory tower of leadership has fully crumbled and from its debris is emerging a new order where leadership will become transient depending on the issues of the day.

Of course, in more formal structures such as a corporation or a government, or a legislature, some remnants of old leadership may still be useful but even there the profound change taking place in the world at large because of technology has made inroads. It may not be out of place to envision the virtual governments, wherein most policy decisions will be voted out by public on a daily basis per need of the day over social media and the resultant decisions will be implemented by governmental officials. It might eliminate so many ministers and secretaries of various departments, as public will define each decision in a truly utopian republic government model.

In my own career as an engineer and then as a professor in America spanning five decades, I have had to constantly respond to this level of democratization. It is quite common for my Ph.D. students to directly challenge me in my assessments by the simple act of sending me an email. For a long time, professors were those mythical, aloof figures whose wrath could be earned by students at their own peril. While there are still figures like that, by and large the role of the professor as an academic leader has undergone an extraordinary change.

This pattern repeats itself in every walk of life from politics to business, from science to show business, from medicine to agriculture, and from engineering to manufacturing. The consequence has been a complete overhaul of what leadership is.

It is true that the benefits of democratization of leadership may often be exaggerated in the sense that while it may seem traditional bastions have fallen, it may just be an illusion. At the very least, leadership in all walks of life has become extremely mindful that they are being watched by a vast majority of people.

If political leaders such as US President Donald Trump or India's Prime Minister Narendra Modi have managed to so effectively remove the intermediary because of their massive use of social media platforms, they have also equally exposed themselves to being responded to in real time every minute of the day. They may both choose to largely disregard the popular mood as it manifests from their followers' comments, but a theme point emerges when it is no longer possible to be indifferent in relation to the public mood.

We may or may not know precisely what future leadership may look like, but we do know what it will never look like again. For instance, it will never be that leadership in any endeavor of life can operate behind an opaque shield. The Internet and social media have eliminated such possibility forever. There are few exceptions, such as Putin's Russia, Xi's China, the Saudi King's, and Iran's Ayatollahs, still lead from behind the opaque shields, and there doesn't seem a clue if they will become democratic, at least not in the foreseeable future. In my personal assessment, leadership will increasingly become broad-based and decentralized even as traditional forces may try to retain their stronghold on levers of power. A seemingly small but, in reality, very powerful offshoot of technological revolution is the spread of smartphones, which are also becoming wearable technology. This live 24/7 connectivity to leaderships is perhaps the most powerful tool that people now have, and which cannot be taken away.

In terms of traditional leadership roles, such as in various enterprises, be it manufacturing, corporate management, medical field, or any number of other formal ventures, I believe that too will not remain immune to these profound changes around it. That is where the highly talented authors of this book come in. Despite the challenge of the unknowns and the unknowables, these experts have done a remarkable job of addressing the issues of future leadership not through an esoteric or philosophical discussion, but in a very specific, implementable manner.

Leadership among women professionals, in the nonprofit sector, international businesses, and many other related themes, has been addressed

in the book. This is not necessarily a prescriptive book. It is more an examination of global trends and how they are likely to shape up the future leadership.

In the corporate governance, many facets of leadership roles, issues such as organizational survival, profits, corporate social responsibility, their responsibility toward shareholders, and stewardship of the environment, come into play. What is common between all of them is that they all depend on a leadership with moral and ethical rectitude.

There are many kinds of leaderships—political, corporate, cultural, scientific, artistic, and social. They all have their own unique demands, which influence what their future might be. However, a single thread that runs through all of them is the way leadership in any of these endeavors interfaces with the people they seek to lead. As emphasized earlier, the democratization of information and access to it will remain the single most decisive factor that will make its presence felt in the emergence of future leadership.

I wish to congratulate the authors of this volume who took on the challenge to think, project, and posit about future leadership. I also want to personally thank Mr. Marcus Ballenger of Palgrave Macmillan, Leighton Lustig, Prabhu Elangali and Azarudeen Ahamed Sheriff of Springer Nature, for working with me to realize this valuable contribution to leadership literature. I would also like to thank Dr. Sam Pitroda for writing the foreword for this volume. Finally, I would like to thank the Contributing Manager, Mr. Kamlesh Patel, who has constantly worked behind the scenes in communicating with the authors and maintaining the project schedule, and providing critical comments as needed.

Wheaton, USA
April 2018

Dr. Bharat S. Thakkar, Ph.D.

Acknowledgement

I had often sensed in my casual and scholarly conversations with Dr. Thakkar that he had a burning desire and an unfulfilled dream to write a book on the topic of future leadership. Finally, we both determined to translate merely a desire and an idea into a reality and undertook this book project in March 2015. Biting into future leadership topic is a very complex issue since the future itself is unknown and it can't be accurately predicted, so writing around that theme does not sound straight forward. Rapid technological advances make a peek into future even more complex and nebulous since penetration of newer technologies in every walk of life is rapidly disrupting the traditional business world, shaking

up the orthodox practices and lifestyles in society and bringing about radical changes in common men's lives, and shifting the power balance in the political worlds.

While the topic of future leadership sounded enticing and appealing due to its title and the need of the time to many potential authors, it was very difficult task initially for Dr. Thakkar and me to narrow down the potential authors and their topics, define the scope of their contributions and the deadlines for each task, and finally, align their themes to fit into one theme of this book.

I believe that authors have to have a reason for writing. They write with a goal in mind, whether it be just for fun or to make an impact and change lives. I am sure through my interactions that all contributing authors of this book have written to have a significant impact on readers, to help imprint some form of wisdom upon us. And that is why, I thank every author who decided that they wanted to write and to unknowingly change the course of thinking of the readers for the better.

Nearly over last three years, Dr. Thakkar and I have exchanged hundreds of emails with all authors. I know firsthand that the authors have spent untiring hundreds of hours writing and rewriting their chapters. A bunch of papers from all authors and peer reviewers containing critical reviews and re-reviews and revisions have finally boiled down into what is today in the reader's hand, a book entitled "Future of Leadership - Addressing Complex Global Issues." I truly appreciate and acknowledge that all authors have been very cooperative, accommodative, and responsive to all requests. I am very delighted to further acknowledge the assistance from all authors to make this project a great success.

Thanks are also extended to Dr. Thakkar for identifying the gap in the leadership field, setting up the framework for this project, and reminding me often of our own set goals and deadlines. Without Dr. Thakkar's vision and commendable pivotal role, this project would not have resulted into a successful book. I hope I can effectively express his contribution by citing a quote from Mahatma Gandhi, "Strength does not come from physical capacity. It comes from an indomitable will."

Finally, I also express my gratitude to publishing company staff who have directly and indirectly contributed to the making of this book.

Finally, let me cite the quotation from A. A. Milne, a writer, who says "Rivers know this: There is no hurry. We shall get there someday." And I would say that we have reached "there."

Lastly, I hope that this book will be useful not only to MBA, DBA, and Ph.D. students but also to corporate professionals and thinkers and all readers alike.

Mr. Kamlesh K. Patel
Contributing Manager

Mr. Kamlesh K. Patel the contributing manager, is a professional engineer and a researcher in the field of wastewater treatment engineering. He possesses 35 years of experience in teaching and practicing civil and environmental engineering. For the last 26 years, he has been serving as a senior environmental research scientist at the Metropolitan Water Reclamation District of Greater Chicago in its Monitoring and Research Department. He has published and authored several technical papers and reports. He has also served on many research committees of the Water Environment Research Foundation. In the beginning of his career, he contributed to non-governmental organizations in India. He has run successful enterprises in the USA. His unique blend of experience with persistent and focused efforts has played an instrumental role in making this book project a reality.

Contents

Editor and Contributors

About the Editor

Bharat S. Thakkar Ph.D., Research Interests: Leadership, Operations Management, Globalization, Complex Decision-Making Tools and Techniques, Quantitative Research Methodology, Engineering and Technology Business Management, Systems Reliability.

Dr. Thakkar has been engaged in the practice of reliability engineering over last thirty-five years of which last twenty-six years were spent with Lucent Technologies (formerly AT&T Bell Laboratories). He has published and presented over thirty technical papers and holds two US patents. Since last twelve years, Dr. Thakkar has been teaching MBA, DBA, and Ph.D. courses in Chicago-area colleges and universities along with presentations at various workshops and conferences. In fall of 1997, Illinois Institute of Technology, Chicago, IL, USA conferred Alva C. Todd Professorship upon Dr. Thakkar. This honor is granted to a part-time faculty member with peer-recognized experience in the field of engineering.

Currently, Dr. Bharat S. Thakkar, CEO, PREM Group, Inc., offers workshops and seminars on systems reliability and systems engineering to domestic and international clients. Bharat writes poetry, novels, and columns for newspapers and magazines on various social and community topics.

Contributors

Adebayo A. Adanri Planning & Valuation Consultants, Inc., Normal, IL, USA

Aqueil Ahmad Freelance Scholar, Hillsborough, NC, USA

Ezenwayi C. Amaechi Johnson & Wales University, Providence, RI, USA

Nicolas M. Casati Groupe Professionnel Francophone, Chicago, IL, USA

George R. Cybulski Neurological Surgery, Feinberg School of Medicine Northwestern University, Chicago, IL, USA

Lydia M. Daniels Ageno School of Business Golden Gate University, San Francisco, CA, USA

Deepal Joshi SomLalit Institute of Business Administration, Gujarat University, Ahmedabad, Gujarat, India

Kartik Kesavabhotla Neurological Surgery, Feinberg School of Medicine Northwestern University, Chicago, IL, USA

Christiana O. Ntamere Handmaids of the Holy Child Jesus/ Franciscan Health, Munster, IN, USA

Kadambari Ram Zen Clinical, Cape Town, South Africa

Sarla Achuthan Gujarat Law Society (GLS) Centre for Research & Development, GLS University, Ahmedabad, Gujarat, India

Thomas A. Seitz PREM Group, Inc., Wheaton, IL, USA

List of Figures

List of Tables

CHAPTER 1

A Brief History and the Future of Leadership

Aqueil Ahmad

Introduction

Leadership—its styles and directions change over time. Successful leaders in all climes and cultures pursue accurate visions of the future depending upon how correctly they interpret the needs, resources, threats, and opportunities of their societies. Leadership in this discussion generally covers business and industry although the influence of political and cultural leadership on these sectors must not be ignored. They will be recognized as necessary.

This short narrative highlights visionary leadership in three distinct historical periods: The Industrial Revolution in Europe and similar developments in America (18th through the 19th centuries), followed by reflections on leadership in the 20th and the 21st centuries in a cross-cultural context. This should by no means imply lack of visionary leadership in science, technology and industry in preindustrial non-European societies; but doing so would take me to a different realm of discourse I have extensively covered elsewhere (Ahmad, 2013).

A. Ahmad (✉)
Freelance Scholar, Hillsborough, NC, USA

B. S. Thakkar (ed.), *The Future of Leadership*,
https://doi.org/10.1007/978-3-319-73870-3_1

Leadership Theory and Research

Management and political science literature is replete with discussion on the types and assessment of leadership quality and effectiveness in different organizational and societal settings. In the organizational settings, the discourse is about management style and its impacts on resource generation, employee motivation, productivity, and profits (Raelin, 2016). The American management guru Peter Drucker reckoned management to be about setting organizational objectives and achieving results in certain key areas. Edwards Deming and Joseph Juran emphasized the critical role of statistical quality control in production and its effect on organizational success. Michael Porter developed models for the broader spectra of national economies (Foss, 2016). C. K. Prahalad, on the other hand, is author of the revolutionary concept of The Fortune at the Bottom of the Pyramid, suggesting business and resource development strategies for the wealth and welfare of roughly three billion people at the lowest rungs in the global economy (Prahalad, 2012).

Not far from the sentiments implied in Prahalad's work is the notion of servant leadership often attributed to the ancient Chinese philosopher Lao-Tzu. Its contemporary interpretation is due to the work of Robert Greenleaf. A servant leader is primarily concerned with serving the people in his/her watch rather than commanding and controlling them (Dierendonck & Patteron, 2010).

Central to the discussion of leadership, its practice and success at the societal level is Max Weber's theory of charisma, although the role of charisma at corporate- and institutional-level management must not to be discounted. Charismatic leaders supposedly display personal qualities of grace, charm, eloquence, even physical appearance, and above all, an uncanny ability to connect with their followers and receive in return their love, respect, and often unquestioned obedience (Weber, 1991). As Weber would put it, this is an "ideal type" of charisma, which in practice may or may not be fully realized for the so-called charismatic leaders. It is noteworthy though that charisma has been used by leaders as means to achieve both negative as well as positive social and political ends. Hitler is often cited as the example of an evil charismatic leader who was able to hoodwink one of the smartest people into collectively not only tolerating but even endorsing his genocide of an estimated 6 million innocent German Jews.

On the positive side of charisma, does Mahatma Gandhi qualify as a charismatic leader? It is debatable. He was diminutive, physically frail,

not much of an orator, or holder of political or military power. Yet he was able to mobilize millions of Indians through his message of peace, nonviolence, humility, even love and respect for the enemy, akin to the message of Jesus Christ as understood by over 2.5 billion people on planet earth today (Fisher, 1954). Opinions may differ but in the eyes of this author, Gandhi was a supreme example of charismatic leadership of a positive kind. His life and message continue to inspire millions of people in a world often wreaked by greed and violence.

The brief examination of the history and the future of leadership that follows is informed by the above background theory and research and will be referred to as necessary.

Leadership in the Eighteenth and Nineteenth Centuries America

Early American leadership is notable by the likes of Andrew Carnegie, Andrew Mellon, the Rockefeller brothers (John and William), and Henry Ford. What did these three industrialists and business leaders have in common, disregarding for the moment their personal ambitions for money and power? They were able to put their fingers on the economic and social nerves of a newly emerging nation: Carnegie in steel, the Rockefeller brothers in oil, Mellon in banking and investments, and Ford in mass production of automobile (Whitten, 2006). They ruthlessly pursued their visions, often to the detriment of the environment and the well-being of the people immediately around and under them, like their factory workers. They justified their pursuit for the so-called greater good, which translated into massive and rapid industrialization of America to quickly overtake such developments in the back country Western Europe—notably England, France, and Germany. The main difference between the leadership visions in the old and the new worlds was continuing traditionalism in Europe and a frontier mentality in the new world. The nineteenth-century European nations basked in the glory of their colonial exploitations of labor, materials, and markets and looked for more of the same. In the new world, the vision was that of the future: How to create resources of knowledge and materials to build a new country.

It is also noteworthy that alongside their visions of creating wealth for themselves and letting it trickle down a bit, these American leaders also invested heavily in human and cultural development through education, science, and technology. Notable among these initiatives

are the Carnegie Mellon University in the city of Pittsburgh, PA, and the Rockefeller University in New York City. The Carnegie Mellon University started as a technical school in 1900. It finally merged with the Mellon Institute of Industrial Research in 1967 to become a world-class facility for education and research in wide fields of science and engineering.

Rockefeller University started in 1900 in New York City, specializing in education and research in the biological and medical sciences, is noted to have been the recipient of several Nobel Prizes for its scientists. The idea of unity in visionary diversity of these American leaders for the economic, social, and human development in their societies is to be underlined for its impacts on making America what it is today: an engine of innovation, economic growth, and opportunity—the remaining disparity and inequality within it notwithstanding.

Cross-Cultural Contexts of Visionary Leadership

In this section, I intend to highlight examples of visionary leadership in two non-American culture areas: Europe with reference to the UK and Sweden; and Asia with reference to Japan and India. Despite its moribund colonial past in the Middle Ages, the British history is also notable for one thing during that period: the eighteenth–nineteenth-century Industrial Revolution. It undoubtedly began there with low-tech textile industry shacks in Lancashire, to ultimately become the leading edge of the British Empire and its colonial economies, notably in India.

Development of steel industry, steam engine, and railroads followed in Britain (Pollard, 2000). Unlike the early American business and industrial leaders described above, it is not easy to pinpoint British entrepreneurs of similar caliber in textile and other industrial sectors, with some notable exceptions. The names of (Sir) Richard Arkwright and James Hargreaves do stand out as early textile industry pioneers for developing machine-based cotton spinning and weaving. In steel industry, the name of (Sir) Richard Henry Bessemer is legion, along with the invention of his Bessemer converter that revolutionized steel industry in Europe, then in America, and subsequently in India and elsewhere. Similarly, the name of James Watt as the inventor of steam engine is familiar to any student of the history of technology and its leadership in the eighteenth- and nineteenth-century England. The steam engine technology quickly spread around the world, notably in America under the visionary

entrepreneurship of the nineteenth-century railroad tycoon Cornelius Vanderbilt, and in the colonial India through the initiative of the East India Company and subsequently by the British government itself.

Sweden, on the contrary, is not generally known for its business and industrial leadership in the eighteenth- and nineteenth-century Europe, except for one name, that of Alfred Nobel. Alfred Nobel offers a unique example of visionary leadership in an unusual industrial sector: development of explosives and its impact on the arms industry and armament around the world. His discovery of dynamite is also notable for its connection with the development of mining and excavations for building railways and road networks globally. It is interesting to note that the so-called merchant of death in a mistaken obituary is now universally regarded as a leader whose vision encouraged the generation of scientific discoveries with countless direct and indirect implications for the development of industry, medicine, the economy, literature, and even peace around the world. The Nobel Prize is undoubtedly the most prestigious prize to recognize and thereby encourage excellence in all branches of science, engineering, and medicine since it was first awarded in 1901 after much consternation and controversy among Alfred Nobel's family and friends. What is equally notable is that this noble vision was born, perhaps, out of ridicule and a sense of guilt for being once mislabeled the "merchant of death" (Fant, 1991).

The Case of Japan

The case of visionary leadership in Japan during the Industrial Revolution and shortly thereafter is generally not recognized with individuals so much as with an era, a unique social and cultural transformation called the Meiji Restoration in the nineteenth century under the dynastic rule of the Emperor Meiji. It is a unique example of collective leadership for creativity and innovation in a culturally homogeneous culture area (Beasley, 1972). However, a quick literature search identified the names of Saigo Takamori and Kido Takayoshi pioneering the technology of shipbuilding, shipyards, iron smelting, and spinning mills through royal patronage, unlike the entrepreneurial leaders in Europe and America recognized above. These developments were undoubtedly responsible, directly or indirectly, for the subsequent militarization of Japan and its imperial ambitions in China and during the Second World War. In the middle of the twentieth century, a war-ravaged Japan

engaged in a strategy of technoeconomic development under American patronage unparalleled in the non-Western world.

For the next half a century, the notion of collective leadership was again paramount in rebuilding Japanese economy, industry, and society. In these efforts, the leadership of its Ministry of International Trade and Industry (MITI) to learn from and trade with outsiders was the stuff of technology management textbooks in the 1980s and the 1990s. And so was the notion of collective leadership in Japanese business and industry highlighted by (1) bottom-up decision making involving lower organizational levels, (2) the consensus-based ringi system of management, and (3) quality circles of employees to solve process and production-related problems. Like all things, these practices too have undergone significant changes in Japan and elsewhere they were once admired and practiced (Wokutch, 2014).

The Case of India

Finally, let us look at the history of visionary social and business leadership in one of the fastest growing economies in the world today, India. For nearly two hundred years prior to Independence in 1947, India languished under the yoke of colonialism. Meager modernization efforts in terms of building roads, railways, postal services, health care, and higher education were carried out by the British. India was the largest export market for the British industrial and consumer products. All together, they largely served the colonial rulers in England and their princely underlings in India.

In that climate of political and economic dependency, the names of social reformer Dadabhai Naoroji and the industrial stalwarts Jamsetji Tata and son Dorabji Tata stand out. Starting as a businessman, Naoroji turned his attention to social and political reforms in colonial India in collaboration with the British Raj rather than as a staunch enemy. But his admiration for western values of science and higher education and membership in the British parliament did not come in the way of his strong opposition to the colonial economic policies he saw as draining the wealth of India to build the English industry and infrastructure. Consequently, he was a signatory to the establishment of the Indian National Congress and a mentor to Mahatma Gandhi who spearheaded the movement of India's independence from the British in 1947.

Disproportionate to its small size, the Parsi community largely located in the city of Bombay (now Mumbai) is notable for producing many outstanding scientific, academic, business, and industry leaders in the Indian subcontinent (Kulke, 1978). Dadabhai Naoroji was an outstanding product of the Parsi community, and so were the two other Parsi stalwarts, Jamsetji Tata and his son (Sir) Dorabji Tata. They displayed similar visionary leadership as Naoroji. In 1907, Dorabji started a mini "industrial revolution" in India by building a steel mill at Jamshedpur. By 1937, it was the largest steel company in the entire British Empire. Two years later, in 1909, Jamsetji mooted the establishment of the Indian Institute of Science in Bangalore. The institute today is recognized as a prestigious facility for the advancement of scientific research and education not only in India but in the entire South Asian region.

Two later-day Parsi scientific leaders of the mid-twentieth century also stand out. Under the visionary leadership of Sir Dorabji, nuclear physicist Homi Bhabha pioneered the development of nuclear research and development in India around the middle of the twentieth century. He established the Tata Institute of Fundamental Research, Mumbai in 1945, with affiliated centers in Pune, Bangalore, and Hyderabad. The Bhabha Atomic Research Centre (BARC) in Mumbai is dedicated to his memory. India's subsequent nuclear development for peaceful and not-so-peaceful purposes goes back to the origin of BARC.

Similarly, Vikram Sarabhai is regarded as the father of contemporary India's space research and explorations. Science policy analysts and administrators like MGK Menon, Hussain Zaheer, and A. Rahman consider the Indian nuclear and space programs, warts and all, as the precursors of the national science, technology, and engineering infrastructure now considered among the largest anywhere in the world. The building of this vast infrastructure owes much to the visionary leadership of India's first Prime Minister, Jawaharlal Nehru, and his successors. For them, even a relatively poor society could ignore the power of modern science and technology at its own peril. Neither can a rich one, for that matter.

This leadership story of India will remain incomplete without acknowledging the work of Syed Ahmed Khan, commonly known as Sir Syed, for the education of Muslim minorities. Sir Syed initially worked as a loyal servant of the British East India Company. Influenced by his own education at Edinburgh University, he was committed to the philosophy of liberal education as much as he was disturbed by the

educational backwardness of Indian Muslims. He tried to counter this trend by establishing the Mohammadan Anglo-Oriental College in the city of Aligarh in his home state of Uttar Pradesh (then the province of U.P.). The British government and the Muslim community wholeheartedly supported Sir Syed's initiative. His college subsequently became the Aligarh Muslim University housed in an Oxfordian college campus. It is now a prominent public university for Western-style higher education in arts, science, and engineering for all Indian men and women, including that of this writer (The Hindu, 2015).

However, Sir Syed's thinking in later years took an unfortunate turn toward seeing Hindus and Muslims not as Indians but as separate communities. Influenced by the renowned Punjabi poet, philosopher, lawyer, and community leader Sir Mohammad Iqbal (popularly known as Allama Iqbal), Sir Syed began suggesting separation of the social and political interests of Indian Muslim minority from those of the Hindu majority. This type of thinking appealed to the prominent Bombay barrister Mohammad Ali Jinnah and the creation of the Indian Muslim League under his charismatic leadership. His two-nation theory led to the cataclysmic division of India and the creation of the state of Pakistan in August, 1947, along with the Indian Independence. As history has shown time and again charismatic leaders have led to utopian as well as dystopian, positive as well as negative visions of the future throughout human history. As the history of Indian subcontinent unmistakably demonstrates, the two-nation, two-state solution for its freedom from the British rule had disastrous consequences from which both have yet to fully recover.

With notable exception of Japan, the management literature is replete with exemplary leadership in business, industry, science, and education in Europe and America with scant attention paid to such stories in early as well as contemporary non-Western societies. The above brief on India tries to fill this gap to some extent. Little known to outsiders, the Indian culture has been a prodigious producer of outstanding leaders in all walks of life—political, economic, and cultural. It seems appropriate in this discussion, therefore, to recognize three other visionary leaders, one universally recognized, the other two barely so.

The name of mathematical genius Srinivasa Ramanujan (1887–1920) is little known even in India let alone internationally. Like the great Albert Einstein, Ramanujan wrote his equations on blackboards and papers. He had minimum formal education. He was also poor. Yet

he had a scientific vision little recognized even in his own native land. Through correspondence he could connect with the (then) well-known British mathematician G. H. Hardy at Cambridge University who invited him to work there. In some scientific circles, his work on mathematical analysis, theory of numbers, elliptic functions, continued fractions, infinite series, and a lot more has been duly recognized—"all this in a life cut short at the age of 33 due to tuberculosis" (Kanigel, 1991).

Similarly, the name Rabindranath Tagore (1861–1941) would mean little to most people outside of India. Yet Tagore's is an unusual story of intellectual brilliance and political acumen (Kabir, 1961). This Bengali scholar, poet, playwright, and philosopher was undoubtedly one of a kind of versatile genius in league with the likes of Leonardo de Vinci or the thirteenth-century Arabic scholar, astronomer, economist, and political philosopher Ibn Khaldun (Fromherz, 2010). Tagore had a unique vision of "cosmic consciousness" and the "universal man" of the future living in a world based on political, economic, and cultural understanding and interdependence, so akin to the emergence of a globalizing world order a century later. Tagore's secular political philosophy had personally influenced the early life and thought of Mohandas K. Gandhi, the third Indian leader of interest in this discourse.

The life and message of Mahatma Gandhi are today the stuff of legend. More books are reported to have been written about him than any other living or dead political leader. Dr. Martin Luther King, Jr., his most notable political and spiritual heir outside of India, once described him as "undoubtedly one of half a dozen greatest men in world history." In contemporary world society, there is no greater example of moral leadership to achieve political ends than that of Mahatma K. Gandhi. Through his message of nonviolent political action, of unity in diversity, he was able to mobilize millions of sleepy Indians to their "tryst with destiny" in a free society. But alas, his message was lost to millions of his other countrymen. They were beguiled by nightmarish visions of their future in a Hindu-majority free India and a utopian future for them in a separate country. That utopian mirage turned into the dystopia of military dictatorship, disunity, and disharmony. At the same time, Gandhi's message of peace and nonviolence continues to remain relevant in a world blowing itself to piece, here and there. But hopefully as the Bible says, "This too shall pass." Let the next generation of leadership rise to make peace and prosperity for all possible.

Leadership in the Twenty-First Century

Despite continuing backwardness at many places, the present century is marked by the exciting prospect of visionary leadership in the electronics age—in the age of Internet of things, 3D printing, genetic engineering, life in test-tubes, space travel, Martian living, Facebook, Wikipedia, e-commerce, etc. (Harter, 2016). The names of Steve Jobs, Bill Gates, Elon Musk, Mark Zuckerberg, and Jeff Bezos have become household names around the world. Some of these entrepreneurial wonders of capitalism have displayed exemplary social consciousness, their mercantile mentality, and enormous personal wealth notwithstanding. The Gates Foundation is the world's largest philanthropic organization. Mark Zuckerberg's vision for bridging the global digital divide is also noteworthy. But the Chinese and Indian billionaires Wang Jian Lin, Jack Ma, and Mukesh Ambani are not known for similar philanthropic zeal and commitment. This should not, however, imply that they do not invest in social and political programs. Mukesh Ambani is reported to have invested in the political campaign of the Indian Prime Minister Narendra Modi and his BJP party. The impacts of that political change on the lives of countless Indians of all varieties are yet to be determined.

Nations and regions across the globe have faced different threats and opportunities in different times. Visionary leaders were/are able to understand them and responded to them effectively by building support and mobilizing resources. Nineteenth century was marked by transition from rural, communal, and agricultural societies to urban, organizational, and industrial societies, from Gemeinschaft to Gesellschaft, from feudalism to democracy, from collectivism to individualism. That was also the beginning of the scientific, technological, and industrial revolution in Western Europe, then in North America, and subsequently elsewhere. It was accompanied by the accelerating rate of new discoveries and inventions that made natural resource extraction and their use on a mass scale both prudent and possible. It was this climate of challenge and opportunity that produced visionary and ambitious leaders like Andrew Carnegie, Alfred Nobel, Jamsetji Tata, and others identified above.

We are at the early stages of the twenty-first century. Generation, utilization, and knowledge management on a global scale will continue to increase exponentially, doubling faster than ever in this new century and beyond. Indications are toward public and private institutionalization rather than individuation of knowledge generation and its management.

However, the central concern in the twenty-first century is not that of individuation or corporation of knowledge and its management but how the future leadership could use new knowledge collectively to address the specter of global poverty, disease, and deprivation. Regardless of the current anti-globalization and global economy rhetoric in America or wherever, going back to cultural and economic isolation and nationalism is not only counterintuitive and counterproductive but also utterly impractical. We must, therefore, ask what are the challenges facing mankind in the twenty-first century and how can they be resolved through interacting local and global leadership?

Others may have different priorities. Mine are as follows in order of importance. First, I see unprecedented growth of unemployment in both the developed and the developing economies. In the developed world, the threat of unemployment is exacerbated by the same forces that contributed to its technoeconomic advancement; that is, the use of machines in industrial and increasingly in agricultural process and production systems. Automation will continue to decrease, if not altogether eliminate the need for human labor in farms and factories in relative degrees everywhere. In some newly emerging economies, unabated population growth is likely to further mitigate employment gains made possible through industrialization and economic development.

At the cost of sounding simplistic, I suggest national, regional, and organizational leaders to join forces toward doubling of public service employment in health, education, and welfare within the next decade, along with efforts to drastically cut down fertility rates in high-population growth areas in Asia, Africa, and Latin America. In low-fertility regions of the developed world, migration of people from the less-developed regions is already filling the population gap, although not without conflict and contradictions. Managing these migratory trends is another big challenge facing the leadership of the future.

Second, since the start of the new century, the specter of anger, hate, and random and sectarian violence has shrouded our world in many unexpected places and unexpected directions. There is poverty of leadership at national, regional, and global levels to address this scourge. Violence has come in the way of education, economic development, and employment in communities and regions across the global society. The suggested approaches so far include use of violence to counter violence; an eye for an eye which is likely to "leave everyone blind" (a la Mahatma Gandhi). Leaders in the twenty-first century must unite to find out the

causes of violent conflicts within and between communities and cultures and suggest nonviolent means to resolve them. To start with, conversations between adversaries at community, national, and international levels about these issues could go a long way toward resolving them peacefully.

Third, inequality and its twin sister poverty are universally recognized as global problems with dire consequences for human health and industry. But less is suggested as remedies to overcome them. Generations of young and old in both the rich and the poor worlds are unemployable in the digital age due to lack of necessary skills. This deficiency can be overcome by leaving party-politics aside and investing in the development of human capital through education for all in the post-modern digital age.

Last but not the least: Our planet is threatened by climate change, naysayers notwithstanding. Whatever progress humanity has made since descending on the earth from trees has been due to the progress of logical reasoning and scientific knowledge. Together they also warn us about the downsides of unbridled technoeconomic development and the corresponding lifestyles of consumerism and waste in a globally increasing population. Much progress has indeed been made toward recycling of waste and using renewable sources of energy. But a lot more is desired toward efficient and renewable energy use all across the world. In the newly industrializing countries, the problem is further exacerbated by the use of firewood for cooking and heating and coal for power generation and steel making. Local and global leaders must come together to suggest public policy alternatives to address these problems according to local needs and resources. Numerous international conferences on climate change, including the 2016 Paris Agreement, have so far failed to do so. The future of our children and our planet deserves better.

Concluding Remarks

Every new generation, every new century faces "the ordeal of change." Ordinary humans just live through these changes often unmindful of their consequences. But leaders in all walks of life are responsible for having helped the change in their societies. They must also be responsible to deal with it, manage it, and steer it in the right direction. Informed by the literature, this discussion briefly examined examples of leadership challenge and response in two Western and two non-Western culture areas in the industrial and the post-industrial/digital age. The discussion concluded by the author's choice of four major challenges facing

the leadership in the twenty-first century: mass unemployment, local and global violence, inequality and poverty, and unprecedented climate change due largely to lifestyles in a globally increasing population. Effective leadership responses to address each of these challenges were highlighted.

References

Ahmad, A. (2013). *New age globalization: Meaning and metaphors*. New York: Palgrave Macmillan.

Beasley, W. G. (1972). *The Meiji Restoration*. Stanford, CA: Stanford University Press.

Dierendonck, D. V., & Kathleen, P. (2010). *Servant leadership: Developments in theory and research*. New York: Palgrave Macmillan.

Fant, K. (1991). *Alfred Nobel: A biography*. New York: Arcade Publishing.

Fischer, L. (1954). *Gandhi: His life and message for the world*. New York: The New American Library—A Mentor Book.

Foss, N. J. (2016). *Organizational leadership: New studies in strategy, innovation, and entrepreneurship*. Copenhagen: Djof Publishing.

Fromherz, A. (2010). *Ibn Khaldun: Life and times*. Edinburgh: Edinburgh University Press.

Harter, J. (2016). *Successful management in the digital age*. New Brunswick, NJ: Transaction Publishers.

Kabir, H. (Ed.). (1961). *Rabindranath Tagore: Towards universal man*. New Delhi: Asia Publishing House.

Kanigel, R. (1991). *The man who knew infinity: A life of the genius Ramanujan*. New York: C. Scribner.

Kulke, E. (1978). *The Parsees in India*. New Delhi: Vikas Publishing House.

Pollard, S. (2000). *Essays on the industrial revolution in Britain*. Burlington, VT: Ashgate.

Prahalad, C. K. (2012). Bottom of the pyramid as a source of breakthrough innovation. *Journal of Product Innovation and Management, 29*(1), 6–12.

Raelin, J. A. (Ed.). (2016). *Leadership as practice: Theory and application*. New York: Routledge.

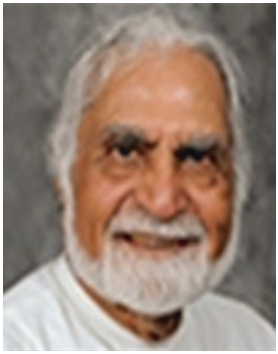
The Hindu. (2015, October 16). *Sir Syed Ahmad Khan: Man who knew tomorrow*.

Weber, M. (1991). *From Max Weber: Essays in sociology* (Gerth and Mills, Ed. and Trans.). New York: Routledge.

Whitten, D. O. (2006). *The birth of big business in the United States, 1860–1914: Commercial, extractive, and industrial enterprise*. Westport, CT: Praeger.

Wokutch, R. E. (2014). Corporate social responsibility Japanese style, revisited. *The Journal of Corporate Citizenship* (56), 11–30.

Author Biography



Dr. Aqueil Ahmad is currently a freelance scholar. His educational background includes bachelor of science and a master's and doctoral degrees in psychology from Aligarh Muslim University, plus two years of graduate studies in sociology at the University of Pittsburgh. He started his professional career as a scientist at the Indian Council of Scientific and Industrial Research. Then he worked as a Tenured sociology professor at the University of North Dakota; founding chairman, Center for Science Policy and Management of Research, Administrative Staff College of India; visiting scholar/faculty at Northwestern University's Center for the Interdisciplinary Study of Science and Technology and IIT's Stuart School of Business Administration; senior associate at Southern Technology Council; sociology and peace studies faculty at UNC-Greensboro and Elon University; and senior faculty at Walden University. Ahmad was also a visitor at the British Council and the Polish Academy of Sciences; associate at the East–West Center; and visiting professor at Lund University's Science Policy Institute and Wuhan's Institute of Management. His academic work includes 7 books, 62 journal articles, 12 contributions to books, a postdoc NIMH fellowship, and numerous monographs/project reports, book reviews, conference papers, funded projects, invited lectures, and assignments on S&T policy and international development in 40 countries in Asia, Africa, and the Americas. He consulted with the UNESCO, UNDP, UNCSTD, UNDRO, UN's Economic Commission on Africa, and with several Indian and American institutions and corporations.

CHAPTER 2

The Quest for a Paradigm Shift in Leadership for the Next Decade and Beyond

Lydia M. Daniels

Introduction

Although it is evident that we have seen an evolutionary process of change in leadership theories, styles, and models through the decades as chronicled by authors such as Barling (2014) and Jost (2013), recent documented crises and scandals have generated urgency for a major paradigm shift, replacing the slow and careful evolutionary process of the previous decades. For example, four significant events, among others, contributed to a critical review and analysis of leadership behaviors. Three events occurred, such as the failure of U.S. companies (Lehman, Bear Stearns, and others); the U.S. financial crisis of 2008; and the leadership failure crisis in the U.S. Veterans Administration, requiring wholesale, systemic reform of the entire department's 1457 facilities (US Department of Veterans Affairs, 2014). These events, plus the recent Wells Fargo Bank Scandal (2016), served as some of the catalysts to move the focus of organizational leadership failure to the forefront of

L. M. Daniels (✉)
Ageno School of Business, Golden Gate University, San Francisco, CA, USA

B. S. Thakkar (ed.), *The Future of Leadership*,
https://doi.org/10.1007/978-3-319-73870-3_2

change, calling for a new approach to leadership, elements referred to as the triple bottom line (TBL) or sustainability reporting. This awareness has led to increased scrutiny and needs for emphasis on how leaders make a difference in organizations and how organizations make a difference in social change.

This chapter covers several circumstances converging from different angles as the impetus for a paradigm shift. Major changes are discussed such as organization crises and scandals, negatively impacting the economy; the era of rapid globalization with virtual businesses, increasing competition for survival; disruptive technology prompting many operational shifts within organizations, decreasing the number of traditional jobs; a renewed focus on humanism in organizations, demanding employee development, empowerment, and retention; the quest for community building with environmental sustainability and social change; and operationalizing a paradigm shift. It is due to the convergence of all of these shifts at a circumscribed point in time that deems regular incremental leadership changes will not suffice for future leadership. The response to this convergence of change calls for a major paradigm shift for future leadership of our organizations and communities for survival and formulation of the building blocks for sustainability of the society of the future.

The society of the future demands leadership in the organizations which can assess the external and internal environment, the alignment of resources, and the necessary leadership arrangements. Assessing the external environment includes the political, economic, social, technological, legal, and environmental landscape, as well as the industry environment such as the competitive behavior of rival organizations. Assessing the internal environment demands attention to the strengths and weaknesses of the organization's resources such as its people, processes, and IT systems. Organization leadership that is ineffective or lacking altogether has been chronicled by many crises and scandals over the previous decade.

Organization Crises and Scandals

Although there was a complexity of reasons for the collapse of many banks during this era, one of the reasons was attributed to systemic breaches in accountability and ethics at all levels, falling within the sphere of leadership (Banking Collapse of 2008, 2008). The most powerful

collapse in leadership involved the banking industry with 26 collapsing in 2008, continuing to a high of 157 in 2010, and a total of 521 from 2008 to 2016, which triggered the mortgage crisis, U.S. economic recession, and near world financial collapse. These major events serve as an example of how deep-rooted, more complex, and more disturbing, the ethical challenges and moral environments are for our current leaders. Another example of the failure of leadership is from the U.S. Veterans Administration, requiring wholesale, systemic reform of the entire department's 1457 facilities (US Department of Veterans Affairs, 2014). As the Veterans Affairs Secretary, Eric Shinseki, stated in his resignation, "the breach of integrity is indefensible and unacceptable to me" (Zezima, 2014, p. 1). The failure of leadership in this instance resulted in one-third, or 238,657 of 847,000 veterans with pending applications for VA health care, dying before receiving services, and 125,000 denied mental health services (Grim & Bendery, 2015).

In addition to the crises, a major recent scandal also erupted, exposing unethical practices of the leadership of Wells Fargo Bank. In this instance, it was alleged that more than 2 million bank accounts or credit cards were opened or applied for without customers' knowledge or permission, and some 5300 employees were terminated (Blake, 2016), with the ultimate resignation of the President/CEO. Relatively, recent high-profile cases of leadership failures include Ken Lay of Enron, Dennis Kozlowski of Tyco, and the Bernie Madoff Ponzi scheme. Other recent examples include the French Fédération Internationale de Football Association (FIFA) leadership crisis and lack of leadership at the Olympic Games in Brazil, and the unethical behavior of former Volkswagen CEO Martin Winterkorn (Gandolfi & Stone, 2016). With this view of the importance of leadership and the events of leadership failure in large corporations, attention has been turned to a focus on modern-day leadership theories, styles, and behaviors. The future leadership of businesses will play a central role in modern industrialized and industrializing of societies. Because regulations, codes of conduct, and audits have failed to curb the wrongdoing of contemporary leaders, stakeholders and communities have turned their attention to leader virtues.

Scholars have examined leadership ethics, virtues, trust, and morality. These attributes had not been readily in research studies but were examined in academic papers. The leadership literature on virtues had been treated as disposition/character traits, personal emotions, personality, capabilities/competencies/skills, or personal values. Many of these

characteristics are emphasized in the definition of one of the new genres of leadership called servant leadership (SL). The demand for more ethical, people-centered leadership inspired by ideas from the SL theory may be what organizations need. A productive free market system requires trust or investors will not be inclined to invest. Without trust, customers may not trust products, and employees may not give their all to the work of the business. Therefore, leadership for the future calls for leaders who are visionary, trustworthy, innovative, and creative.

Future Leadership and Globalization

Globalization is defined as "the increasing mobility of goods, labor, and capital; the increasing interconnectedness of political, economic, and financial systems; and the radical empowerment of groups and individuals through technology" (Rodin, 2012, p. 33). Quietly, and deftly, assisted by the evolution of the Internet, globalization has perpetuated an open source governance and commitment to open politics (greater transparency, participation, and collaboration) referred to as e-government, e-democracy, and wiki government, also associated with movements of digital government and open government data. One of the most widely accepted leadership definitions of the twenty-first century views leadership as "the ability of an individual to influence, motivate and enable others to contribute towards the effectiveness and success of organizations of which they are members" (Dickson, Castana, Magomaeva, & Den Hartog, 2012). Globalization calls for leaders who are charismatic, participative, and independent, with expectations positively related to cultural values of performance orientation, gender and human equality, and negatively related to power distance (Dorfman, Javidan, Hanges, Dastmalchian, & House, 2012). The Global Leadership and Organizational Behavior Effectiveness (GLOBE) project demonstrated that culture influences leadership behaviors through expectations of the societies (Validova & Pulaj, 2016). These definitions reinforce our need for a paradigm shift in future leadership.

Global leadership also calls for a major shift away from our traditional hierarchical leadership styles. The new emphasis is placed on openness as a basis for world order, described as liberal internationalism, a reconceptualization of racial or ethnic dimensions of exploitation in the capitalist world system, and a shift to the modern conditions of the intercompany

and interbranch scientific and industrial cooperation, consolidation, and integration. Because of the major shifts in the competitive environment such as globalization, growth in technology, and the upheaval in the finance/banking industries, new strategic imperatives have emerged, increasing recognition that organizations may have to adopt a more entrepreneurial culture. Entrepreneurial orientation is made up of five factors: autonomy, innovativeness, pro-activeness, competitive aggressiveness, and risk-taking, all of which must be supported by an organization's leaders, culture, and structure. Entrepreneurial leaders want independent followers who can think for themselves, which falls within the shift to the characteristics of employee empowerment.

The Paradigm Shift for Future Leadership

A major shift in focus on leadership was chronicled by authors through the decades rather than through scholarly research. There are unconventional models of leadership such as authentic, new genre, SL, cross-cultural, and E-leadership. Collins (2001) described the highest level of leadership as a Level 5 leader, who is a servant leader. Greenleaf (2002) first coined the term servant leader in 1970:

> The Servant-Leader is a servant first … It begins with the natural feeling that one wants to serve, to serve first. Then conscious choice brings one to aspire to lead.
>
> … The best test, and difficult to administer is this: Do those served grow as persons? Do they, while being served, become healthier, wiser, freer, more autonomous, and more likely themselves to become servants? And, what is the effect on the least privileged in society? Will they benefit, or at least not further be harmed? (p. 7)

Some authors saw the need for a paradigm shift from the accelerating changes faced by organizations, such as intensifying competition, rapid commoditization, and the shift in bargaining power from producer to consumer. Whenever an analysis of a system changes the perception of leadership, then a paradigm shift occurs, leading ultimately to a rejection of the traditional bureaucratic approach. Enlightened and flexible leadership techniques are slowly being embraced, leading to shared leadership so that employees can engage in the planning and decision-making process.

In addition to these approaches to a paradigm shift in leadership, the advent and emergence of an emphasis on sustainability leadership have also contributed to the paradigm shift. It appears that the emphasis on sustainability occurred due to the shifts in economic and organizational theory caused by new insights from fields such as social neuroscience, and mega-trends in the macroeconomic and business context, particularly the mega-trend of sustainability. The mega-trend of sustainability also introduced the concept of social entrepreneurship, which allows for all blended value propositions, from profit-making plus social value creation to social value models, where capital requirements are funded through non-earned income strategies. Some embedded social enterprise examples are Grameen Bank, Google, and Medtronics and, as blended value models, are indicative of a paradigm shift in business.

For example, Grameen Bank was founded in 1976 by Professor Muhamman Yunus, Head of the Rural Economics Program at the University of Chittagong, who launched an action research project to examine the possibility of designing a credit delivery system to provide banking services targeted at the rural poor. Grameen Bank came into operation with the following objectives:

- Extend banking facilities to poor men and women;
- Eliminate the exploitation of the poor by money lenders;
- Create opportunities for self-employment for the vast multitude of unemployed people in rural Bangladesh;
- Bring the disadvantaged, mostly the women from the poorest households, within the fold of an organizational format which they can understand and manage by themselves; and
- Reverse the age-old vicious circle of "low income, low-saving & low investment," into the virtuous circle of "low income, injection of credit, investment, more income, more savings, more investment, more income" (Grameen Bank, 2017).

While SL, in a contextual view, can be seen as part of the natural evolutionary process of leadership change and has been given impetus by events of organizational leadership crises resulting in paradigm shifts in leadership, there are also operational elements internal to today's organizations prompting future leadership change.

Operational Elements Prompting Future Leadership Change

Although many external events had contributed to a search for a change in organizational leadership, concurrently, there were operational elements internal to the organizations which demanded leadership change. A view of some of the most prominent elements is teamwork, information technology (IT) strategy and knowledge management, corporate social responsibility (CSR), economism versus humanism, and corporate entrepreneurship.

Teamwork: The current demand for organizational innovation and collective attention to innovation and productivity for competitive advantage has moved the organization away from the single actor hero to leadership networks where leadership acts as an integrative mechanism. In this sense, future leadership must value teamwork and become skilled in how to share power and knowledge with subordinates. SL is viewed as a strong leadership theory for the building of strong teams because of its emphasis on listening and empowering, creating more effective and innovative teams and greater profitability.

IT strategy and knowledge management: The rapid advances in technology and its use in organizations have perpetuated the increase of knowledge workers within the organizations who require a different kind of leader, one who can remain flexible, adaptable, and innovative, gaining a lasting advantage over their competitors. The ideal for organizations is to be able to attain a high degree of organizational fluidity allowing all members of the organization to experience self-organization in line with the changing environments. Organizations must foster knowledge giving as well as knowledge seeking through sharing of information for continual growth for all within any given organization or social setting. One of the organizational challenges of today is the motivating and empowering of knowledge workers to reach their potential and feel engaged in a greater cause that benefits a wide range of stakeholders. In his article on The Future of Leadership in Learning Organizations, Bass (2000) recognized that followers should be empowered to share in decision making or make their own leader-free decisions. In concert with this view, Murari and Gupta (2012) stated that employee empowerment would lead to improving productivity, performance, and job satisfaction, enabling them to make quick decisions and respond

quickly to any changes in the environment. One of the strong tenets of SL characteristics is the empowerment of others.

Corporate social responsibility (CSR): The growth in demand for attention to organizational CSR came with the understanding that it is in the interest of shareholders to be focused on the needs of all groups of stakeholders. In today's interconnected and rapidly changing global economy, there is considerable need for elevated levels of CSR where executives are constantly looking for new ways to cut costs and increase profits. However, in order for the shift to CSR, for anything to change, someone has to start acting differently. For example, by living out the principles of social responsibility, change and meaning must be tied together, and real change requires that we change the underlying patterns of thought and emotion that created the old structures in the first place. This is where the characteristics of SL surface. The progress in CSR policy improvements should be similar to the Japanese Kaizen concept, continual improvement with many small steps, and improvements producing, over time, continual advancement, and adaptive evolution of the organization. The new business models will replace shareholders with stakeholders as the focus of value maximization, which could empower capitalism to address overwhelming global concerns.

Economism vs humanism: Many organizations have not been able to move from the hierarchical leadership philosophies and continue to remain in an economistic mold, which was built to maximize wealth and profit. Organizations which remain in this mold brush aside new initiatives with humanitarian backbones that prioritize the public good because it goes against traditional management thinking and the school of pure capitalism. The humanistic view of organizations, in contrast, views organizations as a social phenomenon essential for the relational nature of human beings, and that humanistic organizations embrace a balance of qualitatively desirable outcomes. In addition, humanistic structures reduce authority levels in the organization and decision rights are spread throughout the entire organization in a way that utilizes the expertise of all employees and provides them with the opportunity to fulfill their drive to comprehend at work. SL offers an approach that speaks beyond the moment and speaks to the humanity within us all. SL could be seen as one of the humane ways of leadership in organizations with important positive emotional, psychological, and behavioral consequences for organizations. However, the blended value models (described above under paradigm shift) show how the economic system

can be reconnected to its humanistic roots, but a lot of groundwork is needed to restructure economistic institutions.

New Genre Leadership for the Future

As noted previously, transactional, transformational, and SL are among the styles in the new genre group. However, unlike SL theory, transactional leadership and transformational leadership have been investigated in numerous empirical studies (Washington, Sutton, & Sauser, Jr., 2014) since Burns (1978) first introduced the concepts. Leadership can be viewed as a continuum with transformational leadership on one end and transactional leadership on the other end, but they are not regarded as contrasting styles since some leaders might be both transactional and transformational, depending on the needs of the organization in a specific point in time. There is some evidence supporting the assumption that transformational leadership is higher than or goes above and beyond transactional leadership (Graham, Ziegert, & Capitano, 2015; Mandinezhad, Suandi, Silong, & Omar, 2013). Research has also shown that more than 88% of leaders use the transactional type of leadership, but that only less than 12% of them are truly transformational (Shelton, 2012).

Transactional leaders motivate followers based on the leaders' respective wants. These wants are described as rewarding followers based on their performance—contingent rewards; paying attention when things go wrong or standards are not met—management by exception; and having the absence of leadership—laissez-faire leadership. Transactional leaders appear to serve their personal interests such as material benefits, status, and power by requiring followers to demonstrate behaviors compliant with the leaders' expectations, and the control strategies used do not permit follower empowerment, autonomy, and development as afforded by SL. Transformational leadership, on the other hand, currently considered as one of the high-order evolutions in leadership, forms a distinctly separate theoretical framework of leadership from transactional leadership because of the focus on the leader and the concern for getting followers to engage in and support organizational objectives.

While transformational leadership and SL both focus on followers, the overriding focus of SL is on service to followers, giving this primary distinction influence over other characteristics and outcomes, also giving rise to secondary differences between the two concepts. There is growing empirical evidence that confirms the conceptual distinctions of SL from

related leadership theories (Peterson, Gavin, & Lange, 2012). There is an affected variance in organizational commitment, supervisory satisfaction, organizational citizenship behaviors, and procedural justice in SL beyond the variance caused by transformational leadership and leader–member exchange in a study by Ehrhart (2004). SL transcends the boundaries of transformational leadership by simply aligning the motives that drive the leaders with those that drive their disciples, using the core concept of leadership within the team of the first among equals ("primus inter pares").

SL is a distinct form of leadership that is relevant to important work outcomes. While transformational leadership and SL have a few similarities, there are also some major differences, which need to be checked. In addition, among the various concepts of leadership styles, SL is the one that sets out various behavioral and emotional aspects such as taking leadership as an opportunity for valuable service to employees and customers. Organizations must eventually progress to the level of stewardship and servant as leadership ideals. Transformational leadership has been widely successful, but it is incomplete for the challenges facing current leaders and does not prevent abuses of power and allows for the ends to justify the means. SL is emerging as an alternative, with much of the work to synthesize SL concepts and validate this theory with competing concepts, accomplished over the past decade by Van Dierendonck and Nuijten (2011). Latham (2013) in his study on leading the transformation to performance excellence (LTPE) stated that evidence suggests that spiritual leadership supports several areas not addressed by other leadership theories; in particular, the causal model of spiritual leadership includes aspects of a high-performance culture and productivity. It is SL characteristics which contain the spiritual element. Transformational leadership and SL behaviors emerged from the heritage of charismatic leadership theory, but only recently has the concept of SL begun to emerge as an accepted paradigm in the leadership literature. As shown, there was an overlap among these theories (and others), indicating that what is needed is a consilience of knowledge in the leadership field that combines multiple sources of evidence into a more comprehensive and deeper understanding of the leadership phenomenon. It is in the context of the overall view of leadership and leadership change, the evolutionary stages of leadership, the paradigm shift of organizational leadership needs, and the ultimate synthesis of leadership theories that we move to an in-depth review of SL as a possible avenue for a major shift in the leadership paradigm for the next decade and beyond.

Servant Leadership

As noted above, SL theory has both similarities and differences with other leadership theories. Although there was overlap, none of the previous theories incorporated all of the key characteristics of Greenleaf's (2002) SL theory, which places SL in a unique position. Additionally, SL theory was defined as an identified combination of the motivation of a need to serve based on a foundation of characteristics and a motivation to become a leader, emphasizing the importance of follower outcomes in terms of personal growth without necessarily being related to organizational outcomes. The unique definition of SL and its identification as a member of the unconventional group of theories due to lack of empirical research set it apart from other leadership theories. Based on Greenleaf's (2002) definition of SL, it is leadership that focuses on serving the employee, the customer, and the community, with serving them as priority number one. As stated by Greenleaf, servant leaders aspire to serve first, and then, they make a conscious choice to lead. There is still no consensus on a definition and theoretical framework of SL. Humphreys et al. (2014) defined SL as a paradoxical notion of servant leader largely based on the belief that service toward others is an essential element of human nature. Akindele and Afolabi's (2013) summary of Greenleaf's credo stated: "the servant leader serves others, rather than others serving them; serving others comes by helping them to achieve and improve their conditions" (p. 62). In an effort to define SL, numerous authors of academic papers and a few empirical studies in the form of surveys and measurements have addressed the characteristics of SL.

Characteristics of Servant Leadership. SL as a leadership theory is based on the characteristics as first defined by Greenleaf (2002) in his essays on SL first published in the 1970s. These basic characteristics are: love, humility, altruism, vision, trust, empowerment (of others), service, ability, acceptance, compassion, concern for others, courage, dependability, discipline, empathy, honesty, integrity, justice, prudence, self-sacrifice, spirit, tough-mindedness, trustworthiness, and wisdom (Greenleaf, 2002). Additional authors such as Murari and Gupta (2012), Kincaid (2012), and Hackett and Wang (2012) have emphasized certain SL characteristics in various ways with varying emphases. "Barret, president of Southwest Airlines, is an example of the use of SL characteristics to motivate 32,000 employees and kept 96.4 million customers happy" (p. 162), and was described by Kincaid (2012) as growing, inspiring, and supporting others to lead with a servant's heart.

Boone and Makhani (2012) explored the characteristics of SL in terms of five leader attitudes necessary to implement the SL style. The five attitudes were stated as (a) believing that visioning isn't everything, but it's the beginning of everything; (b) listening is hard work requiring a major investment of personal time and effort—and worth every ounce of energy expended; (c) involving being a talent scout and committing to the staff's success; (d) giving away power; and (e) community building. In an effort to explore, define, and if possible, substantiate the characteristics of SL, research surveys and measurements have been developed around SL.

Positive proponents of SL are found throughout the literature in discussions on leadership change, paradigm shifts in leadership, identification of characteristics needed for the twenty-first-century leadership, and research studies on measurement of SL characteristics. Four additional views on positive proponents of SL have been added in the previous four years. Parris and Peachey (2013) completed a study to identify empirical studies that explored SL theory and conducted a systematic literature review (SLR) to synthesize research in a systematic, transparent, and reproducible manner. According to Parris and Peachey, their findings synthesize empirical research on SL theory across the multidisciplinary fields of business, medicine, psychology, religion, leisure, education, economics, and law. The stated conclusion from the Parris and Peachey study was that SL is a viable leadership theory and can perhaps provide the ethical grounding and leadership framework needed to help address the challenges of the twenty-first century. For example, some of the global challenges are technological advancements, economic globalization, increased communications, the Internet, rising terrorism, environmental degradation, war and violence, disease and starvation, the threat of global warming, intensifying gap between the poor and rich worldwide, as well as many other unsolved issues. It is possible that SL may provide organizations a way to improve what they are becoming and producing by building capacity through creating empowerment, enabling or authorizing an individual to think, behave, take action, and control work and decision making in autonomous ways. By using the SL style, the leader brings more autonomy and decision making to employees so that they feel the responsibility to take the business to its height of success, and in turn, it brings competitiveness and the organization flourishes. SL is a model which seeks to involve others in decision making, is strongly based on ethical and caring behavior, and enhances the

personal growth of workers while at the same time improving the caring and quality of organizational life, which are needed in the twenty-first century to sustain human resources capabilities. Van Dierendonck and Patterson (2015), in support of SL, stated that SL will promote high-quality relations and a sense of community by emphasizing strong interpersonal relationships, and a strong bonding within organizations.

Servant Leadership in Organizations of the Future

The focus on the future of leadership has changed to a broader context, including followers, peers, supervisors, work setting, and culture. SL places an emphasis on the personal growth of followers, and it models a style that improves the quality of the organization by involving everyone in the decision-making process and organizational community building. This new era of SL is one in which servant leaders become followers and followers become servant leaders, and everyone, from time to time, may be in both roles. This era also brings a new approach to leadership in the areas of economic ends, profits enabling organizations to continue to serve the good of society; environmental and social ends, conducting business for the good of all, and the global community. Please see Appendix, The Leadership Environment.

After extensive study of Greenleaf (2002), Sipe and Frick (2009) introduced the seven pillars of servant leadership. The seven pillars are:

I. Person of Character: Makes insightful, ethical, and principle-centered decisions.
II. Puts People First: Helps others meet their highest priority development needs.
III. Skilled Communicator: Listens earnestly and speaks effectively.
IV. Compassionate Collaborator: Strengthens relationships, supports diversity, and creates a sense of belonging.
V. Has Foresight: Imagines possibilities, anticipates the future, and proceeds with clarity of purpose.
VI. Systems Thinker: Thinks and acts strategically, leads change effectively, and balances the whole with the sum of its parts.
VII. Leads with Moral Authority: Worthy of respect, inspires trust and confidence, and establishes quality standards for performance.

In the Sipe & Frick book of the same title, three examples of servant-led companies in their study were mentioned: Southwest Airlines, The Container Store, and Starbucks. Additional companies that have been listed as servant-led companies by Glashagel (2009) are TDIndustries, DuBrook Concrete, First Fruits, SBLI USA Mutual Life Insurance, Festival Foods, Johnsonville Sausage, The Toro Company, and PPC Partners. For those interested in the practice of SL in the work environment, these companies serve as a starting point for exploration.

Operationalizing the Leadership Paradigm Shift

In order for a paradigm shift to occur, we must begin with the analysis of the basic concept of leadership and change from the traditional individual heroic hierarchical concept to the new worldview of leadership as a process by which leaders and followers develop a relationship and work together toward goals within an environmental context shaped by cultural values and norms. Beginning with this basic mind-set of leadership, individual attention and focus must turn to leadership to develop one's self, leadership to develop others, and leadership for the greater good. The actual practice of this view falls definitively within the characteristics identified above as SL. From this foundation then, SL must be applied to the areas of ethics and the moral environment, collective action in the age of networks, and overall CSR in order to orchestrate a leadership paradigm shift. Recognizing the definition of paradigm, in the context of leadership, as a worldview underlying the theories and methodology of traditional leadership, a shift in that paradigm demands strong focus in the following three areas.

Ethics and Moral Environment

Given the current rapid-paced environment and the examples of unethical behaviors leading to a demoralized environment in our business, government, non-profit, and even religious organizations, the first and most important element for a paradigm shift is in the areas of building an ethical and moral environment within our organizations. The basic characteristics of SL serve to operationalize the process of change in ethics and the moral environment of our many organizations. When SL was first introduced through the work of Greenleaf (2002), it brought a moral dimension to the leadership field, which for many years had

been somehow subordinated to behavioral and contingency types of approaches. This process begins with the main purpose of SL which is to serve, empower, and challenge followers to become leaders. Ethical leadership is defined as "the demonstration of normatively appropriate conduct through personal actions and interpersonal relationships, and the promotion of such conduct to followers through two-way communication, reinforcement, and decision-making" (Brown, Trevino, & Harrison, 2005). Ethical leadership fosters ethical behaviors. Ethical behaviors motivate employees to engage in moral voice behaviors about ethical issues. Moral voice leads to moral efficacy, which leads to moral decisions and actions, and ultimately a moral environment and culture. SL is imbued with this essence of ethics and moral value. When there is value congruence between leaders and followers, the translation process of ethical leadership into employee moral behaviors will be streamlined and accelerated within the organization. The congruence of ethics and moral value between servant leaders and followers establishes an ethical organization culture.

It is common knowledge that organizational culture is a key to innovation success. However, prior research highlights organizational values of trust and empowerment, tolerance of error, organizational learning, open communication, participative decision making, and cooperation as determinants of organizational innovativeness, all tenets of SL. The congruence of personal and organizational values can lead to the willingness in individuals to trust the organization and its members which enhances cooperative behaviors and development of communities of practice, essential for the capability to innovate and maintain success. The second most important element in the leadership paradigm shift is the complexity generated by the digital age.

Collective Action in the Age of Networks

Without a doubt, we are in the Age of Networks, and although many think of this age narrowly as meaning only the technological or digital age, this age initially began when we moved from the individualistic heroic (autocratic) leader and stand-alone worker to emphasis and focus on teamwork, shared knowledge, and shared leadership. The Age of Networks demands a leader who is a facilitator of connectivity rather than a keeper of increasingly distilled expertise within specialized hierarchies on traditional organization charts. Utilizing the seven pillars of

servant leadership: person of character, puts people first, skilled communicator, the compassionate collaborator, has foresight, systems thinker, and leads with moral authority as tools, SL will serve as the driver of one of the most exciting social, cultural, and political transformers for change in history with effects that are fully global. Beginning with a focus on teamwork, the servant leader will share knowledge and power with subordinates due to the emphasis on listening and empowering others, creating more effective and innovative teams, necessary for the creation of the connectivity utilized in the Age of Networks. The digital age is characterized by multiple heterogeneous networks and producers of multimedia and multimodal technologies and must begin with a foundation of teamwork, connectivity, and innovation to move the organization as a whole through a paradigm shift for the next decade and beyond.

Corporate Social Responsibility (CSR)

The SL style recognizes that organizational outcomes are the product of the collective work performed by multiple heterogeneous networks of teams throughout the organization. This ultimate network must be guided by a leader whose focus is on (1) servicing to others, (2) adopting a holistic approach to work, (3) promoting a sense of community, and (4) sharing power in decision making. CSR encompasses positive outcomes ranging from financial performance, positive reputation, talent attraction, and consumer brand loyalty to organizational commitment, employee engagement, and job satisfaction. CSR can also be defined as the TBL outcomes of the economy, environment, and social change. In order for a paradigm shift to occur, someone has to start acting differently and this leads to the advent of SL. For example, by living out the principles of social responsibility, change and meaning must be tied together, and real change requires that we change the underlying patterns of thought and emotion that created the old structures in the first place. This is where the characteristics of SL surface as change agents.

As a change agent, SL may be summarized into three categories of leadership competencies: (1) Conceptual/strategic/visionary competencies include the capacity to understand the systemic functioning of the organization and its external environment in holistic terms and then define and communicate a vision that mobilizes people's efforts to pursue that vision; (2) social/interpersonal competencies which include the ability to work with and through others; and (3) the self-leadership

competencies which include the processes of self-influence and self-control that facilitate self-direction and self-motivation, thereby making the leader more prepared to lead by example and encourage other people. As previously noted, the seven pillars of servant leadership are in direct alignment with these competencies for a paradigm shift in CSR.

SL will continue to increase in relevance. The need to produce more for less, and with greater speed than we've ever done before, is the norm. The only way to do that in a sustained way is through the empowerment of people. The only way you get empowerment is through high-trust cultures and an empowerment philosophy in which bosses become servants and coaches, and structures and systems are turned into nurturing institutionalized servant processes. It will only be those organizations that align their structures, systems, and management style to support the empowerment of their people that will survive and thrive as market leaders. There is no formula or standardized SL currently in existence. Each company is operationally different, yet recognized as examples of companies with fantastic cultures. While the leadership and culture that works for one company, it may not work for another. Four examples of companies which are recognized as financially stable and culturally different are General Electric, UPS, Google, and Southwest Airlines.

General Electric puts experts, such as engineers, scientists, and salespeople, at the helm who really understand the business itself, and they must spend at least five years within a particular department of the business. UPS's approach to leadership is to provide well-rounded training for its mid-level supervisors, the people who are on the front lines of the business for effective leadership development. Google focuses on innovation and allows employees to devote up to 10% of their time to pursue their own ideas. This means that a person's title may not be as important as his or her contribution to the company's projects. Southwest Airlines communicates its goal and vision to employees in a way that makes them a part of a unified team and gives them permission to go that extra mile to make customers happy, empowering them to do what they need to do to meet that vision. Many of these companies offer perks which are out of the ordinary such as free meals, financial bonuses, gyms, a dog-friendly environment, and so on. The most significant attribute of these companies is how employees are empowered, treated, and what level of ownership and trust they are given. Of note also is the abandonment of the attention to a top hero and the equalizing of recognition among all staff.

Conclusion

The need for radical future leadership change is now thrusting SL to the forefront of change and an opportunity for a paradigm shift. The need for a focus on humanism in leadership, CSR in communities to expand rapidly to meet the challenge of shaping an inclusive and sustainable global society, and the need for comparable measurable organization outcomes of economy, environment, and social change are needed for a major paradigm shift in our leadership. SL has risen as a plausible tool to meet these leadership needs in operationalizing the paradigm shift to ethics and morality, connectivity in the Age of Networks, and overall CSR. The time is now to embrace the use of SL to aid in a major paradigm shift in organization leadership. The leader of the future will need to support and not exploit his or her followers, and facilitate their development and decision making in a way that promotes the common good. If not here, WHERE? If not now, WHEN? Ethical scholarly views demand answers that are in alignment with curtailing current leadership crises and scandals. Our global society calls for future leaders who will orchestrate a paradigm shift that will facilitate a sustainable society that is humanistic and responsible, leading future global generations for the common good. Why not embrace SL?

Appendix

Leadership Environment

References

Akindele, S. T., & Afolabi, Y. A. (2013). Leadership and its place in organizations: A theoretical synthetic analysis (Note I). *Public Administration Research, 2*(1), 33–45. https://doi.org/10.1177/0892020614567246.

Banking Collapse of 2008. (2008, December 28). Retrieved from https://www.theguardian.com/business/2008/dec/28/markets-credit-crunch-banking-2008.

Barling, J. (2014). *The science of leadership: Lessons from research for organizational leaders.* New York, NY: Oxford University.

Bass, B. M. (2000). The future of leadership in learning organizations. *Journal of Leadership & Organizational Studies, 7*(3), 18–40. https://doi.org/10.1177/107179190000700302.

Blake, P. (2016, November 3). *Timeline of the Wells Fargo accounts scandal—ABC News.* Retrieved from http://abcnews.go.com/Business/timeline-wells-fargo-accounts-scanda.

Boone, L. W., & Makhani, S. (2012). Five necessary attitudes of a servant leader. *Review of Business, 33*(1), 83–96. Retrieved from https://www.questia.com/library/p1024/review-of-business.

Brown, M. E., Trevino, L. K., & Harrison, D. A. (2005). Ethical leadership: A social learning perspective for construct development and testing. *Organizational Behavior and Human Decision Processes, 97*, 117–134.

Burns, J. M. (1978). *Leadership.* New York, NY: Harper and Row.

Collins, J. (2001). *Good to greatness.* New York: HarperCollins Publishers Inc.

Dickson, M. W., Castana, N., Magomaeva, A., & Den Hartog, D. N. (2012). Conceptualizing leadership across cultures. *Journal of World Business, 47*, 483–492.

Dorfman, P., Javidan, M., Hanges, P., Dastmalchian, A., & House, R. (2012). A twenty year journey into the intriguing world of culture and leadership. *Journal of World Business, 47*, 504–518.

Ehrhart, M. G. (2004). Leadership and procedural justice climate as antecedents of unit level organizational citizenship behaviors. *Personnel Psychology, 57*(1), 61–94. https://doi.org/10.1111/j.1744-6570.2004.tb02484.x.

Gandolfi, F., & Stone, S. (2016). Clarifying leadership: High-impact leaders in a time of leadership crisis. *Review of International Comparative Management, 17*(3), 212–224.

Glashagel, J. (2009). *Servant-institutions in business*. Westfield, IN: The Greenleaf Center for Servant Leadership.

Graham, K. A., Ziegert, J. C., & Capitano, J. (2015). The effect of leadership style, framing, and promotion regulatory focus on unethical pro-organizational behavior. *Journal of Business Ethics, 126*, 423–436. https://doi.org/10.1007/s10551-013-1952-3.

Grameen Bank. (2017). *History of Grameen Bank*. Retrieved from http://grameenresearch.org/history-of-grameen-bank/.

Greenleaf, R. K. (2002). *Servant leadership: A journey into the nature of legitimate power & greatness*. Mahwah, NJ: Paulist.

Grim, R., & Bendery, J. (2015, July 13). *Leaked document: Nearly one-third of 847,000 vets with pending applications for VA health care already died*. Retrieved from http://www.huffingtonpost.com/2015/07/13/veterans-health-care-back.

Hackett, R. D., & Wang, G. (2012). Virtues and leadership: An integrating conceptual framework founded in Aristotelian and Confucian perspectives on virtues. *Management Decision, 50*(5), 868–899. https://doi.org/10.1108/00251741211227564.

Humphreys, J. H., Williams, W. A., Jr., Haden, S. P., Hayek, M., Pryor, M. G., & Randolph-Seng, B. (2014). Servant leadership: Approaching the paradox from the life-stories of Ping Fu. *The Journal of Applied Management and Entrepreneurship, 19*(4), 43–60. Retrieved from http://greenleaf-journals.com/index.php/jame.

Jost, P. J. (2013). An economic theory of leadership styles. *Review Management Science, 7*, 365–399. https://doi.org/10.1007/s11846-012-0081-1.

Kincaid, M. (2012). Building corporate social responsibility through servant-leadership. *International Journal of Leadership Studies, 7*(2), 151–171. Retrieved from http://www.regent.edu/acad/global/publications/ijls/new/home.htm.

Latham, J. R. (2013). A framework for leading the transformation to performance excellence part II: CEO perspectives on leadership behaviors, individual leader characteristics, and organizational culture. *Quality Management Journal, 20*(3), 22–35. Retrieved from http://asq.org/pub/qmj/.

Mandinezhad, M., Suandi, T. B., Silong, A. D. B., & Omar, Z. B. (2013). Transformational, transactional leadership styles and job performance of academic leaders. *International Education Studies, 6*(11), 29–34. Retrieved from http://research.proquest.com.ezp.waldenlibrary.org/pqcentral/printview.

Murari, K., & Gupta, K. S. (2012). Impact of servant leadership on employee empowerment. *Journal of Strategic Human Resources Management, 1*(1), 28–37. Retrieved from http://www.manuscript.publishingindia.com/index.php/JSHRM.

Parris, D. L., & Peachey, J. W. (2013). A systematic literature review of servant leadership theory in organizational contexts. *Journal of Business Ethics, 113*, 377–393. Retrieved from http://www.springer.com/social+sciences/applied+ethics/journal/10551.

Peterson, S. J., Galvin, B. M., & Lange, D. (2012). CEO servant leadership: Exploring executive characteristics and firm performance. *Personnel Psychology, 65*, 565–596. https://doi.org/10.1111/j.1744-6570.2012.01253.x.

Rodin, D. (2012). Towards a global ethic. *Ethics and International Affairs, 26*(1), 33–42. *National Civic Review*. Issue: Beyond the digital divide: How new technologies can amplify civic engagement and community participation, *100*(3), 19–23.

Shelton, E. J. (2012). *Transformational leadership: Trust, motivation and engagement*. Bloomington, IN: Trafford.

Sipe, J. W., & Frick, D. M. (2009). *The seven pillars of servant leadership: Practicing the wisdom of leading by serving*. New York, NY: Paulist.

US Department of Veterans Affairs. (2014). Department of veteran's affairs statistics at a glance. National Center for Veterans Analysis and Statistics. Retrieved from http://va.gov.

Validova, A. F., & Pulaj, E. (2016). Leadership styles in transitional economies. *Academy of Strategic Management Journal, 15*, 1–7.

Van Dierendonck, D., & Nuijten, I. (2011). The servant leadership survey: Development and validation of a multidimensional measure. *Journal of Business Psychology, 26*, 249–267. https://doi.org/10.1007/s10869-010-9194-1.

Van Dierendonck, D., & Patterson, K. (2015). Compassionate love as a cornerstone of servant leadership: An integration of previous theorizing and research. *Journal of Business Ethics, 128*, 119–131. https://doi.org/10.1007/s10551-014-2085-z.

Washington, R. R., Sutton, C. D., & Sauser, W., Jr. (2014). How distinct is servant leadership theory? Empirical comparisons with competing theories. *Journal of Leadership, Accountability & Ethics, 11*(1), 11–25. Retrieved from http://www.na-businesspress.com/jlaeopen.html.

Wells Fargo Bank Scandal. (2016, October). *Timeline of the Wells Fargo accounts scandal*. Retrieved from http://abcnews.go.com/Business/timeline-wells-fargo-accounts-scanda.

Zezima, K. (2014, May 30). Everything you need to know about the VA—And the scandals engulfing it. *The Washington Post*. Retrieved from https://www.washingtonpost.com/news-thefix/wp/2014/05/21/a-guide.

Author Biography

Dr. Lydia M. Daniels, Ph.D., is currently President and CEO, Daniels Consultation Services, Antioch, CA; Senior Adjunct Professor, Golden Gate University, San Francisco, CA, Ageno School of Business, Management and Human Resources Management; and former Adjunct Professor, Dominican University of California, San Rafael, CA, Barowsky School of Business. Lydia has provided consultation and project management services for a variety of healthcare organizations for over a twenty-five-year period. She has held top-level positions such as Chief Human Resources Officer for a 3000-employee healthcare system and demonstrated expertise in development and implementation of major HR systems, organizational transition projects, and union contract negotiations and implementation. She teaches graduate courses in HR management, performance management, and organizational behavior, in both cyber and classroom. She holds an MS in human resources management and Ph.D. in management/leadership and organization change.

CHAPTER 3

Leadership in Indian High-tech Start-ups: Lessons for Future

Deepal Joshi and Sarla Achuthan

High-tech Start-ups: Across the Globe, in India, and Comparison

Technology-based 'Start-ups' in India is the new buzz word among corporates, entrepreneurs, and government mechanisms. Opening leading English daily over a cup of tea in the morning, one comes across several start-up stories. A few such headlines are provided in Appendix A for the reader's perusal.

The five news items mentioned in Appendix A point to a significant issue—Leadership is one of the most important ingredients of a successful high-tech start-up in the Indian context. To delve into this matter, the beginning is definition of start-ups in high-tech sector. According to Luger and Koo (2005), a high-tech start-up is an organization which is new, active, and independent, has paid employees, engages in processes of technological evolution and innovation, and is financed by venture capital. High-tech

Deepal Joshi (✉)
SomLalit Institute of Business Administration, Gujarat University, Ahmedabad, Gujarat, India

Sarla Achuthan
Gujarat Law Society (GLS) Centre for Research & Development, GLS University, Ahmedabad, Gujarat, India

B. S. Thakkar (ed.), *The Future of Leadership*,
https://doi.org/10.1007/978-3-319-73870-3_3

start-ups have contributed to innovation, job-creation, and economic development in most of the developed economies, especially in the USA. According to Blank and Dorf (2012), 'A start-up is a temporary organization in search of a scalable, repeatable, profitable business model.' It could be financed by venture capital, founders' own fund, factoring, or crowdfunding.

Piscione (2013) mentions the characteristics of a healthy start-up ecosystem in her book 'Secrets of Silicon Valley.' This includes the presence of a world-class university, the right mix of talented and experienced entrepreneurs, investors and academicians, healthy work culture with casual offices and non-hierarchical communication, people from many parts of the world, acceptance of risk and failure as a part of the entrepreneurial journey, passionate entrepreneurs ready to make a difference to the universe, a well-established patent industry, all ideas considered welcome, the cycle of venture capital industry where successful entrepreneurs take their exit earnings to invest in new start-ups, among others.

For India, there is a realization that 'to sustain rapid growth and alleviate poverty, India needs to aggressively harness its innovative potential, relying on innovation-led, rapid, and inclusive growth to achieve economic and social transformation' (Baporikar, 2015, p. 32). According to Aditya Mishra, founder of Headstart, that manages events and seminars all over India to assist in building the start-up ecosystem since 2006–2007, there are several positives for start-ups in India. The improved quality of start-ups, entrepreneurs with more real-world experience that makes them more viable, and media focus on the start-up scene that spotlights entrepreneurship as a career are a few to name.

A study conducted by ASSOCHAM in association with Thought Arbitrage Research Institute reveals that India ranks third in the technology-based start-ups in the world, with the USA and UK occupying the top two ranks, respectively. The report mentioned that the number of high-tech start-ups in India was around 4200 in 2015. The USA has more than 47,000, and the UK has over 4500 technology-based start-ups. In the total number of start-ups which consists of both tech and non-tech areas, India was among the five largest hosts, along with China, numbering 10,000 start-ups. In the total number of start-ups (including tech and non-tech), the USA has this number hovering at approximately 83,000. IT hub Bengaluru boasts of the largest high-tech start-ups, followed by Delhi NCR and Mumbai, respectively. The 'catching up' category includes Hyderabad, Chennai, and Pune (PTI, 2016).

However, the picture of start-ups is not as rosy as it appears to be. All over the world, high-tech start-ups have suffered a high failure rate. Only those start-ups that have been able to overcome the initial challenges of financing and scalability have been successful (Bala Subrahmanya, 2015). Balodi and Prabhu (2014) suggest that only about 60% of start-ups survive for up to three years and more than 90% of start-ups fail to achieve the targeted return on investment. This makes for the young high-technology firms an interesting and complex study phenomenon. In this light, success of a start-up can be defined as going for Initial Public Offering (IPO) or getting acquired for profit. Failure of a start-up can be defined as discontinuance of organization, suspension of operations for any reason, and business liquidation to avoid further losses (Hourd & Williams, 2008).

Start-ups fail as much due to lack of entrepreneurial skills and managerial incompetency for project planning and execution as intense competition, rapidly developing technology, uncertainty, faulty time to market, funding, etc., among others. Balodi and Prabhu (2014) mention 'Entrepreneurial Orientation' (EO) as one of the key factors responsible for success of high-tech start-ups in a comparative UK and India-based study. EO is defined as 'the processes, practices, and decision-making activities towards new entry' (Lumpkin & Dess, 1996, p. 136), which includes risk-taking, innovativeness, and proactiveness as dimensions. Start-ups may be relatively low on assets and/or resources but can definitely compensate by using leader's capabilities and entrepreneurial orientation.

As mentioned earlier, India is becoming significant on the global high-tech start-up scenario. Start-ups and innovation centers prioritizing on Big Data, the Internet of Things, Social Media, Mobile, Robotics, Augmented Reality, and 3D Printing are growing worldwide. As high-tech start-ups gain ground all over the world, Asia now rivals Silicon Valley as New Home to Global Innovation. Figure 3.1 shows that the top three cities in Asia—Singapore, Bengaluru, and Tokyo—together added more innovation centers (9) between March and October 2016 than the Silicon Valley (7).

Figure 3.2 suggests that Asia attracted the newest innovation centers and start-ups and grew the fastest across all geographies between March and October 2016. The availability of talent for this in countries like India and Israel, interest shown by China in artificial intelligence, Indian

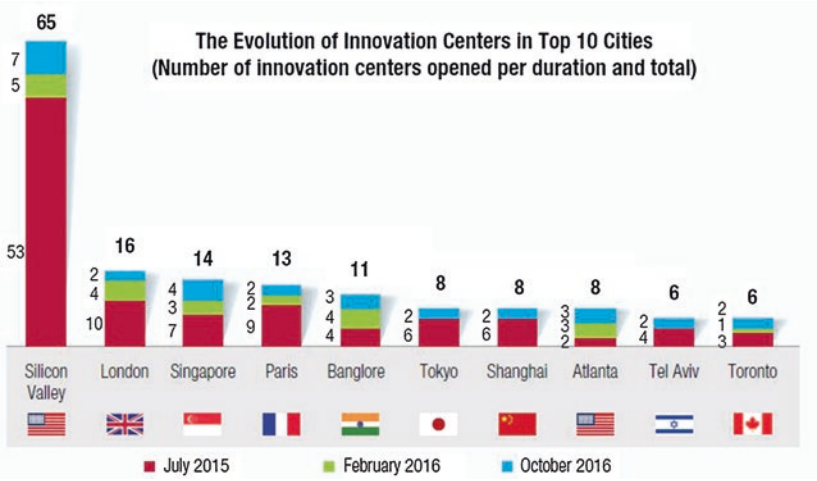


Fig. 3.1 Evolution of innovation centers in top 10 cities across the globe (*Source* Capgemini Consulting, Fahrenheit 212 and Altimeter Analysis, 2016)

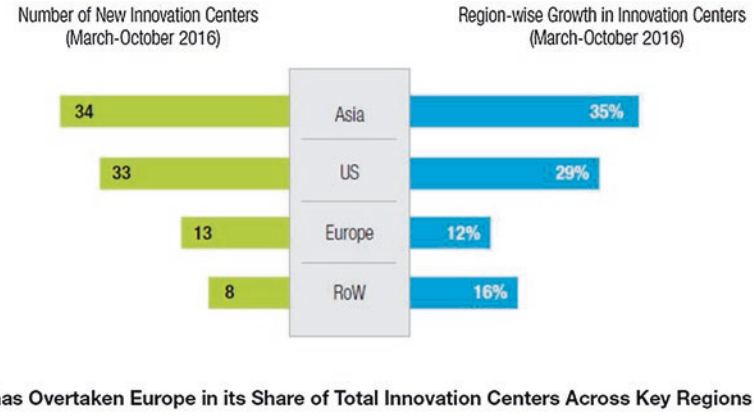


Fig. 3.2 Asia attracted the newest innovation centers and grew the fastest across all geographies (*Source* Capgemini Consulting, Fahrenheit 212 and Altimeter Analysis, 2016. RoW refers to 'Rest of the World')

government's measures for digital push, non-Asian companies investing in Asian innovation, and slowing down of acceleration in Europe are some of the factors responsible for this shift. As Asian innovation centers and start-ups gain grounds, Indian cities such as Bengaluru, Mumbai, Delhi, and Hyderabad need a special mention as upcoming innovation centers.

As India paces fast to embrace innovative technology-related businesses, one cannot undermine the significance of leadership as one of the core elements in the sustainability of high-tech start-ups. The recent controversy at Infosys, the poster boy of Indian IT sector, points to the significance of leadership and conflicts between leaders and founders at high-tech companies. In February 2014, the appointment of Vishal Sikka, the first non-founder CEO of Infosys, signaled the end of corporate equivalent of 'Divine Right Theory' at Infosys after its four founders remained at helm of affairs for 30 long years. By the end of 2016, operating profits at Infosys had jumped by 37% and stock price by 29%. However, Infosys founders, lead by Narayan Murthy, raised six points of conflict against CEO Vishal Sikka which included his use of charter planes, founder loyalists at Infosys questioning the Vishal Sikka's management style, appointment of politically influential people on the board, 55% proposed raise in the new CEO's compensation, Infosys' acquisition of Panaya Ltd. for $200 million, handsome severance pays to CFO, among others (Sukumar, 2017). Though the dust settled after several weeks of controversy, due to the appointment of Cyril Amarchand Mangaldas law firm to serve as a bridge between the founder-promoters and the board as well as the appointment of Ravi Venkateshan as co-chairman, 'the Mexican stand-off' resurfaced due to complete lack of communication between the founder-promoters on one side and the Infosys board and CEO Vishal Sikka on the other side. August 2017 saw the abrupt resignation of Vishal Sikka as Infosys CEO followed by free fall of share prices at Infosys by a steep 12% due to investor panic and later, the appointment of cofounder Nandan Nilekani as the new non-executive chairman of the beleaguered IT company. This case raises a significant leadership issue in high-tech businesses: founders versus leaders. Before addressing any such leadership issues, it is essential to get a basic idea about the situation of Indian high-tech start-ups.

Recent Findings from Study of Indian High-tech Start-up Founders and Investors

Chanchani and Shrivastava (2016) report the findings of a survey for Indian high-tech start-ups. The respondents of the survey comprised of 120 founders and investors in Indian high-tech start-ups. The founders belong to start-ups worth at least $100 million, serial entrepreneurs, and managing directors of venture capital firms. The six important analyses from the 'India Start-up Ecosystem Barometer Survey' are mentioned in Table 3.1. This analysis suggests a mixed bag for Indian high-tech start-ups, at least in the near future. As Table 3.1 suggests, Indian high-tech start-ups face several challenges. Start-up founders face the uphill task of leading their start-ups through the process of idea generation, making the business model viable, gaining customer traction, building and retaining a strong team, and finally creating a successful business. These challenges are addressed in the next section.

Table 3.1 Key highlights from India Start-up Ecosystem Barometer Survey, 2016

Ques. No.	*Question*	*Survey results*	*Authors' interpretation*
1	How conducive is the current environment to be a start-up entrepreneur in India?	• 55%—could not be a better time than this • 22%—environment does not make any difference • 21%—average • 2%—like hell	• 2016 has not been a dream year for high-tech start-ups • Slowdown gives a window for regrouping and differentiation between 'just like that' and 'serious' entrepreneurs • Infrastructure and government policies are biggest bottlenecks
2	How long will it take for investor sentiment to pick up around Indian high-tech start-ups?	• 15%—six months • 41%—six to twelve months • 33%—more than a year • 11%—never (2014–2015 was an anomaly)	• Flipkart and Snapdeal came on the global map overnight in 2015 • For turnaround to happen either a mega exit should be there, proving an opportunity for rich returns or a mega funding in one of the unicorns

(continued)

Table 3.1 (continued)

Ques. No.	*Question*	*Survey results*	*Authors' interpretation*
3	What is the biggest concern among limited partners about India?	• 78%—lack of exits as compared to mature markets such as China and USA	• As compared to entry, exit of funds was one-tenth in 2014 and 2015 • Over valuation in comparison with revenue, making exit more difficult • Limited size of domestic consumer market that may not absorb all the supply • Lack of managerial and executive capabilities to scale up
4	Who is primarily responsible for the lack of profitable business models in the Indian Internet/technology space?	• 6%—founders • 22%—investors • 11%—market conditions • 61%—all of the above factors	• Most of the well-funded high-tech start-ups in India in last 10 years have not registered profits • Maturity and depth of the start-up ecosystem are a challenge • Even in the most developed ecosystems, start-ups have taken several years to register profits
5	Of the nine Indian unicorns, how many will go for an IPO by 2020?	• 0%—more than six unicorns will go for IPOs • 78%—1–3 unicorns • 15%—4–6 unicorns • 7% —none of the unicorns	• Many of these unicorns may be acquired by companies that will eventually go public • Smaller firms may also go public in the long run, but the future of high-tech start-ups depends on the possibility of unicorns going public
6	Who will be the market leader in the cab aggregation and online retail categories in the next two years?	• 86%—Amazon against Flipkart in online retail • 61%—Uber against Ola in cab aggregation	• Success of Flipkart and Ola is extremely significant for driving investor segment in Indian high-tech start-ups • Reasons for forecasting success of US giants Amazon and Uber in India are their having spent years flawlessly executing ideas in their segments and their being cash-rich due to profits from USA

(*Source* Authors' interpretation based on Chanchani and Srivastava (2016))

Indian High-tech Start-ups and Leadership: Some Road Blocks

Three most important challenges for start-up founders include developing a vision, achieving optimal persistence, and executing through chaos (Freeman & Siegfried, 2015).

First, start-up founder's vision must successfully address two basic questions:

a. Why should potential stakeholders choose the start-up over existing alternatives?
b. What is the start-up's purpose?

Second, the optimal level of persistence depends on the situation, especially the type of resistance faced by the entrepreneurial leader. If the resistance is technical in nature, but there is an eager market, then persistence is likely to pay off. If the resistance comes from third parties like venture capitalists, but the leader can find a market of eager customers and a viable business model, then too persistence is likely to pay off. However, if resistance comes from the market itself or from the fact that the economics of the business model simply do not work, then persistence will lead to failure. Thus, the challenge for the leader is to know when to remain resolute and when to acquiesce by pivoting. Third, the start-up premises are chaotic as everything is new, responsibilities are not clear, processes are created on an as-needed basis, and resources and manpower are lean. Therefore, the leader has to constantly prioritize, reprioritize, and reflect on outcomes of what's being done and what needs to be done. Watkins (2004) summarizes the challenges and opportunities for start-ups, as shown in Table 3.2.

Types of Start-up Founders or Leaders

Gundecha (2016) mentions that 2015 was a year of romance between India and high-tech start-ups. It attracted all types of 'startup-struck' people to the 'startup wonderland.' As all love stories don't have a happy ending, 2016 has been a year of bloodbath for start-ups in India. Table 3.3 shows start-up entrepreneurs classified into five distinct categories.

Table 3.2 Challenges and opportunities for start-ups

Challenges	*Opportunities*
• Building structures and systems from scratch without a clear framework of boundaries • Welding together a cohesive high-performing team • Making do with limited resources	• You can do things right from the beginning • People are energized by the possibilities • There is no preexisting rigidity in people's thinking

(*Source* Watkins, 2004, p. 18)

Table 3.3 Types of start-up entrepreneurs according to their traits

Sr. no.	*Type of start-up entrepreneurs*	*Traits*
1.	The old-school romantics	These people are in love with creation and change; they will continue with start-ups even if they hit ebb-low as long as they find commitment with it. They are mature, high on emotional intelligence, and committed to the start-up
2.	The obsessed	They have a start-up dream that is insanely passionate. They desire to win, have a fear of failure, and want to create a successful start-up no matter what. They fuel energy and force in the start-up and its operations.
3.	The fly-by-night operators	These people have a lot of charm and flamboyance. They are attracted to the glamor and dreams of a quick win and fast buck through the start-ups. These people lack the maturity and commitment to 'hold the fort' in the long run. They may disengage themselves from the start-up if all is not going on well
4.	The me-mine-myself	These leaders are obsessed with nothing but themselves, and they join start-ups only to make a quick buck. They look at the start-up as a 'stop gap' and are not committed for the long run
5.	The wish 'I hadn't changed' ones	These people are not comfortable with change. As the start-up advances, the product it provides may evolve to serve the changed requirements of the ecosystem and its clients. However, these leaders love their product the most, and not the start-up and people associated with it. Ideally, products are transitory in a start-up; people and the organization are permanent

(*Source* Gundecha, 2016)

Start-up is a journey and not a destination. Of the five types mentioned in Table 3.3, only type 1 and type 2 entrepreneurs/leaders may possess the commitment, patience, and potential to travel through the entire

journey. People who develop/lead start-ups with the idea of fast money or visualizing IPOs or acquisitions for profit should realize that great organizations are developed by teams that put in the best efforts because they believed in it and not because they were chasing glory (Gundecha, 2016).

Three 'traps' of Start-up Leaders

As the start-up takes off, founders demonstrate behaviors that lead to three different types of traps that create problems for the start-up. Santhanam (2014) mentions that start-up entrepreneurs suffer from all the three or at least two of these traps over a start-up journey, as mentioned in Table 3.4. These traps best be avoided in order to scale to the next level of growth and develop the next line of leaders in a start-up.

Table 3.4 Types of leadership traps faced by start-up entrepreneurs

Sr. no.	*Type of traps*	*Explanation*
1.	'Style trap'	In a start-up, the leader involves himself in all aspects of strategy formulation and execution. So, the strategy directive comes from one person only which is executed by the entire team. When the start-up has to scale to the next level, a different set of capabilities is required. The leader tries to work with the same style in the new territory, and this is a trap. The team has learnt only to follow the leader. This is 'style trap'
2.	'Success trap'	Leaders of start-ups believe that since they have been successful so far, they will continue to succeed, and this makes them to reject new ideas. Santhanam (2014) writes about the concept of 'teachable point of view' as explained by Noel Tichy in his book 'Leadership Engine' which mentions the inability of leaders to delegate the key lessons that made them successful. This is the 'Success Trap.' Most of the Indian start-ups continue to be led by its founders, thus there exists a clearly visible 'success trap,' as against the concept of appointing CEOs for managing start-ups in the developed nations
3.	'Invincibility trap'	A start-up that has an idea and finance has to scale to the next level. This requires not only sustainable growth and achievements, but a sustainable organization also. The success trap makes the leader a solo worker. He should break the barriers of invincibility to select and groom the next level of leaders who can work closely with him. If the leader is convinced that he has chosen the best successors, he should break free of the 'Invincibility Trap.' Leaders who cannot groom further leaders, can never develop great organizations

(*Source* Santhanam, 2014)

The Dilemma of Focus on Exploration or Exploitation

Start-ups need to survive in the present and target growth and security in the future. Therefore, these firms face the exploration versus exploitation dilemma. 'Exploration refers to the discovery of new products, resources, knowledge and opportunities, and it is associated with radical changes and learning through experimentation. Exploitation refers to the refinement of existing products, resources, knowledge and competencies, and is associated with incremental changes and learning through local search' (Sinha, 2015, p. 313). Ambidextrous start-ups are the ones that can grow balancing exploration and exploitation simultaneously. Given the high failure rate of start-ups, this balance is crucial for a start-up success. As a start-up plans to scale to the next level, it requires a more disciplined approach in exploiting its resources without losing its entrepreneurial orientation that has given it success so far.

Leaders need to develop abilities to explore as well as exploit using a balance of delegation and control. The start-ups headed by single founder/leader(s) as well as those using Top Management Teams (TMTs) will have to address the dual and conflicting requirements of exploration and exploitation for start-up growth and sustainability. The role of leader or founder of a start-up is crucial in balancing this dilemma. Upper Echelon Theory suggests that leaders act on their own interpretations of the clues that they sense, and these interpretations are based on their previous experiences, individual traits, personalities, and value systems (Hambrick, 2007).

Stressed Out Employees at High-tech Start-ups

Sachitanand and Singh (2016) mention that year 2016 has seen drying up of funds and job losses in the Indian high-tech start-ups. This has led to anxiety and stress among start-up employees giving rise to cracks in the glamorous high-tech start-up sector in India. Reasons for employee stress include imminent job losses or pay cuts as venture capital funds dry up or valuations drop; founders trying to micromanage their start-ups even more as difficult times approach; the struggle to cope up or align with over-assertive founders; lack of funds leading to downsized start-ups moving to smaller and simpler workspaces; an unending toxic work culture of odd working hours, among others.

Sachitanand and Singh (2016) report about having interviewed several employees in Indian high-tech start-ups who had quit their jobs for such reasons. These employees showed evident signs of strain such as anxiety; irritability in personal and professional life; uneasiness over career choices; health issues such as fluctuating blood sugar levels, hypertension, cardiac ailments, body ache, and lack of sleep; and low levels of motivation in case of news of lack of funds or drop in start-up valuations, among others. This has resulted in the start-up dream turning into a nightmare for employees of many high-tech Indian start-ups.

Indian Start-ups: Copy Cats of Silicon Valley

Sachitanand and Singh (2016) mention several reasons for worry in the Indian start-up sector. As per VCCEdge, the start-up data provider, there was a steep decline of 66% in Series A deals, i.e., the first round of VC funding, in the first four months of 2016 as compared to the corresponding period of 2015. This funding is the lowest in six years. In 2016, start-up financiers took as long as six months to commit funds as compared to a few weeks in the boom period. Investors also reduced valuations of the marquee deals such as Flipkart, which saw its valuation fall below $10 billion in 2016. From a phase of rapid recruitment with skyrocketing packages and attractive stock options, hiring in 2016 has been cut, deferred, or abandoned. High-tech start-ups such as Zomato, PepperTap, TinyOwl, Done by None, and Dazo have downsized businesses and sacked employees. The question is whether the Indian high-tech start-up ecosystem can be successfully cloned from the Silicon Valley system in the USA?

Factors that contributed to the success of start-ups in USA and Europe may not be applicable to India. Reasons for this include vast differences in competitive situations, technological infrastructure, resource endowments, and higher education infrastructure.

Kumar (2016) debates the million-dollar dilemma of whether the Indian start-ups are making sense or not. He mentions that the venture financiers are asking for too much detailing in a bid to provide finance to Indian start-ups. Indian promoters believe in the time-honored tradition of avoiding investors asking for too many details, seeking a ‘greater fool’ instead. He further adds that there is a widespread justification for the marquee start-ups like Flipkart to go through a long period of heavy losses just because the Silicon Valley stars of today such

as Google, Facebook, and Amazon went through the same. Right from the 1980s when the start-up culture began in the Silicon Valley in USA, American Internet giants are known for developing breakthrough technology and infrastructure. Indian high-tech start-ups do not exactly resemble them—they are literally engaged in the process of giving away to customers in every transaction. However, Kumar (2016) comments that closure of Indian high-tech start-ups will have a negative impact on all major stakeholders including employees and suppliers as well as the macro business environment.

The Indian start-up universe has a clone problem. The basic reason for this is that an original idea could prove to be a hard sell. Venture financiers may pose the very first question regarding the success of a given start-up idea elsewhere in the world. So the budding entrepreneur has to think of something successful in the high-tech area in USA or elsewhere and state as to how it can be tailormade for India.

Financing Issues in the Indian High-tech Start-up Ecosystem Reflecting on Leadership

Goyal (2015) describes the relationship between a start-up founder and an investor as a marriage-bliss in good times but a nightmare in rocky times. The spat between investors and entrepreneurs in start-ups can be attributed to several reasons. First, start-up founders seek funds from investors but do not want any investor say in decision-making. To cut the long story short, investors want money but not partners. Second, high-tech start-ups are continuously evolving entities. Hence, predetermined targets may not be achievable in the altered premises and this can lead to entrepreneur-investor crisis. Third, the entrepreneur-investor agenda could be mismatching. This mismatch may range from anything like the business model to valuation to exit time horizons. The fourth reason could be unethical behavior on either side ranging from founders cooking up numbers to hide crucial data from the investors, whereas investors could be accused of setting unrealistic targets, undue interference, and data theft. The ultimate difference between the investor and entrepreneur could be in the vision that they hold for future. Entrepreneurs could be driven by emotions and passion, whereas investors are primarily driven by financial targets.

These relationships seem blissful in good times. But in rocky times such as 2008–2009 when the Indian economy hit a low or 2016

when the high-tech start-up ecosystem in India didn't seem as glamorous as in the last few years, this relationship can be turbulent. Examples of investor-entrepreneur spat include ousting Steve Jobs from Apple Inc, the company that he had founded, by investors who had grabbed a majority of the board seats; travel portal MakeMyTrip cofounder Deep Kalra facing investor differences in 2010 over whether the public issue of MakeMyTrip be done in India or the USA, among others (Goyal, 2015).

As financing issues glared up in the Indian high-tech start-up ecosystem, extravagant offers for international talent also started drying up (Basu & Sengupta, 2016). Indian high-tech start-ups are scaling down the glamorous recruitments of international talent in order to cut down costs. This includes the start-up unicorns such as Flipkart and Snapdeal, among others. International recruitments in 2016 in India have been contract hiring based. Other options include hiring for senior roles from India or hiring people with less experience at lower cost. This could again have an adverse effect on the leadership profiles of Indian high-tech start-ups.

Attitude and Policies That Go Against Innovation and Its Incubation

A successful high-tech start-up ecosystem requires innovations, and innovations require incubators. It is high time India realizes that policies, practices, design of institutions, interface mechanism, higher education systems, and business practices all need to be aligned toward incubation for innovation. Gupta (2015) mentions several reasons why India needs to move toward a sanctuary model of in situ incubation. In situ incubation is meant to promote distributed entrepreneurship by supporting innovators in smaller towns where they come from so as to keep their connections with families and local communities intact.

First, the appetite for innovations has to be increased across all the stakeholders.

Second, existing incubation models in India are not equipped to deal with uncertainty to unfold creativity. This is an absolute requirement for breakthrough innovations. Indian models deal with predictable and orderly innovations.

Third, innovators need to focus, register, and station themselves around incubators. With cloud computing and online services readily available, young people can be settled for in situ incubation.

Fourth, as Piscione (2013) mentions, all innovative ideas need to be welcomed at an early stage and not be challenged. So a large number of Indian high-tech start-ups face the challenge of proving the concept of the product and its utility. This leads to premature death of several innovative ideas.

Fifth, even start-ups that get funds and set up businesses have an elaborate process of registering for GST and this requires a commercial address. It makes no good business sense in the age of ICT, especially for high-tech start-ups.

Sixth, most of the high-tech start-ups in India are compelled to supply products and services under a different name to meet the minimum turnover requirements for public bidding and procuring resources. This is highly discouraging for the start-ups.

Seventh, start-ups are not motivated through discounts, subsidies, or support for testing and certifying their innovations.

Eighth, start-ups are supposed to pay high duties and invoicing costs for importing components at very low cost. With such policies, demanding efficiency from start-ups is next to impossible.

Ninth and the last, successful and well-established businesses in high-tech sectors in India need to come forward to mentor the new and challenged ones.

These nine teething troubles for Indian high-tech start-ups demand fundamental and urgent attention by government, policy makers, and higher education institutions.

Addressing the Challenges—Significant Insights from Entrepreneurial Leadership Research

It is quite uncertain as to what constitutes effective leadership or organizational climate for start-ups. Considering the importance of start-ups to the overall economy and the availability of extensive literature on

leadership, there is surprising sparse research or consensus on the leadership styles or organizational characteristics that are effective for start-ups. Therefore, it is important for both researchers and practitioners to understand how the founding CEO's leadership styles could build scalable start-ups (Kang, Solomon, & Choi, 2015). This section elaborates on significant findings from research on entrepreneurial leadership or leadership strategies for founders of start-ups.

Transformational Leadership Style for Start-up Leaders

Transformational leadership is one of the most widely acclaimed constructs in the leadership domain (Singh & Krishnan, 2007). It has been credited with influencing followers by broadening and elevating followers' goals and providing them with confidence to perform beyond the expectations (Kang et al., 2015). A start-up is characterized by limited financial and human resources as well as high degree of internal and external uncertainty. In this light, Zaech and Baldegger (2017) propose, test, and validate the hypothesis as to whether transformational leadership behavior of founder-CEOs has a positive impact on start-up performance as compared to other leadership styles.

Through transformational leadership, the founder-CEO can communicate his vision, which may motivate the employees and provide a deeper understanding of their contribution to the firm's success. Teamwork and spirit are stimulated, optimism is generated, employees feel supported with confidence in the leaders and the company, and the chances of success for start-up are reinforced (Zaech & Baldegger, 2017).

However, as the start-up enters the early growth stage, leadership style is likely to shift from transformational to transactional with the founder-CEO implementing decentralization of decision-making and operations. Human resources in the early growth stage of start-ups will have to be person-organization fit rather than person-founder fit: a criterion for which they were selected (Baldegger & Gast, 2016). Transformational and empowering leadership enhances shared leadership, which results in innovative behavior of teams, which in turn results in better team functioning and team outcomes (Hoch, 2013).

The Complexity Theory Perspective to Leadership in Start-ups

Tsai and Lan (n.d.) have studied leadership in start-ups from the 'complexity theory' perspective. The complexity theory delves into three aspects of entrepreneurial leadership.

First, it suggests that the development of a start-up is a chaotic process exhibiting growth leaps. Founder/leaders need to embrace this chaos and harness rather than control.

Second, start-ups may encounter 'thresholds' or 'transitions'; a start-up can exhibit a new order only after it surmounts such a threshold. Leaders need to focus on resources patching, sharing information, and developing core values.

Third, it is difficult for entrepreneurs to make advance planning because they cannot predict what new order will emerge. Entrepreneurs can rely on their vision, however, to guide the actions of other members of the organization and maintain flexibility with regard to future development. Founder/leaders need to encourage experiments and tolerate members' mistakes in order to successfully steer through this situation.

Entrepreneurial Leadership, Capabilities and Growth

Koryak et al. (2015) have developed a comprehensive entrepreneurial leadership research model, as shown in Fig. 3.3. Underlying the growth capabilities of start-ups is organizational resources as well as processes. Organizational processes that support growth include innovation, new product development, internationalization of start-ups and alliances, joint ventures, and acquisitions for the growth-stage firms. Significant organizational resources influencing start-up growth include financial resources, human capital, intellectual property, organizational knowledge, and social capital. Given, these growth capabilities, the leadership team and its dynamic capabilities, can lead to successful growth outcomes for start-ups.

Cognitive and motivational profile of start-up founder/leaders needs the greatest attention to understand the effects of leadership on start-up

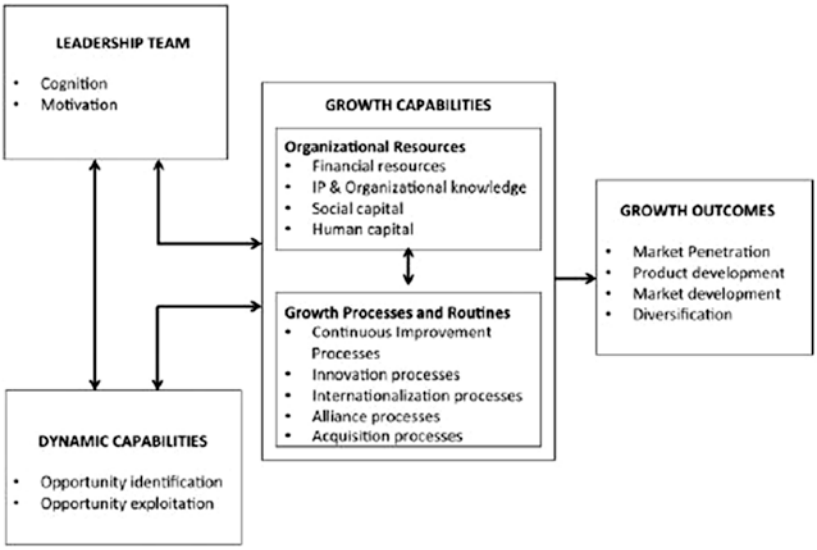


Fig. 3.3 Entrepreneurial leadership, capabilities, and growth (*Source* Koryak et al., 2015, p. 93)

success and growth. Entrepreneurial cognition, i.e., the ability to make assessments, judgments, or decisions relating to opportunity evaluation, venture creation, and growth, is an essential entrepreneurial leadership skill. However, this ability may not be put to the most productive use in the absence of motivation.

Intentions of an entrepreneur mainly depend on two antecedents: His perceived desirability measured by his attitudes to incomes, risk, decision-making autonomy, work effort, and work enjoyment, and his perceived feasibility measured by entrepreneurial self-efficacy (Delmar & Wiklund, 2008). Given the cognitive and motivational abilities of an entrepreneur, he should be able to identity viable technological and/or market opportunities. After discovering an opportunity, it is imperative to integrate the new knowledge with strategies, resources, and experiences in order to successfully exploit it.

Contingency Leadership for Start-up Founders

There is a time and place for all leadership styles, none being particularly right or wrong. It is how leaders use them that determine success or failure. Given the ever-changing and chaotic premises of high-tech start-ups, founder/leaders need to understand that while most leaders develop a dominant leadership style, they best learn to adopt elements of other styles when needed to achieve their goals. The technology world is abounding with examples of contingency leadership, which provide lessons to high-tech start-up founders/leaders across the globe.

- Satya Nadella, Microsoft CEO, launched Windows 10 allowing users to experience OS services across devices, planning to make Windows services platform neutral.
- Travis Kalanick, Ex-CEO Uber, the on-demand car service, has been vocally defensive about challenges faced by Uber and was not quashed by unsettled firms and unfriendly legislation (though his leadership style is now challenged; he once exhibited contingency leadership).
- Reed Hastings, Netflix cofounder and CEO, has been instrumental in the company's successful disruption of the linear television model.
- Jack Maa, Alibaba cofounder and CEO, is not content with e-commerce success and plans to own mobile operating system to promote its services.
- Elon Musk, Tesla and SpaceX cofounder, chairman, and CEO, envisions providing affordable electricity products to consumers and is known for motivating teams when projects fail.

Creating a Followership

Followership is the capacity of an individual to actively follow a leader and is the reciprocal to social process of leadership. Without followers, the founder/leader is just like a meandering tourist (Chakravarty, 2017). The first step to gaining followership is recognizing one's followers and deal with them accordingly. Followers can be identified across two dimensions of behavior-ability to think critically and whether they are active-positive or passive-negative. On these two dimensions, followers could be one of the following:

- Couch potatoes—Leaders need to use their authority from position or expertise to persuade them.
- Soldiers—Leaders need to use liking, commitment, and accountability principles to make them early adopters for the leader's cause.
- Fence sitters—Leaders need to use the principle of social proof and a widely accepted vision to get their followership.
- Entrepreneurs—Leaders need to give them equal voice and participation in decision-making and groom them to be future leaders.
- Rebels—Leaders need to give them rare individual roles and isolate them to reduce their negative influence on the team.

Leaders need to know that followers behave in herds. Founder/leaders at start-ups need to stay attuned to what is happening, figure out what the issue is, and constantly tweak their leadership style to prevent an exodus of followers (Chakravarty, 2017). Even the best of innovative idea will not become viable without team efforts. Character, emotion, and logic are the three angles of a successful followership triangle.

Indian High-tech Start-ups and Leadership: The Road Ahead

The world is constantly grappling with the VUCA effect which is characterized by constant changes, disruptions, and the need for continuous innovation. In challenging times as these, to lead an enterprise/function needs highly agile leaders at the fulcrum of the start-ups who effectively blend strategy and culture together. They should be the vehicle to drive business results by executing strategy successfully through culture building and transformation, along with effective dissemination of the strategy up to the last employee. The following section discusses the several aspects founder/leaders in high-tech start-ups need to focus on, especially within the Indian context.

Possible DNA Structure of the Successful Indian High-tech Entrepreneurs

Upper Echelon Theory views organizational outcomes which include its strategic decisions and performance levels as a result of the traits of its key decision makers. Bjornali, Knockaert, and Erikson (2016) have used this theory to study its effect on success of high-tech start-ups.

They have used TMT diversity and cohesion as antecedents to study TMT effectiveness in high-tech start-ups. Bjornali et al. (2016) mention that TMT with diverse backgrounds can generate more creative alternatives to solve complex situations, reduce the effect of 'groupthink,' forecast macro changes better, and improve the quality of decisions at high-tech start-ups. Given the demanding and complex decision-making situations that high-tech start-ups face diversity in functional, industrial, educational, and previous experience contexts can improve the effectiveness of decisions.

Jain and Ali (2012) have studied the relationship between psychological and demographic characteristics of Indian entrepreneurs and their entrepreneurial orientations. They concluded that psychological characteristics such as achievement orientation, innovativeness, risk-taking propensity, proactiveness, and self-efficacy as well as demographic characteristics such as educational qualification and family background (family also oriented toward entrepreneurship) have a huge positive impact on the entrepreneurial orientation in the Indian context. However, gender and age did not have a direct impact on entrepreneurial orientation in their study. The influencing traits have a direct implication for the high-tech entrepreneurs in India. Most of the recruiters when asked about the skills they want in their employees mention that they would rather want a person with moderate skills but the right attitude than a tech wizard who lacks the appropriate attitude and value system. CareerBuilder survey (2014) mentions that 77% of their respondents said that soft skills were as significant as technical skills whereas 16% felt that soft skills were more important than the technical ones as far as leadership in start-ups was concerned.

Are all high-tech start-up founders/leaders necessarily 'techies'? The answer is a counterintuitive reality. Scott Hartley, a Silicon Valley venture capitalist, mentions several founders/leaders of technology-based firms who are 'fuzzies': the Stanford University term given to majors of the arts, humanities, and social sciences. Susan Wojcicki, a history and literature major, runs YouTube; Facebook's COO Sheryl Sandberg studied economics; former Snapchat COO Emily While studied studio art; current CEO of data analytics Palantir earned doctorate in neoclassical social theory; Stewart Butterfield, founder of Slack—an email alternative to workplace communication—was a student of philosophy; and Reid Hoffman, founder of LinkedIn, and Peter Thiel, founder of PayPal, are both philosophers.

As technology moves further to develop artificial intelligence, leaders in the form of deep-thinking humans will be equally needed (Hartley, 2017). Political science majors founded Pinterest and Thumbtack; English degree holders Salesforce and Alibaba. So what constitutes the DNA of high-tech start-up founders? Following is a list of qualities, not exhaustive in nature, which would make for an ideal leader in a high-tech start-up.

i. Keen Desire to Learn—High-tech sector is one of the fastest evolving sectors anywhere in the world. Therefore, its leaders should possess a strong ability to listen and learn. They need to be curious, coachable, and open to new lines of thought and want to improve continuously. Technically sound people in high-tech start-ups could see their skills become obsolete when they resist new learning. They should be ready to absorb from a variety of sources such as self-experience, teachers, readings, members of the team and even suppliers, competitors, and customers.
ii. Ability to Grow against Uncertainty—Leaders at high-tech start-ups need to thrive against uncertainty and ambiguity. These could arise from technological, financial, or competitive setbacks. Leaders need to provide the right direction and establish procedures to set the new house in order. Leaders also need a team of self-starters, who do not require a constant supervision and are equipped to handle uncertainties. Such a team of leaders and self-starters have just the right combination of personal strength and business acumen.
iii. Passion for the Start-up Idea—Amid struggle and ambiguities, the start-up leaders need to share an ultimate passion for their high-tech idea which converts into a product/service. These are the leaders who do not check watches, do not whine, and do not say 'it's not my job' for any task. Personally, the leader of a high-tech start-up needs to possess high ambitions for his business. But these high ambitions should not be traded off against personal integrity and the commitment for excellence, even if it meant walking extra miles to 'get things right.' Leaders need to develop a culture of trust in the organization where his employees will not compromise values and integrity for the passion of success.

iv. Ability to face Difficult Situations—Start-ups bet high on leaders and core team that can take a difficult situation head on and move forward. They take small measured steps, evaluating at each step before going further, and therefore are engaged in 'learning by doing.' All decisions in high-tech start-ups are not likely to go perfectly correct but the leaders should take personal responsibility for their decisions. In the ever-changing high-tech start-up systems, leaders have to act without complete information, even when they have worked for analysis and planning. This means they have to take baby steps further and evaluate at each step.

v. Excellence at Teamwork—Leaders don't only work; they mentor and coach too. This means that leaders at start-ups need to develop an ability to work in teams and appreciate the contributions of other team members. These leaders need to be self-motivated to being active in teams rather than work for personal glory. Team leadership requires interpersonal skills, effective communication, trust, confidence, actions without ego, and appreciation for good work by the team besides having the technological skills. A start-up team should be like a family that eats, shares, and lives together through thick and thin under the family patriarch, i.e., the founder/leader of the organization.

vi. Willingness to put the Start-up before Self—Leaders at start-ups and their core team members should not be concerned in short term for their promotions, designations, and packages. They should learn to put the company first and make positive business decisions. Willingness to put the start-up before self differs slightly from having passion for the start-up idea. Passion is the 'let's make it happen' attitude with unrelenting enthusiasm for long working hours, whereas willingness to put the start-up before self is associated with the broadness of the purpose and 'start-up first' attitude.

vii. Focus on Technology 'too'—A close look at the highly successful start-up stories in Silicon Valley such as Uber, Airbnb, WhatsApp, and Truecaller signifies the role of technology, among others, in a start-up success. Their laser-sharp focus on problem solving and effective use of technology is the secret to success. This is where the Indian high-tech start-ups differ from the global ones. This is in spite of the fact that India has the world's largest English-speaking population and the technologically best

human resources. Given a long gestation period and the desire to be a fast 'million-dollar sales business' or even a 'unicorn,' scaling-up is a must and employing more people is the Indian style of 'scaling-up.' Start-ups need to focus on the problem, and not the funding and valuation stories, in order to solve it aptly. Technology, and not people, should be thrown at problems. To build a business requires 'people-first,' but to grow and scale it requires 'technology-first.'

viii. Emotional Quotient—It is very important for the high-tech start-up entrepreneurs to make their family an 'emotional investor' given the risky and uncertain nature of this ecosystem. Societal mindset toward entrepreneurship is fast changing in India. In this scenario, start-up founders need to openly communicate with their families about their ideas and intentions. As the idea progresses, family should be kept in the information loop about all the happenings, both negative and positive. Securing and insuring family before venturing on a start-up mission, starting young with lesser family responsibilities, timing entrepreneurship with important life events, and engaging at least one family member in the start-up with a regular secured job and salary are important takeaways for budding high-tech entrepreneurs. Family provides capital in the form of faith and motivation in difficult times for start-up founders.

ix. Transnational Entrepreneurship—Several recent studies mention that necessity-driven entrepreneurs have lower survival rates as compared to opportunity-driven entrepreneurs. This calls for start-up entrepreneurs to be 'transnational.' Chen and Tan (2009) are of the opinion that transnational entrepreneurs possess technical and infrastructure ideas from successful start-up ecosystems (e.g., Silicon Valley in the USA) and an in-depth knowledge of culture, language, and markets in their country of origin (e.g., India). This combination makes them very apt in terms of being high-tech start-up entrepreneurs. Investments and technology transfers by transnational entrepreneurs have contributed to the economic development, innovation, and job creation in many countries of origin (Krishna & Bala Subrahmanya, 2015). Krishna and Bala Subrahmanya (2015) studied 45 high-tech start-ups headquartered and operating in various Indian locations to analyze the effect of transnational entrepreneurship

on survival rates of high-tech start-ups. The results of their study indicate that prior start-up experience of entrepreneurs, their transnational trait and financial mobilization reduce the risk of start-up failure. The reasons for this include better access to resources and the ability to leverage the best of both worlds.

x. Getting out of the Town—A lot of high-tech start-ups in India are coming up in the non-metropolitan cities. As the world of tech-based start-ups is mobile, so are the people related to it. Great ideas could be born in small cities, but scaling requires the innovators to shift to the larger ones according to Layak (2016). However, this trend is fast changing and a lot of high-tech start-ups are developing in non-metro cities. Appendix B gives a clear idea about the statistics for the top 25 Indian cities starting high-tech start-ups. One basic advantage in favor of smaller cities is a cheap office space. Also, entrepreneurs may want to remain attached to their roots. Therefore, high-tech start-ups could be started in several places—as it is called the 'getting out of the town' phenomenon. Appendix B shows a bright picture of the overall geographical distribution of high-tech start-ups in India. It proves that the greatest factor for a start-up is an innovative idea and an entrepreneur willing to give it all to the idea to make it viable for clients. The geographical cluster factor is secondary.

xi . Some leadership examples from Indian high-tech start-ups—At this juncture, the authors want to discuss some examples of how young leaders from high-tech Indian start-ups are 'leading from the front.' Details are mentioned in Table 3.5. These leaders emphasize on trust, empathy, and openness in start-ups. They suggest the difference in level of uncertainty in start-ups as compared to established organizations. Start-ups brainstorm ideas and most of the ideas are tested; in large organizations, there is long-term planning and execution (Bhattacharyya & Verma Dadhwal, 2016).

Human Resources skills of Start-up Entrepreneurs

Mazumdar (2015) reports that 'HR in start-ups is a lot more than free beer in the fridge and the ping pong table—says Kanchan Kumar, Founder, Eimportant, a payroll processing start-up.' Most of the

Table 3.5 Leadership examples from Indian high-tech start-ups

Sr. No.	*Leader*	*Start-up role*	*Leadership strategy*
1	Kunal Shah	Cofounder of FreeCharge, an online mobile recharge platform	• Openness and trust • Empowerment by default • Hiring people 'smarter than you'
2	Jaydeep Barman	Cofounder and chief executive of Faasos, online 'food on demand' platform	• Concerned for ends, means decided by employees • Joint problem solving involving democratization • Running experiments on premises that change on daily basis • Founders are entrepreneurs and should not dictate terms for others
3	Azhar Iqubal	Cofounder of Inshorts, engaged in content discovery and distribution application for Android and IOS	• Leader has to be a 'friend' of the team • Place the right person at the right place and empower him adequately
4	Vikram Bhalla	Managing Director at Boston Consulting Group-India	• Motivation is not an issue as entire team has high energy and excitement • Leadership has to be flexible due to fluid state of affairs
5	Abhiraj Bhal	Cofounder of UrbanClap, one stop destination for urban lifestyle services	• Open communication about positives and negatives • Talk about gaps in business model, gaps in understanding and leader's own limitations • Open communication builds trust
6	Suchi Mukherjee	CEO of LimeRoad, online fashion portal	• Getting right people, establish clear goals, and manage start-up culture • People with right talent and growth potential are more important than those with experience • Right talent includes passion for idea, fighter instinct, preparedness to accept failures, and steer clear of bad days
7	Harshil Mathur	Cofounder of Razorpay, online payment platform for corporates	• Follows the 'Facebook model of leadership' • Flat organization with teams and team leaders, no hierarchies • Ambitious and talented people are promoted as leaders in order to retain them • Appraisal includes 65% peer appraisal and 35% manager appraisal, apart from self-appraisal

(*Source* Authors' interpretation based on Bhattacharyya and Verma Dadhwal (2016))

high-tech start-ups in India are managed by founders and their core team who do not care about organizational structures, roles, and policies. HR in start-ups is based on unwritten rules and mutual agreements. However, start-ups founders/leaders need to understand the importance of managing people first and managing the products second; they need to double up as HR managers, among other roles. Sachitanand and Singh (2016) have studied reasons for capable talent leaving high-tech Indian start-ups after having joined them as 'dreams come true' career options. This points to the importance of inculcating the right HR practices in such organizations. Mazumdar (2015) lists some important HR perspectives for high-tech start-ups in India.

i. Hiring and Integration—Social hiring, meaning selecting employees based on referrals, is the most common successful source of recruitment in the Indian high-tech start-ups. The reason for this is that the new employees already have knowledge of the company and the product. Current employees could be rewarded bonus or holidays as rewards for successful referrals. Other good sources could be hiring interns who join the start-ups once they complete their education and leads provided by them, brainstorming meet-ups, direct hiring through online recruitment sites, etc. Interviews for start-ups should include several rounds in order to gauge the capabilities and aptitude of prospective employees to minimize the mismatch between expectation and delivery. After the employees are hired, they should be given time to interact with the founder/leader and core team in order to get information about culture, rules, and expectations at the new start-up. This could also include informal meets and welcome lunch sessions.
ii. Time Management—Most of the start-ups need to develop a culture of time flexibility. The focus should be on productivity and not on attendance. It includes not only work from home, but also work timings and arrangements that are most suitable for the best talent. It should include employee choice of timings and flexible norms for leave and vacations.
iii. Training—Training is a sticky wicket at high-tech start-ups. The main reason for this is that it requires time and focus, and both of them are completely invested in developing and improving the existing ideas for sales and scalability. A start-up is a small

rapidly growing organization which may not have the slack and structure to put the employees through formal training programs. Interactive sessions such as townhall presentations, role playing, e-learning, and mentoring sessions with the leader and core team members can be highly useful. Leaders of successful or previously established start-ups can mentor employees of fresh start-ups.

iv. Team Management—Established organizations have structures that are designed according to work and responsibilities. However, start-ups are small groups of people with no established designations or hierarchies. So, all individuals should focus on assigned responsibilities, working and learning as a team. Such an arrangement would reduce organizational politics to a major extent. Flat structures with ample freedom to employees to implement ideas and access to senior leadership teams can be of immense help. But such a free structured team cannot be permanent at start-ups. As they grow and scale to the next level, separate teams for development, design, support, marketing, and sales with formal heads become a necessity. Timely execution of deadlines would also require formal structures with teams.

v. Employee Appraisals—Start-ups can design self-appraisal and self-rating programs for employees in the absence of a hierarchical structure. Self-reviews can lead to better employee contemplation for focus and self-improvement. Such appraisal systems can develop confidence and trust among start-up talent. However, traditional appraisal systems would have to be implemented as start-ups scale to the next levels of growth.

vi. Work-Life Balance—Start-ups have no organized efforts for employee engagement, and therefore, they work in teams having as much fun as they can. Employees can get together for sports matches or use innovative ideas to paint and/or decorate the offices on their own or even bring their pets to offices on given days. Such activities can improve the sense of ownership among the start-up employees. On the family front, work-life balance can be improved for start-up employees by providing work-from-home options, flexible work hours, flexible leave schedules, and extended maternity leaves.

vii. Compensation—Start-ups always need to strike a balance between the goal of being profitable and creating value for employees. Most of the high-tech start-ups in India have a history of being cash-rich, financed by venture funds. Therefore, till early 2016 most of them have offered salaries that were above the market apart from stock options. So, start-ups were lucrative employers and their employees were never worried about salaries. Also, stock options would encourage start-up employees to build an organization that they would feel proud of in the future. However, compensations have seen a downtrend with reduced high-tech start-up valuations and drying venture funds. Start-ups, the young budding organizations with growth and scalability targets, cannot and should not retain employees for money. Start-up employees' key takeaways could be learning, leadership, and growth in the long run.

A case of Urban Ladder, the online furniture seller start-up in India, has many HR lessons for start-ups. Urban Ladder, a Bengaluru-based online furniture seller cofounded by Rajiv Srivatsa and Ashish Goel in 2012, has grown five times since its inception and has a workforce of 650 people (Bhattacharya, 2016). The company has raised $77 million since its inception in 2012. Challenges were smaller in the initial three years due to smaller workforce, and individual mentoring by the founders was sufficient. Sixty percent of their workforce joined in 2015–16, and this prompted the leaders to start a learning and development program to cater to the varied developmental needs of the employees. Founder/leaders have planned dedicated programs to judge talent within the start-up and groom potential leaders. Urban Ladder has rolled out 'EnabUL programme' with 'Young Manager's Programme' which guides the first-time managers with setting goals, managing people, and managing time among others.

The three-way approach used at Urban Ladder includes functional—focusing on furniture designs, technology, and customer obsession; organizational—focusing on high-potential employees whose skill gaps can be filled with the apt interventions; and leading—focusing on formal coaching, mentoring, and manager training programs. The start-up has 38% women workforce, and therefore, the organization makes sure that women are mentored not only for managing career aspirations, but also balancing their work-life challenges.

Relevance of the Start-up Idea and Its Implementation in the Indian Context

Not all high-tech start-ups need to be original. The real genius of Indian start-ups lies in their talent of being able to transform an international idea for unique Indian conditions. Also, not all start-ups and all start-up finance should be skewed in favor of Internet and e-commerce-based start-ups. New start-up ideas could be in the field of media, entertainment, e-commerce, technology, education, and cleanliness—just to name a few. However, when it comes to financing and focus, e-commerce could be oversubscribed with no takers for cleanliness idea start-ups. An existing idea can also become 'original' in a different context. A curry is not an original idea for Indian culinary sector, but a conveniently available and healthy curry could be 'original' in a different context. Start-ups need to bank on this ground in India.

Gutierrez, Spencer, and Zhu (2012) interviewed 101 CEOs from Chinese, Indian, and Western forms to gauge the leadership demands of different business and cultural contexts and the core competencies of leaders associated with effective performance. Table 3.6 gives a comparison of some important leadership traits specific to Indian, Chinese, and Western context. A close look at this table suggests the glaring differences in leadership traits required in the three geographies under study. Start-up founders and leaders need to understand the larger differences in leadership context between India and other countries, to write start-up success stories.

Piscione (2013) has listed several requirements for a successful start-up ecosystem, based on the success of Silicon Valley in the USA. A close look at these requirements reveals that India needs to tailor start-up success in its own relevant context as all requirements cannot be met by India, at least in the short run.

High-tech Start-up Mentoring and Financing in India and for India—A Case of Infosys Cohort

Piscione (2013) mentions that one of the core requirements of a successful start-up ecosystem is the cycle of venture capital industry where successful entrepreneurs take their exit earnings to invest in new start-ups. The Indian high-tech start-up ecosystem has much to gain from the case of Infosys founders who are providing talent and money to India's latest

Table 3.6 Different leadership traits and requirements in India, China, and West

Context	*India*	*China*	*West*
Most common leadership situations (Top four)	Getting permissions from government (23%)	Raising or investing capital (32%)	Talent (coaching, deploying, recruiting) (16%)
	Launching some new innovations (23%)	Understanding the market (13%)	Turnarounds (12%)
	Turnarounds (21%)	Improving an established business (11%)	Reorganizing the business (9%)
	Improving an established business (16%)	Mergers (10%)	Negotiations and influencing others (9%)
Most characteristic ways of thinking	Adaptive thinking—Changing or adapting technologies, methods or business models, to meet India's unmet needs	Business perspective—Understanding and predicting the development of the industry and acting to help shape the regulation of the industry	Strategic insight—Strategic direction based on understanding market and competitors, market trends, and changes in paradigms
Most characteristic interpersonal approaches	Inner strength—Taking business risks based on what is good for India; Emotional maturity—Inner resources to draw on during difficult times, providing an inspirational personal example of grace under pressure	Influence for mutual benefit—Subtle influence strategies to get their own desired outcome, but also preserve the relationship and the dignity of the counterpart; Social responsibility—Business ethics, supporting fair practices and a healthy industry	Building organizational capability—Aligning disciplines, systems, structure to strategy; Developing others—Coaching and mentoring others, often one-on-one
Contextually distinct foundations	Networking to obtain information—Seeking practical information by directly asking people, often people with whom the CEO had no prior contact	Self-criticism—Continual, and often public, self-examination to find and admit mistakes, areas for growth, ways to do better, learn, and improve	Interpersonal understanding—Understanding individuals, their perspectives, concerns, strengths, developmental needs, in order to coach, influence, or match them to jobs

(*Source* Gutierrez et al., 2012, pp. 80 and 81)

start-ups in the hope of recreating the Infosys magic all over again and several times (Vignesh, Shaikh, & Balasubramanyam, 2016). Narayan Murthy, Nandan Nilekani, S. 'Kris' Gopalakrishnan, N. S. Raghavan, and S. D. Shibulal—founders of Infosys and Mohandas Pai and V. Balakrishnan—former CFOs of Infosys have all invested in the 'Great Indian Start-up Dream.'

Infosys, founded in 1981, is a Bengaluru-based software service company with a market valuation of $42 billion and India's most successful start-up. Murthy comments that this Infosys cohort is trying to promote entrepreneurship 'as a marathon and not as a sprint.' They started Infosys with lot of fire in the belly but little money in pockets. The world today is more connected, technology is far improved, and support for entrepreneurship is like never before. The requirement for young start-up entrepreneurs is industry experience and that is exactly where these Infosys alumni can play a crucial role. They have the experience of starting a truly global IT business and taking it all the way to IPO, which means they can have a significant impact on the start-up sector in India in their post-Infosys lives. Table 3.7 enlists the contributions of Infosys founders to the high-tech start-ups in India.

This case of Infosys cohort investing and mentoring the high-tech start-up ecosystem in India is a huge example of their faith in the system, its ideas, founders, and future prospects. Having Infosys cohort on the board is a huge motivation and guidance for the start-up founders, which can drive them through the thick and thin.

Lessons from the Best High-tech Start-ups in India

India's leading daily for intellectuals 'The Economic Times' announces '*The Economic Times* Start-up Awards' every year. A look at the latest 2016 awardees has many lessons for the start-up sector in India. These are success stories from Indian high-tech start-ups and hence much more relevant and worth emulating. Announced in August 2016, these awards were decided by an exemplary jury chaired by Infosys cofounder as well as current chairman and former chairman UIDAI Nandan Nilekani.

Total eight categories of awards for start-ups are declared in this category. These awards point to the significant takeaways for prospective, new, and challenged start-ups in Indian high-tech sector. They can learn

Table 3.7 Infosys founders promoting high-tech start-ups in India

Name of the Infosys founder	*Current status at Infosys*	*New investments in high-tech start-ups*
Narayan Murthy	Withdrew in 2006 as Executive Chairperson of the board	Found Catamaran Ventures in 2009; financed online store Yebhi, payments firm Innoviti, flower delivery start-up Bloom & Wild, messaging app Lookup, online insurance start-up Coverfox and Hector Beverages, owner of the Paper Boat brand
Nandan Nilekani	Back as non-executive chairman in August 2017	Investment in Team Indus, mobile publisher Juggernaut, logistics start-up 4TiGO, Systemantics, and SEDEMAC
Mohandas Pai	Withdrew in 2011 as CFO	Invested in technology-based start-ups in education, health and financial sectors such as BYJU's, Mad Street Den, YourStory, Zoomcar, and Ressy
Gopalakrishnan	Withdrew in 2011 as CEO and MD	Cofounded Axilor, Investments in Lenskart, Avagmah, Uniphore, Lookup, and MagicX
Balakrishnan	Withdrew in 2013 as CFO	Cofounded Exfinity Ventures, Investments in digital security provider Uniken Systems, Internet-of-things start-up Cannykart, tax information site TaxSutra, IT services company Avekshaa Technologies, and compliance provider Clonect Solutions
Raghavan	Retired in 2000	Found Nadathur Holdings & Investments, Investments in Amagi Media Labs, Vizury, and CoCubes; guided the setup of N S Raghavan Centre for Entrepreneurial Learning at IIM-Bangalore, which invests in select start-ups
Shibulal	Withdrew in 2014 as CEO	Cofounded Axilor Ventures, Investments in e-commerce, healthcare and clean-tech start-ups such as Petoo, Sellerworx, EasyFix, Murgency, EventsHigh

(*Source* Vignesh et al., 2016)

lessons on leadership, HR, finance, idea generation, and idea execution from the awarded start-ups. Table 3.8 provides details of jury members for these awards. Appendix C provides details of awards, their criteria, and winner high-tech start-ups from India for the 2016.

Table 3.8 Jury members for *The Economic Times* Start-up Awards, 2016

Jury Member	*Designation*
Nandan Nilekani	Infosys cofounder and former chairman, UIDAI
Amitabh Kant	CEO NITI Aayog
Sachin Bansal	Cofounder and executive chairman, Flipkart
Vijay Shekhar Sharma	Founder and CEO, One 97 and Paytm
Subrata Mitra	Partner, Accel Partners
Rajan Anandan	Vice President, Southeast Asia and India, Google
Vani Kola	Director, Kalaari Capital
Mukesh Bansal	Cofounder, CureFit
Kartik Hosanagar	Professor, The Wharton School
Satyan Gajwani	Vice Chairman, Times Internet

(*Source* Team ET, Bengaluru)

Incubators in the Indian High-tech Start-up Ecosystem

Incubator is a catchy word when it comes to high-tech start-ups. Goyal (2016) explains the difference between incubators and accelerators. According to her, 'Incubators and accelerators are terms that are used interchangeably. But there is a slight difference. Incubators are relatively early-stage investors who nurture a pre-product idea, support in prototyping.' Accelerators, on the other hand, focus on rapidly growing the business. A number of Indian high-tech start-ups have benefitted from the US start-up incubators. The leader has been Y Combinator, popularly known as YC. It was started in 2005 in Silicon Valley, the hub of IT start-ups in the world. It encompasses a program where budding entrepreneurs take a three-month course in the USA with YC mentors using events like Tuesday dinners and office hour meetings to groom the new entrepreneurs. Each cycle results in Demo Day where start-ups make presentations of their ideas and its viability to a select audience. Every year, YC selects two batches of start-ups that receive seed money and guidance from YC mentors in exchange for 7% equity. YC has invested in more than 1000 high-tech start-ups with a market capitalization of over $65 billion. YC alumni include start-ups like Dropbox, Airbnb, Reddit, and Twitch (Goyal, 2016).

Indian start-ups have been showing up on YC radar since 2014. Founders and cofounders of Meesho.com, an e-commerce enabler on mobile; ClearTax, a tax-filling platform; Kisan Network, an online marketplace for farm produce; Razorpay, an online payment gateway; and

Innov8, a coworking space have benefited from the YC start-up magic. This type of exposure can help the Indian high-tech start-ups learn many lessons on innovation, execution, financing, infrastructure, and leadership skills required for start-up success.

Except YC, there are other well-known global start-up accelerators. Techstars, founded in 2006, has alumni of over 800 start-up entrepreneurs and presence in USA, Israel, South Africa, and Germany. 500 Startups, founded in 2011, has invested in over 1500 start-ups and has presence in USA, Israel, London, and Oslo. Alchemist, founded in 2012 by Stanford University Professor Ravi Belani, is supported by Khosla Ventures, US Venture Partners, Salesforce.com, and Cisco. AngelPad, launched in 2010, provides mentoring, seed fund, and networks for its 10-week courses every year (Goyal, 2016).

India, being the third largest start-up hub in the world, has also set up start-up accelerators. GSF, founded in 2014, is a 13-week program, which invests $30,000–60,000 for 8–9% equity stake. It has invested in Little Eye Labs, DocsApp, Overcart, etc. TLabs, founded in 2011 and operated by the Times Group, is a 16-week program with focus on Internet and mobile technology start-ups and has invested in Vidooly, Inshorts, etc. iAccelerator, started in 2008 by IIM-A, is a 12-week residential program. In 2015, it launched an accelerator specifically for agriculture and water-based start-ups. Investments include SolarWaale, Razorpay, etc. Microsoft Ventures, backed by Microsoft, is a Bengaluru-based four-month program, which does not include any debts or equity. Its major investments include Explara and Frrole (Goyal, 2016). Incubators and accelerators promoting high-tech start-ups in India are here to stay, mentor, and finance viable ideas and innovations.

Financing and Future Leadership—Lessons from the Past for High-tech Start-ups in India

Mehra (2016) calls venture financing in start-ups as 'Adventure Capital Stories.' He mentions that even in mature markets like the USA, 65–70% of venture financings fail to return capital. Hence, one can expect a 65% chance of venture finance in a start-up to make loss. Mehra (2016) further comments that the most common criticisms for a high-tech Indian start-up include its flawed business models focus on growth and unrealistic valuations. However, the start-up sector has created some hard-core institutional investors in India. There are specific reasons why private

equity funds have not invested in the start-up space in India (Mehra, 2016). These reasons include poor odds of success, dilution impact, and uncertainty of the global financial environment, among others.

History of financing in India suggests that Private Equity investors have seen downturns as opportunities and investments in sectors going through turmoil. Therefore, PE investors are likely to invest in consumer Internet and technology sector, even if they don't feel the bust in that sector. Mehra (2016) quotes J. K. Rowling here: 'Dumbledore said—Help will always be given at Hogwarts to those who deserve it.' Goyal (2015) has a few takeaways for handling the delicate relationship between venture financiers and high-tech start-up entrepreneurs, as mentioned in Table 3.9. These principles could help manage this delicate marriage better.

Table 3.9 Handling the investor-entrepreneur relationship in start-ups

Sr. no.	*Principle*	*Explanation*
1.	Get the chemistry right	Enough time should be spent before the deal is finalized so that the financier and entrepreneur know each other well. Expectations and value system must be aligned for a long-term smooth sailing relationship. There is no point in closing the deal in haste to part ways later
2.	Look beyond valuations	Entrepreneurs should not seek funds from financiers bidding the highest valuations. The founders should also look for strategic strengths, prestige, and the traits of investor partner in charge of closing the deal for clues regarding the long-term viability of the deal
3.	Communicate	Surprises between entrepreneurs and venture investors should best be avoided. Transparent and honest communication at all times and especially in case of challenging news is a must
4.	Bring on board like-minded investors	Whenever start-up entrepreneurs go for further/multiple rounds of financing, they need to ensure that new investors are similar in values and expectations with the existing investors. Healthy relationship between investors of all rounds of financing can provide immense long-term support for growth and scalability financing in start-ups
5.	Ego check	A healthy relationship has to leave ego outside the door. The same applies to the unique marriage of start-up founders and venture financiers. Respect for each other and not playing the blame game in case of an adversity are absolute requirements

(*Source* Goyal, 2015)

The nature of relationship between start-up founders and their venture financiers is fast maturing. They are now evolving as much more than moneybags. These financiers which started off as merely investing and mentoring firms are now providing a complete collaborative and hand-holding umbrella support structure. They offer guidance for hiring, compliance, accounting, industry connections, and entrepreneurship as well. They even guide companies on spending money wisely on resources in order to make the start-up more viable and scalable. Venture financiers are fast changing from corporate headquarters with stifling control on start-ups to a complete flexible support system. Entrepreneurship should be all about innovation and creativity with breathing space and acceptance of failures as well. So venture funds are now helpful rather than getting in the way. This mature approach of the investors will help in boosting long-term partnerships between high-tech start-ups and venture investors in India.

Government Measures to Promote Innovation and Start-ups in India

India which was known for 'frugal innovation' or 'Gandhian innovation' is now known by the headlines such as 'India the world's secret Silicon Valley' and 'India's innovation stimuli.' It implies that the Indian start-up ecosystem has tremendous potential to deliver. Indian government has come up with several measures to promote innovations and start-ups in India.

i. Startup India—Startup India is a flagship initiative of the government aimed at building a strong ecosystem for developing innovation and start-ups in India. The purpose is driving economic growth and employment generation through start-ups. On August 15, 2015, Prime Minister of India Narendra Modi, in his Independence Day speech, announced the 'Startup India' initiative. It was formally launched on January 16, 2016, at Vigyan Bhawan, New Delhi, at an event attended by over 2000 budding Indian entrepreneurs. The government announced an Action Plan for this initiative to spread the start-up movement from high-tech sector to agriculture, manufacturing, social sector, healthcare, education, etc. Besides, it also plans to spread the start-up movement from existing Tier 1 cities to Tier 2 and Tier 3 cities and semi-urban as well as rural areas. This Action

Plan is divided across simplifying, hand-holding, funding support, incubation, and industry-academia partnership to boost the Indian start-up ecosystem (Chitravanshi, 2017).

ii. Make in India—Launched on August 15, 2014, by Prime Minister of India Narendra Modi in his Independence Day speech, 'Make in India' is now beginning to take off. This mission was launched to make India a manufacturing hub. Despite huge domestic market and labor advantage, India has been importing many goods ranging from organic chemicals to consumer electronics to auto components to iron and steel. Also, India has a mere 2% share in the global manufacturing exports market, compared to 14.6% of China (Chitravanshi, 2016). Through this mission, India plans to make manufacturing share in GDP 25% from current 17% and create 100 million new jobs in the process. Special push has been planned for defense, automobile, railways, textiles, and information technology sectors. The Action Plan includes improving infrastructure, easy clearances, lower interest rates, improved power situation, labor reforms, and establishment of new industrial corridors. This mission can help India realize its demographic dividend by creating millions of jobs. Some major investments in these two years in 'Make in India' have been by Foxconn Technology, SBG Cleantech, and Dalian Wanda Group (Chitravanshi, 2016). 'Make in India' will boost start-ups, innovation, incubation, and entrepreneurship in India.

iii. Digital India—Digital India is a campaign launched by the Government of India to ensure that government services are made available to citizens electronically by improving online infrastructure and by increasing Internet connectivity or by making the country digitally empowered in the field of technology. It was launched on July 2, 2015, by Prime Minister of India Narendra Modi. The initiative includes plans to connect rural areas with high-speed Internet networks. Digital India consists of three core components. These include the creation of digital infrastructure, delivering services digitally, and digital literacy. The takeoff of this mission is likely to improve the prospects of high-tech start-ups in India.

iv. Atal Innovation Mission—In May 2016, a committee on entrepreneurship and innovation was set up under NITI Aayog to help establish the Central Government's Atal Innovation Mission

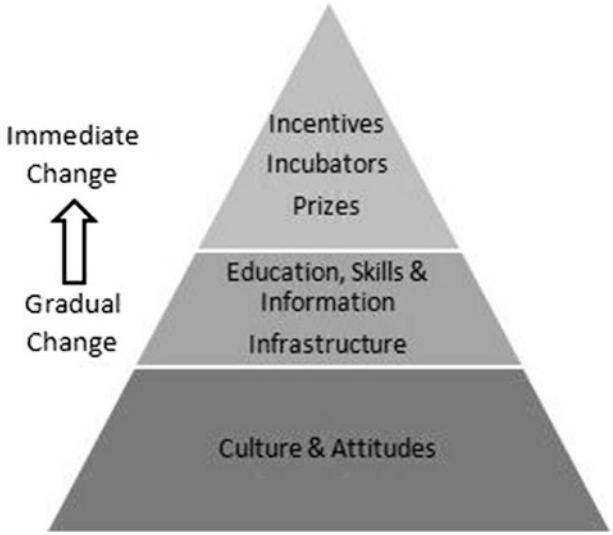


Fig. 3.4 Atal Innovation Mission (*Source* Khanna, 2015)

(AIM). It has been planned as a pyramid (Fig. 3.4). As one moves from its base to its pinnacle, initiatives are designed to provide immediate payoffs. At the base are the actions with longer gestation periods but major impacts (Khanna, 2015). As shown in Fig. 3.4, the base of the pyramid relates to culture and attitude. Entrepreneurship seen till lately with distaste has to be seen as beautiful and creative. Tolerance for failure in entrepreneurship has to be developed. The intermediate layer is concerned with developing education, skills, and technology infrastructure for innovations. When India ranked 76th out of 143 countries on the Global Innovation Index, the main reason for this lower rank was an education system that does not aim at creativity. The remedies for this include encouraging problem solving among students through projects, improving basic science literacy, and upgrading high school and higher education curriculum to develop employability and entrepreneurship.

The pinnacle of the pyramid is the most visible in terms of results. This part of the pyramid should focus on incentives, incubators, and

prizes. Khanna (2015) gives the illustration of 'Reinvent the Toilet Challenge' run by the Bill and Melinda Gates Foundation, along with the Department of Biotechnology and the Biotechnology Research Assistance Council of India. Out of the best six innovations that received the Rs. 12 crores grant, two were start-ups. Again, the incubators need to be linked to universities and incumbent firms to achieve the goal of innovative ideas seeing light of the day.

The Future of Leadership in Indian High-tech Start-ups—From Start-up to Keep-up

Let the conclusion to this journey come from its beginning. It is about the controversy at India's most successful IT start-up, Infosys—between the founder-promoters and company board—CEO. The leadership crisis has come at a time when the IT industry is already in a precarious position. Indian IT companies are struggling in a rapidly evolving technological environment and are losing share to multinationals and some newer, nimbler firms that specialize in digital technologies. If things are rocky at the top, navigating the changes in the industry will be all the more complicated.

What are the leadership takeaways? First, there should be a working relationship between a large shareholder, who is also the founder of the company, and CEO and the board. Second, founder-promoters cannot merely act as activist shareholders, as criticisms from their side can become counterproductive. Third, could all this showdown have been avoided by open communication to resolve issues between the warring parties rather than waging an open war? Nandan Nilekani, the newly appointed non-executive chairman, has charted a four-point strategy as he was re-appointed at the helm of affairs at Infosys in August 2017. This strategy includes implementation of new executive leadership, new turnaround business strategy, investigation reports on the controversial Panaya Acquisition, and new governance structure. There is a strong hope that Infosys steers clear of this crisis to meet client requirements, increase investors' confidence, and provide stability to the organization. Infosys, started way back in 1981, has been India's most successful tech-based start-up. Recent past has seen a number of tech-based start-ups in India scaling from 'start-up to keep-up.' Table 3.10 lists the ten most successful Indian tech-based start-ups in 2016.

Table 3.10 Top ten Indian tech-based start-ups 2016

Start-up	*Founder*	*Industry*
Flipkart	Sachin Bansal, Binny Bansal	E-commerce
Snapdeal	Kunal Bahl, Rohit Bansal	E-commerce
Ola	Bhavish Aggarwal	Transportation, Logistics
Paytm	Vijay Shekhar Sharma	Online payments, E-commerce
Quikr	Pranay Chulet	Classifieds
InMobi	Naveen Tewari	Online ad networks
Zomato	Deepinder Goyal	Search
Grofers	Albinder Dhindsa	Logistics, E-commerce
Ecom Express	T. A. Krishnan	Search
Oyo Rooms	Ritesh Aggarwal	E-commerce, Travel

(*Source* https://www.techinasia.com/indias-top-30-startup-founders)

Table 3.11 Transitions in leadership development

Current focus	*Future Focus*
The 'What' of leadership	The 'What' and 'How' of development
Horizontal development	Horizontal and vertical development
HR/training companies, own development	Each person owns development
Leadership resides in individual managers	Collective leadership is spread throughout the network

(*Source* Petrie, 2014)

As the start-up business environment in India becomes more complex, volatile, and unpredictable, skills needed for leadership undergo change—more complex and adaptive thinking abilities would be needed. The 'leadership challenge' as it was known in the past will be a 'development challenge' in future. Four trends for future of leadership development can be identified for the Indian high-tech start-ups. Table 3.11 provides a snapshot of the four transitions in leadership development. A brief discussion follows the table.

i. More Focus on Vertical Development
   A great deal of time and energy have been spent on 'horizontal' development (i.e., competencies), but the focus should shift to 'vertical' development (i.e., developmental stages). Though horizontal leadership development is possible through an expert mentor, vertical development must be earned for oneself.

ii. Transfer of greater developmental ownership to the individual
Leaders and entrepreneurs in high-tech start-ups in India will need to change the thought process from believing that their manpower and their trainers are responsible for their development to occupying the driver's seat for their own development.
iii. Focus on collective, not individual leadership
Leaders will not be able to remain individualistic and elitist anymore. Collective leadership through networks of people will be need of the hour in future.
iv. Emphasis on innovation in leadership
An era of rapid innovations will be needed in which organizations experiment with new approaches that combine diverse ideas in new ways and share these with others. Technology and the Web will provide infrastructure to drive this change. Start-ups that adapt to these changes are more likely to survive and grow than those who resist it.

Sharma (2015) is of the opinion that when it comes to high-tech start-ups, only two words matter the most—mindset and conduct. Entrepreneurship is not only about having innovative ideas, understanding salesmanship, designing the best product, or the genuine marketing strategy. It is more so a state of mind—how one thinks and how one acts. Sharma (2015) mentions the four mindset elements that matter the most.

> First, the entrepreneur should be comfortable as an underdog—seeing oneself as an outsider to change the game.
>
> Second is the ability to hold a contradictory point of view—which lends one a big spirit even when one is small.
>
> Third is the ability to step outside one's comfort zone—this provides the drive for excellence.
>
> Fourth is the capability to influence without control—the entrepreneur should be able to motivate a team of knowledge workers for the revolution called innovation to take place.

Having talked about mindset, let us now delve into four elements of conduct. As far as start-up entrepreneurship is concerned, personal code of conduct is more important than skills.

First, entrepreneur has to make things happen and not make things up—it is a matter of results and not reasons.

Second, the founder has to stand true to promises—saying what he means and doing what he says to build trust and faith in all stakeholders.

Third, the start-up entrepreneur has to be ready to give more than what he gets—this builds trust which provides speed and collaboration.

Fourth is the effort to set people to success even if their definition of success is different—this begets loyalty. Sharma (2015) comments that 'entrepreneurship is like investing and dieting—at its core it is simple, but not easy!'

Kalra (2016) mentions that 'running a high-tech start-up is like driving a race car in a maze with many dead ends.' So, it is not only important to start-up, but equally important to keep-up. Successful start-ups will scale to early growth stage, leadership style evolves from being transformational to transactional, and employees need to adapt to being person-organization fit rather than person-founder fit (Baldegger & Gast, 2016). Freeman and Siegfried Jr. (2015) are of the opinion that starting a new business is easy. Leading a start-up and transitioning from founder to CEO are hard. Key capabilities of founder/leaders would include three types of transitions:

- From technician to strategist,
- From star player to coach of the year, and
- From always giving the final word to recognizing limitations.

Entrepreneurs need to give up the resistance to switching to a more structured management approach and adopting management systems and processes in a timely way in order to eventually build sustainable high-growth start-up companies (Davila, Foster, & Jia, 2010).

This study concludes that high-tech start-ups are a long-term phenomenon in India from the current scenario. They will play an immense role in creation of new enterprises, economic growth, and job creation. This study elaborates on the various leadership issues that block the roads to the super-fast high-tech start-ups in India and also mentions the significant

takeaways for a smooth ride ahead. Future leadership in Indian high-tech start-ups will be a transition from individuals to communities, from organizations to networks, and from silos to partnerships. Leaders will need to focus on multilevel approaches, a balance between self and shared leadership, ethical and value-based leadership style, physical and mental fitness, generational difference management, networking, creativity, emotions, and spirituality to ensure sustainability and growth.

Appendix

Appendix - A

Newspapers' headlines about leadership in high-tech start-ups in India and others

- 'Indian start-ups pay top dollars for silicon valley talent'—Source: Verma and Dalal (2015)
- 'Psyche of start-up leaders'—Source: Burling (2007)
- 'Quikr buys Common Floor in a $200 mn all-stock deal'—Source: BS Reporter, Bengaluru (2016)
- 'Have start-ups benefited from expensive Silicon Valley recruits?'—Source: Verma and Dalal (2016)
- 'Internet start-ups thrive in China while India lags: experts'—Source: Kumar (2012)

Appendix -B

Statistics ofhigh-tech start-ups in top 25 cities of India

City	*State*	*Total start-ups*	*Total funding*	*Population (mn)*	*Literacy %*	*CBD rents (per sqft/ month) in INR*
Bengaluru	Karnataka	689	$7.99 bn	8.43	89.6	98
Mumbai	Maharashtra	423	$2.67 bn	12.48	90.3	210
Delhi	NCT	324	$2.91 bn	11.01	87.6	249
Gurgaon	Haryana	236	$2.38 bn	0.88	86.3	75
Hyderabad	Andhra Pradesh	115	$258 mn	6.81	83	53
Chennai	Tamil Nadu	107	$845 mn	4.68	90.3	71
Pune	Maharashtra	100	$322 mn	3.12	91.6	77
Noida	Uttar Pradesh	88	$1.25 bn	0.64	88.6	46
Ahmedabad	Gujarat	43	$77.9 mn	5.57	89.6	38
Jaipur	Rajasthan	21	$117 mn	3.07	84.3	30–40
Kolkata	West Bengal	11	$2.34 mn	4.49	87.1	115
Kochi	Kerala	10	$3.37 mn	0.6	97.5	50
Indore	Madhya Pradesh	9	$1.03 mn	1.96	87.4	40–50
Nagpur	Maharashtra	6	$4,47,000	2.41	93.1	50–63
Kanpur	Uttar Pradesh	6	$4,10,000	2.77	84.1	25–30
Chandigarh	Chandigarh (UT)	6	$16.8 mn	0.96	86.8	40–50
Vadodara	Gujarat	5	$2.6 mn	1.67	92.4	30–35
Thiruvananthapuram	Kerala	4	$2,50,000	0.75	93.7	28-33
Thane	Maharashtra	4	$5,50,000	1.82	91.4	61
Goa	Goa	6	$4.1 mn	1.4	88.7	50–60
Mohali	Punjab	4	$8.26 mn	0.15	93.2	40–45
Coimbatore	Tamil Nadu	4	$5.53 mn	1.06	91.7	30–35
Mysuru	Karnataka	3	$15 mn	0.89	86.8	50–55
Lucknow	Uttar Pradesh	3	$1,50,000	2.8	84.7	NA
Udupi	Karnataka	2	$18.6 mn	0.13	93.9	50–55

(*Source* Seetharaman, 2016)

Appendix - C

The Economic Times Start-up Awards, 2016

Sr. no.	*Title of the start-up award*	*Criteria for award*	*Winner and takeaways for new start-ups*
1.	Start-up of the year	This award goes to a start-up which has the potential to become a blue-chip company. The criteria for selection include break-through innovation, flawless execution, and exponential growth	For 2016, Freshdesk a cloud-based customer engagement software provider with presence in 145 countries and 80,000 plus clients was declared start-up of the year
2.	Midas touch award for best investor	This award recognizes an investor who has a history of identifying potential winners. The start-ups financed by that investor must have shown rapid-paced growth	Matrix partners India, founded by Avnish Bajaj in 2006, was recognized for this category of award. Its important investments have been in high-tech start-ups such as Ola, Quikr, and Practo—all of which have demonstrated high growth and market leadership
3.	Best on campus	This award demonstrates a start-up whose impact can be judged both by the idea and the execution. The start-up idea should have budded in the educational campus	Ather Energy, a start-up incubated by Tarun Mehta and Swapnil Jain at IIT-Madras, has developed its first smart electric scooter prototype and was recognized 'Best on Campus' for 2016. Backed by angel investment from Flipkart founders, these scooters will be manufactured at a production plant in Bengaluru
4.	Top innovator	This award recognizes innovations that launch a business or boost others with an original idea that is a core to the business or the one that provides the differentiation	Mitra Biotech, a US-based company with R&D center in Bengaluru, founded by Mallik Sundaram and Pradip Majumder, received the honor in this category. The start-up's patented technology platform, CANscript, helps hospitals and doctors to find the right combination and sequence of drugs to be administered to cancer patients

(continued)

Sr. no.	*Title of the start-up award*	*Criteria for award*	*Winner and takeaways for new start-ups*
5.	Bootstrap champ	This start-up will have demonstrated the ability to win clients and earn revenue without the aid of outside finances	Zerodha, founded by Nithin Kamath, offers equity investment services, currency and commodity trading, and retail and institutional broking services received the award for this category
6.	Woman ahead	This category awards a woman founder who leads her start-up and wins against the best in the business. In the start-up ecosystem in India that is starved of women leaders	Meena Ganesh, founder and leader of Portea Medical, received the award. The company, that brings in-home patients the full range of geriatric, chronic, postoperative care, and allied healthcare services, has expanded operations in 20 cities with 5000 employees
7.	Comeback kid	This award celebrates failure and recognizes those who have survived the failure to tell the tale with a come-back to rebuild or launch a successful start-up	FreeCharge, founded by Kunal Shah, which is present in several bill payment and recharge categories, has received this category award for 2016
8.	Social enterprise	This award recognizes the start-up that best embodies the dual goal of profits and public good	AgroStar, a mobile commerce platform through which farmers procure the right raw material, real-time information, and assistance, founded by Shardul and Sitanshu Sheth in June 2016, was recognized for this category of award

(*Source* Authors' interpretation based on Team ET, Bengaluru 2016)

Appendix - D

List of abbreviations used

Abbreviation	Full form
AIM	Atal Innovation Mission
CBD	Central Business District
CEO	Chief Executive Officer
CFO	Chief Financial Officer
COO	Chief Operating Officer
CSR	Corporate Social Responsibility
DNA	Deoxyribonucleic Acid
EO	Entrepreneurial Orientation
ET	The Economic Times
GSF	Gross Square Feet
GST	Goods and Services Tax
HR	Human Resources
ICT	Information and Communication Technology
IIM-A	Indian Institute of Management—Ahmedabad
INR	Indian Rupee
IPO	Initial Public Offer
IT	Information Technology
NCR	National Capital Region
PE	Private Equity
PTI	Press Trust of India
RoW	Rest of the World
TMTs	Top Management Teams
UIDAI	Unique Identification Authority of India
UK	United Kingdom
US/USA	United States of America
USP	Unique Selling Proposition
VC	Venture Capital
VUCA	Volatile, Uncertain, Complex, Ambiguous

References

Bala Subrahmanya, M. H. (2015). New generation start-ups in India: What lessons can we learn from the past? *Economic and Political Weekly, 12*, 56–63.

Baldegger, U., & Gast, J. (2016). On the emergence of leadership in new ventures. *International Journal of Entrepreneurial Behavior & Research, 22*(6), 933–957.

Balodi, K. C., & Prabhu, J. (2014). Causal recipes for high performance—An exploratory comparative study of young high-technology firms from India and the UK. *International Journal of Entrepreneurial Behaviour & Research, 20*(6), 542–561.

Baporikar, N. (2015). Framework for social change through startups in India. *International Journal of Civic-Engagement and Social Change, 2*(1), 30–42.

Basu, S. D., & Sengupta, D. (2016). *Thrifty Indian startups eye local talent.* Retrieved on May 29, 2016, from http://economictimes.indiatimes.com/small-biz/startups/thrifty-indian-startups-eye-local-talent/articleshow/51986686.cms.

Bhattacharya, S. (2016). *Urban ladder now wants staffers' careers to climb.* Retrieved on August 5, 2016, from http://retail.economictimes.indiatimes.com/news/e-commerce/e-tailing/urban-ladder-now-wants-staffers-careers-to-climb/53496166.

Bhattacharyya, R., & Verma Dadhwal, P. (2016). Young startup leaders lead from the front. *The Economic Times*, Ahmedabad Edition, p. 6.

Bjornali, E. S., Knockaert, M., & Erikson, T. (2016). The impact of top management team characteristics and board service involvement on team effectiveness in high-tech start-ups. *Long Range Planning, 49*, 447–463.

Blank, S. G., & Dorf, B. (2012). *The startup owner's manual: The step-by-step guide for building a great company.* Pescadero, CA: K&S Ranch Inc.

BS Reporter, Bengaluru. (2016). *Quikr buys common floor in $200-mn all-stock deal.* Retrieved on February 16, 2016, from http://www.business-standard.com/article/companies/quikr-buys-commonfloor-in-200-mn-all-stock-deal-116010800047_1.html.

Burling, S. (2007). *Venture into psyches leadership is key to start-ups, and psychological testing of prospective CEOs could raise success, some say. It's a tough sell.* Retrieved on April 15, 2015, from http://articles.philly.com/2007-08-12/business/25230698_1_venture-capital-middle-managers-psychologist.

Capgemini Consulting, Fahrenheit 212 and Altimeter Analysis. (2016). Retrieved on January 3, 2017, from https://www.capgemini-consulting.com/resource-file-access/resource/pdf/asia-innovation-centers-research.pdf.

Chakravarty, D. (2017, February 13–19). Create a followership. *The Economic Times Wealth.*

Chanchani, M., & Shrivastava, A. (2016, August 12). The ET India startup ecosystem barometer. *The Economic Times*, Ahmedabad Edition, p. 18.

Chen, W., & Tan, J. (2009). Understanding transnational entrepreneurship through a network lens: Theoretical and methodological considerations. *Entrepreneurship Theory and Practice, 33*(5), 1079–1091.

Chitravanshi, R. (2016, February 16). Make in India—A path for the lion. *The Economic Times*, Ahmedabad Edition, p. 24.

Chitravanshi, R. (2017). *Government's credit guarantee scheme to give startups a loan lifeline of up to Rs. 5 crore.* Retrieved on March 15, 2017, from http://economictimes.indiatimes.com/small-biz/startups/governments-credit-guarantee-scheme-to-give-startups-a-loan-lifeline-of-up-to-rs-5-crore/articleshow/57610609.cms.

Davila, A., Foster, G., & Jia, N. (2010). Building sustainable high-growth startup companies: Management systems as an accelerator. *California Management Review, 52*(3), 79–105.

Delmar, F., & Wiklund, J. (2008). The effect of small business managers' growth motivation on firm growth: A longitudinal study. *Entrepreneurship Theory and Practice, 32*(3), 437–457.

Freeman, D., & Siegfried, R., Jr. (2015). Entrepreneurial leadership in the context of company start-up and growth. *Journal of Leadership Studies, 8*(4), 35–39.

Goyal, M. (2015, March 22–28). When an idea and money meet. *The Economic Times Magazine*, Ahmedabad Edition, pp. 4–6.

Goyal, M. (2016, August 21–27). Inside Y Combinator. *The Economic Times Magazine*, Ahmedabad Edition, pp. 4–7.

Gundecha, M. (2016). *Five types of startup love*. Retrieved on July 10, 2016, from http://economictimes.indiatimes.com/small-biz/startups/five-types-of-startup-love/articleshow/52705548.cms.

Gupta, A. (2015). *Nine reasons why India needs in-situ incubation*. Retrieved on September 19, 2015, from http://hdl.handle.net/11718/14015.

Gutierrez, B., Spencer, S. M., & Zhu, G. (2012). Thinking globally, leading locally: Chinese, Indian and western leadership. *Cross Cultural Management, 19*(1), 67–89.

Hambrick, D. C. (2007). Upper echelons theory: An update. *Academy of Management Review, 32*(2), 334–343.

Hartley, S. (2017). *The heart of technology*. Retrieved on May 1, 2017, from http://blogs.economictimes.indiatimes.com/et-commentary/humanities-for-innovation-the-heart-of-technology/.

Hoch, J. (2013). Shared leadership and innovation: The role of vertical leadership and employee integrity. *Journal of Business Psychology, 28*(2), 159–174.

Hourd, P. C., & Williams, D. J. (2008). Results from an exploratory study to identify the factors that contribute to success for U.K. medical device small and medium-sized enterprises. *Journal of Engineering in Medicine, 222,* 717–735.

Jain, R., & Ali, S. W. (2012). Personal characteristics of Indian entrepreneurs and intrapreneurs an empirical study. *Management and Labour Studies, 37*(4), 295–322.

Kalra, M. (2016, August 3–9). From startup to keep up. *The Economic Times Brand Equity*, West, p. 2.

Kang, J., Solomon, G., & Choi, D. (2015). CEO's leadership styles and managers' innovative behaviour: Investigation of intervening effects in an entrepreneurial context. *Journal of Management Studies, 52*(4), 531–554.

Khanna, T. (2015). *Building the pyramid*. Retrieved on September 10, 2015, from epaperbeta.timesofindia.com.

Koryak, O., Mole, K., Lockett, A., Hayton, J., Ucbasaran, D., & Hodgkinson, G. (2015). Entrepreneurial leadership, capabilities and firm growth. *International Small Business Journal, 33*(1), 89–105.

Krishna, H. S., & Bala Subrahmanya, M. H. (2015). Transnational entrepreneurship and Indian high-tech start-up survival: An empirical investigation. *South Asian Journal of Management, 22*(2), 81–98.

Kumar, D. (2016). *Why Indian startups are not making sense*. Retrieved on July 20, 2016, from http://economictimes.indiatimes.com/small-biz/startups/why-indian-startups-are-not-making-sense/articleshow/53147422.cms.

Kumar, J. S. (2012). *Internet start-ups thrive in China while India lags: Experts*. Retrieved on April 15, 2015, from http://www.livemint.com/Companies/D80Xj0DQUXzDESWRXbAjwJ/Internet-startups-thrive-in-China-while-India-lags-experts.html.

Layak, S. (2016, August 7–13). Get out of town!. *The Economic Times Magazine*, Ahmedabad Edition, pp. 4–13.

Luger, M. I., & Koo, J. (2005). Defining and business start-ups. *Small Business Economics, 24*, 17–28.

Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review, 21*(1), 135–172.

Mazumdar, N. (2015, October 25). HR lessons from start-ups. *Business Today*, pp. 133–134.

Mehra, A. (2016). *Investment in startups-adventure capital stories*. Retrieved on July 15, 2016, from epaperbeta.timesofindia.com.

Petrie, N. (2014). *Future trends in leadership development*. Centre for Leadership Development. Retrieved on August 19, 2016, from www.ccl.org/wp-content/uploads/2015/04/futureTrends.pdf.

Piscione, D. P. (2013). *Secrets of silicon valley: What everyone else can learn from the innovation capital of the world*. Hardcover: Palgrave Macmillan.

PTI. (2016). *India world's third biggest tech startup hub: Study*. Retrieved on August 22, 2016, from http://economictimes.indiatimes.com/small-biz/startups/india-worlds-third-biggest-tech-startup-hub-study/articleshow/53794155.cms.

Sachitanand, R., & Singh, R. (2016, June 12–18). Stressed out. *The Economic Times Magazine*, Ahmedabad Edition, pp. 4–5.

Santhanam, M. (2014). Leaders don't build leaders: Know the 3 reasons. *Leadership Excellence, 31*(6), 60.

Seetharaman, G. (2016, August 7–13). Startup and the city. *The Economic Times Magazine*, Ahmedabad Edition, pp. 12–13.

Sharma, S. (2015). *Starting up a new company: So simple, yet so hard*. Retrieved on August 27, 2015, from blogs.economictimes.indiatimes.com.

Singh, N., & Krishnan, V. (2007). Transformational leadership in India: Developing and validating a new scale using grounded theory approach. *International Journal of Cross Cultural Management, 7*(2), 219–236.

Sinha, S. (2015). The exploration-exploitation dilemma: A review in the context of managing growth of new ventures. *Vikalpa, 40*(3), 313–323.
Sukumar, R. (2017). *Infosys ceasefire leaves three questions unanswered*. Retrieved on March 5, 2017, from http://www.livemint.com/Opinion/9Q9Oc2EjjsWforcv4aNdBO/Infosys-ceasefire-leaves-three-questions-unanswered.html.
Team ET, Bengaluru. (2016, August 8). Freshdesk is the ET's Startup of The Year. *The Economic Times*, Ahmedabad Edition, pp. 1, 7–8, 13–14.
Top Ten Indian Tech-based Start-ups. (2016). Retrieved on June 1, 2017, from https://www.techinasia.com/indias-top-30-startup-founders.
Tsai, S. & Lan, T. (n.d.). *Development of a startup business—A complexity theory perspective*. Retrieved on January 5, 2017, from bschool.cihk.ed.hk/asia-aom/05_paper/10_tsai.pdf.
Verma, S., & Dalal, M. (2015). *Start-ups pay top dollar for Silicon Valley talent*. Retrieved on December 15, 2015, from http://www.livemint.com/Companies/55bKNDKYIn4YFlBVuuxitL/Startups-pay-top-dollar-for-Silicon-Valley-talent.html.
Verma, S., & Dalal, M. (2016). *Have start-ups benefited from expensive Silicon Valley recruits?* Retrieved on May 20, 2016, from http://www.livemint.com/Companies/kaoQiWy1HxqRmNjKaBP0kI/Have-startups-benefited-from-expensive-Silicon-Valley-recru.html.
Vignesh, J., Shaikh, S., & Balasubramanyam. (2016, June 22). The infosys cohort. *The Economic Times*, Ahmedabad Edition, p. 16.
Watkins, M. (2004). Strategy for the critical first 90 days of leadership. *Strategy & Leadership, 32*(1), 15–21.
Zaech, S., & Baldegger, U. (2017). Leadership in start-ups. *International Small Business Journal, 35*(2), 157–177.

Authors' Biography

Dr. Deepal Joshi is associated with Som Lalit Institute of Business Administration, Ahmedabad, Gujarat, India, as a fulltime faculty, since the past 17 years, and is the in-charge director of the Bachelors of Business Administration (Management Undergraduate) program. Besides being a gold medalist in management under-graduate and graduate study, she has completed her doctorate in management on 'Trends in B2C e-commerce' under the guidance of Dr. Sarla Achuthan, Ex-Director, B.K. School of Business Management, Gujarat University, Ahmedabad, India.

Her research interests include trends in B2C e-commerce, e-loyalty, Website usage experiences of e-buyers, leadership in Indian high-tech start-ups and governance of higher education in India. Her research papers on various topics in marketing management have been published in reputed national and international journals. She has also presented papers in reputed conferences.

She has about two decades of teaching experience for management students at the undergraduate studies. She has played diverse roles such as examination coordinator and chairman of the syllabus revision committees for management courses.

Dr. Sarla Achuthan is currently Director, Gujarat Law Society (GLS) Centre for Research and Development, GLS University, Ahmedabad, India. She started her career as a research staff in the Indian Institute of Management, Ahmedabad (IIM-A). Later, she joined B.K. School of Business Management, Gujarat University (GU), where she rendered her services as Associate Professor and Professor and was the Director, B.K. School of Business Management for 15 years and concurrently held additional charge as Director of K.S. School of Business Management (GU) for 10 years. She has played an active role in the growth of Management Education in Gujarat. With an enriching teaching/research experience of over three decades, her teaching engagements include IIM-A and MICA. She was the Convener of a single window system for admissions to professional courses in management and computers of Universities of Gujarat, for three years. She was involved in several projects funded by All India Council for Technical Education (AICTE), University Grants Commission (UGC), and Canadian International Development Agency (CIDA). She has a number of publications to her credit and several students have completed their Ph.D. under her guidance. She was on the Board of several educational and financial institutions in Gujarat.

CHAPTER 4

Complexity: The Tipping Point for Leadership

Kadambari Ram

Broadly speaking, the concept of leadership springs to mind the notion of an individual, team, or organization able to make informed decisions to bring about effective solutions to specific given problems. To some, the concept of leadership relays a sense of central control, and that failure to appoint a leader or governing body might summon the law of entropy to wreak havoc in our world. As the law of entropy or second law of thermodynamics is indeed a supreme law of nature, there is some reason in the fear of havoc arising from the absence of leadership. However, what if chaos could be avoided in the absence of central control, and if not completely avoided then better understood for decision-making

Author Note: The human mind is capable of so much. The key to unlocking its infinite potential truly lies in traversing the bridge of knowledge, thereby enabling the average mind to reach the transformative heights of leadership. The measure of a leader lies in the positive change he/she is able to affect, and the processes therein involved. Complexity theory provides the tools for recognizing, understanding, and addressing the most complex problems characteristic of our time.

K. Ram (✉)
Zen Clinical, Cape Town, South Africa

B. S. Thakkar (ed.), *The Future of Leadership*,
https://doi.org/10.1007/978-3-319-73870-3_4

purposes? What if organization and order were emergent properties of a certain type of system via the cooperative behaviors of free acting agents, none of whom were leaders? This type of self-organizing behavior is seen in nature through the behaviors of flocking birds, swarming bees, schooling fish, and ant colonies; behaviors that often benefit the collective in the absence of an unseen hand or perhaps in the presence of the unseen hand of evolution, depending on one's worldview. How might this notion of self-organization affect leadership and vice versa? Like our animal and insect counterparts, human societies too can be viewed as hives or swarms that are a part of socio-technical and socio-ecological systems, the collective behaviors of which have been shown to anthropologically affect the planet in adverse ways resulting in climate change, mass extinction of species, genocide, war, famine, and poverty representing high priority global leadership challenges. The question then arises as to how the principle of self-organization applies to socio-technical/ecological/economic systems with the aim of providing insight into the cost of complexity for the development of strategies, solutions, and policies such that informed decision-making may address critical leadership challenges ranging from climate change to viral epidemics.

Brief History of Complexity

For the benefit of the reader, it is necessary to briefly outline the background and concept of complexity. The notion that problems and/or systems can be understood in terms of their constituent parts is the basis of scientific reductionism, also known as Cartesian reductionism or hard science, which dominated scientific enquiry since the 1600s until the late nineteenth century. In the early seventeenth century, Rene Descartes developed the Cartesian coordinate system, which informed the dominating scientific view of Cartesian reductionism, through which systems including the biological body are viewed as machines, with the mind being separate. This Cartesian dualism view of mind/body based on the machine metaphor is still adopted by many today. Simple systems are adequately understood through the lens of Cartesian reductionism; for example, it is possible to understand how a bicycle works by examining its individual parts, and when those parts are assembled the bicycle functions as a machine; there is nothing "extra" in the "behavior" of that bicycle. However, the same cannot be said for a frog. The parts of a frog do not explain why it may choose to sit on a lily pad one day and a stone

on another day; there is something "extra" in the behavior of the frog, representing one of a myriad of complex problems unanswered by hard science.

Reductionism became less appealing in the twentieth century as a result of its inadequacy to address complex problems and systems such as economies, insect colonies, climate change, the World Wide Web, adaptation by living organisms and diseases, the human brain and immune system, computational intelligence, and understanding consciousness. The irony is that these systems emerged despite their lack of hard scientific description, hinting at a veil to our view of the world, a deep deception created by hard science, our most trusted source of truth, revealing an articulately constructed Platonian cave. This realization spawned the counter-reductionist view that the whole is greater than or different from the sum of its parts, capable of adaptation, with the advent of systems, chaos, and network theories. More specifically, the Santa Fe Institute was founded in 1984 for the study of complex systems, viewed as an interdisciplinary field of research.

Complex systems exhibit common properties such as complex collective behavior, as demonstrated by ant colonies; signal and information processing eloquently displayed in the dances of bees; and adaptation such as various species acquiring additional physical or behavioral traits better suited to their environments. Mitchell (2009) proposed a definition of complex systems as exhibiting self-organizing and emergent behavior in the absence of global or central control. However, posed as a solution to the questions unanswered by reductionism, complexity science requires methods and means of quantitative measurement, in addition to the qualitative descriptions of complexity discussed above. Examining the quantitative nature of complexity reveals that no single theory of complexity exists; instead, complexity might be quantitatively described using dynamical systems theory (DST), chaos theory, information theory, and prediction.

Dynamical Systems, Chaos, and Prediction

Understanding the dynamics of chaos is relevant to a thorough analysis of the traits required for leadership from the perspective that future leaders should be able to understand the scientific meaning of prediction for the purpose of deciding the appropriate and effective course of action for a given scenario. Chaos theory is relevant to leadership from the

perspective that it may influence how leaders respond to the unfolding of chaotic events, which to the uninformed mind will appear random. Informed leaders are equipped leaders in this sense, with the tools of DST, chaos, and prediction as components of complexity theory serving to better equip.

Dynamical systems are systems that demonstrate behavior that changes in a complex and dynamical way, including systems such as the stock market, the solar system, the heart, the brain, climate change. As such dynamical systems theory provides methods for describing the way these systems change and behave over time in general terms. One might consider the theory of dynamical systems as a language or tool for describing and predicting the way dynamical systems work and behave.

DST is the branch of mathematics that describes how systems change over time. The trajectory of DST began with the Copernican revolution, which provided a new static framework for the solar system, following which Aristotle (384 BCE–322 BCE) asserted that objects move in straight lines unless acted upon by a force, that celestial bodies move in perfect circles around the Earth, and that different objects on Earth move according to their composition. However, in 1609, Galileo (1564–1642) was the first person to observe the sky through a telescope of his creation and observed that celestial bodies did not in fact revolve around the Earth, but rather around the Sun (http://www.solarsystem.nasa.org). Also, in 1609, Kepler (1571–1630) disproved Aristotle's theory of circular motion by showing that the planets moved in elliptical paths (Fig. 4.1). Nevertheless, it was ultimately Newton who served arguably the most influential role in the history of dynamics and invented calculus, the language of motion or mechanics, as referred to by physicists. Newton's three laws of motion became the holy grail of science, perfectly applicable in a general way to all things earthly and celestial. As such, the Newtonian Paradigm informed by Descartes Cartesian reductionism became the basis of hard science, or the dominant method for formalizing observations also known as the scientific method (Mikulecky, 2001).

In 1814, the mathematician Pierre Simon Laplace asserted his clockwork conceptualization of prediction. In view of Newton's three laws of motion, Laplace posited that it was theoretically possible to predict everything for all time. More than a century later, in 1927, Heisenberg showed that it is impossible to perfectly predict the exact position and momentum of a quantum particle simultaneously, which became known

as the "Heisenberg Uncertainty Principle." However, due to the quantum nature of Heisenberg's experiments, perfect prediction had not yet been deemed entirely impossible. Finally, in 1887, Poincaré discovered the notion of chaotic systems by attempting to carry out a celestial mechanics experiment known as the three-body problem (Barrow-Green, 1997). Although he did not succeed in demonstrating the future positions of all three bodies, Poincaré invented algebraic topology in the process and discovered the principle of "sensitive dependence on initial conditions," colloquially referred to as the "butterfly effect," which states that even the tiniest uncertainties of measurements in initial positions result in massive long-term errors in prediction. In 1963, Poincaré's finding was further substantiated by Edward Lorenz, a meteorologist who found that the weather could not be accurately predicted despite the invention of the electronic computer, as computer

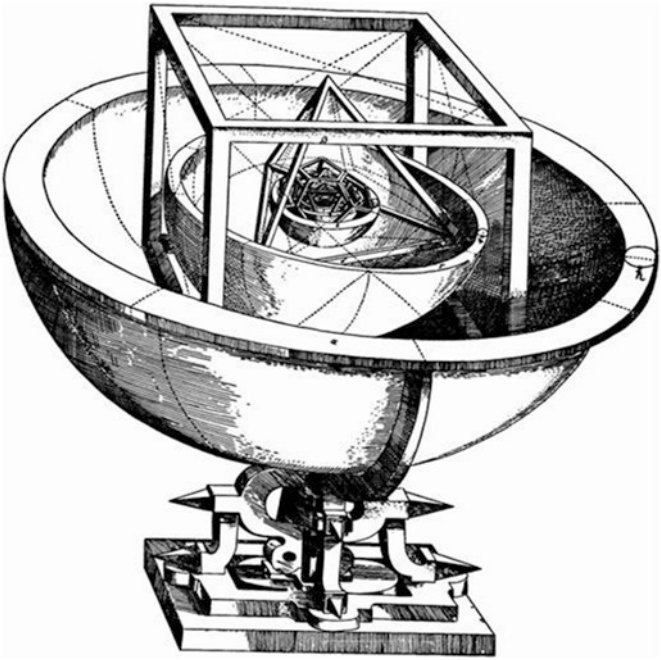


Fig. 4.1 Kepler's Platonic solid model of the solar system from Mysterium Cosmographicum

weather models themselves were subject to sensitive dependence on initial conditions, thereby putting the plausibility of a clockwork universe to rest. It was only later that Li and Yorke (1975) used the term "chaos" to describe dynamical systems that are sensitive to initial conditions.

Leadership Tools for Prediction

In order to introduce the concepts comprising chaos theory, let me introduce the logistic map, which is one of the simplest examples of a system that exhibits chaotic behavior. The logistic map and its equation graphically and mathematically depict sensitive dependence on initial conditions and how the whole is greater than or different from the sum of its parts. The logistic map equation is the model for population growth depicted by:

$Xt + 1 = rxt(1 - xt)$, where "r" is the combined effect of birth rate and death rate into a single number, and "x" is the fraction of a system's carrying capacity.

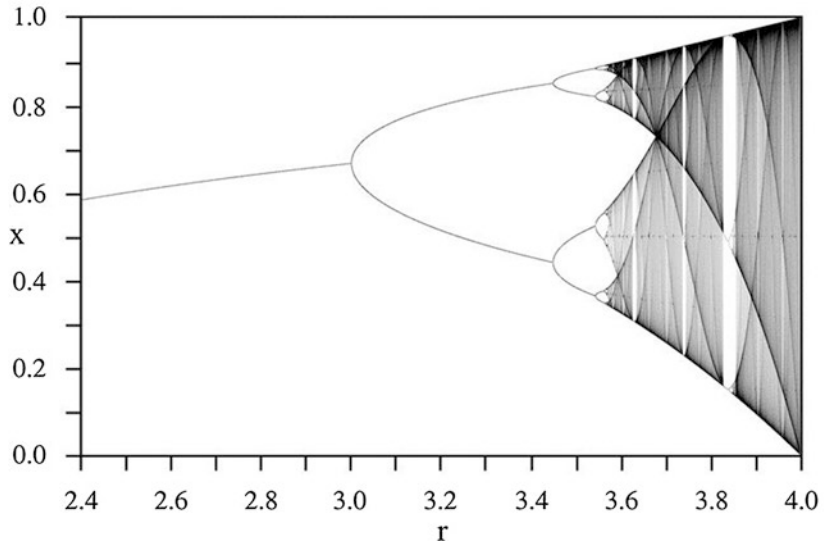


Fig. 4.2 Graph of the logistic map with $X =$ fraction of carrying capacity, and $r =$ combined effect of birth rate and death rate

Varying the value of "r" produces different and interesting results with different classes of attractors: fixed point, periodic and chaotic, or strange attractors. The type of attractor exhibited by the system, by varying "r", plotted on the x-axis in Fig. 4.2, characterizes the behavior of a dynamical system. In the 1970s, Feigenbaum deemed the period doubling route to chaos, demonstrated by the logistic map depicted in Fig. 4.2, a universal feature of chaotic systems. The second universal feature of chaotic systems is known as "Feigenbaum's constant," which is the value of 4.6692016 or the rate at which all unimodal maps converge to chaos. From this perspective, although prediction might be difficult, the mathematical language of dynamical systems provides a means of describing universal properties and behaviors of chaotic systems.

Examination of Fig. 4.2 reveals that the period 2 bifurcation occurs at $r1 \approx 3.0$, period 4 bifurcation occurs at $r2 \approx 3.44949$, period 8 bifurcation occurs at $r3 \approx 3.54409$, period 16 bifurcation occurs at $r4 \approx 3.564407$, period 32 bifurcation occurs at $r5 \approx 3.568759$, and period ∞ is the onset of chaos which occurs at $r\infty \approx 3.569946$, which mathematically depicts the universal period doubling route to chaos property of unimodal chaotic systems. Accordingly, Feigenbaum's constant or the second universal property of unimodal chaotic systems is the rate at which the distance between bifurcations decreases, which converges to the value of 4.6692016.

All complex systems are adaptive. In 1992, Holland wrote an influential paper in which he discussed the "evolving structure" of complex systems. Holland articulated that the common properties or universal features of complex systems were significant enough to group them collectively under the rubric of "complex adaptive systems" (CAS).

Furthermore, Holland argued that the common principles of complex adaptive systems provided a structural foundation for the development of computation-based models, which could inform decision-making to address critical leadership problems. Holland's work emphasized the role of computational models in understanding complex adaptive systems, and assisting experts, despite their potential lack of expertise in the field of computer science, to formulate decisions.

In line with the work carried out at the Santa Fe Institute, Holland (1992) opined that complex adaptive systems share common characteristics, albeit Holland observed "evolution," "aggregate behavior," and "anticipation" to be these common characteristics. Additionally, Holland viewed these former characteristics as the result of sets of rules, which

rely on the mechanisms of "parallelism," "competition," and "recombination" with the aim of balancing the process of acquiring new information (exploration) with the process of using the existing information and capabilities most efficiently (exploitation). However, in 2005, Holland included "parallelism" as one of four major features shared by complex adaptive systems in reference to their information processing capabilities, the other three being "conditional action," "modularity," and "adaptation and evolution." While Holland clearly identified the difficulties and challenges of complex adaptive systems, the author elucidated that further study of complex adaptive systems vis-à-vis understanding lever points, boundaries, computer-based models for open-ended evolution, seed machines, evolving reaction networks, models of language acquisition and evolution, revised methods of risk-taking, diversity and parallelism, and the problem of credit assignment would facilitate improvements in many fields relevant to leadership.

Measures of Complexity

As I mentioned above, if complexity is to rival reductionism as a competing scientific worldview, then adequate quantitative measurements of complexity are required. In other words, what measures might we use to answer questions such as: Have the past four billion years of evolution resulted in biological organisms becoming more complex? Is there some form of hierarchy in biological evolutionary complexity, i.e., is the brain of a bird more complex than an ant brain, and the human brain more complex than that of a bird? Several thinkers have responded to the need for quantitative descriptions of complexity since its inception, proposing various measures thereof, 40 of which were captured by Lloyd (2001) in a non-exhaustive list of measures of complexity grouped according to the underlying themes of complex systems, defined by the three questions below:

"How hard is it to describe?" (Measured in bits)
"How hard is it to create?" (Measured in time, energy, pounds, etc.)
"What is the degree of organization?" (Measured according to the context)

The difficulty of measurement in the field of complexity is by no means a novel phenomenon and, in fact, is common to any nascent field of

scientific research. Newton experienced difficulty in measurement when trying to describe the notion of force, as was the case with electromagnetism before Maxwell's equations. What follows is a brief discussion of several proposed measures of complexity listed according to the three questions proposed by Lloyd (2001) as discussed above. While each may offer advantages and disadvantages, it is largely the context that informs the choice of measure.

Difficulty of Description

Entropy: Lloyd (2001) listed entropy under the category "difficulty of description"; however, Mitchell (2009) discussed Shannon entropy as a measure of complexity which requires that the complex thing under consideration be converted into messages, an obvious limitation of this form of measurement. Furthermore, as Shannon entropy considers messages that are random to be more complex, if the human genome were measured using Shannon entropy in relation to a randomly generated genome, the latter would be considered more complex, which is intuitively not the case.

Difficulty of Creation

Logical Depth

Bennett described this measure of complexity in the 1980s as the computational construction of an object using a string of 0s and 1s, implying that more complex objects would be harder to construct. For example, the nucleotide ATGC could be constructed using a string of 0s and 1s by assigning a combination of 0s and 1s to each letter. However, the challenges of this method are that natural objects are at best difficult to encode in binary and the length of time required to process such computations, assuming they are possible, might be impractical.

Thermodynamic Depth

Like logical depth the notion of thermodynamic depth is appealing in theory, however, gargantuan of a task in practice, requiring that all the steps involved in creating the system, life-form or object be listed in order to calculate its thermodynamic depth. One problem with this

approach is that of boundaries; of where to begin and where to end in defining the processes involved in creating something. For example, assuming that the known universe came into existence as a result of the "Big Bang," then how is the initial "Bang" quantified thermodynamically in order to calculate the thermodynamic depth of the Earth or any other planet for that matter. Even if we could quantify the "Big Bang," how deep do we go? Molecular? Subatomic? Quantum? Furthermore, since the Earth is still in existence, its thermodynamic depth would have to be recalculated at every present time step in order to be relevant. The vastness of calculations required for thermodynamic depth places it in the realm of intractable or NP-hard problems.

Difficulty of Organization

Algorithmic information content. This measure of complexity is defined as the shortest computer program able to describe the object completely. In a similar vein to Shannon entropy, the more random the algorithmic information content of an object is, the greater the complexity. However as is the case with Shannon entropy in measuring the complexity of the human genome, a greater degree of randomness does not necessarily imply a greater degree of complexity. To address this problem, Gell-Mann (2002) proposed the notion of effective complexity, which measures the algorithmic information content of a set of regularities. However, the latter is criticized for its subjectivity.

Fractal Dimension

The French mathematician Benoit Mandelbrot was the first to coin the term fractal, which refers to geometric self-similarity of an object at all scales, be it infinitely small or infinitely large. Mathematically, the Koch curve, as proposed by Swedish mathematician Helge von Koch in 1904, is a perfect fractal. In the real world, many things display a degree of self-similarity as you zoom in and out of them, such as trees, many plants, snowflakes, many living organisms, coastlines, and even galaxies and the universe are theorized to be fractal-like. Fractal dimension as a measure of complexity quantifies how the size of an object changes in relation to the magnification. Fractal dimension as a measure of complexity is currently used in the prognosis of cancer, as it was found that the fractal dimension of a tumor is proportional to its aggressiveness.

Hierarchical Complexity

Another type of effective complexity as categorized by Lloyd (2001), hierarchical complexity measures the degree to which complex systems are nested within other complex systems, intimating that organisms become more complex over evolutionary time. For example, amino acids are complex level 1 systems that serve as the building blocks of complex level 2 systems known as polypeptides, which in turn are nested within complex level 3 systems called proteins and so on (see Fig. 4.3).

Statistical Complexity

Related to Shannon entropy, statistical complexity is a type of effective complexity that measures the minimum amount of past information required to predict the future statistical behavior of a system using information about the behavior of the system quantified as messages. As such the behavior of the resulting model should be indistinguishable from that of the actual system. Similar to algorithmic information content as a measure of complexity, statistical complexity renders completely random and highly ordered systems as having low complexity and systems within

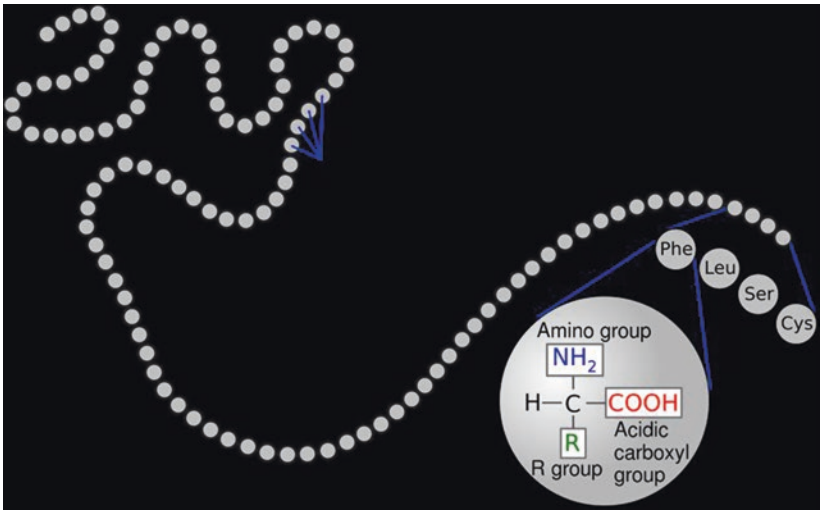


Fig. 4.3 Amino acids comprising a polypeptide chain

that range to be complex as intuitively expected. Statistical complexity has been used to measure the complexity of real-world systems such as the firing pattern of neurons (Haslinger, Klinkner, & Shalizi, 2010) and the atomic structure of complicated crystals (Varn, Canright, & Crutchfield, 2002).

Properties of Complex Adaptive Systems

Based on the discussion thus far, it is possible to now view our planet as a complex adaptive system consisting of complex adaptive sub-systems, which themselves consist of complex adaptive sub-sub-systems and so on. For example, the global biosphere as shown in Fig. 4.4 is a complex adaptive system, which consists in part of plants containing chlorophyll conducting the process of photosynthesis, which is a complex adaptive system in and of itself (Lenton & van Oijen, 2002). Within the chloroplast (see Fig. 4.5), multiple processes occur in order to transform the light energy received from the Sun into ATP and ADP or forms of energy which can be used within the plant, thereby representing the third sub-level of complex adaptive system of the global biosphere (see Fig. 4.4).

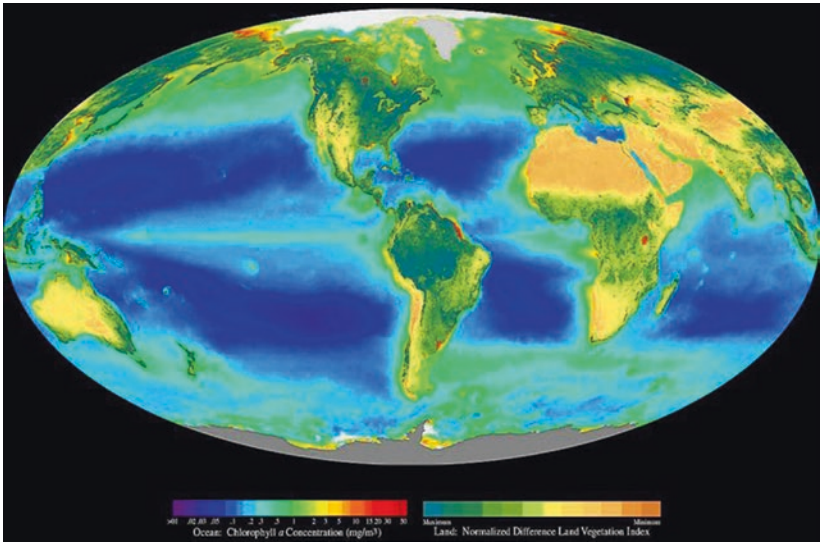


Fig. 4.4 Global biosphere September 1997–August 1998

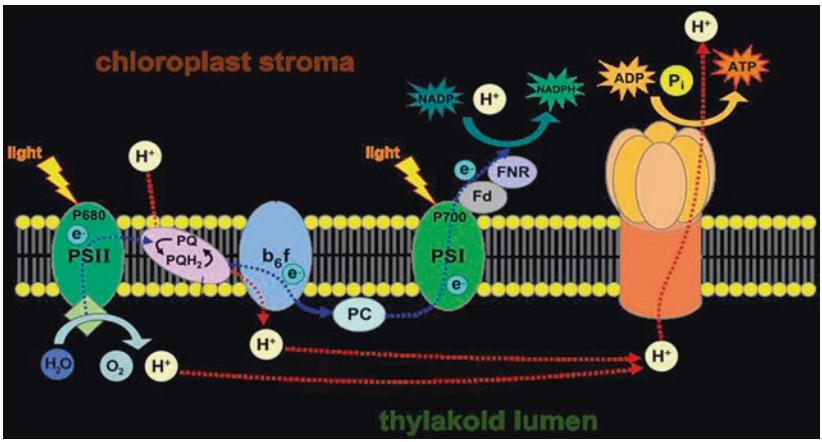


Fig. 4.5 Process of photosynthesis occurring at the chloroplast stroma of a plant leaf

These nested complex adaptive systems demonstrate self-similarity in both form and process with fractal-like geometry. In other words, if one zooms into a tree, the resulting image will look very much like the original image of the tree and this action can be repeated over and over again right down to the level of the chloroplast stroma, thereby representing a fractal-like structure.

While self-similarity is indeed a property of complex adaptive systems, the defining property of these systems is that of emergence. Other properties include observer dependency, evolution, adaptivity, robustness and resilience, and system nestedness, chaos and self-similarity, of which the last three have been previously discussed. Additionally, network theory and post-normal science are relevant to the study of complex adaptive systems.

Emergence

As previously mentioned, complexity theory developed partly in response to reductionism's inadequacy to capture the nuances of complex systems such as the human immune system. Nevertheless, there are still useful elements from the theory of reductionism that applies to the study of complex adaptive systems, or phrased another way, it is necessary

to acknowledge the usefulness of the individual parts of a system and their interaction that produces new and novel types of epiphenomena. However, complex adaptive systems also demonstrate traits that derive from holism, being that the whole is greater than or different from the sum of its parts, and that the parts are affected by downward causation. For example, the mind might be considered an emergent property of the complex adaptive animal physiology and that emergent mind can in turn affect the parts of the physiology by choosing what to eat, what to drink, which supplements to take, whether or not to exercise or meditate, how much to sleep, when to wake up, what to think about, etc.

As such, emergence is a property of complex adaptive systems characterized by novel features that cannot be derived from the parts of the system alone and cannot be reduced to the parts. Using the analogy above, the mind cannot be broken down into the organs of the human body, neither is it possible for the heart, lungs, or brain as individual organs on their own to produce a mind. The whole system is required for the phenomenon of emergence to manifest. It is also important to note that emergence is not intrinsically desirable, for example, climate change is an undesirable emergent phenomenon.

Observer Dependency

Leading on from the property of emergence is that of observer dependency. Relating to that aspect of emergence, which enables the emergent phenomena to inform and affect the system, similarly the observer cannot be separated from the system under observation. As such, the observer's worldview, his or her beliefs, philosophies, values, ethics, and so forth including the observer's scientific orientation and notions concerning formalisms affects the way the system is perceived and interpreted, in line with Einstein's observation that "it is the theory that decides what we are able to observe." The two sides of the observer dependency coin are objectivity and subjectivity, the former inferring that the object can be observed without prejudice from the subject and exists independently of the observer's subjective view of it with its own qualities and properties. Subjectivity on the other hand infers that the object being observed is interpreted by the observer and is therefore perceived in different ways.

Referring back to the dominant method of observation, or the scientific method based on the Newtonian Paradigm, the system is created

and observed through a subjective self-referential modeling process that does not capture all of its properties. To clarify, under the Newtonian Paradigm, theories are tested using the scientific method involving reducing the system to its parts and conducting empirical experimentation, deriving data, analyzing the data and feeding the findings back into the system, creating a process of self-referential feedback in which the system is influenced and affected by the findings of the model. The system starts to become the model, or reality becomes the formalism, but the formalism (the Newtonian Paradigm) does not capture all the system's properties to begin with. Several paradoxes should be evident at this point. Remember the bicycle and the frog? There was something "extra" in the behavior of the frog that Cartesian reductionism failed to capture by simply studying it parts, which we can now view as an emergent property of the whole being greater than or different from the sum of its parts. Observer dependence then relates to emergence in that the observer chooses the level at which to observe patterns of emergence and might observe patterns when they don't exist. For example, some might see the Virgin Mary on a tree, while others might just see an interesting colored pattern on the tree's bark.

Post-normal Science

In response to the challenges posed by observer dependency and the polarization of subjectivity and objectivity, post-normal science considers the elements of uncertainty, value loading, and the plurality of legitimate worldviews as integral to science. Post-normal science thus becomes increasingly more relevant with interdisciplinary sciences. Figure 4.6 depicts how the need for post-normal science increases as the system's uncertainties and decision stakes increase in contrast to applied science being appropriate for systems with low uncertainty and decision stakes.

Evolution

Evolution as an algorithmic process is central to the computation of complex adaptive systems. Evolution poses answers to the "how" questions relating to processes of systems; for example, Rammel, Stagl, and Wilfing (2007) discussed sustainability as an evolutionary process of particular importance for resource and economic management of complex adaptive systems. However, evolution does not answer the "why?" or

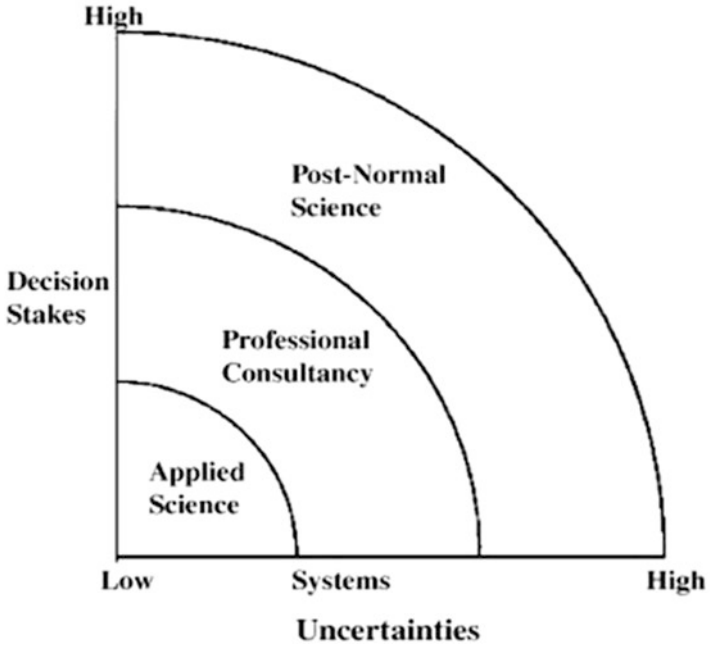


Fig. 4.6 Relation of post-normal science to traditional science

"where?" questions, such as why do galaxies exist and where do babies come from and is not considered to be a teleological process. Darwin's notion of "survival of the fittest" means that the organism best suited for the current circumstance or challenge survives; thus, evolution might be anthropomorphically described as a local optimizer. A deeper analysis of systems reveals the principle of coevolution or interdependent systems that evolve in relation to each other, such as the population of rabbits and the population of lynx, or the coevolution of technology with its socioeconomic and biophysical environment.

The discussion on measures of complexity above included the measure of algorithmic depth, which introduced the notion of intractability or problems that are too large to be computed fast enough to make them usable. The problem of scale, macroscopic, molecular, subatomic, quantum, etc., and the problem of defining an evolutionary process in terms of where does the process begin and end are behind the problem

of intractability. From this perspective, the myriad of processes involved in evolution renders it an intractable problem from a computational perspective.

Adaptivity

Holland's (2006) paper emphasized the role of computer-based models for studying complex adaptive systems. Specifically, agent-based modeling and simulation are considered to be the standard method for computational study of complex adaptive systems. As such adaptivity is applicable to agents for the purpose of modeling complex adaptive systems. However, adaptivity is also relevant to the system as a whole and the environment. From this perspective, adaptivity is applicable to multiple timescales, that of the agent, the system, and the environment. The scholarly literature pertaining to CAS often references the adaptive cycle, as shown in Fig. 4.7, which captures the processes involved in CAS.

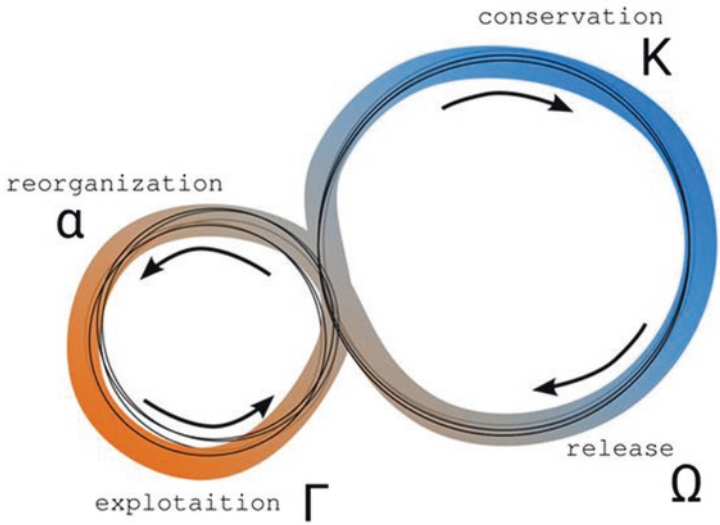


Fig. 4.7 Adaptive cycle

Resilience

According to Walker and Salt (2006), resilience is "the ability of a system to absorb disturbance and still retain its basic function." Additionally, Wildavsky and Salzman (1991) offered the definition of resilience as "the capacity to cope with unanticipated dangers after they have become manifest, learning to bounce back." Like adaptivity, resilience is a concept relevant to complex adaptive systems as a characteristic and as an approach for modeling such systems. de Haan, Kwakkel, Walker, Spirco, and Thissen (2011) opined that robustness, adaptivity, resilience, and related concepts fall under the rubric of flexibility and it is important to the understanding and study of complex adaptive systems to differentiate between these concepts. To place the concept of resilience within the context of the concepts discussed thus far, drawing on chaos theory, the various attractors (fixed point, periodic, chaotic, and strange) discussed in the section on the logistic map are theorized to exist in basins of attraction, and the state of the system at any given time might be analogous to a marble rolling around on a specific basin, and falling into attractors, or pockets.

Robustness

Robustness might be considered as the capacity of a complex system to maintain some desired system characteristics despite fluctuations in the behavior of its components or its environment (http://www.ocw.tudelft.nl). While still characterized under the rubric of flexibility for complex systems (de Haan et al., 2011), robust systems tend to maintain their structure and function when exposed to perturbations, in contrast to resilient systems.

Network Theory

From the perspective of network theory, graphs and mathematical structures are used to model the relationship between a pair of objects, which are treated as nodes. A thorough discussion of network theory requires a separate book/s and is beyond the scope of this chapter; however, it is necessary to understand the fundamental concepts of network theory as they apply to complex adaptive systems. Real-world complex networks, such as the Internet and World Wide Web (WWW),

actor networks, biological networks, energy networks, social networks, pose two fundamental properties, i.e., the small world property and the scale-free property, the latter being a universal property of networks (Barabasi, 2014a). The WWW is the largest human-built network, exceeding in size even the human brain at number of nodes approximately equal to 1012 ($N \approx 1012$). Barabasi clarified that a scale-free network, such as the WWW, is a network that follows a power-law distribution and not a Poisson distribution as in random networks.

Degree distribution is central to network theory; for example, the six degrees of separation phenomenon found to apply to social and actor networks means that any two randomly selected nodes in the network can be connected via six interconnecting links from other nodes. Other important properties of networks are sparseness, connectedness, and network weights as captured by Metcalfe's law, or the fact that the number of links in most complex networks is a small fraction of the maximum network size (Barabasi, 2014b). Additionally, all complex network systems share the defining complex adaptive systems characteristic of emergence (Cage & Knight, 2011), resonating with Barabasi's findings on scale-free networks and the fact that all tail distributions of complex networks follow a power law. Furthermore, entropy, filtration of outcomes, and loops are the three legs of emergent complex networked systems, the interplay of which serves as the basis of cybernetics thereby producing a "self."

Organizations as Complex Adaptive Systems

In view of the discussion thus far, it is fair to deduce that in order for organizations to be viewed as complex adaptive systems, the characteristics, properties, and useful measures of CAS as discussed above must apply to organizations in a reasonable manner. In other words, how does emergence and self-organization occur in organizations? How do the properties of observer dependency, evolution, adaptivity, robustness and resilience, system nestedness, chaos, and self-similarity apply to organizations? What measures of complexity are useful for understanding the complexity of organizations? Additionally, how is network theory and post-normal science relevant to the study of organizations? What follows is a concise synopsis of how complexity theory, considered to be the third discipline in organizational research (Marion & Uhl-Bien, 2002),

applies to organizational leadership research, viewing organizations as complex adaptive systems.

Schneider and Somers (2006) compared the properties of General Systems Theory (GST) with that of complexity theory (CT) in order to develop a notion of organizations as complex adaptive systems for leadership purposes, and in so doing proposed how some properties of CAS relate to organizations. Starting with self-similarity, in nature this property of complex adaptive systems is reflected in the form of fractal-like structures such as snowflakes, trees, broccoli, the universe, and so forth; however, self-similarity in organizations according to Schneider and Somers is associated with organizational identity. Schneider and Somer's social science interpretation of organizational self-similarity involves the reflection of individual psychological and social processes in the identity of the organization. As such, individual self-identity is informed by that of the organization, thereby representing a form of psychological self-similarity. From the perspective of network theory, however, self-similarity might manifest more tangibly in the form of physical structure and is thereby closer to the fractal-like self-similarity of complexity theory, by virtue of the links between nodes of a given organization, as all complex networked systems display the property of self-similarity (Song, Havlin, & Makse, 2005).

Referring to the measures of complexity discussed above, according to Gell-Mann's (2002) proposed notion of effective complexity as a measure of complexity, large mechanistic bureaucratic organizations are less complex than small organic organizations (Schneider & Somers, 2006) in terms of effective complexity, resonating with the Kuhnian shift from linear, causal, mechanistic views of the world to the more complex nonlinear and organic view offered by complexity theory. Additionally, Omnes (1999) used a Hamiltonian measure of energy in dynamic systems for the purpose of measuring organizational complexity with regard to leadership. However, the scholarly literature on the subject of measuring organizational complexity is generally sparse and presents opportunities for further research. For example, there is an intuitive association between hierarchical complexity and organizations viewed as complex adaptive systems, which needs to be examined further.

When observing the dynamical patterns of organizations, chaotic behavior is observable at times, implying that organizations are indeed sensitive to initial conditions and therefore demonstrate chaos as per complex adaptive systems behavior (Dooley & Van de Ven, 1999).

Additionally, periodic and random patterns have been observed in organizations, including pink noise, which represents a type of randomness. Other types of randomness are white, brown, and black noise also observed in organizations. Each of these patterns reveals insights into the inner workings of the organizational process underlying it. For this purpose, stochastic models may be used to understand random and colored noise processes, life-cycle models to study periodic cycles or stable equilibria, and nonlinear dynamics such as logistics equations to examine chaotic processes. As such these models offer organizational scientists nascent methods for analyzing and operationalizing organizational change, moving away from a previously linearly perceived organizational world. However, the methods of understanding organizational complexity through the lenses of chaos and nonlinear dynamics herein recommended have an associated high degree of cognitive complexity and complicated mathematical theory, which are two reasons for their lack of use.

Emergence within the context of complex adaptive organizations occurs as a result of the microdynamics within the organization. Microdynamics consisting of uncertainty, unpredictability, and nonlinearity characteristic of complex adaptive systems are the properties that contribute to the resilience and evolutionary fitness of the organizational whole, but also to the unpredictability and difficulty with controlling the system (Marion & Uhl-Bien, 2002). Associated with the phenomenon of organizational emergence is the attribute of interaction, a bottom-up process integral to social structures. Interaction between social organizational units brings with it stability, order, innovation, renewal, extinction, surprise, and change, perhaps more succinctly conveyed by the notion of autocatalytic interaction, a process of social interaction proposed by Kauffman (1986, 1993, 1995). Autocatalysis is the process by which emergent phenomena arise as a result of influential agents, actions, or catalysts also referred to as “tags.” A tag could be an individual such as Mahatma Gandhi, the belief in God, the invention of the Internet, or the discovery of the Higgs boson. Of significance is the fact that examination of tags and their associated autocatalytic interactions reveals that leaders are often involved in autocatalysis. It is from this perspective that innovation and fitness are better served by bottom-up processes rather than top-down coordination (Marion & Uhl-Bien).

In the introduction to this chapter, I posed the question of how self-organization might affect leadership and vice versa, and indeed

organizations must demonstrate self-organization if they are to be viewed as complex adaptive systems. I also posed a series of what if questions regarding order and central control, specifically "…What if organization and order were emergent properties of a certain type of system via the cooperative behaviors of free acting agents, none of who were leaders?" The answer to this question seems to reside partly in autocatalysis, which functions outside of bureaucratic hierarchy or central control, and free from natural selection's intervening invisible hand; autocatalysis is self-organization in complex adaptive organizations.

Schneider and Somers (2006) opined that complexity theory challenges the Darwinian evolutionary force of natural selection by virtue of complex adaptive systems demonstrating the property of self-organization. However, self-organization occurs within the current space-time continuum affecting the current generation of agents, whereas natural selection affects generations to come in future space-time, and they are different processes. For example, a flock of birds fly in formation by virtue of self-organization and propagate as a species via natural selection. The same flock of birds experiences both self-organization and natural selection; therefore, the former does not empirically challenge Darwinian evolution, as suggested by Schneider and Somers. However, within the context of complex organizations, autocatalysis occurs as the process of self-organization and natural selection might be viewed as affecting the individual human beings and or other species that comprise that complex organizational aggregate, albeit technological advances might be used to mitigate the intervention of natural selection.

Babies found to have birth defects while in the womb, and people with diseases such as HIV, who would have otherwise perished under the hand of natural selection, now have a chance of prolonged survival as a result of technology, thereby altering the fitness landscape of our entire species.

Knowing that socio-technical/ecological/economic systems are complex begs the question of how the language of dynamical systems theory, and the universal properties of chaotic systems might be used to gain greater predictive accuracy. We know that stochastic models may be used to understand random and colored noise processes, that life-cycle models should be used to study periodic cycles or stable equilibria, and that nonlinear dynamics such as logistics equations should be used to examine chaotic processes, but how successful are these approaches for predictive purposes? This is a question you might want to explore

as an independent practical study. It should be of interest as a scholar-practitioner in the field of organizational and leadership research to study how the findings of complexity theory, stochastic models, and nonlinear dynamics might be used to analyze the stock market (or other CAS of interest) and predict its behavior as a complex adaptive system, and with what accuracy. The next section addresses the implications of complexity theory and CAS for leadership research and practice.

Implications of Complexity Theory for Leadership Research: The Emergence of Complexity Leadership

Leadership research over the last few decades has included theories for the prevention of corporate manipulation via management or "managerialism," emphasis on the application of General Systems Theory (Boulding, 1956) to leadership, and development of non-bureaucratic models of leadership, for which boundaries are less well defined. Moreover, leadership as a field of research underwent a dark period in the 1970s–1980s during which time its usefulness was under scrutiny, questioning its survival. Visionary, transformational, and charismatic leadership approaches came to the rescue under the guise of the New Leadership School, constituting a much needed paradigm shift in the field of leadership from the 1990s onwards.

Through the lens of General Systems Theory, organizations are viewed as open systems, whereas Complexity Theory (Lichtenstein et al., 2006) implies organizations be viewed as complex adaptive systems (Morel & Ramanujam, 1999). Application of complexity theory to the field of leadership came into existence in the early twenty-first century (Uhl-Bien, Marion, & McKelvey, 2007) and has continued to be the basis for innovative leadership theory development till current day. In order to understand the difference between leadership within open systems and leadership within complex adaptive systems, it is necessary to analyze the process of leadership within each of these systems. According to Schneider and Somers (2006) within both open and complex adaptive systems, leadership is about the "influence of others above routine compliance." However, leadership within organizations as complex adaptive systems appears to be divorced from structures of authority. Furthermore, authors of CAS organizational literature show preference for the term "leadership" over "leader" in order to avoid the connotation of individual positions of formal authority. Leadership within

complex adaptive systems may occur consciously or unconsciously and spontaneously and is often emergent and temporary.

Complexity theory suggests a shift from viewing leadership as merely interpersonal influence to the provision of linkages to structures of emergence, such as distributed intelligence (DI), within organizations. Such emergent structures are theorized to form as a result of microdynamic (correlation, interaction, and randomness) and macrodynamic (emergence of systems as a result of microlevel interactions) forces (Marion & Uhl-Bien, 2002). Complex natural teleology defined by physics, autocatalysis, selection, and *need* drives macrobehaviors in combination with microdynamics through bottom-up coordination and nonlinear behavior. Teleology is defined as the purposeful pursuit of ends, and while evolution is not considered to be a teleological process for CAS, complex natural teleology is considered a characteristic of organizations viewed through the lens of CAS. As an element of complex natural teleology, *need* influences emergence as a form of motivation. Within the context of social organizations, conflicting individual needs might arise thereby creating constraints and compromises from which order emerges, a dynamic referred to as first-order behavior as it requires the cooperation of individuals within the organization. Meeting the needs of the organization as a whole is referred to as second-order correlation/fitness/behavior. Referring back to the fitness landscape over which the marble rolled, finding itself in various basins of attraction, the aggregate fitness of the organization is dynamic and in constant flux based on the ever-changing needs and preferences of individuals and thus the system as a whole. From the perspective of first-order and second-order dynamics, the organization as a complex adaptive system exhibits the CAS property of resilience through bottom-up processes in the absence of central control, but nevertheless teleological in that the unguided processes move toward a fit future naturally or in a self-organized manner (Marion & Uhl-Bien).

The implications of randomness and interaction for organizational units or ensembles are that leaders might not be able to always predict or control their future; the insight from chaos theory being that initial conditions are critical, thus fostering favorable initial conditions should be a key activity for leaders within complex adaptive systems. Favorable, yet uncontrolled futures are then the result of undirected interactions at all levels of organization cultivated by complex leaders who grasp the emergent rather than produced nature of innovative structures

and solutions. From this perspective, the complex leader must learn to embrace the edge of chaos at which adaptivity, evolution, and emergence occur, in order to facilitate resilience in complex adaptive organizations. Furthermore, the study of social movement, consisting of the beliefs and actions necessary to facilitate social change, might inform the understanding of leadership in complex adaptive systems (Schneider & Somers, 2006).

Characteristic Behaviors of Complexity Leaders

Effective complex leadership involves the cultivation and management of networks within and without the organization, nurturing new connections and developing existing ones at all levels (aggregate, meta-aggregate, and meta-meta-aggregate) of organization. In reference to the principle of autocatalytic interaction, complex leaders demonstrate the ability to catalyze the building of new networks by encouraging and enabling interaction, delegation, providing resources, and creating conducive environments for network creation. Moreover, complex leaders should become "tags" that symbolize and reinforce the identity and culture of the aggregate (the entire system), thereby furthering the process of catalysis.

In terms of emergence, the complex leader should plant seeds that flourish in emergent ways, while poetic this is a process of leaders creating organized disorder or the initial conditions for the dynamic of emergence to arise. All the while nothing should deter from the complex leaders systematic thinking, which is a crucial quality for CAS leadership. The CAS leader should be aware of the interactive dynamics occurring at multiple levels of the organizations. Marion and Uhl-Bien (2002) succinctly stated "Leaders provide control by influencing organizational behavior through managing networks and interactions."

The apparent deliberate shift from controlling to influencing by leaders raises the question of roles. It is thus necessary to clearly understand the distinction between the roles of managers and leaders. The former has the practical details, the mechanics or "nuts and bolts" of the CAS in sight, while the latter has the vision, growth, and overall wellness or fitness of the system at task. It is important to bear these distinctions in mind.

Speciesism: A Critical Challenge for Complex Leadership

> A nation should not be judged by how it treats it highest citizens, but its lowest ones.
>
> —Nelson Mandela

> The greatness of a nation can be judged by how its animals are treated.
>
> —Mahatma Gandhi

> Nothing will benefit human health and increase chances of survival of life on Earth as much as the evolution to a vegetarian diet.
>
> —Albert Einstein

Human experiments such as the Willowbrook State Hospital Study on hepatitis, involving the administration of hepatitis-infected feces to healthy children in the 1950s, triggered the development of research standards and bodies including the formation of Institutional Review Boards (IRBs) in the USA and equivalent international institutions. Values such as respect, justice, and beneficence for human life underpin the reasoning for such institutions. Regard for these values purely within a human context constitutes speciesism since human beings are merely one type of animal (LaFollette & Shanks, 1996). Nevertheless, this section draws attention to the fact that disregard for respect, justice, and beneficence of all animal species is the insidious pinnacle of a complex systemic problem requiring leadership of a transcendent or complex nature and systems-level integration of values at all levels of organization (Lichtenstein & Plowman, 2009).

Undoubtedly, a discussion involving the rights of animal species, other than the human animal species, will raise a larger number of eyebrows than those who understand the complexity behind such an argument, a travesty of the human condition. It is this inherent seeming contradiction in the subject matter of speciesism, combined with scientific quantifiable reasons, including global concerns such as scarcity, unsustainability, and climate change to name but a few that support the need for a discussion on leadership issues deriving from the fundamental philosophical concerns embedded in the issue of speciesism.

The preference for pleasurable experiences over painful experiences is a principle of human behavior derived from scientific experiments with animals outside of the human species. Thus, knowing that other animal species prefer pleasure to pain, and indeed experience pain seems a fundamental basic reason for protecting animals from painful experience. Despite this knowledge, the consumption of other animal species as a

form of food still prevails serving as the ethical and moral inconsistency behind the theory of speciesism.

The British psychologist Richard D. Ryder coined the term speciesism in 1970 to mean "a prejudice." As such, prejudices of sexism and racism fall under the rubric of speciesism. While the construction of an argument against speciesism is redundant to my rational mind, since the killing, torture, experimentation, and eating of sentient creatures are inexcusable, the sheer volume of animals undergoing these atrocities yearly is a reminder that most human minds do not grasp this travesty that is definitive of our time. The numbers are staggering, totaling in the 100s of billions every year, with more than 150 billion alone slaughtered for meat every year (http://www.adaptt.org), and these figures do not include the oceanic animals that are not even individually counted but weighed in tons. The moral argument against sexism and racism is that the biological or physical differences between races and sexes do not warrant discriminatory or unequal treatment. On the basis that biological differences do not permit prejudice between sexes and races, how can the biological differences between humans and other animal species warrant a continuous and ongoing animal holocaust? We share 98.9% of our DNA with bonobos and chimpanzees, 96.9% with orangutans, and 93% with monkeys. Among other non-simian animals, we share 84% of our DNA with dogs and 65% is shared with birds (http://www.education.seattepi.com). According to National Geographic (2016), "All animals, plants, and fungi share an ancestor that lived about 1.6 billion years ago," a concept not unlike the Hindu conceptualization of creation involving a single ancestor, Brahma dividing into male and female halves, the female half becoming a cow and the male half becoming a bull, and so the evolutionary process continued to produce all the species on Earth. An excellent video rendition of this creation story can be viewed at https://aeon.co/videos/.

Drawing on complexity theory as it applies to leadership, complex leaders are supposed to embody the "tags" of their aggregate systems, lead by example, influence organizational behavior by creating favorable initial conditions, create myths and ceremonies around which organizational and individual identity can become self-referential, thereby embodying the complex adaptive property of self-similarity. Thus, continuing my anecdotal story of creation, as scientists we know that forces are real. Newton's third law of motion that every action has an equal and opposite reaction or "FB = −FA" might be anecdotally viewed as the law of Karma, which also states that every action has a consequential reaction. Now within the

context of speciesism, if the ongoing slaughter, experimentation, torture, harvesting of fur, and related cruelty to animals is FB, then what is the consequential −FA? Referring back to complexity theory, sensitive dependence on initial conditions otherwise colloquially referred to as "the butterfly effect" might be useful in attempting to answer this question. Firstly, the link between factory farming, or industrialized farming and climate change has already been scientifically established, as the activities involved in factory farming are a major contributor of greenhouse gases (GHGs). Moreover, we know that consumption of meat is scientifically linked to severe and fatal health conditions such as cancer and heart disease (Rohrmann et al., 2013; zur Hausen, 2012). Nevertheless, the food industries continue along the same trajectory as the tobacco companies withholding scientific evidence, which is a separate issue to that of the cruelty and abuse, or holocaust conditions of conscious and intelligent creatures. Scientific literature provides sufficient evidence for how speciesism affects climate change, cancer, and other health ailments so we need not call upon the butterfly effect, however what if a link could be established at the individual level? What if there was a scientific link, or correlation between individual psychological pain, fear, distress, depression for that matter and eating meat, wearing fur, causing pain to animals, etc. This hypothesis could be easily tested quantitatively by conducting a study that examines psychological state as the dependent variable and speciesism related activities as the independent variable. The results would be interesting indeed.

I began this section by quoting three great thinkers and leaders:

> A nation should not be judged by how it treats it highest citizens, but its lowest ones.
>
> —Nelson Mandela

> The greatness of a nation can be judged by how its animals are treated.
>
> —Mahatma Gandhi

> Nothing will benefit human health and increase chances of survival of life on Earth as much as the evolution to a vegetarian diet.
>
> —Albert Einstein

I will close by saying this, a utopia exists with the elimination of speciesism, one in which we return to our primordial selves, free of pain, disease, guilt, torment, and torture. Such a reality will be one step for mankind and a giant leap for all other species.

Conclusion

Complexity theory, by way of interaction and randomness, substantiates our intuitive notion that leaders cannot always predict the future. However, the complex adaptive systems properties of emergence and self-organization are clearly evidenced in organizations by virtue of tags that catalyze a snowballing effect of events resulting in significant and influential outcomes. This process of autocatalysis or autocatalytic interaction seems to be the crux of complex leadership. Leaders must aim to foster favorable initial conditions and fuel the bottom-up dynamics of emergence, innovation, and fitness. Complex leadership evokes a shift from controlling organizational futures to influencing organizational behavior by embodying the self-referential tags of identity that unify the individual with the aggregate. I will add that the type of leadership required to address the critical challenges of our time including climate change and disease epidemics fueled by speciesism is complex leadership aided by aspirational values, which should be standard values, a transformative process which I propose underscores a transcendental type of leadership befitting the survival of collapses both economic and civil.

References

Barabasi, A. (2014a). Network science: Introduction. In *Network science* (pp. 1–27). Retrieved from http://barabasi.com/networksciencebook/content/book_chapter_1.pdf.

Barabasi, A. (2014b). Network science: Graph theory. In *Network science* (pp. 1–35). Retrieved from http://barabasi.com/networksciencebook/content/book_chapter_2.pdf.

Barrow-Green, J. (1997). Poincaré and the three-body problem. In *History of mathematics* (Vol. 11). Providence, RI: American Mathematical Society.

Boulding, K. E. (1956). General systems theory—The skeleton of science. *Management Science, 2*(3), 197–208.

Cage, C., & Knight, K. (2011). *Can Klout really deliver viral results?* Retrieved from http://viralmedia.pbworks.com/w/file/fetch/48912601/Chuck%20Cage-EMAC%204372%20F11-Final%20Paper.pdf.

de Haan, J., Kwakkel, J. H., Walker, W. E., Spirco, J., & Thissen, W. A. H. (2011). Framing flexibility: Theorising and data mining to develop a useful definition of flexibility and related concepts. *Futures, 43*(9), 923–933.

Dooley, K. J., & Van de Ven, A. H. (1999). Explaining complex organizational dynamics. *Organization Science, 10*(3), 358–372.

Gell-Mann, M. (2002). What is complexity? In *Complexity and industrial clusters* (pp. 13–24). Heidelberg: Physica-Verlag.

Haslinger, R., Klinkner, K. L., & Shalizi, C. R. (2010). The computational structure of spike trains. *Neural Computation, 22*(1), 121–157.

Holland, J. H. (1992). Complex adaptive systems. *Daedalus*, 17–30.

Holland, J. H. (2006). Studying complex adaptive systems. *Journal of Systems Science and Complexity, 19*(1), 1–8.

Kauffman, S. A. (1986). Autocatalytic sets of proteins. *Journal of Theoretical Biology, 119,* 1–24.

Kauffman, S. A. (1993). *The origins of order*. New York, NY: Oxford University Press.

Kauffman, S. A. (1995). *At home in the universe: The search for the laws of self-organization and complexity*. New York, NY: Oxford University Press.

LaFollette, H., & Shanks, N. (1996). The origin of speciesism. *Philosophy, 71*(275), 41–61.

Lenton, T. M., & van Oijen, M. (2002). Gaia as a complex adaptive system. *Philosophical Transactions of the Royal Society of London B: Biological Sciences, 357*(1421), 683–695.

Li, T. Y., & Yorke, J. A. (1975). Period three implies chaos. *The American Mathematical Monthly, 82*(10), 985–992.

Lichtenstein, B. B., & Plowman, D. A. (2009). The leadership of emergence: A complex systems leadership theory of emergence at successive organizational levels. *The Leadership Quarterly, 20*(4), 617–630.

Lichtenstein, B. B., Uhl-Bien, M., Marion, R., Seers, A., Orton, J. D., & Schreiber, C. (2006). Complexity leadership theory: An interactive perspective on leading in complex adaptive systems. *The Leadership Quarterly, 18,* 298–381.

Lloyd, S. (2001). Measures of complexity: A nonexhaustive list. *IEEE Control Systems Magazine, 21*(4), 7–8.

Marion, R., & Uhl-Bien, M. (2002). Leadership in complex organizations. *The Leadership Quarterly, 12*(4), 389–418.

Mikulecky, D. C. (2001). The emergence of complexity: Science coming of age or science growing old? *Computers & Chemistry, 25*(4), 341–348.

Mitchell, M. (2009). *Complexity: A guided tour*. New York: Oxford University Press.

Morel, B., & Ramanujam, R. (1999). Through the looking glass of complexity: The dynamics of organizations as adaptive and evolving systems. *Organization Science, 10*(3), 278–293.

Omnes, R. (1999). *Understanding quantum mechanics*. Princeton, NJ: Princeton University Press.

Rammel, C., Stagl, S., & Wilfing, H. (2007). Managing complex adaptive systems—A co-evolutionary perspective on natural resource management. *Ecological Economics, 63*(1), 9–21.

Rohrmann, S., Overvad, K., Bueno-de-Mesquita, H. B., Jakobsen, M. U., Egeberg, R., Tjønneland, A., … & Palli, D. (2013). Meat consumption and mortality—Results from the European Prospective Investigation into Cancer and Nutrition. *BMC Medicine, 11*(1): 63.

Schneider, M., & Somers, M. (2006). Organizations as complex adaptive systems: Implications of complexity theory for leadership research. *The Leadership Quarterly, 17*(4), 351–365.

Song, C., Havlin, S., & Makse, H. A. (2005). Self-similarity of complex networks. *Nature, 433*(7024), 392–395.

Uhl-Bien, M., Marion, R., & McKelvey, B. (2007). Complexity leadership theory: Shifting leadership from the industrial age to the knowledge era. *The Leadership Quarterly, 18*(4), 298–318.

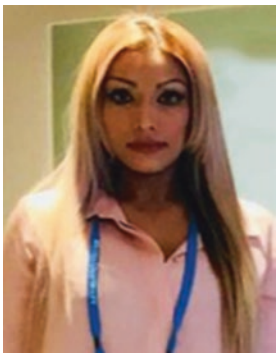
Varn, D. P., Crutchfield, J. P., & Canright, G. S. (2002). Discovering planar disorder in close-packed structures from x-ray diffraction (No. cond-mat/0203290).

Walker, B., & Salt, D. (2006). *Resilience thinking: Sustaining ecosystems and people in a changing world*. Washington, DC: Island Press.

Wildavsky, A., & Salzman, A. R. (1991). Book reviews. *Minerva, 29*(2): 231–246.

zur Hausen, H. (2012). Red meat consumption and cancer: Reasons to suspect involvement of bovine infectious factors in colorectal cancer. *International Journal of Cancer, 130*(11): 2475–2483.

Author Biography



Dr. Kadambari Ram, Ph.D., M.B.A., provides expert international academic vision and leadership with a Ph. D. in information systems management from Walden University, an International Laureate Institution, and an MBA from Purdue University. Having empirically developed and published the RRSA management framework in the fields of leadership, systems science, decision sciences, and quantitative methods, Dr. Ram is able to facilitate the management of academic strategies and devise institutional management mechanisms for transformational purposes to meet higher education objectives. Dr. Ram served on the Kyoto Board of Education and has facilitated higher education courses to South African Government. Dr. Ram's academic research includes complexity theory within the ambit of information systems, and the application of evolutionary computing for understanding

complex adaptive systems, specifically for addressing climate change as a critical leadership problem, game theory, and agent-based modeling and simulation. As an expert in simulation modeling, Dr. Ram developed the RRSA simulation tool, for assessing organizational contributions to climate change via the mechanisms of resilience, robustness, sustainability, and adaptive capacity. Dr. Ram's RRSA management framework, and RRSA simulation tool extend to the management of water and other scarce resources. Dr. Ram is currently listed on the consultant roster for the UNFCCC.

As an entrepreneur, Dr. Ram has pioneered the combination of medical aesthetics and dentistry in Cape Town, South Africa, holding several trademarks in this sector. As an advocate of social change, specifically relating to the linkages between disease, climate change, and the consumption of animal derived products, Dr. Ram has steered several social media campaigns for creating awareness around these issues. Dr. Ram's numerous accolades in music, combined with her practice of yoga, and academic research, have produced an approach to Complexity Leadership involving development of the self for service to society and the greater biosphere, through a combination of techniques, under the trademark Selphology™ for delivering these tools.

CHAPTER 5

Leadership in the Next Decade and Beyond: The Challenges of Managing Cities in Developing Economies

Adebayo A. Adanri

Operational Definitions

Organizational leadership: Organizational leadership is defined as the ability to influence, motivate, and provide necessary support and resources for followers or employees to meet organizational goals (House, Javidan, Hanges, & Dorfman, 2002).

Transformational leadership: The leadership behavior and traits associated with transformational leaders are: visionary, interpersonal skills, focus on organizational change, involve a high degree of risk taking, have the tendency to be proactive, make use of more planning and innovative problem-solving skills (Fitzgerald & Schutte, 2010).

Transactional leadership: Transactional leaders are those that emphasize tasks more than empowering followers; this leadership style focuses on making resources available to meet organizational tasks and goals typical of any managerial assignment (Fitzgerald & Schutte, 2010).

A. A. Adanri (✉)
Planning & Valuation Consultants, Inc., Normal, IL, USA

B. S. Thakkar (ed.), *The Future of Leadership*,
https://doi.org/10.1007/978-3-319-73870-3_5

Organizational culture: Organizational culture is the norm, values, practices, and behavior that help create how an organization functions (Linn, 2008). According to Berrio (2003, p. 1), "The contemporary definition of organizational culture (OC) includes what is valued, the dominant leadership style, the language and symbols, the procedures and routines, and the definitions of success that characterizes an organization."

Urbanization: Urbanization is defined as "the demographic process whereby an increasing share of the national population lives within urban settlements" and a majority of them derive their livelihood from occupations different from agriculture (Potts, 2012, p. 4).

Management: Mattingly (1995) suggests that "Management is a matter of taking sustained responsibility for actions to achieve particular objectives with regard to a particular object. As such, urban management can direct efforts toward common goals, glean benefits from co-ordination of expenditures and human actions, focus resources on high priority targets and organize and initiate essential tasks which competition, confusion, inertia or neglect leave undone" (p. 1).

Introduction

Cities in developing economies, especially cities in Nigeria, have experienced an astronomical growth over the last decades as a result of rural–urban migration, or the process called urbanization (Cohen, 2006; Ogun, 2010). Potts (2012) described urbanization as the process where an increasing proportion of the national population lives within urban settlements and the majority of their residents engages in and derives their livelihood from occupations other than agriculture. There are two schools of thoughts that explain the dynamic relationship between urbanization in Africa and urban economics (Potts, 2012). One school of thought is that cities in Africa are the cause and symptom of the economic and social crisis in the continent. The second school of thought is that cities in Africa have failed to enjoy the anticipated formal enterprise that come with urbanization because of lack of urban investments and planning. These two positions are not totally exclusive of each other but show considerable overlap in their detailed

discussions (Potts, 2012). This chapter aligns with the second school of thought. Studies such as Scott and Storper (2015) show that there is positive empirical relationship between national rates of urbanization and GDP per capital, while Ogun (2010) show that investments in public service and infrastructure improve social welfare, enhance labor productivity, support effective workings of the market, create opportunities for employment and entrepreneurship, and reduce poverty. Therefore, cities in developing economies should explore the potentials of urbanization as a catalyst for innovation, economic development, and social change.

Cities, Leadership, and Culture

Cities are complex and dynamic systems; they serve as nodes for social, economic, and political interactions and the engine that drives national economic development and structural change (Button, 2002; Cohen, 2006; Mattingly, 1995; Potts, 2012). Cities can be likened to organizations or any corporate entity with their own internal and external challenges. Studies such as Adanri (2016), Bass and Avolio (1993), Berrio (2003), and Schimmoeller (2010) show that there is correlation between leadership, organizational culture, and organizational outcomes; so, we can apply the same theory to cities in general. Therefore, the theoretical frameworks for examining the challenges of managing cities in the developing countries include the open system theory, leadership theory—transformational and transactional leadership theory, and societal/organizational culture theory. The open system theory is based on the view that the process of urbanization centers on social interaction and interdependency of actors in the cities. This chapter uses Hofstede (1980, 1983) and House et al. (2002) societal/organizational culture model to illustrate the relationship between national culture, leadership, and organizational culture in the context of management of cities in the developing countries. Transformational and transactional leadership theories provide the theoretical framework for exploring why leadership matters in management of cities in the developing countries. Figure 5.1 represents the inter-relationship between societal culture on leadership and organizational culture and how they affect organization outcome; in this case, organization represents cities in developing economies.

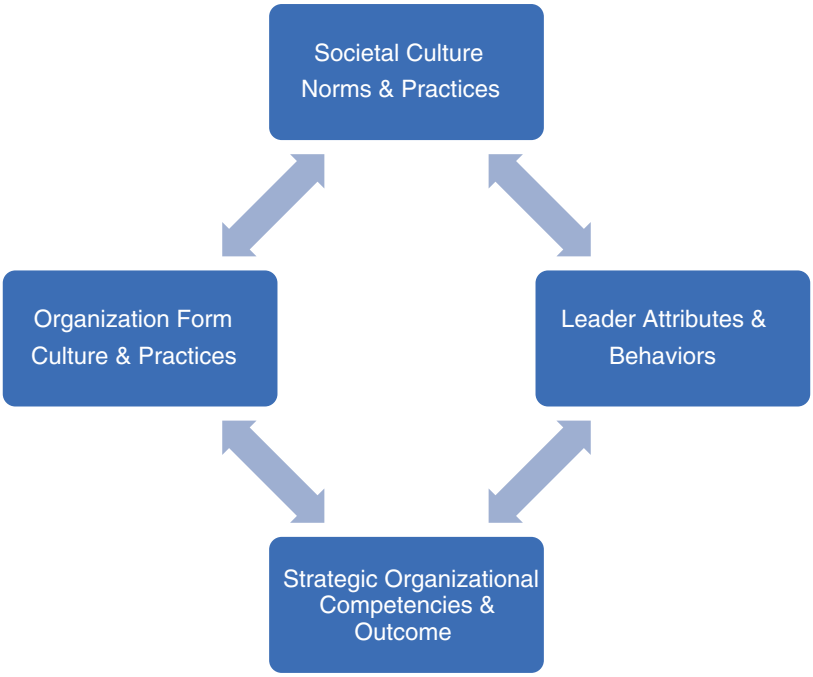


Fig. 5.1 Relationships between societal culture, leadership and organizational culture, and organizational outcome

Issues and Challenges of Managing Cities in Developing Economies with Focus on Nigerian Cities

Countries throughout the developing world are experiencing urbanization coupled with its associated problems. Cities in developing economies, especially Nigeria, are faced with poor leadership, poor planning, inadequate infrastructural investments, corruption, and general institutional failures. The failure to anticipate, plan, and regulate urban growth pattern contributes to the colossal problems facing Nigerian cities and other cities in the developing economies. In addition to the failure of physical planning, there has been lack of infrastructure investments to support urban growth, therefore putting pressure on existing urban infrastructure and services. There is also the problem of institutional failures. For example, the local institutions have been found to be corrupt and inept; they lack

the incentives, funds, technical expertise, and management capacity to provide the infrastructure needed to support the demand resulting from urban growth (Cohen, 2006; Rondinelli, McCullough, & Johnson, 1989). While cities in many developed countries are trying to reinvent themselves, cities in the developing economies appear to be stuck in "bureaucratic old public administration" and institutional failures that ignore citizens, shun innovation, and serve its own selfish needs (Denhardt & Denhardt, 2000).

Nwaka (2005) indicated that at the turn of the twenty-first century 43.5% of the Nigerian population was living in urban areas compared to 39% in 1985. It was projected that, by 2010, 50% of the Nigerian population will live in urban area and increased to 65% by 2020. The urban growth rate per year was estimated at 5.5% compared to 2.9% national population growth rate. It was noted by Nwaka (2005) that the population trend in the Nigerian commercial city of Lagos has taken an accelerated growth trend. According to Nwaka (2005), in 1963, the population of the city of Lagos was 1.4 million and it grew to 3.5 million in 1975—over 6 million in 2005 and projected to be 24 million by 2020 according to Nwaka (p. 3). As noted in the following graph, the city of Lagos experiences an accelerated growth between 2005 and present and that is predicted to continue till 2020 (Nwaka, 2005) (Fig. 5.2).

Potts (2012) however observed that the Nigerian population estimates and projections from secondary sources including the United

Fig. 5.2 City of Lagos population trend (Nwaka, 2005)

Nations appear to be flawed or at best inaccurate. The recent study by Africapolis using satellite images suggest that the level of urbanization may not be as high as estimated, and the rate of urbanization may not be as dramatic as suggested by the United Nations estimates (Potts, 2012). The lack of accurate and reliable demographic data presents a challenge for management of cities in the developing countries. Without good data, it is difficult to plan and provide services and infrastructure that will meet urban demand.

In addition to lack of good data, the local institutions have been found to be weak and corrupt; they lack the incentives, funds, and technical capacity to effectively manage the challenges of urban growth (Alkali, 2005; Aluko, 2012; Rondinelli et al., 1989). The lack of institutional, fiscal, technical, and management capacity is a major challenge. According to Rondinelli et al. (1989), the World Bank reported that the condition of the roads it financed in the 1960s and 1970s is so bad that many of them will be unusable before the borrowing countries can repay their construction loans.

The consequences of uncontrolled and unmanaged urban growth and lack of adequate investments in public services and infrastructure include environmental degradation, pollution and illicit refuse disposal and waste management, poor road network, inefficient mass transit system, highway congestion, poor drainage, flooding, shortage of affordable housing, illegal settlements, slums, high rate of unemployment, and informal economy (Aluko, 2012; Msigwa, 2013). Msigwa (2013) presented the challenges posed by urbanization in Tanzania. According to Msigwa, the unplanned expansion of cities to the outskirts without necessary infrastructure has resulted in the following problems: of long commute; traffic congestion; parking difficulties; shortage of public transportation; lack of provisions for non-motorized transport; loss of public space; accident and safety; pollution and environmental impacts; high energy consumption; and increased land consumption as a result of sprawl—physical expansion of cities to the outskirt. The problems of urbanization and transportation in Tanzania as expressed by Msigwa (2013) are similar in many African urban areas including Lagos, Nigeria.

Aluko (2012) revealed that a majority of the people believe that the cause of environmental degradation in the city of Lagos is due to poor physical planning. The residents identified slum/squatter settlement; refuse

disposal and drainage problem; noise pollution; flooding; and water pollution as major distributions of environmental problems in Lagos metropolis; many of the residents find the condition unsatisfactory. Top on the list on how to make the environment safer include: prompt refuse collection; improved funding; provision of socio-facilities/services; provision of more professional jobs and public enlightenment; tarred street/ensure smooth flow of traffic; improved maintenance culture; and improved funding. It is clear from Fig. 5.3 that the problem of environmental degradation in the city is multifaceted; so are the challenges of managing the problems.

The overall public systems in Nigeria are ineffective and inefficient. As noted by Alkali (2005), the conditions of the education, health, transportation, water, and sanitation systems in Nigerian cities are very appalling due to lack of resources and technical capability. For local governments to be able to effectively provide public services and infrastructure, they must have the authority to generate revenues either through taxes or some other means (Rondinelli et al., 1989). There is a need for local governments to develop their local tax base and find creative ways

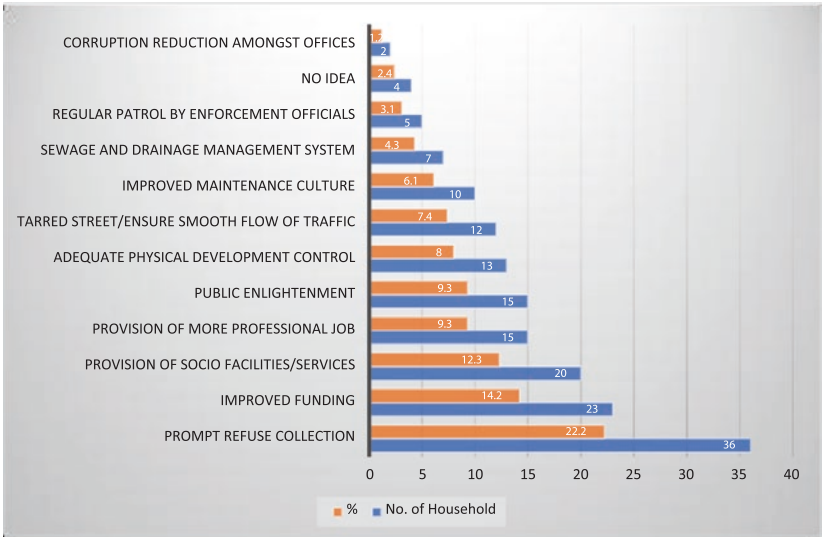


Fig. 5.3 Suggestions on how to make the environmental condition safer (*Source* Aluko, 2012)

to generate revenue to meet urban demands rather than relying on allocations from federal and state governments.

Alkali (2005) noted that "the balanced development of human settlement in the country has been primarily achieved through increased states and local governments' creation" (p. 3). This, according to Alkali (2005), has led to the establishment of more urban centers and even spread of towns and cities across the country. While the purpose of creating more states and local governments might have led to the spreading of towns and cities across the country, local governments still lack institutional, financial, and technical capacity to manage cities within their jurisdictions (Aribigbola, 2008), and they are prone to political influence (Alkali, 2005).

The institutional framework for management of cities in developing countries is weak or nonexistence, to say the least. According to Taylor (1988), the Nigerian Town and Country Planning Ordinance of 1946 provides the legal basis for urban and regional planning in Nigeria. The Act forms the basis for the establishment of planning authorities with the task of coordinating and facilitating the construction of public utility services, transport, communications, and other public services as well as to conserve environmentally sensitive areas. The Act is generally considered to be an ineffective tool for controlling urban development because it restricts the activities of planning authorities to estate development and building control (Taylor, 1988).

Recent public policies aimed at urban development reform include the National Urban Development Policy of 2001 and the creation of the Federal Ministry of Housing and Urban Development in 2003 to serve as the institutional framework for the implementation of the urban development policy with the goal of developing "a dynamic system of urban settlements that will foster sustainable economic growth, promote efficient urban and regional development and ensure improved standard of living and well-being for all Nigerians" (Alkali, 2005, pp. 3–4). The 2001 National Housing Policy was developed around the same time as the urban development policy. The goal of the national housing policy is to ensure that "all Nigerians own or have access to decent, safe and sanitary housing at affordable cost with secured tenure" (Alkali, 2005, p. 4). The strategy for implementing the housing policy includes partnership with the private sector.

Alkali (2005) also noted that the Federal Government has taken various measures toward poverty reduction and economic empowerment. A comprehensive National Poverty Eradication Program (NAPEP) was developed in 2001 with the goal of eradicating poverty within the next ten years. While the evaluation of the success of these three national government policies is beyond the scope of this paper, one cannot help but observe that poverty is still a major problem in Nigerian cities and none of the three recent policies was clear about the role of local government in addressing the problem of urbanization. It also seems ambitious that Nigeria could eradicate poverty within ten years; perhaps reducing poverty by 10% or 20% over a period of time could have been more practical and measurable.

Another government policy that is closely related to urbanization and urban management is the land use policy. According to Taylor (1988), land policy in Nigeria is tied to urban planning and development. The Land Use Decree of 1978 and the land law of 1980 impact housing production and urban boundaries. The decree was intended to facilitate the transfer of land for housing development by taking land away from individuals and families and putting it in the hand of government. Studies including Aribigbola (2008) have shown that the land use policy impinges on urban land management and development; the policy has failed to arrest urban sprawl, control slum formation, mitigate flooding, overcrowding, congestion, and the formation of informal sector. While examining urban land use planning and management in Akure, Aribigbola (2008) observed that land use management in the city is primarily focused on granting statutory right of occupancy and building plan approval. There are no coordinated efforts among various agencies involved in land use planning; as a result, land use planning and management has been weakly implemented and ineffective. Findings from Aribigbola (2008) fairly represent the challenges of planning and management of cities in Nigeria. Physical planning for cities in developing countries needs to be proactive rather than reactive, and it requires coordination and cooperation among the various agencies responsible for land use planning.

The other challenges of management of cities in the developing countries include poor institutional framework and corruption. According to Anazodo, Okoye, and Chukwuemeka (2012), there have been several

civil service reforms which include organizational and structural reforms, yet corruptions within the system continue to be on the rise. Various studies including Adebisi (2012), Adesopo (2011), Adeyemi (2012), Anazodo et al. (2012), Dibie and Herron (2002), and Iheriohanma (2011) have suggested that Nigeria needs to rid itself of corruption to attain a sustainable development. Adeyemi (2012) noted that corruption is a threat to development and the reason for the failure of government institutions in Nigeria including the local governments.

The 2016 Transparency International Corruption Perception Index put Nigeria at number 136 out of 176 countries. Nigeria's rated score was 28 out of 100, where zero (0) means very corrupt and 100 means very clean. Other countries with same score as Nigeria are Guatemala, Kyrgyzstan, Lebanon, Myanmar, and Papua New Guinea. A large number (72%) of respondents to a recent survey indicated that corruption has increased a lot. There is no institution in Nigeria that is not perceived as corrupt. The following figure shows how the survey respondents perceived corruption among various institutions in Nigeria in 2014 and 2016.

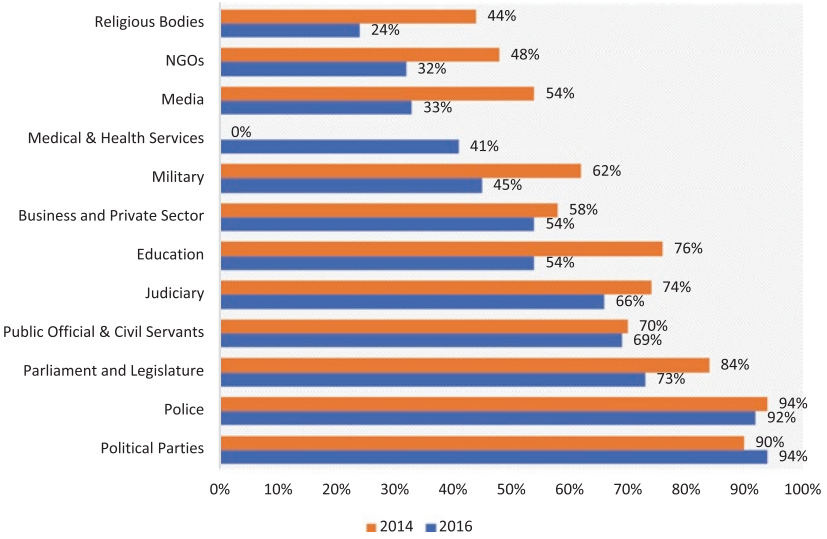


Fig. 5.4 Percentage of survey respondents who felt the Nigerian institutions are corrupt (*Source* Transparency International, 2016)

The political parties, the police, the parliament and legislature, the public official and civil servants, and the judiciary top the list. The media, the NGOs, and the religious bodies are not excluded from the institutions perceived as corrupt (Fig. 5.4).

Societal Culture

Societal culture, norms, and behavior have been shown to have direct relationship with leadership and organizational outcome (Hofstede, 1980; House et al., 2002; Pagell, Katz, & Sheu, 2005). According to Pagell et al. (2005), national culture plays a significant role in international operations management behaviors and decision making. The societal culture, especially the culture of corruption in most developing countries, has been found to be a hindrance to development. Studies, including Mattingly (1995), suggested that Sub-Saharan African countries are losing valuable knowledge and workforce in areas where women do not have equal access to work as men. A general understanding of the national cultural dimension is important in formulating and evaluating city management strategies and delivery of public services. Societal or organizational cultures are learned behaviors which can be changed through training and practice, but it requires visionary and committed leadership.

Management of cities is a complex task; it requires strategic planning and leadership skills. According to Mattingly (1995), "the management of urban areas can be defined as the exercise of continuing responsibility for actions to achieve sustainable improvements in living conditions and productivity of urban areas" (p. 9) while organization management relates to the management of organizations such as local government. The measures of city management effectiveness include good governance in terms of transparency, accountability, public participation in decision making, and the extent to which the quality of lives of the residents of the settlement improves. Bratton (2012) noted that building effective local government requires finding legal means such as fees and taxes to pay for services instead of bribes. Management of cities in developing countries requires having a strong institutional framework. Local government councils in their current forms are weak and unresponsive to citizens' needs, and their function is perceived to be limited to land allocation (Bratton, 2012). This therefore makes a case for stronger and dynamic local government system.

Future View

In line with the principle of self-government, transparency, and accountability, it is suggested here that cities with population of 10,000 or more be allowed to be self-ruled; they should be considered as legal entities within a defined physical boundary and with authority of self-governance. Rather than the current arrangement in which there are multiple local government councils; what Nigeria needs are cities that are independent of each other, have their own government, run by a mayor and city council—all residents of the city and elected to serve for a specified period, and staffed by professionals to run the day-to-day city activities as it is practiced in Cape Town (Republic of South Africa); City of Chicago (USA); New York City (USA); Town of Normal (USA); Village of Downs (USA), to mention few major cities and small towns in other parts of the world. This institutional reform is important if cities in Nigeria want to reap the benefits of urbanization and globalization. The reform will encourage public participation in city government and provide opportunities for physical planning and urban management more than the current practice. Institutional reform with appropriate legal instruments, the use of strategic planning as a management tool, and effective and visionary leadership could provide capacity required for effective city management where many of the social and economic issues facing cities can be properly addressed and communicated.

Building institutional capacity includes having committed, skilled, and technical workforce. Cities need committed employees, especially at the top management level for it to be effective. The average tenure of local administrators in their administrative post is three years, which is not enough to develop and implement strategic plan; developing a land use plan takes more than three- or five-year terms of chief administrative officer in the current local government systems. The short tenure of local government chief administrative officers is a hindrance to good government, transparency, and accountability; there is no incentive for them to commit to long-term urban development projects, and if they do, the project will stop as soon as they are transferred. In addition, the lack of policy continuity makes local government weak, wasteful, and ineffective. Employees training and empowerment are required in order to encourage creativity and innovations in the management of cities in developing economies and to create sustainable and competitive global cities. Cities must also have the ability and capacity to levy taxes and using all other

legal means to generate revenue to cover the services it provides to the public (Bratton, 2012).

Why Leadership Matters

Beer and Walton (1990) in their discussion of interventions and strategies for developing competitive organizations stated that for organizational change to be successful, it "must be accompanied by the development of leadership, human skills, and shared values that are consistent with the purpose of the structures and systems introduced; high commitment, and coordination and cooperation" (p. 155). Contemporary leadership theories include: transactional and transformational leadership theory; ethical leadership theory; and servant leadership theory. Each of these theories has been found to have the ability to influence organizational culture and performance; they are effective in both private and public sectors. Bolden and Kirk (2009) describe leadership as the ability to influence, inspire, and motivate others to do what they would not ordinarily have done by themselves. Effective leadership provides a vision of shared values, high organizational commitment, coordination, cooperation, and collaboration internally and externally. Transformational and transactional leadership theory is one of the most researched and influential frameworks for understanding leadership in any situation according to Schimmoeller (2010).

According to Schimmoeller (2010) transformational leadership brings real change; it is a process that develops, motivates, and empowers employees to meet and exceed organizational goals (Sogunro, 1999; Stone, Russell, & Patterson, 2004). Research such as van Eeden, Cilliers, and van Deventer (2008) has shown that organizations with transformation leadership style are more effective than those with transactional leadership style, and Toor and Ofori (2009) noted the significant relationship between ethical leadership attributes and transformational leadership attributes, organizational culture, effective leadership, employee commitment, and job satisfaction. Hemsworth, Muterera, and Baregheh (2013) revealed that county (local government) executives in the United States of America demonstrate the transformational leadership characteristics. These imply that transformational leadership is relevant and applicable in understanding and dealing with the challenges of managing cities. Managing cities in the developing countries requires a collaborative, coordinated, and cooperative approach involving all the major actors

(stakeholders), and it requires leadership. Leadership is required in setting a common vision and value that all the stakeholders can rally around. Without a clear and concise urban vision, it will be impossible to begin to address the challenges of managing cities in the developing countries.

Leaders not only provide vision and direction but they have the technical skills and knowledge of how urban systems work. Managing cities in the developing countries require a system planning approach or strategic planning approach which goes beyond land use plan. A system planning approach takes a holistic evaluation of the current system, identifies the gap in the system, and develops and implements action plan to fill the missing gap in the system. The process of organizational (city) change can be viewed under the microscope of transformational and transactional theory. Transformational change typically occurs in response to external environment, which could be as a result of change in technology, urbanization, globalization, changes in market dynamics, or pressure from the public, or new government regulations, which could result in change in mission and strategy. The ability to effectively respond to internally or externally induced change requires effective leadership to guide the organization during the time of crises. The characteristics of transformational and transactional leadership are as shown in the following Exhibit.

Exhibit 1

Characteristics of Transformational and Transactional Leaders

TRANSFORMATIONAL LEADER
Charisma: Provides vision and sense of mission, instills pride, and gains respect and trust
Inspiration: Communicates high expectations, uses symbols to focus efforts, and expresses important purposes in simple ways
Intellectual Stimulations: Promotes intelligence, rationality, and careful problem solving
Individualized Consideration: Gives personal attention treats each employee individually, coaches, and advises
TRANSACTIONAL LEADER
Contingent Reward: Contracts exchange of rewards for efforts, promises rewards for good performance, and recognizes accomplishments
Management by Exception (active): Watches and searches for deviations from rules and standards, and takes corrective action
Management by Exception (passive): Intervenes only if standards are not met
Laissez-Faire: Abdicates responsibilities and avoids making decisions

Extracted from Bass, B. M. (1991, p. 22)

According to Bass (1991), transactional leadership is an effective leadership style under certain circumstances, but it could also result in mediocrity. The transactional leadership is based on exchange between leader and employee. The effectiveness of transactional leader depends on whether the leader has control of the rewards and penalties. Transformational leader on the other hand is charismatic; it offers a superior leadership that is based on great power, influence, trust, and confidence. Bass (1991, p. 21) noted that "Managers who behave like transformational leaders are more likely to be seen by their colleagues and employees as satisfying and effective leaders than are those who behave like transactional leaders." Transformational leaders are known to be high performers; they are associated with growth, and their organizations do better. While "organizations whose leaders are transactional are less effective than those whose leaders are transformational" (Bass, 1991, p. 22). Individual employees and organizational outcome do better in organizations led by transformational leader compared to transactional leader. Type of leadership makes a difference in whether an organization succeeds or fails (Bass, 1991); transformational leaders make the difference between organization success and failure. A recent study by Adanri (2016) shows that there is statistically significant correlation between Nigerian local administrator's leadership styles and organizational outcomes, but the correlation was weak. The study also shows that Nigerian local administrators are weak in transformational leadership factors; this means there are opportunities for improved leadership at the Nigerian local governments.

Leadership matters in management of cities especially when it comes to the issue of service delivery. Management of cities in the developing countries requires leadership that is just, honest and trustworthy. Management of cities in the developing economies requires leadership that could harness and direct scarce public and private resources toward common goals of improving the quality of life of the city residents and taking advantage of urbanization as a mechanism for socioeconomic development. According to Van Wart (2003), "effective leadership provides higher-quality and more efficient goods and services; it provides a sense of cohesiveness, personal development, and higher levels of satisfaction among those conducting the work; and it provides an overarching sense of direction and vision, an alignment with the environment, a healthy mechanism for innovation and creativity, and a resource for invigorating the organizational culture" (p. 214). The success of any

system depends on the leadership of that system. Management of cities in developing countries requires effective leadership, a strong institutional framework, and revenue base. Transformational leadership practices are the preferred leadership style for management of cities in the developing economies because they are ethical and more effective compared to transactional/bureaucratic leadership practices. This chapter advocates transformational leadership practices as the preferred approach to address the challenges of managing cities in developing countries and to create a sustainable urban environment that balances human needs with the environment and natural resources.

References

Adanri, A. A. (2016). *The relationship between Nigerian local government administrative leadership styles and organization outcomes* (Order No. 10134346). Available from Dissertations & Theses @ Walden University (1803939357). Retrieved from http://ezp.waldenulibrary.org/login?url=search.proquest.com/docview/1803939357?accountid=14872.

Adebisi, A. (2012). Local government and good governance in Nigeria's emerging democracy, 1999–2011: An analysis of the constraining factors. *Canada Social Science, 8*(6), 114–122.

Adesopo, A. A. (2011). Inventing participation planning and budgeting for participatory local governance in Nigeria. *International Journal of Business and Social Science, 2*(7), 111–116.

Adeyemi, O. O. (2012). Corruption and local government administration in Nigeria: A discourse of core issues. *European Journal of Sustainable Development, 1*(2), 183–198.

Alkali, J. L. (2005). Planning sustainable urban growth in Nigeria: Challenges and strategies. In *Proceedings of the Conference on Planning Sustainable Urban Growth and Sustainable Architecture* (p. 2).

Aluko, O. E. (2012). Environmental degradation and the lingering threat of refuse and pollution in Lagos State. *Journal of Management and Sustainability, 2*(1), 217.

Anazodo, R. O., Okoye, J. C., & Chukwuemeka, E. E. (2012). Civil service reforms in Nigeria: The journey so far in service delivery. *Singaporean Journal of Business Economic and Management Sciences, 1*(2), 1–18.

Aribigbola, A. (2008). Improving urban land use planning and management in Nigeria: The case of Akure. *Theoretical and Empirical Researches in Urban Management, 3*(9), 1.

Bass, B. M. (1985). *Leadership and performance beyond expectations.* New York: Free Press and Collier Macmillan.

Bass, B. M. (1991). From transactional to transformational leadership: Learning to share the vision. *Organization Dynamics, 18*(3), 19–31.

Bass, B. M., & Avolio, B. J. (1993). Transformational leadership and organizational culture. *Public Administration Quarterly,* 112–121.

Beer, M., & Walton, E. (1990). Developing the competitive organization: Interventions and strategies. *American Psychologist, 45*(2), 154–161.

Berrio, A. A. (2003). An organizational culture assessment using the competing values framework: A profile of Ohio State University Extension. *Journal of Extension, 41*(2), 1–15.

Bolden, R., & Kirk, P. (2009). African leadership: Surfacing new understandings through leadership development. *International Journal of Cross Cultural Management (CCM), 9*(1), 69. Retrieved from http://search.proquest.com/docview/221134099?accountid=14872.

Bratton, M. (2012). Citizen perceptions of local government responsiveness in Sub-Saharan Africa. *World Development, 40*(3), 516–527.

Button, K. (2002). City management and urban environmental indicators. *Ecological Economics, 40*(2), 217–233.

Cohen, B. (2006). Urbanization in developing countries: Current trends, future projections, and key challenges for sustainability. *Technology in Society, 28*(1), 63–80.

Denhardt, R. B., & Denhardt, J. V. (2000). The new public service: Serving rather than steering. *Public Administration Review, 60*(6), 549–559.

Dibie, R., & Herron, S. Y. (2002). Nigerian public administrator's perception of managerial skills. *International Journal of Public Administration, 25*(8), 931–951.

Fitzgerald, S., & Schutte, N. S. (2010). Increasing transformational leadership through enhancing self-efficacy. *Journal of Management Development, 29*(5), 495–505.

Gandy, M. (2006). Planning, anti-planning and the infrastructure crisis facing metropolitan Lagos. *Urban Studies, 43*(2), 371–396.

Hemsworth, D., Muterera, J., & Baregheh, A. (2013). Examining Bass's transformational leadership in public sector executives: A psychometric properties review. *Journal of Applied Business Research (JABR), 29*(3), 853–862. Retrieved from http://search.proquest.com/docview/1370363950?accountid=14872.

Hofstede, G. (1980). Culture and organizations. *International Studies of Management & Organization, 10*(4), 15–41.

Hofstede, G. (1983). National cultures in four dimensions: A research-based theory of cultural differences among nations. *International Studies of Management & Organization*, 46–74.

House, R., Javidan, M., Hanges, P., & Dorfman, P. (2002). Understanding cultures and implicit leadership theories across the globe: An introduction to project GLOBE. *Journal of World Business, 37*(1), 3–10.

Iheriohanma, E. B. J. (2011). Capacity building, leadership question and drains of corruption in Africa: A theoretical discourse. *Asian Social Science, 7*(3), 131–138.

Linn, M. (2008). Organizational culture: An important factor to consider. *The Bottom Line: Managing Library Finances, 21*(3), 88–93.

Mattingly, M. (1995). *Urban management in less developed countries*. London: University College London, Development Planning Unit.

Michela, J. L., & Burke, W. W. (2000). Organizational culture and climate in transformations for quality and innovations. In N. M. Ashkanasy, C. P. M. Wilderom, & M. F. Peterson (Eds.), *Handbook of organizational culture and climate* (pp. 225–244). Thousand Oaks, CA: Sage Publications, Inc.

Msigwa, R. E. (2013). Challenges facing urban transportation in Tanzania. *Mathematical Theory and Modeling, 3*(5), 18–26.

Nwaka, G. I. (2005). The urban informal sector in Nigeria: Towards economic development, environmental health, and social harmony. *Global Urban Development Magazine, 1*(1), 1–11.

Ogun, T. P. (2010). Infrastructure and poverty reduction: Implications for urban development in Nigeria. In *Urban Forum* (Vol. 21, No. 3, pp. 249–266). Dordrecht: Springer Netherlands.

Pagell, M., Katz, J. P., & Sheu, C. (2005). The importance of national culture in operations management research. *International Journal of Operations & Production Management, 25*(4), 371–394.

Potts, D. (2012). Challenging the myths of urban dynamics in Sub-Saharan Africa: The evidence from Nigeria. *World Development, 40*(7), 1382–1393.

Rondinelli, D. A., McCullough, J. S., & Johnson, R. W. (1989). Analysing decentralization policies in developing countries: A political-economy framework. *Development and Change, 20*(1), 57–87.

Schimmoeller, L. J. (2010). Leadership styles in competing organizational cultures. *Leadership Review, 10*, 125–141.

Scott, A. J., & Storper, M. (2015). The nature of cities: The scope and limits of urban theory. *International Journal of Urban and Regional Research, 39*(1), 1–15.

Sogunro, O. A. (1999). Leadership effectiveness and personality characteristics of group members. *Journal of Leadership & Organizational Studies, 5*(3), 26–40.

Stone, G. A., Russell, R. F., & Patterson, K. (2004). Transformational versus servant leadership: A difference in leader focus. *Leadership & Organization Development Journal, 25*(4), 349–361.

Taylor, R. W. (1988). *Urban development policies in Nigeria: Planning, housing, and land policy*. Center for Economic Research on Africa, Department of Economics, School of Business Administration, Montclair State College.

Toor, S. R., & Ofori, G. (2009). Ethical leadership: Examining the relationships with full range leadership model, employee outcomes, and organizational culture. *Journal of Business Ethics, 90*(4), 533–547.

Transparency International. (2016). *The corruption perceptions index*. Retrieved on December 24, 2017 at https://www.transparency.org/research/cpi/overview.

van Eeden, R., Cilliers, F., & van Deventer, V. (2008). Leadership styles and associated personality traits: Support for the conceptualisation of transactional and transformational leadership. *South African Journal of Psychology, 38*(2), 253–267.

Wart, M. V. (2003). Public-sector leadership theory: An assessment. *Public Administration Review*, *63*, 214–228. https://doi.org/10.1111/1540-6210.00281.

Author Biography

Dr. Adebayo (Bayo) Adanri earned his Ph.D. in public policy and administration from Walden University, Minneapolis, Minnesota, USA, and received a master's degree in urban planning from the University of Illinois at Urbana-Champaign, USA. He is the President/CEO of Planning & Valuation Consultants, Inc., a firm of urban planners, real estate consultants, and public policy analysts with offices in Normal, Illinois, USA, and Lagos, Nigeria. Dr. Adanri looks for ways to bridge the gap between theory and practice. His research interests include leadership and organizational management, community development, housing, and public policy studies.

CHAPTER 6

The Future of Women in Leadership, Breaking the Glass Ceiling: A Global Perspective

Ezenwayi C. Amaechi

Introduction

In the contemporary root of leadership studies (Hopkins & O'Neil, 2015), which began in the nineteenth and early twentieth centuries, four main perspectives in leadership theories were studied, including trait, contingency, authentic, and contemporary, as well as transformational and authentic forms of leadership styles. It is important to note that the trait style of leadership was mainly researched during the late nineteenth and early twentieth centuries, as trait theories became the great man approach, where high-achieving leaders were examined and sought, in an effort to identify the difference in characteristics between a leader and non-leader. The understanding of leadership (Ayman & Korabik, 2010) has largely based on the results of studies conducted on white men in the USA. As a result, the current society tends to see leadership traits as similar to those attributed to white men (Schwanke, 2013; Davis & Maldonado, 2015).

E. C. Amaechi (✉)
Johnson & Wales University, Providence, RI, USA

B. S. Thakkar (ed.), *The Future of Leadership*,
https://doi.org/10.1007/978-3-319-73870-3_6

When it comes to the study of leadership, it is necessary to include gender and culture (Ayman & Korabik, 2010), as its exclusion restricts the scope of understanding in this area. The second-generation form of gender bias, as reported by Kacmar, Bachrach, Harris, and Zivnuska (2011), is a major but an unseen form of barriers to women's advancement; it stems from cultural beliefs about gender, workplace structures, as well as practice patterns that tend to work in favor of men. Organizational hierarchies for example in which men dominate, and leadership practices that connect leadership with behaviors that are believed to be common or more appropriate in men, unintentionally communicate that women are not suited for leadership roles. There is also the tendency for those in leadership to want to only deal with individuals who look like them. As a result, men who are already in leadership positions advocate for and sponsor other men when leadership opportunities arise. As a result, some women may find it difficult to be seen or see themselves as leaders. Additionally, Ayman and Korabik (2010) stated that factors such as stereotypes, role expectations, power and status differentials, in-group and out-group, and much more can have important impacts on many aspects of leadership. Since those in the majority seem to privilege most with these attributes, they tend to create obstacles that mostly women and those in ethnocultural minorities may need to overcome to attain leadership positions or become successful. Although the nature of the issues about leadership seems like it is changing, Kimball (2015) believed that businesses, government, and the society still have more work to do. A study conducted by the University of California-Davis showed that, of the California's 400 largest companies surveyed, women hold about 13.3% of the board positions, while men hold about 86.7% of the seats.

Further, according to Kimball (2015), nearly 10.5% of the highest paid executives are women, and 89.5% are men, while 52 organizations have chief executive officers (CEOs) who are females, and executive compensations differ. For example, the executive pay for females is 1.9 million dollars and 2.1 million dollars for men at the medium. The study also showed that software sectors have the highest quantity of women directors (15.5%), with the financial sector representing the greatest percentage (14.1%) of women among highest paid executives. Ayman and Korabik (2010) reported that both culture and gender have a physical and value component, as both affect the uniqueness and group cohesion, interpersonal interactions, as well as access to power and resources.

Additionally, the cultural and ethnic value that people hold tends to be intrapsychic views that are learned in the same way that gender roles, beliefs, and attitudes are. Like gender, the physical characteristics that separate people, into different cultural and ethnic groups, also act as indicators of status that primes stereotypes and grant privileges.

In Nigeria for example, culturally and historically, a typical Nigerian woman is supposed to be a homemaker, one who cares for her husband primarily, her children, and other members of the family, stated Sokefun (2010). A woman's other responsibilities could also include, farming to feed the family as well as engaging in the petty trade of produce, cooked foods, or household ingredients. What most fail to understand is that, while in this position, women are still an important group of people who have a crucial role to play, particularly, in the social, political, and economic transformation of any nation. Saudi women (Thompson, 2015) face issues on three different levels: their families, the society, and the nation. Although some women are making strides in all works of life, some still face continuous restrictions from their families, in regard to customary roles and responsibilities, thus, creating a work-life balance that she is obligated to resolve, since she is seen as the cause of the problem in the first place. In addition to caring for the smaller immediate families, some Saudi women are also responsible for their extended families, and on a national level, some find themselves working in positions they may not like, while there, their performance is constantly under scrutiny.

Purpose

The purpose of this chapter is to explore the future of women in leadership. I first briefly explain the current leadership landscape for women; I then review the major theoretical approaches to women in leadership, presenting key findings of the future of women in leadership. Additionally, I present an argument as to why women's leadership matters, the future of women in leadership in global businesses, as well as the future of women leadership in the next decade and beyond. Studies regarding the future of women in leadership from a global perspective have rarely been explored.

For example, there seems to be a concern about the need to cultivate and develop more women leaders in all segments globally, as well as the need for more women to take on serious leadership roles in sectors

such as higher education, business, and the Military (Bark, Escartin, & van Dick, 2014; Madsen, 2012). However, there are often unseen obstacles and barriers that lead to an ill-representation of women in both leadership and upper-level management, which Smith, Caputi, and Crittenden (2012) stated requires an ongoing investigation into its causes and consequences.

Some research that focuses on women issues in the USA indicated that it might take up to 73 years before both men and women reach equality in the boardroom of the top 500 organizations. Additionally, the United Kingdom Equal Opportunity Commission (Smith et al., 2012) indicated that it would take about 65 years for women to achieve equality with men as directors within the British top 100 organizations. Mollel and Tshabangu (2014) also shared that leadership is important, particularly, women leadership because there is a gender difference when it comes to leadership, as a result, women bring diverse assets to both leadership and management positions, these assets help organizations maintain competitive advantage.

Conceptualizing the Need for Women in Leadership

Several theories can provide a suitable framework for conceptualizing the future of women in leadership. The role congruity theory of prejudice toward female leaders (Eagly & Karau, 2002) suggested that perceived incongruity between the female gender role and leadership roles leads to two forms of prejudice: first, when women are regarded less favorably than men in regard to possibly occupying leadership roles, and secondly, evaluating behaviors that realize the prescriptions of a leadership role that is less encouraging when women enacted it.

In addition to approaches and outlooks being less optimistic toward female than potential male leaders, it is also more challenging for women to develop into leadership roles and succeed in their various leadership roles. The role congruity theory considers the agreement between gender roles and other roles, particularly, leadership roles. The probability of prejudice against female leaders that tends to be integral in female gender role follows from its dissimilarity to the beliefs that individuals naturally have about leaders. People, therefore, are inclined to have a dissimilar belief about leaders and women as well as comparable beliefs about leaders and men. Because, prejudice

(Eagly & Karau, 2002) can come about when observers judge women as the actual or probable occupier of a leadership role, due to the discrepancy between the mostly communal qualities that observers associated with women and the mostly agentic qualities they believe are essential for a leader to succeed.

A huge portion of the social role theory stated that the majority of the belief about the traits of men and women pertains to the communal and agentic attributes. Further, the social role theory and the leadership categorization theory (Kacmar et al., 2011) stated that gender differences occur because of two interrelated processes: social learning and societal power relations behavior, meaning that some of what may be seen as gender suitable behaviors are usually learned through social modeling and strengthened through society's power and status structures.

Literature Review

Although women have been entering managerial and professional US workplaces at about the same rate as men (Kacmar et al., 2011), they, however, remain hugely underrepresented at senior levels within the organization. At the start of the twenty-first century (Bark et al., 2014), about 50% of the workforce in some of the European countries and the USA were females. Additionally, more women are currently attaining equal or slightly higher education than their men counterparts; as of 2012, the number of 30- to 34-year-old populace who have a tertiary education in Germany and Denmark, for example, was 32.9 and 52.6%, respectively. In fact, Kacmar et al. (2011) shared that as of 2011, only 2.2% of women were fortune 500 CEOs, and about 15% of them were elected to the board seats and corporate officer positions within these same organizations. This is even more of an issue among African American women who although they account for about 12% of the managerial and professional labor force, only make up 3% of Fortune 500 directors. In Europe, women only make up one-third of the managerial positions; however, only 1.8% of them are CEOs, and about 10% occupy the board seats of Financial Times 500 companies.

According to a 2016 report from Catalyst, in India, the participation of women in the labor force continues to drop, as women's labor force participation dropped from 34.1% in the years 1999 and 2000 to only 27.2% in 2011–2012. Additionally, Kacmar et al. (2011) posited that only 11% of large companies' CEOs in India are women; among

recent graduates from leading business schools worldwide, the career progress of some women lags when compared to their men counterpart. Further, 54% of the organizations on the Bombay Stock Exchange have zero women on its board. Of the board seats and chairs of other organizations, women hold only 7.7 and 2.7% of board seats and chairs, respectively.

In countries like Japan, women tend to leave the labor force once they get married or have children; as a result, the rate of Japanese women in labor force as of 2014 was 49.2% compared to their men counterparts who had 70.4% participation rate in the same year. Further, women are underutilized because as many as 3 million women worldwide are currently not working, but would like to work according to Catalyst 2016 report.

In 2015, African Development Bank (ADB) reported that African women who make up a little over half of the continent's growing population, and contribute extensively to the continent, are among the poor, mainly because they are a part of the 70% who constitute the informal sector.

Paustian-Underdahl, Walker, and Woehr (2014) also asserted that as of 2012, women held only 19.1% of the parliamentary seats globally, and only 16.8% in the US Congress, meaning that they held just 90 out of 535 available seats. Further, the same 2016 Catalyst report showed that in the USA, women held 51.5% of management, professional, and all related positions; they hold only 20 or 4% CEO positions at S&P 500 organizations, even though the growing labor force of women's participation peaked in 1999 at 60%. For example, out of the 19.2% of women who were on S&P Board in 2014, 80.2% were white, 11.7% were black, 4.4% were Latina, and 3.7% were Asians.

A 2017 Catalyst report also showed that in China, the world's most populated country, men are more in number than women. Women make up about 48.6% of China's population. Due to long maternity leave (98 days) given to Chinese women, some employers sometimes use it as a reason to deny them employment. Additionally, more than 75% of women surveyed asserted that they were let go once they became married or had children. Although women have high labor force participation rate, very few of them are in leadership roles. For example, 17.5% of organizations in the country have women as top managers, and only 17% of all legislators, senior officials, and managers were women as of 2016. Furthermore, women represented only 9.2% of individuals on the

board, and in 2015, 22% of CFOs of organizations were women. It is also important to note that approximately 3.2% of women were CEOs in 2013 and less than one-quarter (24.2%) of all positions in the country's single-house Parliament are held by women. Of the ministerial positions in China's government, women held about 12% in 2016, and only four with a female head of state in the past 50 years.

On the other hand, a 2016 report from Catalyst showed that in Australia, the growth in management positions for women is increasing, but at a much slower rate, as women make up 15.4% of CEO's positions. Women also hold 33% of senior management positions and represent 23.6% of the board of directors; however, some of the above statistics are because of the passage of the diversity-related corporate governance code amendment between June 2010 and November 2012. For example, the women on the board of directors from 2006 to 2009 were 9%, 8%, and 8%, respectively. After the passage of the diversity-related corporate governance code of amendment however, the percentage of the women on the board of directors rose from 11% in 2010 to 20% in 2015.

Even in academia, gender inequality still exists (Cairncross, 2015), as more men continue to control senior leadership positions globally. That seems to be the case in South African Universities, where some women are still working on establishing themselves within the epicenter of the academic enterprise. Male voices still dominate the position of power and institutional direction; this situation has been worsened by women's somewhat recent entry into academia; as a result, they have further been marginalized from senior leadership positions of academies. Although women realize many responsibilities and play important roles in academia within several universities, their contributions have rarely been acknowledged. Nigeria is another example where some artificial analysis of government policies and program on women may suggest that Nigerian women have made strides in the areas of political and socioeconomic status (Sokefun, 2010).

Some might even refer to women who are in leadership positions, serving as Ministers, Vice-Chancellors, Permanent Secretaries, State Commissioners, Senators, Members of Federal and State House of Assemblies, Local Government Chairmen and Counselors, as well as top Executives in State, Federal, and Private sectors. However, according to Ekpe, Alabo, and Egbe (2014), women have been sidelined in political arenas, to the extent that they have not held more than 15% of elected offices in the country.

The glass ceiling phenomenon (Appelbaum, Shapiro, Didus, Luongo, & Paz, 2013; Davis & Maldonado, 2015) is an unseen barrier to advancement that is based on organizational or attitudinal biases. It is also a concept which can be costly to an organization in terms of lost productivity among women but particularly, women of color, as well as turnover costs and annual salaries.

Like the term glass ceiling, labyrinth is another term (Schwanke, 2013) that has been used to describe some of the challenges and barriers some women navigate as they make their way to senior leadership positions within their organizations. Although the media and other contemporary outlets report that this glass ceiling is being shattered, the reality, said Davis and Maldonado (2015), is that it still exists. For example, Schwanke (2013) stated that less than 16% of corporate officers and board members of Fortune 500 companies are women.

For those who achieve these positions, it usually comes at a cost, as they tend to carry burdens such as stereotyping, prejudice, sexual stereotyping, isolation, tokenism, as well as sexual harassment. Catalyst (2016) also reported that although an additional quarter of a billion women globally have gone into the labor force since 1996, the labor force participation of women has, however, decreased from 52.4 to 49.6% between 1995 and 2015. Women have to combat gender wage gap issues, as women only make 77% of what men make, meaning that women are currently making what some men were making 10 years ago as the average global annual pay for women is 11 thousand dollars, compared to 21 thousand dollars that their men counterpart are making.

Issues and Challenges of Women in Leadership

Although there has been an increase in the number of female employees in middle management positions (Schwanke, 2013; Davis & Maldonado, 2015), it seems like executive positions continue to be led by men. Some research goes further by presenting a comparison of women in management today and those who were housewives in the 1960s; as a result, the media and cultural references accept and celebrate equality achievement among women when in reality, that is not the case. This perceived equality, asserted Schwanke (2013), creates confusion and contradiction as women are largely underrepresented in governance, directorship, as well as executive leadership.

When it comes to leadership, women tend to face two types of issues: one is seen within the society in general, and the other is found in the corporate setting. Societal issues are forces that are rooted deeply in both public policy and culture. In Canada for example, Schwanke (2013) reported that a Corporal and a 20-year vetran of The Royal Canadian Mounted Police (RCM) force complained about sexual harassment within the force, as well as a long-term abuse where her supervisors treated her as a potential sexual toy and was often offered for sex. The force Commissioner at the time specified that the structure of the system within the force tends to make it difficult to appropriately address the allegations because the force is working with an outdated system.

According to a 2016 report from Catalyst, compared to 1976 when only 37.1% of Canadian women were in the workforce, 47.2% of women are in the workforce in 2015; however, the number of women going into senior management positions seems to have stalled, as men are two to three times more likely to make it to senior management position than women. Although this shows an increase in the overall participation of Canadian women in the workforce, nonetheless, there is only one woman CEO on the Canadian TSX 60 (a stock market index of 60 large organizations listed on the Toronto stock exchange). In 2014, the Canadian stock index companies had only 20.8% of women occupying its board seats. Schwanke (2013) further asserted that when maternity leave is favored over paternity leave, or when a woman is encouraged to work lesser hours after the birth of a child, but men are not allowed to do the same, it brings about the social reinforcement that only women have the ability to fulfill the commitment to family responsibilities.

One would assume that with the increased participation of women in the workplace (Schwanke, 2013), that their domestic responsibilities would be lessened, however, that does not seem to be the case as some studies suggested that an average American woman spends approximately 13.2 hours on housework alone compared to men who spend only 6.6 hours. This disparity in the hours spent on housework creates a scenario where women's work-life balance becomes unhealthy, as they manage both their careers and domestic work. Other barriers that some women encounter include the lack of or limited human capital, which makes it difficult for some women to either gain meaningful employment or attain leadership positions.

Structures within the organization can also affect women's growth potential (Schwanke, 2013), meaning that the way an organization is structured can not only interfere with but also inhibit the advancements of more females within an organization. For example, existing networks such as the old boy's network can be difficult for women to break into, as some women are usually uncomfortable networking within such environments, and some may not have the extra time to spend outside working hours, due to their domestic commitments. Also, some men are not intent on receiving new female members within this club, hence making it difficult for some women to receive the support they may need at that level of leadership.

Appelbaum et al. (2013), Cook and Glass (2014), and Schwanke (2013) further reported that some women also have to deal with the issue of glass cliff, as those who make it through the glass ceiling are seen as the best candidates to take over departments that are in crises, which at times sets them up for failure. Some may become overwhelmed, stressful, or end up leaving the role entirely, mainly because they have inadequate network and support around them. As a result, they are seen as incompetent, unwilling to do what it takes to accomplish the task at hand, or unfit for that level of leadership.

Why Women Leadership Matters

Women leadership matters because the misperception of the effectiveness of leadership between men and women remains, as gender biases that see leadership qualities to be mainly related to male qualities stubbornly persist in some organizational cultures and can be difficult to overcome, said Schwanke (2013) and Davis and Maldonado (2015). Typically, there are ways in which the society expects men and women to act within it; this collective knowledge (Schwanke, 2013), can be divided into two categories: descriptive and prescriptive. Descriptive deals with how the society feels both men and women typically act, and prescriptive is the way the society feels both men and women should act; additionally, society holds a certain level of attitude toward leadership traits. Some leadership traits associated with both men and women tend to be different, for example, communal qualities which consist of helpfulness, affection, and gentleness are usually attributed to women, while agentic traits are usually associated with men, consisting of assertion and control.

These generalized expectations (Schwanke, 2013; Davis & Maldonado, 2015), create room for widespread stereotyping that can occur within the workplace and the society as a whole. When some women make it to senior level positions, they tend to experience complexity in the way they are expected to act, because as a member of the female gender, they are expected to exhibit the communal qualities as well as the agentic qualities, because it tends to be the most desired and supported form of leadership trait. The issue of prejudice and discrimination is something else most women, particularly those in leadership have had to endure. As Appelbaum et al. (2013) explained it, women are regarded as being less capable than men in regard to leadership roles; therefore, their leadership aspirations tend to be hindered.

Socially and culturally, women in leadership are important as some researchers have suggested that women leaders tend to make a difference for girls and women by strongly influencing lawmaking in the way that favors other women and girls. Women also tend to positively influence change in issues concerning health, community well-being, poverty, family welfare, as well as understanding the need to reach consensus on some policies according to DiLanzo (2016).

The Future of Women Leadership in Global Businesses

Kacmar et al. (2011) suggested that how individuals end up becoming leaders as well as how they take on leadership roles is a matter of identity. A leader's identity is not the same as the position the individual has held in the past, but evolves as the individual engages in two core interrelated tasks: the ability to develop one's sense of purpose as well as how a leader internalizes that identity. Internalizing a leader's identity is a relational and a social process that allows an individual and the people around him or her to begin to see him or herself and be seen as a leader. This can be achieved when the individual takes on activities and actions that are leadership in nature, and in the process, accumulates experiences that informs his or her sense of self as a leader, in addition to views about his or her fit to take on leadership roles in the future.

That same 2016 Catalyst report however, stated that some women do not realize the opportunity to take on those activities and actions that are considered leadership in nature. For example, in India, the directorship position, a role seen as a precondition to becoming a CEO on the Bombay Stock Exchange 100, only eight or 2.5% of those roles are held by women.

Kacmar et al. (2011) further asserted that it is essential to note that the process of taking on leadership roles can either produce positive or negative outcomes when applied. For example, receiving validation for an individual's view of themselves can boost his or her confidence and increases his or her motivation to lead and pursue new opportunities allowing him or her to practice leadership. As an individual's opportunity for leadership increases, so does the likelihood that the individual can not only receive endorsements but also receive assignments that are leadership in nature.

When a leader is internalized (Kacmar et al., 2011), his or her interest is sustained to the level that he or she begins to practice and develop complex leadership skills by taking risks that would allow him or her to experiment and reach for unfamiliar leadership roles. The negative aspect of this process involves one that diminishes an individual's confidence and motivation to pursue leadership opportunities or develop themselves further. A leader's identity is connected to their self of purpose, therefore, anyone aspiring to be a leader should pursue issues that are aligned with their personal values, as that would satisfy their human needs and would help them to become successful leaders. The changing demographics of the workplace and the ongoing shifts in the global environment (Davis & Maldonado, 2015) have created a need for new leadership ways to manage individuals.

Therefore, there is a need for women leaders to be identified and developed enabling them to effectively work across geographical areas. To accomplish this identification and development of women, Davis and Maldonado (2015) asserted that organizations need to select and develop leaders who are capable of managing the organization as a whole; these individuals should be diverse and include both men and women who are capable of meeting the challenges that are presented by the new global economy. In the global markets that are increasingly becoming competitive, some organizations are beginning to realize how barriers to the advancement of women, particularly African American women, could be damaging to the effectiveness of their various organizations. As the barriers to the advancement of women weaken organizational performance and compromise the central principles of equal opportunity and social justice, organizations cannot afford to waste its human resources.

The discussion about the future of women's leadership should also include societal transformation as in the case of the change taking place in Saudi Arabia, Europe, Japan, Canada, and some parts of Africa and Asia. The social change regarding women leadership in Saudi Arabia (Thompson, 2015) is being managed and directed through the acquisition of leadership skills in administrative, social, economic, and political areas. This skills acquisition would enable them to add to the national development, and the formation of a knowledge-based society. The 2015 African Development Bank report stated that, to help the European economy during the economic crises, the region quickened women's access to leadership roles by having some countries and organizations reassess its policies, governance code, regulatory framework and changed the structure of the corporate and senior management to prevent the same issue from recurring in the future.

Further, in 2015 Japan employed a strategy that would utilize women's skills to help its sluggish economy, as data from the Ministry of Labor indicated that the country's GDP would grow more if women were included in the workforce. Some countries in Africa have government mandate in regard to the number of women representation on the boards of government-owned organizations, while private organizations in some African countries (Kenya, Morocco, Malawi, Nigeria, and South Africa) and in Asia (Malaysia, Hong Kong, India, and Brazil) have added diversity as principles of good corporate governance. Unfortunately, there are other countries in Africa, who do not view the lack of women in top leadership positions as an issue, consequently, indicating that awareness and acceptance are something that takes time to be embraced; therefore, the need for more women in leadership roles requires continuous repetition.

The Future of Women in Leadership in the Next Decade and Beyond

Since the year 1945 (Keohane, 2016), nearly 100 women have been elected presidents or prime ministers; some women are currently senators, university president's, head of foundations, supreme court justices, corporate CEOs, as well as other positions where women were previously not allowed to serve. When this same trajectory is projected forward, it might be easy to believe that the future will continue to move in

this direction, a situation where there will be more women leaders and leadership positions can finally become gender-neutral. Sometimes, it feels like this situation is the only way forward; it is only a matter of time before gender-neutrality is finally achieved.

However, the barriers such as glass ceiling, glass cliff, glass border, labyrinth, and so much more barriers that some women have to face remain; it also suggests that some women's path to top leadership is not straight. Still, with several studies undertaken by women's groups, academic, accounting and investment firms, as well as management consulting firms from countries around the globe, all presented a link between more women in senior corporate leadership roles and the organization's financial well-being according to a 2015 report from African Development Bank. Some studies have also shown that there are more educated women today than before; these women possess unexploited talents that can enable them to become better leaders. Cook and Glass (2014) found that women's movement and tenure within the workplace are affected by diversity; therefore, the need to integrate more women into the role of the board of directors cannot be overly stated as it considerably increases the likelihood that she would be appointed CEO. Additionally, there is a substantial encouraging relationship between the number of women on the board of directors and a woman's length of occupancy in CEO role.

These findings, said Cook and Glass (2014), suggested that diversity among decision makers have a huge impact regarding women's ability to overcome the glass ceiling and other barriers some women in the workplace face. On the other hand, some women are pessimistic about making it to top leadership positions, feeling that they can never break the glass ceiling no matter how hard they try. However, integrating women into decision-making positions earlier in their careers can help dispel this feeling, while making room for more women to be easily promoted into leadership positions and lead for a long period. Other women leaders can be responsible for ensuring that the societal status of women is improved. This improvement in the societal status of women (Thompson, 2015) can be accomplished if and when they act as role models to other women by encouraging change and inspiring people of all ages, particularly younger women who can contribute to a more progressive society.

Organizations and non-governmental agencies should implement targeted training that would help women to identify their career goals and

the types of leadership positions they are interested in, enabling them to gain insights into senior leadership roles.

Further, mentorship, encouragements, and invitation to apply for top leadership positions can help to combat some of the stereotypes and challenges that some women face.

Although it is not easy to foretell things that are yet to be seen, and since women are still operating in a system that was developed by and for white men, some of their gifts and talents seem to have been silenced within this system. Therefore, it is important to use the progress that has been made thus far as a springboard toward the next ten years and beyond.

Almost 50% of the world's population are women (Adeelanjum et al., 2012; Fapohunda, 2012), and 50% of people in some countries are also women. For example, 50% of the 150 million populace in Nigeria are women, further, Pakistani women make up about 50% of the economy, their economic involvement, however, remains low, as women-owned enterprises only represent 3% of the 3.2 million enterprises in the country. It is also important to note that women tend to lead in regard to food production (Iyiola & Azuh, 2014), as 80% of the food produced in sub-Saharan Africa, 50–60% in Asia, 26% in the Caribbean, 34% in the Middle East and North Africa, and more than 30% in Latin America were manufactured by women. As a result, the question remains, how can any economy, culture, business, or country thrive when approximately half of its population seem to be ignored.

The Current State of Women Leadership in Politics and Senior Management Positions

In the year 2015, approximately 22% of members of parliament were women; this is about 10% increase from the number of women in parliament in 1995 according to DiLanzo (2016). In the same year 2015, roughly 30 countries in the world had approximately 30% or more women ministers, with only 17.7% of ministers worldwide being women. As a matter of fact, in 2015, only 19 women were serving as heads of states, women comprised less than 10% of parliament throughout 38 countries worldwide, and only 29% of senior management position in public sectors 2012.

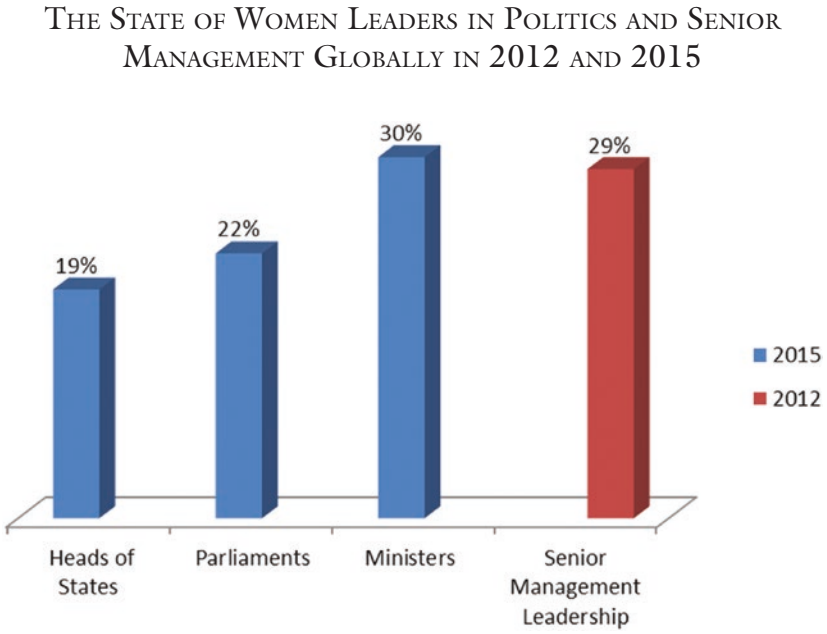


Fig. 1 Source: Ezenwayi Amaechi, The Future of Women in Leadership (2017)

Although the above statistics may seem troubling, more countries and organizations are beginning to realize the important role women play economically, as there are some countries where women are making strides politically. For example, DiLanzo (2016) reported that in anticipation for the 2012 election, the Senegalese adopted a legislation two year prior, that called on women to become active participants in the upcoming election. Along with the public and the United Nations Women, the government launched a campaign to bring awareness concerning the issue, in addition to training programs on the election process, the election resulted in a close balance of power in the National Assembly between women and men. More countries can emulate this process as a way to bring political awareness to women of all ages, including young women who some studies have suggested are more likely to volunteer in political work than their men counterparts.

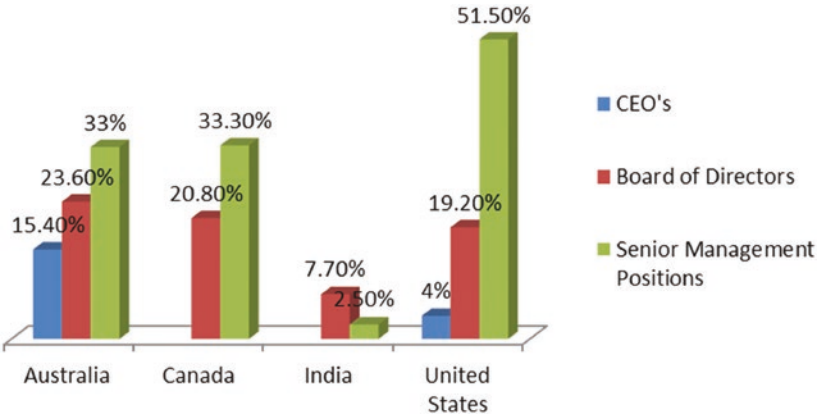


Fig. 2 Source: Ezenwayi Amaechi, The Future of Women in Leadership (2017)

A look at the number of women currently occupying the CEO, board directors, and senior management roles in Australia, Canada, and India as of 2016 showed that more work needs to be done by women, non-governmental agencies, businesses, advocacy organizations that are dedicated to women issues, as well as the society, to see that equality is achieved. The good news from Canada, as reported by the 2016 Catalyst report, is that the country has a national goal of having 30% women on boards by 2019, even as the employments for mothers with children who are under six years old have also continued to grow since 1976, going from 31.5 to 68.1% as of 2007. According to the most recent report from the 2017 Catalyst bottom line, organizations with at least three or more women board directors realize higher financial performance. For example, Fortune 500 companies with women board directors achieved greater financial performance on average than organizations with the lowest number of women board directors. Looking at three important financial measures such as, return on invested capital, return on equity, and return on sales, Catalyst (2017a, b) was able to

compare the performance of organizations that have more women board directors representation with organizations whose women board directors were low. In regard to the return on invested capital, on average, organizations with the highest number of women board directors performed better than those with the least number of women board directors by 66%. In regard to return on equity and sales, organizations with more women board directors outperformed those with the least number of women board directors by 53 and 42%, respectively. This means that having women board directors could improve a company's bottom line; however, for the increase in the bottom line to be realized, it would require that the board represents the constituents it serves, and a gender diversity could be a good starting point.

Although more organizations are making continuing changes toward ensuring that their female representation in leadership positions is expanded, to achieve this expansion, organizations need to work on the total eradication of the seen and unseen barriers that some women encounter on their way to senior leadership. Doing that may allow for near gender representations in all key leadership positions in the next ten years and beyond. Unfortunately, this may not be the case as the barriers that some women face are subtle and multifaceted, as a result, may be difficult to be eliminated. Continuous research on the perception of women leaders is required for organizations and the society to quickly move in the direction of freely accepting women leaders in top positions. As some research revealed that gender incorporation among managerial rank increases the chance of a woman to be hired and promoted to senior management position.

Operational Definitions

Agentic traits: Usually associated with men, in relation to assertion and control (Eagly & Karau, 2002; Schwanke, 2013).

Communal qualities: Consist of helpfulness, affection, and gentleness and are often attributed to women (Eagly & Karau, 2002; Schwanke, 2013).

Descriptive qualities: Deals with how the society feels both men and women typically act (Schwanke, 2013).

Glass ceiling phenomenon: Is an unseen barrier to advancement that is based on organizational or attitudinal biases and can be costly to an organization regarding lost productivity among women but particularly women of color (Appelbaum et al., 2013; Davis & Maldonado, 2015).

Glass cliff: Implies that some women who make it through the glass ceiling take over crises ridden or failing departments, which at times sets them up for failure (Appelbaum et al., 2013; Cook & Glass, 2014; Schwanke, 2013).

Labyrinth: Is another term that has been used to describe some of the challenges and barriers most women navigate as they make their way to senior leadership positions within their organizations (Schwanke, 2013).

Old boys network: Is a network that consists of mostly men and can be uncomfortable for women to penetrate (Schwanke, 2013).

Prescriptive qualities: Is the way the society feels both men and women should act (Schwanke, 2013).

Second-generation form of gender bias: Is a predominant but an unseen form of barriers to women's advancement that stems from cultural beliefs about gender, workplace structures, as well as practice patterns that tend to work in favor of men (Kacmar et al., 2011).

Strategic Recommendations

Smith et al. (2012) believed that the glass ceiling concept is likely to continue to be an issue facing women for years to come. One of the ways to ensure the future of women's leadership lies in an increased societal participation in the form of national and international reorientation on the topic. Additionally, there needs to be a reforming of the educational system, an introduction of policies and initiatives that are more moderate and favorable to women (Thompson, 2015). Kimball (2015) reported that in 2013, for example, the California legislature passed a resolution known as the Senate Concurrent Resolution 62 (SCR-62), the first of its kind in the nation, which called on public companies to add more women to their board of directors. In addition to other studies cited as the reason for this resolution, the study from the University of Davis California was also cited as bringing more awareness to the issue of adding more women to the board of large organizations.

The SCR-62, although non-binding, set goals for the number of women, based on the size of the organization's board. For example, if an organization has nine or more directors, it should have three or more women on the board, two or more women on boards of five to eight directors, and at least one woman for boards that are smaller.

Almost 70 more organizations met the SCR-62 goals, thus showing an increase of 17.5% in 2015 from 15.8% in 2014. These types of

studies can bring greater awareness to the issue of inequality and women leadership if conducted nationally and globally. Further, leadership training within the organization, the society, and the grassroots level can help groom more women leaders, particularly when the government, businesses, and the society at large realize that inclusion is essential in growing and nourishing economic success based on the 2015 report from African Development Bank. Other recommendations include more research, which will provide needed information on this issue; it will also help to determine the measures that need to be taken to improve the amount of women leaders in different sectors. Further, there should be a public reporting obligation in regard to the composition as well as changes that took place on the organization's board during the year.

Finally, women's groups and other professional bodies can apply pressure to affect change. Women should also be bold and possess enough confidence to apply for board positions. There ought to be promotions and investments in organizations that support women initiatives in the workplaces as well as sports programs and activities that can elevate more women to leadership positions. Further, there is a need to involve more fathers and sons in this process (DiLanzo, 2016); there need to be training and awareness dedicated to ensuring that they understand the need for women's role in the decision-making process and leadership.

Summary and Conclusion

Although it seems like some small changes are happening when it comes to women in leadership (Smith et al., 2012) it, however, seems as though the progress has been slow. This sluggishness in progress of women in leadership roles (Sehuh et al., 2014) poses a moral challenge to organizations and the society at large. Particularly, since women have proven themselves as effective leaders in soft sectors such as human resources and health care, the need for more women leaders in other industries persists.

Further, according to Appelbaum et al. (2013) and Schuh et al. (2014) the number of women who have joined the workforce continues to rise, however, the sum of women in leadership positions have not increased at the same pace, because some women are still regarded as substandard, when compared to their men counterpart. As of 2012, women comprised only 26% of all college presidents in the USA, and only 8% of them were African American women (Davis & Maldonado,

2015), meaning that not only do more women need to attain leadership positions in academia, but also, more African American women.

This also shows that the progress toward gender equality has been slow in the past ten years; hence, more research about gender parity needs to be broadened and continued.

The concept of transformational leadership which encourages participation and involvement could be a way to reduce gender discrimination. Similarly, the implementation of greater understanding of leadership may help more women to be accepted in senior leadership positions (Appelbaum et al., 2013; Schwanke, 2013). Some studies (Appelbaum et al., 2013) also suggested that transformational style leadership is usually associated with women, as some behavioral traits such as empathy, relationship building, and supportiveness are seen in female managers and are considered to be more effective when communicating with employees.

Ekpe et al. (2014) suggested that government and policy makers need to ensure that gender inequalities are eliminated by implementing initiatives and structures that would encourage more women to pursue leadership roles. More women, particularly those with personal strengths in the areas of emotional intelligence, teamwork, self-motivation, and a clear self-expectation, need to believe in their abilities to become great leaders in their various fields. Further, since women have been known to be resilient, adaptable, and are inclined to have the ability to juggle home, family, work, and social responsibilities, there is no doubt that they can be great leaders, even as they continue to fight for further progress.

References

Adeelanjum, M., Khan, N., Naz, H., Raza, S. A., & Fatima, S. (2012). Problems and prospects of women entrepreneurs: A case study of Quetta-Pakistan. *International Journal of Business and Social Science, 3*, 177–183.

African Development Bank. (2015). *Where are the women: Inclusive Boardrooms in Africa's top listed companies*. Retrieved from http://www.afdb.org/.

Appelbaum, S. H., Shapiro, B. T., Didus, K., Luongo, T., & Paz, B. (2013). Upward mobility for women managers: Styles and perceptions: Part two. *Industrial and Commercial Training, 45*(2), 110–111.

Ayman, R., & Korabik, K. (2010). Leadership: Why gender and culture matter. *American Psychologist, 65*(3), 157–170.

Bark, A. S. H., Escartín, J., & van Dick, R. (2014). Gender and leadership in Spain: A systematic review of some key aspects. *Sex Roles, 70*(11–12), 522–537.

Cairncross, A. M. (2015). Feathering the nest: Perceptions of proposals for institutional support programmes for women in leadership positions in South African higher education. *International Journal of Educational Science, 8*(3), 573–586. Retrieved from http://www.krepublishers.com.

Catalyst. (2016). *Knowledge center: Statistical overview of women in the workforce.* Retrieved from http://www.catalyst.org.

Catalyst. (2017a). *Companies with more women board directors experience higher financial performance, according to latest Catalyst bottom line report.* Retrieved from http://www.catalyst.org.

Catalyst. (2017b). *Knowledge center women in the workforce: China.* Retrieved from http://www.catalyst.org.

Cook, A., & Glass, C. (2014). Women and top leadership positions: Towards an institutional analysis. *Gender, Work & Organization, 21*(1), 91–103.

Davis, D. R., & Maldonado, C. (2015). Shattering the glass ceiling: The leadership development of African American women in higher education. *Advancing Women in Leadership, 35*, 48. Retrieved from http://www.advancingwomen.com.

DiLanzo, T. (2016). *Strengthen women's political participation and decision-making power.* Retrieved from http://womendeliver.org.

Eagly, A. H., & Karau, S. J. (2002). Role congruity theory of prejudice toward female leaders. *Psychological Review, 109*(3), 573.

Ekpe, D. E., Alabo, E., & Egbe, I. J. (2014). Women, gender equality in Nigeria: A critical analysis of socio-economic and political (gender issues). *Journal Research in Peace Gender and Development, 4*(1), 15–20.

Fapohunda, T. M. (2012). Women and the informal sector in Nigeria: Implication for development. *British Journal of Arts and Social Sciences, 4*(1), 35–45. Retrieved from http://www.bjournal.co.uk/BJASS.aspx.

Hopkins, M. M., & O'Neil, D. A. (2015). Authentic leadership: Application to women leaders. *Frontiers in Psychology, 6*, 1–5.

Iyiola, O., & Azuh, D. (2014). Women entrepreneurs as small-medium enterprise (SME) operators and their roles in socio-economic development in Ota, Nigeria. *International Journal of Economics, Business and Finance, 2*(1), 1–10. Retrieved from http://ijebf.com.

Kacmar, K., Bachrach, D. G., Harris, K. J., & Zivnuska, S. (2011). Fostering good citizenship through ethical leadership: Exploring the moderating role of gender and organizational politics. *Journal of Applied Psychology, 96*, 633–642.

Keohane, N. O. (2016). The future of women's leadership. *Women Leading Change: Case Studies on Women, Gender, and Feminism, 1*(1), 4–11. Retrieved from http://library.tulane.edu.

Kimball, A. (2015). *Study of California women business leaders: A census of women directors and highest-paid executives.* UC Davis School of Management in Partnership with Watermark. Retrieved from http://gsm.ucdavis.edu.

Madsen, S. R. (2012). Women and leadership in higher education current realities, challenges, and future directions. *Advances in Developing Human Resources, 14*(2), 131–139.

Mollel, N., & Tshabangu, I. (2014). Women in educational leadership: Conceptualizing gendered perceptions in Tanzanian schools. *Educational Research International, 3*(4), 46–54. Retrieved from http://www.erint.savap.org.pk.

Paustian-Underdahl, S. C., Walker, L. S., & Woehr, D. J. (2014). Gender and perceptions of leadership effectiveness: A meta-analysis of contextual moderators. *Journal of Applied Psychology, 99*(6), 1129–1145.

Schuh, S. C., Bark, A. S. H., Van Quaquebeke, N., Hossiep, R., Frieg, P., & Van Dick, R. (2014). Gender differences in leadership role occupancy: The mediating role of power motivation. *Journal of Business Ethics, 120*(3), 363–379.

Schwanke, D. A. (2013). Barriers for women to positions of power: How societal and corporate structures, perceptions of leadership and discrimination restrict women's advancement to authority. *Earth Common Journal, 3*(2). Retrieved from https://journals.macewan.ca.

Smith, P., Caputi, P., & Crittenden, N. (2012). How are women's glass ceiling beliefs related to career success? *Career Development International, 17*(5), 458–474.

Sokefun, O. A. (2010). Women development and national policy on women in Nigeria. *Multidisciplinary Journal of Research Development, 15*(1), 1–11. Retrieved from http://globalacademicgroup.com.

Thompson, M. C. (2015). Saudi women leaders: Challenges and opportunities. *Journal of Arabian Studies, 5*(1), 15–36.

Author Biography

Ezenwayi C. Amaechi, Ph.D., is a result-oriented researcher, trainer, lecturer, author, and entrepreneur, passionate about women leadership and economic development. She has over 12 years of corporate, teaching, research, and consulting experience with organizations and educational institutions in the United States, Nigeria, and Mexico. She holds a Ph.D. in leadership and organizational change from Walden University, Minneapolis, Minnesota. She is currently an assistant professor of entrepreneurship at Johnson & Wales University in Providence Rhode Island and the founding executive director of Amaechi Market Strategies, a marketing firm.

CHAPTER 7

Leadership in the Next Decade: Data Analytics—Transforming Information to Knowledge

Thomas A. Seitz

Data Analytics—Transforming Information to Knowledge

Leadership in the decade will undoubtedly be judged by the ability of a leader to leverage the vast amounts of information in order to make prudent business decisions. Improved communication quality and availability of data has fundamentally changed the way we work, learn, and conduct business. The ubiquitous availability of digital information enables shifts in organizational paradigms at a pace that is unprecedented in human history (Ramasamy, 2016). In the competitive business environment in the near future, the ability to extract knowledge from digitally stored information will be a key discriminator for organizational success. That is not to say that the effective leader in the next decade must become a data scientist with vast technical skills in data manipulation and analyses, but instead will require an appreciation of data and their value to the organization (Harris & Craig, 2012). The world has become

T. A. Seitz (✉)
PREM Group, Inc., Wheaton, IL, USA

B. S. Thakkar (ed.), *The Future of Leadership*,
https://doi.org/10.1007/978-3-319-73870-3_7

awash in data, due largely to the steady reduction in cost associated with the storage and retrieval of data, and improvements in computer and corporate information enterprise resource planning (ERP) system suites. This has led to a fundamental shift in thinking about data quality and volume (Perrons & Jensen, 2015) which has led to exponential growth of the amount of data available to the business for management and decision making. But the proliferation of data in a globalized and culturally disparate organization creates a problem with "data overload." Knowing what data to use, and how to properly use it can prevent the ability for leaders to make good decisions from the data. Data overload can impede attempts to benefit from the data for the purposes of organizational learning.

The Problem with Data Storage as a Mechanism for Organizational Learning

There are challenges with the efficient and effective utilization of data, however. As more data is stored, finding and retrieving it becomes a non-trivial task, and tends to limit the ability to draw meaningful conclusions. Just like a warehouse jammed to capacity with too many parts makes finding the correct part difficult, so too does the unregulated storage of information lead to difficulties in finding the "right" set of data on which to execute analysis. In addition to challenges in data storage and retrieval comes the problem with knowledge management itself.

It can be argued that the purpose of data analyses is to provide pertinent facts to a decision maker which provides the ability to make an informed decision. If the decision made is correct, it can be further argued that data has been converted into wisdom. Conventional communication or information systems do not provide the capability to store or retrieve wisdom, and can only store data itself. Figure 7.1 describes the path from data to wisdom. It is highly reminiscent of Kolb's experiential learning theory (Kolb, Boyatzis, & Mainemelis, 2001) in which concrete experiences are lead to learning through vision and reflection. Chakravorty and Hales (2017) described how an experiential learning model (ELM) turns learning into knowledge through abstract conceptualization that is later generalized into wisdom through active experimentation and fine-tuning of the mental models.

In Fig. 7.1, the blue shaded shapes refer to the processes and actions regarding knowledge management, and the olive boxes refer to the state

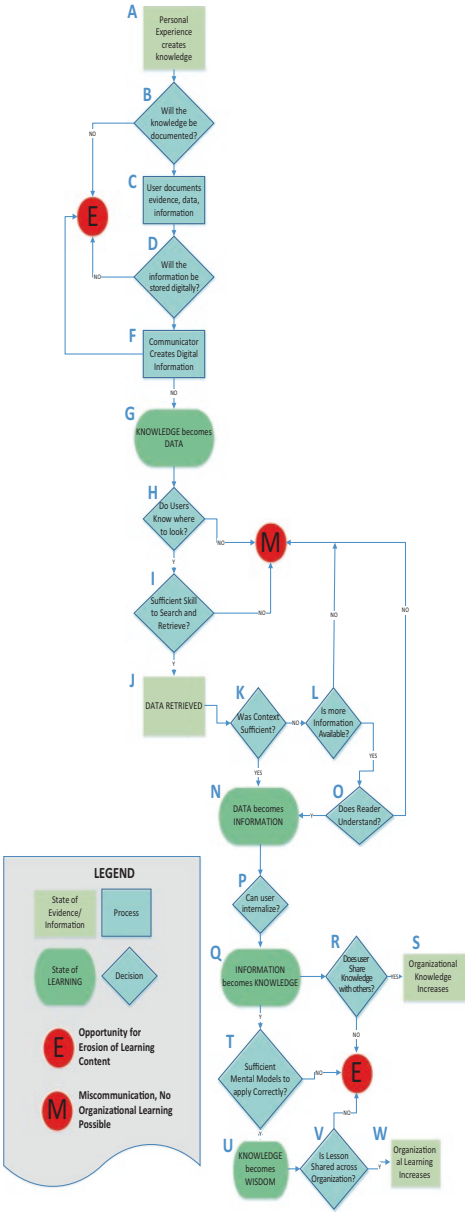


Fig. 7.1 The path from data to wisdom

of the information or data "evidence" being utilized. The bright green shapes refer to the state of learning resulting from the processes, and the red circles represent potential defects or problems inherent in the knowledge management process. The journey begins when a person has some form of knowledge (A) that typically results from personal experience which forms the basis for *wisdom*. When there is a corresponding desire to document the information so that others may use it wisely (organizational learning), the person stores the "relevant" information into some kind of digital repository (G), effectively converting the knowledge to data. This could be in the form of a written document that is scanned and archived, or a complex database that stores relevant relational information about the data. However, the moment the information becomes digital, the original context and experience which created the information erodes (E), decaying with both time and distance from the originator. The stored data itself (G) and its associated metadata becomes the primary vehicle by which others can benefit from the data. If others are unaware to look for the information or data storage strategy used to convert the originator's knowledge into data, there is a good chance the information is miscommunicated (M), blocking potential for organizational learning. Assuming the data retrieval system and person looking for the stored wisdom have sufficient skill (I), the data can be retrieved (J). If the person extracting the data (user) is able to contextualize the information, or can understand it within the framework of the stored data, the extracted data becomes information (N). Typically, data becomes information only through human or computational algorithmic processing. But information is not synonymous with knowledge. *Information* can only become *knowledge* when it is organized in its proper context. The individual user or decision maker in the information gathering and organizing process must be able to apply the information correctly to the decision-making process (P). When the individual user learns from the information through internalization, it can be said that the information has become knowledge (Q). When knowledge is applied appropriately to the situation at hand, only then can it be called "wisdom" or "insight" (Sharma, Mithas, & Kankanhalli, 2014).

Inadequate data governance, storage, and retrieval of information lead to an erosion of learning content. Inability to communicate or share information between groups, especially in a globalized business environment, leads to the inability for an organization to learn and grow, and impacts its success. From an experiential learning standpoint, the

lack of ability to recall and process previous lessons reduces its recursive and self-perpetuating impact, and encourages recidivism to previous behaviors.

So, if the next decade favors leaders who are proficient with analysis, and the storage of data limits the usefulness of that data, what will the savvy leader do to make sense of it all? The answer is data analytics. Prior to the advent of inexpensive and ubiquitous computing, data collection and analysis was predicated on representative statistical samples, and was the purview of statisticians, requiring rigorous data "purity" to effect precise results. Analytics and the availability of "Big Data" has allowed for an aggregation of multiple data sources, and reduced the requirement of data "purity" as a prerequisite for meaningful results (Ramasamy, 2016; Mayer-Schönberger & Cukier, 2013). Analytics can integrate enterprise information technology and allow it to provide business leaders with information to support the size, clockspeed, and complexity challenges faced by large multinational and multicultural globalized companies (Apte, Dietrich, & Fleming, 2012).

A Working Definition of Data Analytics

The definition of "data analytics" is a bit like Supreme Court Justice Potter Stewart's characterization of pornography in which he could not adequately define the term but famously stated that: "I know it when I see it" (Jacobellis v. Ohio, 1964). Like Justice Potter's quandary, the term "analytics" is used frequently, but defies a single, comprehensive definition. A Google Scholar search for the term "analytics" and "leadership" provides over 490,000 results. Several researchers have attempted to define analytics by its ability to make predictions. Isson (2012) characterizes analytics as the evaluation of a business goal through the organization and consolidation of disparate data that provides a prediction for the future. Other researchers like Williams (2012) consider analytics to be data based applications of quantitative analysis methods, and argue that the practice has been used for decades by businesses to arrive at a business decision. Holsapple, Lee-Post, and Pakath (2014) characterize data analytics as the ability to transform evidence into insights that inform decisions. For the purposes of discussion, this paper provides a working definition of data analytics as the science and practice of locating and examining (often disparate) structured and unstructured evidence and data sources for the purpose of drawing conclusions about that

information. Analytics uncovers hidden patterns, previously unexplored or unknown correlations, identifies technical or market trends, and provides useful business or technical information. The use of data analytics provides a competitive advantage for an organization and can lead to more effective innovation, new revenue opportunities, better customer service, improved operational efficiency compared to organizations that cannot, or do not, exploit analytics in their daily operations (Jain, 2016).

While this generalization of "data analytics" provides a working definition, it should be noted that there is a fine line between data *analysis* and data *analytics*. This paper makes the distinction between data analysis and analytics based on the degree to which the data must be processed in order to provide coherent results. "Data analysis" is considered the human-based activity which evaluates data to obtain a particular answer without the need to gather or tie multiple sources of the data together to obtain that result. Analysis are typically performed on a single data set or single data file where the structure and quality of the data is known, whereas analytics are typically performed on multiple data sets for which data architectures (storage, structure, form and format) are not necessarily consistent. The term "data analytics" for the purposes of this paper are used synonymously with "Big Data Analytics," which are a subset of data analytics referring to data sets in excess of terabytes of data that require special consideration for storage, management and visualization (Chen, Chiang, & Storey, 2012).

Why Care About Analytics?

To some extent, the use of data to make decisions about the business has been around since the advent of the industrial revolution (Smith, 2012). Davenport, Harris, and Morison (2010, p. 1) suggest that approximately forty percent of all major leadership decisions are based on instinct or "gut" level intuition and not on the information provided by data analysis. A study by the MIT Center for Digital Business, in partnership with the Wharton business school and McKinsey's business technology office, studied the performance of 330 companies in North America, and determined that data-driven companies were (on average) 5% more productive and 6% more profitable than their competitors (McAfee & Brynjolfsson, 2012). Hagen and Khan (2014) describe how analytics can improve innovation, and improve business opportunities while improving business performance. They cite improvements in innovation, profitability

and increased operational effectiveness. Jain (2016) describes how leaders employ predictive analytics to evaluate marketing and strategy decisions to avoid costly mistakes when positioning products in the market.

Analytics help leaders to understand what happened in the past, providing insight into the key parameters comprising past behavior. This facilitates both reporting the conditions or progress against strategic goals as well as the ability to model behavior to further influence current operations. Large, complex, globalized organizations use analytics to tie together data from geographically and organizationally disparate data collections, reporting systems, disjoint enterprise resource planning (ERP) systems, and otherwise incompatible data storage systems and use them to provide holistically "optimal" decisions. An example of this is the use of past purchase data to make marketing decisions to predict future purchase trends (Baumann, Haupt, Gebert, & Lessmann, 2018).

Analytics can provide an alert function to notify leadership of significant changes or opportunities, as well as the ability to model alternatives through simulation. Perhaps the most titillating aspect of data analytics is their ability to facilitate predictions through simulation and modeling. The same algorithms needed to tie disparate data together and relate it contextually allows for the extrapolation of that information to make predictions about future performance. Predictive modeling through analytics allows leaders to "test" various strategic and tactical scenarios to determine the best outcome possible before committing resources or realizing the risk of embarking upon an inappropriate decision path.

Types of Analytics

While the use and application of data analytics varies by the need driving the analysis, it appears that there are three general categorical types of analytics. These three categories can be summarized by their basic functions and the outcomes the analyses are intended to support (Wang, Gunasekaran, Ngai, & Papadopoulos, 2016):

1. *Descriptive Analytics*: Analytics used describe or measure events from the past or present so that they may be measured and understood;
2. *Predictive Analytics*: Used to forecast or make predictions about the future; and
3. *Prescriptive Analytics*: Used to weigh alternatives in order to improve business performance.

Davenport et al. (2010, p. 7) tie the three categories of analytics used to make leadership decision, by their temporal nature and intended goal. The authors suggest that past data can be used for reporting and metrics, or to help build descriptive models of current performance that enhance a leader's ability to better understand causal relationships between making important informed decisions. Like the journey from data to wisdom described by Fig. 7.1, the use of analytics facilitates the ability to harvest data for the purpose of making informed decisions. Figure 7.2 describes the use of analytics and how they support the temporal nature of leadership decision making.

Another way to regard analytics are by the service they perform for leadership. Phillips (2015) studied leadership use of data analytics and found that managers found the most value in performing five types of analytic activities. The first was to quantify the relationship of heretofore "unquantifiable" characteristics of working culture to monetary impacts. Elements of the organization like job satisfaction, engagement, ethics, customer satisfaction, and reputation can be quantified by their impact on short-term and long-term cash flow, and allows for appropriate strategic consideration. The second common analytic project undertaken by leaders clarifies relationships and causation through regression and correlation. These are typically the same type of analysis resulting from traditional statistical analysis (job satisfaction vs. retention, engagement vs. quality, ethics vs. profit, etc.), except that all the categorical data can be compared to all the potential effect categories. Using this approach, relationships between variables that could not be previously evaluated due to effort or cost can now be performed through automated analytics, and obscure relationships can be found and explored. The third common data analytics category favored by leadership is an extension of the second; only it applies predictive modeling to the correlation evaluation. Phillips (2015) describes the ability for analytics to evaluate recruiting source as a prediction of employee retention, and the effect of compensation packages as a predictor of employee retention. The fourth data analytics category is the evaluation of impact and return on investment (ROI) for specific expenditures. This practice harnesses the power of analytics to evaluate and optimize investments in training, recruiting, knowledge management, IT infrastructure, among others (Williams, 2012). The last category described by Phillips (2015) for leadership use of analytics in forecasting. In this category, analytics are used to predict outcomes and (ROI) for future projects. Leaders utilize analytics to

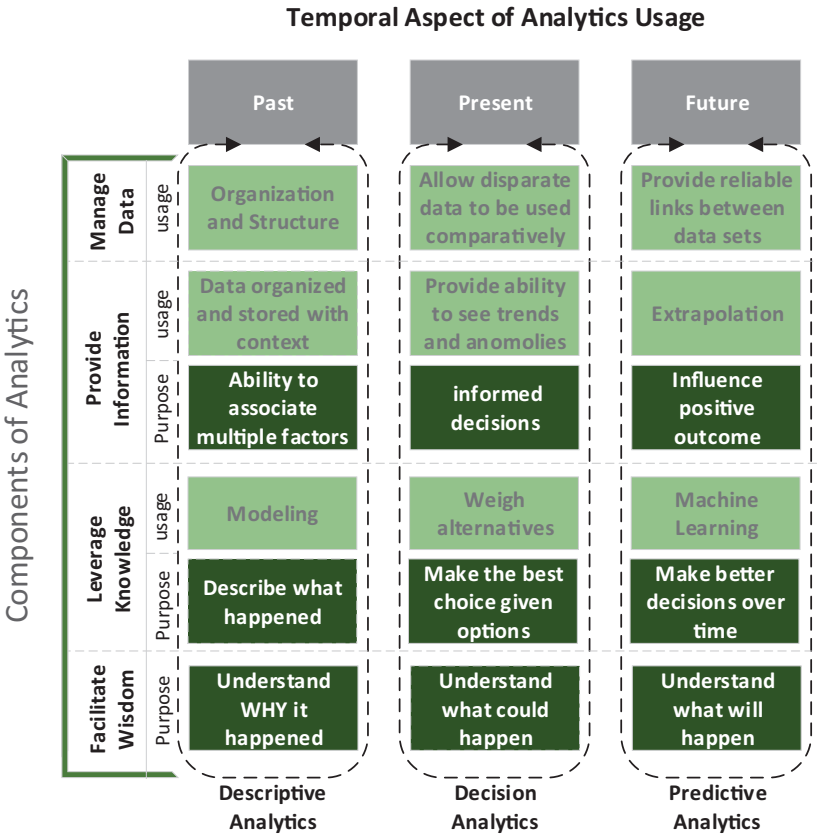


Fig. 7.2 The temporal aspects of analytics use to support leadership decisions

evaluate new compensation arrangements, assess market entries, compare offerings by competitors, as well as evaluate potential outcomes of internally focused reorganizations or policy changes.

How Leadership Can Take Advantage of Data Analytics

To Manage the Business: The management of capital and financial resources is paramount to long-term organizational success. When integrated with the financial planning process, analytics can help weigh

alternative options and ensure optimization of physical and workforce resources. Better decisions lead to better business results, which lead to more informed analytics, and a virtuous cycle of success is established when analytics are leveraged to continuously improve financial management (Ellingsworth, 2012). Swink, Johnson, and Quinn (2012) report that leaders who are proficient with the use of analytics extract more useful information from their data, allowing for better visibility, and (presumably) better management decisions. Administration of the financial and tactical aspects of the business is facilitated through the use of data analytics because they provide organizational leaders with the ability to get information from their data quickly and can access all available evidence. The rapidity of holistic information facilitates the delivery of results in visual metrics that can be easily shared and communicated across the organization (McCafferty, 2015). Advances in analytics and machine learning make it possible for automated knowledge extraction from printed documents (Fan, Kalyanpur, Gondek, & Ferrucci, 2012), allowing businesses to harvest stored and filed information that would otherwise be unused and sitting in a file cabinet. Similar financial gains can be found in manufacturing systems, where predictive manufacturing can lead to self-learning machines that automatically improve quality and lower production costs (Lee, Kao, & Yang, 2014).

To Manage the Workforce: Like the "Moneyball" story which described the Oakland A's use of analytics to effectively build and manage a team, business data analytics promise to revolutionize the way business leaders build and manage the workforce (Davenport, 2014). Human Resource analytics are particularly compelling for an organization because typical HR data items tend to be consistent in both storage and metadata quality, and are not particularly demanding regarding computational complexity (Pape, 2016). Leaders in the next decade will use workforce analytics and planning as to inform their talent and human capital strategy and make smart decisions about the human resource priorities and workforce policies. Feinzig (2015) describes analytics used to manage the workforce as a "game changing" capability, and argues that "HR can 'earn a seat at the table' and demonstrate with confidence the impact of people-related decisions and actions on business outcomes." Such analytics can provide a significant reduction in operating expenses. Fitz-Enz and Mattox (2014, p. 1) claim that firms employing predictive analytics to manage their workforce will see a minimum improvement in productivity through better application of talent to need and

lower operating costs. Assuming a four percent increase in productivity against an estimated annual world HR management cost of $6T results in a possible savings of over $250B annual (Fitz-Enz & Mattox, 2014, p. 2). While these numbers may seem overly optimistic, there is evidence to support the potential benefits of HR management using analytics. At least twenty-six percent of all Fortune 100 companies describe that analytics play a central role in the formulation and implementation of human capital strategies (Falletta, 2014). Howes (2014) reports saving a company over fifty million dollars by using analytics to reduce turnover, and Douthitt and Mondore (2014) estimate that their firm's investment in HR analytics resulted in a 390% return on investment.

To Measure and Manage Risk: Lycett (2013) argues that data analytics are a sense-making process that allows leadership to understand complexity. That same understanding can be applied to the management of complex risk factors associated with the tactical and strategic decisions made by leadership. Gangotra and Shankar (2016) demonstrate that even relatively uncomplicated data analytics can help improve the risk mitigation process through improved fidelity in ranking a company's risk prioritization matrix. Using a more sophisticated approach to risk measurement through analytics allow sensitivity and predictability measures in the risk prioritization process and allows modeling of decision outcomes to inform risk decisions a priori (Briggs, Tolliver, & Szmerekovsky, 2012). The use of analytics as a tool in the risk management process is particularly attractive in historically "wait and see/fix" industries like software development, construction, or defense contracting. In these business sectors, analytics are used to quantify the likely financial costs and schedule impacts of proposed changes as well as their anticipated error rates (Albogamy & Dawood, 2015; Geng, Saleh, Tien, & Herd, 2015; Kramer, Sahinoglu, & Ang, 2015). Sophisticated modeling leads to the exploration of decision paths and their associated benefits and risk, and provide a "virtual" lab in which to explore risk scenarios.

To Innovate: A 2014 survey conducted by the Sloan Management Review found that over half the companies evaluated agreed that analytics help their organization innovate, and have fundamentally changed the way the company conducts business (Kiron, Prentice, & Ferguson, 2014). Roberts, Campbell, and Vijayasarathy, (2016) studied the impact of analytics and their supporting information systems on innovation and found that innovativeness positively moderates the relationships between innovative IS use and the volume and diversity of innovative ideas.

Marshall, Mueck, and Shockley (2015) determined that organizations using Big Data analytics to innovate are 36% more likely to outperform similar companies in revenue growth and operating efficiency. The same study finds that over half of the underperforming companies described themselves as "struggling" to utilize analytics in their innovation process, compared to less than 8% of the companies that outperform their competition. Analytics allow an organization to make better use of the information it already has, and can be used to find correlations that had not been previously postulated, potentially leading to breakthrough innovation.

To Market: Analytics is the key to competitive success in a competitive globalized economy (Mayer-Schönberger & Cukier, 2013). Leaders that utilize data analytics are more likely to uncover consumer insights that facilitate successful adaptation of product and pricing strategies that will enhance a company's competitive advantage (Erevelles, Fukawa, & Swayne, 2016; Jobs, Aukers, & Gilfoil, 2015). Germann, Lilien, and Rangaswamy (2013) demonstrate a strong positive correlation between the impact and deployment of marketing analytics and financial performance of companies, especially in the presence of intense industrial competition and rapidly changing customer preferences. The use of analytics allows leaders to effectively manage strategic marketing decisions involving markets with high complexity and customization as well as explore new markets through automated knowledge generation (Xu, Frankwick, & Ramirez, 2016). Järvinen and Karjaluoto (2015) found that industries with long and complex marketing cycles can effectively utilize data and web analytics to improve their digital marketing performance and expand their presence in the digital market. Future use of data analytics will integrate text mining (information from text documents), social network analysis, and spatial-temporal analysis with existing database business systems for additional market insight (Chen et al., 2012).

To Grow Globally: While globalization frequently is perceived as international processes, the sociology of data and how it is used tends to be local, and often results in misleading outputs when evaluated using classic Western analysis techniques (Ryen, 2011). Analytics provide the ability to evaluate disparate and data and tends to be less biased in the evaluation of global parameters. Furthermore, because globalization leads to massive amounts of data, the existing analysis tools tend to be too slow, or insufficient to keep up with the pace of information creation (Chae & Olson, 2013). As companies grow globally, leaders need an increasingly faster pace of analytical output, rather than being

constrained by relatively slow updates from financial reports or quarterly surveys. Data analytics provide the prospect of reaching consilience (George, Haas, & Pentland, 2014), otherwise described as the convergence of data from disparate and independent sources into useful information to manage the business. Analytics, especially those that involve self-learning (also described as machine learning) algorithms can provide concurrent information about both global performance, as well as the performance of the market itself (Bøe-Lillegraven, 2014).

When to Use Analytics

Mellin (2013) suggests that five basic conditions drive the incorporation of analytics into decision making. The first deals with the establishment of a baseline value for operations and performance. To measure the benefit derived from the use of analytics an organization must first establish how it is currently performing and determine whether or not it is currently meeting its goals. Next, leadership must determine whether there is currently a mechanism in place to identify early indications of trouble. A company that has no ability to evaluate whether its decisions are being effective are prime candidates for improved analytics. The next condition which drive the use of analytics is visibility of improvements—is the business confident that it is effectively prioritizing its efforts for research or process improvement, and are those efforts resulting in the maximum return on investment? If there is evidence of confusion regarding optimal allocation of capital, it is a prime candidate for improvement through data analytics. The fourth condition which drives the need for analytics is the threat of competition. Does the company have a plan to compete in future markets? Does it have the vision and ability to innovate to stay competitive, and understand where both the competition and future market trends are heading? Data analytics tend to be a competitive advantage that leverages a company's ability to innovate by providing an indication of both market and competition trends, and should be used as part of a company's portfolio to gain competitive intelligence. The fifth condition that drives a leader's need for analytics is the ability to test "gut-level" decisions or validate hypotheses using quantitative methods. Analytics provide the ability to model and predict outcomes, and while not always statistically defensible does allow for the identification of patterns in performance that allows for better modeling and verification of decisions a priori. Data analytics, therefore, become a valuable

supplement to the decision process and safeguard leaders from making incorrect, uninformed, or rash decisions made based on intuition alone.

When NOT to Use Analytics

Hirsch, Sachs, and Toryfter (2015) observed: "You can be the greatest statistician or the greatest data builder, but if you can't have a conversation with business leaders about their pain points related to people, then the workforce analytics function will fail." The successful deployment of an analytics program requires an organizational commitment on an enterprise level. Leadership must be committed to the transformative journey and its associated timeline. The IT (information technology) infrastructure must be adequately funded and put in place, the right staff for data acquisition, data governance, and data analyses must be acquired. Perhaps the most challenging aspect of a transition to an analytics-empowered organization is that the funding for the analytics must be consigned and committed to the prospect long (often months or years) before positive benefits from analytics may be available.

Analytics requires significant investment, particularly in IT and personnel skills. Large amounts of data and their associated metadata must be located, acquired, processed, and stored with retrieval in mind (Galbraith, 2014). Complex statistical methods must be understood, and data processing procedures must be applied to extract meaningful information from large data sets (Lehner & Franklin, 2012). A significant challenge facing the development of a data analytics platform is the incorporation of workflows which govern the creation of data for future analytics (Fan & Bifet, 2013). This problem is exacerbated by the difficulty in determining what data needs to be warehoused, and what associated information (metadata) will be stored to allow for substantive modeling and decision support in the future. Since leaders do not necessarily think about the data structure or analyses they will require (Barrette, 2015), data storage and retrieval must be architected to support analytics which provide insight into what decisions they will have to make (Pape, 2016). Similarly, successful analytics deployment requires a substantial commitment by senior leadership to participate in the development of analytics and their associated measures against analytics goals (Järvinen & Karjaluoto, 2015) or suboptimal return on investment may be observed.

As such, the barriers to entry into analytics are formidable, and should leaders should not engage in analytics until such time as they are willing

to face the cost and personnel challenges to create an analytics infrastructure. Doke (2013) admonishes "Don't do analytics for analytics' sake" and notes that when applied without appropriate forethought, less than ten percent of global human resource leaders feel that big data analytics efforts put forth a significant return on investment in recruiting or retention of employees. McCafferty (2015) determined in an interview of 120 analytics decision makers, that 53% concluded that it is challenging to maintain the IT infrastructure required to support data analytics, and that 40% admitted that the analytics effort placed strain on the IT resources.

It is crucial that analytics are used to support existing decision-making processes, and not to put analytics in place in the hope that it will replace and improve a leader's ability to weigh information and make decisions (Fox, 2012). Analytics are not a substitute for good management (Kaipa, 2014), nor are the analytics used by leaders a replacement for leadership or decision making itself. Often, the results from analytics are compelling, and the appearance of rigor tends to influence leaders toward accepting data analytics outputs as unquestionable fact rather than guidance. Shull (2013) cautions that "it would be a mistake to slavishly follow the data miners to the point where you've lost the connection to reality." Good decisions require reflection and internalization, as well as knowledge of the system being measured, and data analytics are not an alternative for reflection nor system-level knowledge. Bottles, Begoli, and Worley (2014) conclude that because the algorithms that constitute data analytics are complex and often dependent on the quality of the data itself, that analytics outcomes could be inherently biased through the data collection and organizing process. They further warn that the larger the data set, the higher the likelihood of spurious or random correlations that are not statistically significant will dilute the process of finding the truly meaningful data, and therefore can only supplement, not replace, hypothesis-driven analysis. Apgar (2015) suggests that trial-and-error methods when testing experimental hypotheses are often just as useful as data analytics, due to the restrictive complexity resulting from trying to associate incongruent data sources.

While one of major selling points for analytics is their promise to make sense of large sets of previously unrelated data, Strauß (2015) warns that this can lead to the valuation of the analytic process itself, rather than scrutiny and verification of the results. Van Dijck (2014) argues that the ontological belief in the reliability of any results from analytics results in an unwitting trust in both the quality of, and validity of the analyses.

Like the Edward Snowden incident in 2013, Van Dijck points out that the collection and association of metadata can lead to insights that call in question the ethical use of the information for personal gain. Ethics aside, there is an inherent trust in results from a complex analytics and a belief in their "correctness." Lycett (2013) warns that analytic outcomes will inevitably be influenced by the inferences or beliefs of the people performing the analysis, which can bias the ability to objectively make decisions resulting from data analytics.

The Evolution of Data Analytics in an Organization

No organization becomes proficient with analytics overnight. Most start in what Davenport et al. (2010) would characterize as "analytically impaired," and must make a conscious effort to develop their analytics skills and capabilities over time. As the organization matures with respect to its use of analytics, it progresses through the expansion of localized ad hoc analytics usage. While these anecdotal "pockets of success" provide little overall strategic value to the enterprise, they are important because they supply a visible example to others and tend to fuel a growing leadership enthusiasm for expanding the practice. Davenport et al. (2010) describe that progress from an ad hoc use of analytics to a structured organizational utilization of analytics is frequently slower, more costly, and often more frustrating than many leaders anticipate. Data governance policies and informational infrastructure are needed in order to evolve from a specialized use of analytics to one that allows for an enterprise (widespread) use of data to provide a strategic competitive advantage. Whereas ad hoc use of analytics tends to be manually driven, with data extraction and validation performed by a few highly skilled and motivated individuals, for an organization to evolve to an analytics-centric practice, a significant investment in the use, storage, and retrieval of data for the expressed purpose of making it amenable to widespread organizational utilization.

Data stored over a long period of time is frequently "messy" and disorganized. Many data systems in large organizations are the result of years of evolution and growth. As the organization grows, it may change data storage practices, or may acquire or merge with other companies, each with their own data systems. During the early stages of merger or acquisition, there is a significant effort to make these disparate information systems work together. As a result of the cost and effort associated

with each of these "data migrations," there is little management desire to invest even more capital investment and effort into developing data governance and data architecture strategies. As such, the bigger the company grows, the more likely it becomes a figurative patchwork quilt of multiple data systems and data structures. Therefore, many of the companies wishing to benefit from data analytics find themselves in an analytically impaired condition. The lack of data governance leads to inconsistent storage, resulting in inconsistent results when attempting to use the data for analytics. This, in turn, leads to a lack of trust in data analytics by leadership and significantly limits the usefulness of the information created from the analysis. Many companies remain in the first stage of analytics evolution until forced to move through competition or executive management direction.

In the migration from an analytically impaired organization to one that utilizes analytics as a competitive advantage, individuals with desire and skill can often utilize the data in new ways to create success in their functional organization or business area. The ability to utilize this information becomes a localized competitive advantage, and perpetuates the use of more refined data analytics. While the early stages of analytics evolution often have very little strategic importance to the overall organizational success, it can reduce the "analytics" skepticism common to leaders in the stage one analytics evolution, and the local success can facilitate the movement to a data-centric organization that prioritizes the quality and consistency of data stored and the methods by which the data is utilized to inform decision making.

As the organization begins to understand the advantage of data structure in its analytics evolution, there is a general sense that the organization can benefit from the increased use of analytics. The success of local analytics from past success paves the way for a desire to benefit from a broader and more strategic use of analytics. This stage is perhaps the costliest and most frustrating phase of analytics evolution as the entire data system is evaluated and data governance protocols are established. Often this stage involves the acquisition or education of data science, computer science, and data architects as well as external consultants to facilitate the transformation to a data-oriented organization. During this evolutionary phase of data analytics evolution, many of the data "work arounds" put in place to make incongruous data systems work together in the first two stages must now be reconstructed according to the newly established data governance policy.

Once the data governance and analytical infrastructure is in place, the use of analytics begins to result in dramatic improvements in information visibility and decision making, and substantial financial benefits for the organization (Deloitte, 2016). The skilled resources acquired in the transition from ad hoc analytics usage to enterprise usage result in increased operational efficiency through more effective use of information. At this point in the evolutionary process, the organization has the necessary technical skills to utilize data analytics to improve analysis and decision making, and regularly reaps efficiency and effectiveness benefits from better data utilization across the organization. Data can more easily be turned into useful information, and can be processed in a way for organizational learning and the ability to make informed management decisions (data becomes wisdom). Organization utilization of data analytics across the enterprise establishes the foundation for the use of analytics as a significant competitive advantage, but it is not until the information can be used predictively that it becomes a competitive discriminator.

The final stage of data analytics evolution occurs when the use of data analytics becomes a competitive discriminator. The ability to tie together disparate sources of data and convert it to wisdom allows for rapid problem resolution, quicker research and development cycles, and the agile application of resources to appropriate market opportunities. In the fifth stage of data analytics evolution, the perceived organization need for data systems and governance becomes implicit, and the organization tends to see itself as an analytical competitor. By the time an organization has achieved stage five analytics evolution, competitive businesses that are in the same market but are not as analytically capable, begin to lose market share to the more efficient and effective stage five organization.

Leadership and the Future of Analytics

As data becomes a more prominent factor in managing large, complex organizations, leadership will need to embrace the use of analytics as a sustaining competitive advantage. Marshall et al. (2015) suggest that leaders will need to include analytics and innovation in every role within the organization and build an innovative data culture to remain competetive in the global economy. Their summary concludes that leaders report a strong tie between innovation and data analytics. There is a clear correlation between the successful innovation and the degree to which the organization employs the use of data analytics. Companies

that lead in their business segments report the utilization of data analytics approximately four times as often as those that struggle in their business segment (Marshall et al., 2015). A similar disparity is seen between leading and struggling companies that leverage data analytics to create new business models. In the case of leading organizations, data analytics allow the creation of "what if" scenarios that can be tested and refined at low cost, and with little risk of failure (Brodsky, Shao, & Riddick, 2016). In a traditional company that does not employ analytics, new business models must be developed and tested, typically in a small market segment or functional area. If the model proves to be successful, it is expanded to other areas of the business, and if it fails, the model is rejected and the cost and time associated with its development is lost. When analytics are successfully deployed, testing new business models is done through computer simulation, where failing business ideas and models are rejected in favor of a more successful strategy long before they are pilot tested in the organization. Data analytics provide the ability to develop and test several business concepts of operation and several variations of those concepts at a single time. This allows for a "fail early" and "fail often" that allows for selecting the most robust business model in the shortest possible time, creating a significant competitive advantage. The relative gap between market leaders and those businesses struggling in the market is proportionately narrower for product development, which still requires significant technical, manufacturing, distribution, and market development regardless of the technique used to develop the concept for the new product or service (Suharyanti, Subagyo, Masruroh, & Bastian, 2017). However, market leaders are still twenty percent more likely to utilize data analytics to expedite and improve the development of new products or services (Marshall et al., 2015).

Leaders that utilize data analytics to enhance the innovation process also seem to find an advantage in the daily management of organizational areas. Companies that are considered market leaders are much more likely to utilize data analytics to enhance customer experience in areas like market research, consumer trends, or demographic tendencies. This trend holds true for subsequent marketing and sales groups, which can utilize data analytics to bring the product or service to the optimum market in a shorter time than through conventional marketing practices (Pei-Ju Lucy, Szu-Ling, Hsiang, & Wen-Chang, 2017).

Analytics provide leaders with the ability to optimize the utilization of resources and lower costs through improved efficiency. But the effective use of data analytics also provides novel ways to improve the quality of a product or service as well as innovate and experiment with new ideas that may lead to expanded markets. But such results do not come without effort and expense.

Leadership must be committed to the effort to make the improvements needed in IT and data governance and infrastructure before they are likely to see positive results from data analytics. As organizations become more proficient in their ability to extract information from analytics, the relative complexity and difficulty of future analytics increases, and leadership must keep up (Harriott, 2013). Ransbotham, Kiron, and Prentice (2015) suggest that for more sophisticated analytically capable organizations that "…the existence of a gap between the organization's abilities to produce and consume analytics may actually signal greater opportunity to elicit business value from analytics."

David Howitt (2014) contends that the successful leader in the future is one that will be able to blend the qualities of analytical and intuitive thinking. Nye (2011) describes the advantage analytics provide to leaders as "Contextual intelligence" and cites that analytics provide information that allows for adaptation of leadership style to the needs of the followers and the situation. Analytics will not replace intuitive thinking, but will allow leaders to support their theories and hunches with data. Over the next decade, analytics themselves may become more mathematically complex, but will also become more easily understood, as visualization techniques for the results become more commonplace (Wong, Shen, Johnson, Chen, & Ross, 2012).

In the next decade, leaders will be using analytics in ever increasing frequency to understand and manage the workforce. A key discriminator of the future leader will be the ability to make informed decisions that support prosocial behavior (Houmanfar, Alavosius, Morford, Herbst, & Reimer, 2015). As previously discussed, data analytics will help leaders understand the relationships between policy and performance, and should facilitate the creation of prosocial management practices. In the near future, as human behavior metadata is incorporated into analytics, the ability to model human performance will improve. Sarfaraz, Jenab, and Bowker (2015) found that leaders that utilize human dynamic analytics to manage project implementation and execution provide teams with a clear sense of purpose that more effectively increases profitability for the corporation.

Conclusion

According to SINTEF (2013), 90% of world's data generated has been generated over last two years. Atul Butte, MD, Ph.D. suggests that "hiding within those mounds of data is knowledge that could change the life of a patient, or change the world" (Bottles et al., 2014). The challenge for leadership in the next decade is not the availability of data, rather it is the lack of ability to manage the data effectively to apply it to insightful decision making. Robert Kolosieke, former Director of the Northrop Grumman Corporation used to characterize his leadership challenge as "drowning in data without enough information to form a life ring." With the ever-increasing rate at which digital information is created and stored, leadership needs to develop strategies to harvest the data and allow it to inform business decisions. Data analytics is no longer the purview of statisticians and academicians; it has become an essential tool by which to compete in the globalized market. Analytics provide the ability for leaders to understand the performance of their market, their organizations, and their policies. It allows for experimentation in decision-making alternatives through quantitative and qualitative models and provides "what -if" tradeoffs to obviate risks before they are realized.

While data analytic s provide many benefits, those benefits come at a price. Analytics require a significant investment in data organization, storage and governance. Additional costs are incurred to attract and retain talent with sufficient data analytics skills, and it may take some time for the organization to align their analytics strategy with their decision-making process. Even so, analytics are not a "magic wand" that can be applied to any set of data, turning it into wisdom. Some relationships cannot be found through analytics, and some relationships found by analytics may not be valid.

Leaders that employ data analytics effectively will realize significant and measureable improvements in innovation and profitability. Since contemporary multinational companies are already learning how to better apply data analytics to improve their competitive advantage, it is quite possible that the use of data analytics will become a baseline requirement for successful management in the next decade. Gene Roddenberry, a futurist, and the creator of the Star Trek series once quipped: "A man either lives life as it happens to him, meets it head-on and licks it, or he turns his back on it and starts to wither away." Establishing useful data analytics is a daunting task, but as Mr. Roddenberry suggests, the challenge must be met head-on, or the company may wither away to its competition.

References

Albogamy, A., & Dawood, N. (2015). Development of a client-based risk management methodology for the early design stage of construction processes. *Engineering Construction & Architectural Management (09699988), 22*(5), 493–515. https://doi.org/10.1108/ecam-07-2014-0096.

Apgar, D. (2015). The false promise of big data: Can data mining replace hypothesis-driven learning in the identification of predictive performance metrics? *Systems Research & Behavioral Science, 32*(1), 28–49. https://doi.org/10.1002/sres.2219.

Apte, C., Dietrich, B., & Fleming, M. (2012). Business leadership through analytics. *IBM Journal of Research and Development, 56*(6), 7–1.

Barrette, J. (2015). Workforce analytics: Achieving the action reaction. *Workforce Solutions Review, 6*(5), 11–14.

Baumann, A., Haupt, J., Gebert, F., & Lessmann, S. (2018). Changing perspectives: Using graph metrics to predict purchase probabilities. *Expert Systems with Applications, 94,* 137–148.

Bøe-Lillegraven, T. (2014). Untangling the ambidexterity dilemma through big data analytics. *Journal of Organization Design, 3*(3), 27–37. https://doi.org/10.7146/jod.18173.

Bottles, K., Begoli, E., & Worley, B. (2014). Understanding the pros and cons of big data analytics. *Physician Executive, 40*(4), 6–12.

Briggs, C. A., Tolliver, D., & Szmerekovsky, J. (2012). Managing and mitigating the upstream petroleum industry supply chain risks: Leveraging analytic hierarchy process. *International Journal of Business & Economics Perspectives, 7*(1), 1–20.

Brodsky, A., Shao, G., & Riddick, F. (2016). Process analytics formalism for decision guidance in sustainable manufacturing. *Journal of Intelligent Manufacturing, 27*(3), 561. https://doi.org/10.1007/s10845-014-0892-9.

Chae, B., & Olson, D. L. (2013). Business analytics for supply chain: A dynamic-capabilities framework. *International Journal of Information Technology & Decision Making, 12*(1), 9–26. https://doi.org/10.1142/S0219622013500016.

Chakravorty, S. S., & Hales, D. N. (2017). Sustainability of process improvements: An application of the experiential learning model (ELM). *International Journal of Production Research, 55*(17), 4931–4947. https://doi.org/10.1080/00207543.2016.1277278.

Chen, H., Chiang, R. H., & Storey, V. C. (2012). Business intelligence and analytics: From big data to big impact. *MIS Quarterly, 36*(4), 1165–1188.

Davenport, T. H. (2014). What businesses can learn from sports analytics. *MIT Sloan Management Review, 55*(4), 10–13.

Davenport, T. H., Harris, J. G., & Morison, R. (2010). *Analytics at work: Smarter decisions, better results.* Boston, MA: Harvard Business Press.

Deloitte: Taking data analytics to the next level. (2016). *HFM (Healthcare Financial Management), 70*(11), 1–3.

Doke, D. (2013). CEB: No analytics for analytics' sake. *Recruiter*, 5.

Douthitt, S., & Mondore, S. (2014). Creating a business-focused HR function with analytics and integrated talent management. *People & Strategy, 36*(4), 16–21.

Ellingsworth, M. (2012). Getting a bigger bang from the analytics buck. *Financial Executive, 28*(8), 71–73.

Erevelles, S., Fukawa, N., & Swayne, L. (2016). Big data consumer analytics and the transformation of marketing. *Journal of Business Research, 69*(2), 897–904. https://doi.org/10.1016/j.jbusres.2015.07.001.

Fan, J., Kalyanpur, A., Gondek, D. C., & Ferrucci, D. A. (2012). Automatic knowledge extraction from documents. *IBM Journal of Research and Development, 56*(3.4). https://doi.org/10.1147/jrd.2012.2186519.

Fan, W., & Bifet, A. (2013). Mining big data: Current status, and forecast to the future. *ACM SIGKDD Explorations Newsletter, 14*(2), 1–5.

Falletta, S. (2014). In search of HR intelligence: Evidence-based HR analytics practices in high performing companies. *People & Strategy, 36*(4), 28–37.

Feinzig, S. (2015). Workforce analytics: Practical guidance for initiating a successful journey. *Workforce Solutions Review, 6*(6), 14–17.

Fitz-Enz, J., & Mattox, J. (2014). *Predictive analytics for human resources.* Hoboken, NJ: Wiley.

Fox, J. (2012). In a fast world, think slowly: Interview with Frank Partnoy. *Harvard Business Review IdeaCast.* Boston, MA. Available at: http://blogs.hbr.org/ideacast/2012/08/in-a-fast-world-think-slowly.html. Accessed June 4, 2016.

Galbraith, J. R. (2014). Organization design challenges resulting from big data. *Journal of Organization Design, 3*(1), 2–13. https://doi.org/10.7146/jod.3.1.8856.

Gangotra, A., & Shankar, R. (2016). Strategies in managing risks in the adoption of business analytics practices. *Journal of Enterprise Information Management, 29*(3), 374–399. https://doi.org/10.1108/JEIM-10-2014-0096.

Geng, F., Saleh, J. H., Tien, A., & Herd, R. A. (2015). Beyond cost tools: Spacecraft net present value and the hosted payload paradigm. *IEEE Transactions on Aerospace and Electronic Systems, 51*(4), 3348–3363. https://doi.org/10.1109/TAES.2015.140883.

George, G., Haas, M., & Pentland, A. (2014). From the editors: Big data and management. *Academy of Management Journal, 57*(2), 321–326. https://doi.org/10.5465/amj.2014.4002.

Germann, F., Lilien, G. L., & Rangaswamy, A. (2013). Performance implications of deploying marketing analytics. *International Journal of Research in Marketing, 30*(2), 114–128. https://doi.org/10.1016/j.ijresmar.2012.10.001.

Hagen, C., & Khan, K. (2014, July-August). Big data and analytics: Go big or go home. Ivey Business Journal Reprints. Retrieved from http://link.galegroup.com.ezp.waldenulibrary.org/apps/doc/A417896152/EAIM?u=minn4020&sid=EAIM&xid=c26ff990.

Harriott, J. (2013). 7 pillars for successful analytics implementation. *Marketing Insights, 25*(1), 34–41.

Harris, J. G., & Craig, E. (2012). Developing analytical leadership. *Strategic HR Review, 11*(1), 25–30. https://doi.org/10.1108/14754391211186287.

Hirsch, W., Sachs, D., & Toryfter, M. (2015). Getting Started with predictive workforce analytics. *Workforce Solutions Review, 6*(6), 7–9.

Holsapple, C., Lee-Post, A., & Pakath, R. (2014). A unified foundation for business analytics. *Decision Support Systems*, *64*, 130–141. https://doi.org/10.1016/j.dss.2014.05.013.

Houmanfar, R. A., Alavosius, M. P., Morford, Z. H., Herbst, S. A., & Reimer, D. (2015). Functions of organizational leaders in cultural change: Financial and social well-being. *Journal of Organizational Behavior Management, 35*(1/2), 4–27. https://doi.org/10.1080/01608061.2015.1035827.

Howes, J. (2014). Taking a long data view for effective workforce analytics. *Workforce Solutions Review, 5*(2), 5–8.

Howitt, D. (2014). The power of and versus the tyranny of or. *Leader to Leader, 2014*(73), 43–48. https://doi.org/10.1002/ltl.20139.

Isson, J. (2012). Analytics and innovation. *Mworld, 11*(4), 17–19.

Jain, C. L. (2016). How to use big data and predictive analytics to improve the success of new products. *Review of Business, 37*(1), 48–55.

Järvinen, J., & Karjaluoto, H. (2015). The use of web analytics for digital marketing performance measurement. *Industrial Marketing Management*, *50*, 117–127. https://doi.org/10.1016/j.indmarman.2015.04.009.

Jobs, C. G., Aukers, S. M., & Gilfoil, D. M. (2015). The impact of big data on your firms marketing communications: A framework for understanding the emerging marketing analytics industry. *Academy of Marketing Studies Journal, 19*(2), 81–92.

Kaipa, P. L. (2014). Making wise decisions: leadership lessons from Mahabharata. *Journal of Management Development, 33*(8/9), 835–846. https://doi.org/10.1108/JMD-06-2014-0061.

Kiron, D., Prentice, P. K., & Ferguson, R. B. (2014). Raising the bar with analytics. *MIT Sloan Management Review, 55*(2), 29.

Kolb, D. A., Boyatzis, R. E., & Mainemelis, C. (2001). Experiential learning theory: Previous research and new directions. *Perspectives on Thinking, Learning, and Cognitive Styles, 1*(8), 227–247.

Kramer, W. F., Sahinoglu, M., & Ang, D. (2015). Increase return on investment of software development life cycle by managing the risk—A Case Study. *Defense Acquisition Research Journal: A Publication of The Defense Acquisition University, 22*(2), 174–191.

Lee, J., Kao, H. A., & Yang, S. (2014). Service innovation and smart analytics for industry 4.0 and big data environment. *Procedia CIRP, 16,* 3–8.

Lehner, W., & Franklin, M. J. (2012). Special section on large-scale analytics. *The VLDB Journal, 21*(5), 587–588.

Lycett, M. (2013). 'Datafication': making sense of (big) data in a complex world. *European Journal of Information Systems, 22*(4), 381–386.

Marshall, A., Mueck, S., & Shockley, R. (2015). How leading organizations use big data and analytics to innovate. *Strategy & Leadership, 43*(5), 32–39. https://doi.org/10.1108/SL-06-2015-0054.

Mayer-Schönberger, V., & Cukier, K. (2013). *Big data: A revolution that will transform how we live, work, and think*. Boston: Houghton Mifflin Harcourt.

McAfee, A., & Brynjolfsson, E. (2012). Big data: The management revolution. (cover story). *Harvard Business Review, 90*(10), 60–68.

McCafferty, D. (2015). Big data analytics leaders face big misgivings. *CIO Insight*, 1.

Mellin, A. (2013). Embracing analytics as the key to excellence. *Physician Executive, 39*(2), 50–57.

Nye, J. S., Jr. (2011). Contextual intelligence. *Leadership Excellence Essentials, 28*(1), 11.

Pape, T. (2016). Prioritising data items for business analytics: Framework and application to human resources. *European Journal of Operational Research, 252*(2), 687–698. https://doi.org/10.1016/j.ejor.2016.01.052.

Pei-Ju Lucy, T., Szu-Ling, C., Hsiang, C., & Wen-Chang, F. (2017). Using big data and text analytics to understand how customer experiences posted on Yelp.com impact the hospitality industry. *Contemporary Management Research*, *13*(2), 107–130.

Perrons, R. K., & Jensen, J. W. (2015). Data as an asset: What the oil and gas sector can learn from other industries about "Big Data". *Energy Policy, 81*, 117–121. https://doi.org/10.1016/j.enpol.2015.02.020.

Phillips, J. J. (2015). Types of analytics projects and the executive perception of them. *Strategic HR Review, 14*(1), 30–35. https://doi.org/10.1108/SHR-01-2015-0011.

Ramasamy, R. (2016). Official statistical leadership at the crossroads again: An information age perspective. *Statistical Journal of the IAOS, 32*(2), 211–221. https://doi.org/10.3233/SJI-150953.

Ransbotham, S., Kiron, D., & Prentice, P. K. (2015). Minding the analytics gap. *MIT Sloan Management Review, 56*(3), 63–68.

Roberts, N., Campbell, D. E., & Vijayasarathy, L. R. (2016). Using information systems to sense opportunities for innovation: Integrating postadoptive use behaviors with the dynamic managerial capability perspective. *Journal of Management Information Systems, 33*(1), 45–69. https://doi.org/10.1080/07421222.2016.1172452.

Ryen, A. (2011). Exploring or exporting? Qualitative methods in times of globalisation. *International Journal of Social Research Methodology, 14*(6), 439–453. https://doi.org/10.1080/13645579.2011.611380.

Sarfaraz, A., Jenab, K., & Bowker, A. (2015). A view of development in management for increasing profitability in the corporate landscape. *Benchmarking: An International Journal, 22*(1), 120–134. https://doi.org/10.1108/BIJ-09-2012-0058.

Sharma, R., Mithas, S., & Kankanhalli, A. (2014). Transforming decision-making processes: A research agenda for understanding the impact of business analytics on organisations. *European Journal of Information Systems, 23*(4), 433–441. https://doi.org/10.1057/ejis.2014.17.

Shull, F. (2013). Getting an intuition for big data. *IEEE Software, 30*(4), 3–6. https://doi.org/10.1109/MS.2013.76.

SINTEF. (2013, May 22). Big data, for better or worse: 90% of world's data generated over last two years. *Science Daily*. Retrieved July 1, 2016 from www.sciencedaily.com/releases/2013/05/130522085217.htm.

Smith, R. G. (2012). Big data/Big decisions: A leader's role. *Mworld, 11*(4), 48.

Strauß, S. (2015). Datafication and the seductive power of uncertainty—A critical exploration of big data enthusiasm. *Information, 6*(4), 836–847. https://doi.org/10.3390/info6040836.

Suharyanti, Y., Subagyo, M. N. A., & Bastian, I. (2017). A multiple triangulation analysis on the role of product development activities on product success. *International Journal of Engineering Business Management*, *9*1. https://doi.org/10.1177/1847979017723544.

Swink, M. L., Johnson, R. R., & Quinn, F. J. (2012). Leaders making the most of visibility, flexibility, and analytics. *Supply Chain Management Review, 16*(2), 28–37.

Van Dijck, J. (2014). Datafication, dataism and dataveillance: Big data between scientific paradigm and ideology. *Surveillance & Society, 12*(2), 197.

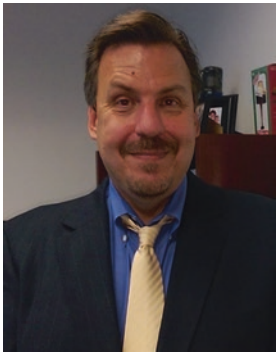
Wang, G., Gunasekaran, A., Ngai, E. W., & Papadopoulos, T. (2016). Big data analytics in logistics and supply chain management: Certain investigations for research and applications. *International Journal of Production Economics*, *17*(6), 98–110. https://doi.org/10.1016/j.ijpe.2016.03.014.

Williams, S. (2012). Analytics: A tool executives and managers need to embrace. *Mworld, 11*(4), 13–16.

Wong, P. C., Shen, H. W., Johnson, C. R., Chen, C., & Ross, R. B. (2012). The top 10 challenges in extreme-scale visual analytics. *IEEE Computer Graphics and Applications, 32*(4), 63.

Xu, Z., Frankwick, G. L., & Ramirez, E. (2016). Effects of big data analytics and traditional marketing analytics on new product success: A knowledge fusion perspective. *Journal of Business Research, 69*(5), 1562–1566. https://doi.org/10.1016/j.jbusres.2015.10.017.

Author Biography



Tom is a technology director and consulting engineer for a large aerospace corporation. He has held several technical and management roles in Materials Science R&D, Manufacturing, Engineering, and Mission Assurance. Tom has a BS in Materials Science from Michigan State University and an SM in Systems Design and management from MIT. Tom has published over 40 technical papers, is principal or contributor in 12 patents, and has submitted over 70 invention disclosures. He is currently pursuing his PhD in Management with an emphasis in data analytics at PREM Group, Inc.

CHAPTER 8

Future of Leadership in Healthcare Business: A Global Perspective

Nicolas M. Casati, Kartik Kesavabhotla and George R. Cybulski

Concentrated are my senses with the joy I feel—Humming Horizons.
by Dr. Bharat S. Thakkar

Introduction

The Human Factor

Unlike a corporate manager looking at a company from top to bottom out of necessity, a leader leaves the 99 others in safety while searching for the lost one, endlessly trying to solve this inequation. Note that the manager title is not in question here, but that the manager should be a good leader. An example of a good leader is Bob Chapman. Chief Executive Bob has a mandatory furlough program: no layoffs went into effect during a corporate crisis, because talent was a priority over profits and they had hired

N. M. Casati (✉)
Groupe Professionnel Francophone, Chicago, IL, USA

K. Kesavabhotla · G. R. Cybulski
Neurological Surgery, Feinberg School of Medicine, Northwestern University, Chicago, IL, USA

B. S. Thakkar (ed.), *The Future of Leadership*,
https://doi.org/10.1007/978-3-319-73870-3_8

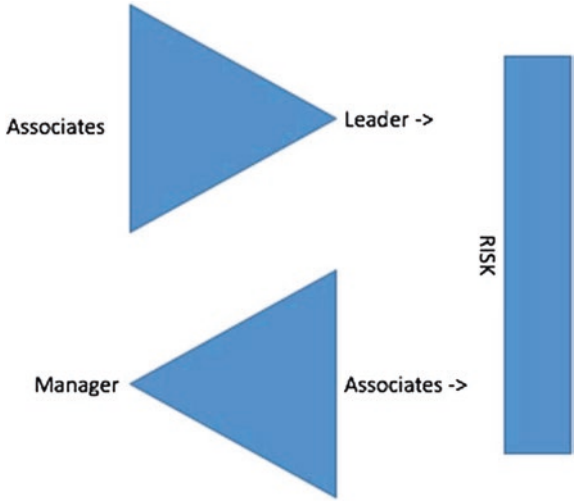


Fig. 8.1 Facing risk differently

the right people from the start. Dr. Kolenda further illustrated this with inspirational leadership to describe making the choice of both conviction and open-mindedness. That choice leads to the causality of open-mindedness ending in good judgement, which employees perceive as a leader's purpose. A leader precedes the team toward risk and takes the first and hardest hit, while the old-style manager runs away from risk, letting the team face risk first (Fig. 8.1). The old-style manager acts by adding or subtracting the human factor as needed (Fig. 8.1). The leader-manager antagonism is a question of semantics, meaning it is not because one is a manager that they are not a leader and conversely. It is not the title, but the leading with purpose that counts, i.e. inspirational leadership.

Continuing Education

The necessity to be financially prepared for any situation with inspirational leadership is why leadership in Continuing Education and an Employee Emergency Fund is necessary. This fund is available to all levels of the organization (a $4 million fund for a $953 million operation). Every Continuing Education project, every employee suggestion should be implemented, after careful deliberation. Below are three ideas which

should be considered. The remanufacture of surgical instruments made of plastic within the hospital itself, because plastic keeps the integrity of the sterile field but ends up in landfills. This plastic could be remanufactured using a model-20a plastic injection machine (this would need FDA 510k premarket notification, AAMI, OSHA…, etc., approval). Knowledge tested with S.T.R.E.A.M. (science, technology, robotics, engineering, art, and mathematics) will demonstrate viability of the idea. Most centers use inordinate amounts of plastic and just dispose of it. The only wastes typically separated on site are bio-hazard, chemical, sharps, and pharmaceutical wastes.

A second area, which needs heavy continuing education investments, especially in the medical field due to Health Insurance Portability and Accountability Act contingencies (HIPAA), is training of personnel in computer use. Anti-virus, anti-spyware, firewall, intrusion detection systems, intrusion prevention systems, and other tools will prevent hundreds of thousands of dollars in technical repair costs, and these extra costs are not factored into the typical corporate balance sheet. Companies need to protect themselves from malware, adware, spyware, ransomware, Trojan horses, logic bombs, and worm viruses, but also from rootkit, bootsector, executable, macro- and polymorphic viruses. This is why the Computer & Telecommunications budget line item for a neurosurgery outpatient clinic should have at least a 1.5 million dollar budget for a 953 million dollar operation. At the risk of being pleonastical and dithyrambic, formal and informal leadership skills to protect the company are important in all organizations and at all levels.

A third area which needs the assistance of an Employee Emergency and Continuing Education Fund is teaching employees about finance, beyond their retirement plan. Global finance leaders are faced with competitors who have seemingly boundless appetites for future growth, often aided by Federal Reserve mandated quantitative easing (QE). Growth accompanied quantitative easing, Kashyap, Berner, and Goodhart (2011) posit has no real effect on the economy domestically: “benefits of more QE now seems small” (Kashyap et al., 2011). Economists like Kashyap have shown that crisis can be caused by “Firesales” in an era where every business is about growth (Kashyap et al., 2011).

Some things should be decided using wisdom. Wisdom like the proposed “Basel III reforms” (Kashyap et al., 2011). A Firesale is a “forced sale of an asset at a dislocated price” and in the case of a hospital, it is better to be good financial stewards than face a situation where everything must be sold (Kashyap et al., 2011).

Healthcare leaders know that, in the face of these crises described in the previous paragraph, "value in health care has been defined as health outcomes for the patient per dollar spent" and as we will see later on, Dr. Shetty is a gold standard for this (Smith, Rambachan, Cote, Cybulski, & Laws, 2015). Future value in healthcare is contingent upon value based medicine, reimbursement and patient satisfaction according to several senior managers informally interviewed. According to other healthcare finance leaders, preventative medicine, could keep patients from entering a health system emergently in the first place. Nothing is simple in healthcare, which is highly regulated by the government, much like launching rockets to the international space station.

Management Style

The insightful CEO of SpaceX and Tesla Elon Musk, for example, has an unorthodox management style, which implies a disdain for ritual or orthopraxy (Fig. 8.2). Musk is admired for his ipseity. He finds partners who share this selfhood. This selfhood becomes a corporation, and Musk's partners, who know how to obtain him government funds, end up creating exposure and viability to what was just a dream (a dream like launching Falcon Heavy with Space X). Most importantly, he personally delegates ideas—a leader of leaders if you will (e.g., the Hyperloop whitepaper, which Richard Branson picked up by founding Virgin Hyperloop 1). The Process Improvement budget and Continuing Education budgets often overlap, because their common goal is to help employees self-improve. In Fig. 8.2, there can only be one dreamer (Lead Engineer) per project and similarly, there can only be one contract (Venture Capitalist or Angel Investor) funding each project. If the project is complex, then subcontracting comes into play.

Fig. 8.2 Elon Musk's problem-solving approach

A Equalitarian Business Plan

Ideas are presented in this chapter using Musk's First Principles approach to problem solving. Ideas for the chapter were inspired by a Midwestern Academic Medical System with 28 specialties and 7 subspecialties in neurosurgery with a 153% calculated increase in assets and liabilities between 2014 and 2015. The average rate of 153% growth was extrapolated. This 153% growth rate excludes property, which according to market analysis for 2017 grows in value nationally by an average of 4% per annum. A typical building costs $225 million to erect according to estimated cost in 2014 (or year 1 of the budget). According to Phillips (2012), 4–5% of the budget should be reserved for Process Improvement (Phillips, 2012). Phillips posits that a "comprehensive measurement and evaluation process, including ROI, can be implemented for about 4 or 5% of the direct program budget" (Phillips, 2012). Process Improvement projects are now ubiquitous, as we saw earlier with A+ certification training, finance and working with remanufactured plastic (Adrianzen, 2014). Process improvement will be funded out of the "salaries, benefits and other costs" budget of 28 million dollars. An estimated 4 to 5 percent of 28 million dollars is 1.5 million dollars. This is in addition to the computers and telecommunications budget of 1.5 million dollars and the continuing education and employee emergency fund of 4 million dollars, for a $953 million operation. Increasing expenditure for plastic equipment from ten thousand dollars (knowing a single robot arm approximately costs $1,000) to two hundred thousand dollars per year in year 8 and that robot maintenance fee is $100,000 (out of the general budget of $225 million). Plastic acquired should be reused in its entirety (at the end of 8 year growth plan). An illustration of the surgical process of an outpatient neurosurgical unit is shown in Fig. 8.3. This is the patient experience once scheduled for surgery using software called EPIC OpTime.

Figure 8.3 is linear to illustrate a daily routine, however, this daily routine repeats itself and inscribed into other multiple steps (e.g., Surgeons make incisions for the robot arms to fit through and Scurb Technicians

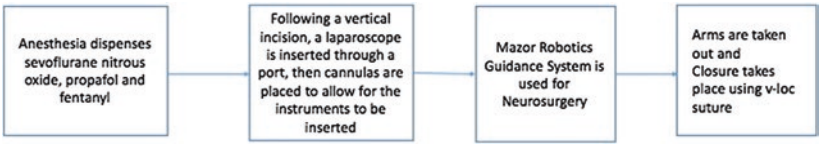


Fig. 8.3 Robot surgery flowchart

Table 8.1 Screw placement statistics according to Hu et al. (2013)

Number of patients with robotic guided arm successful screw placements	*Number of patients with robotic guided arm unsuccessful screw placements*	*Total number of screws placed*	*Number of screws not placed correctly using robotic guided arm screw placements*	*Robotic guided arm screw placement aborted, screws placed manually*
95 patients	7 patients	949	11	110

insert and retrieve Mazor Robotic arms before and after surgery). In regards to the sterile reprocessing steps it is suggested to use a Model 20a plastic injection machine to remold Mazor Robotic arms in-house and then to put them through a decontamination and sterilization cycle. The reason for multiple steps missing from this diagram is that the current job description of a Sterile Processing Technician is to decontaminate, assemble trays and sterilize. Decontamination, tray assembly and sterilization could be done using Kiva® robots which would move trays across the department floor. Kawasaki MC004N robot arms could be used to assemble surgical trays and then take them in and out of a sterilizer. Sterile Processing Technicians would then have available time to remanufacture a selection of Mazor Robotic arms with variable distal tips such as, needle holders, retractors, forceps using plastic and polypropylene—for metal like properties. Metal scissors, cauterizing tools and telescopes for example, are part of a selection of items which cannot be remanufactured by simply remolding. Purchasing even a single Mazor Robotics Renaissance® Guidance System at a ticket price of $849,000.00 needs planned ROI before putting in for a requisition. In this case, it might be a good option to consider leasing capital equipment with a short-term lease agreement. Looking at the numbers in Table 8.1, it is possible to see that there is close to statistically significant data with close to 7% of unsuccessful screw placement attempts according to Hu, Ohnmeiss, and Lieberman (2013) showing that robotic surgery can be unsuccessful in only 7 cases in this large study. 110 screws still had to be placed manually, so a surgeon will still have to be present. This is very statistically significant, but improvements can be made towards making never events not statistically significant.

It would be ideal from a business standpoint to invest in retraining humans *and* buy robots which both together grow corporate equity versus a layoff and buying government low-risk bonds with the proceeds from the layoff. While human resources and equities increase exposure to risk, they grow the economy if used wisely. The operative word is *wisely* because if [a

Table 8.2 Staffing for an outpatient neurosurgery center

Scrub tech/circulating nurse	Sales representative
Attending neurosurgeon	Radiologist
Attending anesthesiologist	Engineer
Pharmacist	Risk management
Sterile processing technician	Neuro-diagnostic technologist
Inventory technician	Information technologist
Safety officer	Quality leader
Process improvement leader	Analytics leader

company is] unwisely managed, Kashyap et al. (2011) predicts "Firesales". Global leaders of the future will have to face the challenge of staying in command of the derivatives market (since the derivatives market is the largest market estimated in the quadrillion dollar range). It is important to create technology overrides (technologies like FinBots or other automations in pursuit of capital gains are dystopic when compared with bank employees' job description in the 1990s, according to one of the co-author's experience). In the case of Mazor Robotics Renaissance® Guidance System, the consequences, if the robot were to receive instructions from another computer than the one intended, would be dire. No matter how much automation, there will still be a need for human leadership (e.g., a Neuro-diagnostic Technologist). The budget, for a $953 million operation in year 1 at $28 million, accounts for forecasted personnel, call-off costs, but other human resources costs as well (see Table 8.2). This table is not exhaustive.

Economic Externalities

Leadership deals with non-traditional economics, i.e., externalities. Leadership teams have to adapt to the challenge of business synergies often involving economic externalities, such as controlling future, quality outliers, but also some hard sciences like S.T.R.E.A.M and controlling safety of care, effectiveness of care, decreasing mortality, decreasing readmissions, timeliness of care, improved radiological imaging (qure.ai) and cost of providing this care. The rate of change is directly proportional to how fast futuristic ideas are available, unfettered by patents (Intellectual Property should still be considered as a commodity). Externalities are in effect an unchosen cost to a corporation and the categories of unchosen costs are always increasing. To succeed, an endeavor has to have multi-team contingency theories to reach the common corporate

objective, without being deleterious to the bottom line, basically an externality with a tolerable margin of risk.

Leaders track costs, multi-disciplinary teams, exponential rates of changes in technology as well as externalities. All of these factors pale in comparison with the global leader's primary challenge of creating a better patient experience in the future of healthcare. Global healthcare leaders are bringing lean leadership into the hospitals by challenging leaders to go lean and go green (the 5S of Sort, Straighten, Shine, Standardize, Sustain). In short: more work, less staff.

Leaders track costs: the end goal of the 5S. From the perspective of leadership in the next decade and beyond, leaders track costs and one of the leading costs is real estate. A solution to real estate is 3-D printing Dahir Insaat-type buildings (this idea is still at the concept stage, but it would surely put a dent into the estimated $225 million initial investment to build an urban outpatient pavilion). The alternative is leasing. Real estate is not the only big-ticket cost in healthcare. The fight for reimbursement is in the five digits per person in healthcare cost in the USA alone, compared to European countries with healthcare costs per person per year in four digits. With 11 options available for healthcare in the USA and a few international plans (see Appendix A), healthcare challenges presented to the global leaders of the future in regard to reimbursement can represents hundreds of billions in unnecessary costs.

Reimbursement

Reimbursement is partially a problem due to an outdated procurement cycle dependent on clearing of checks and availability of deposits. In the future, Blockchain (Bitcoin, Litecoin, Ethereum…, etc.) will simplify the procurement cycle by using blockchain without use of an FDIC bank, because blockchain is tamperproof (Umeh, 2016). The world market itself is simplifying with the advent of Canadian-European agreements such as CETA, Asian-European agreements such as JEFTA (EU-Japan) and EVFTA (EU-Vietnam) as well as TTIP (Transatlantic trade and investment partnership). The banking system is still old fashion, due to cyber security and batching. Cybersecurity and batching slow down the banking system.

Politics, Preventative Care and Dr. Shetty's Model

Future healthcare leadership deals with economic externalities in terms of preventative care challenges, as a future unchosen cost, but a necessary one to prevent unnecessary Emergency Room walk-ins in a growing economy with growing demand. This is done more and more by opening walk-in clinics to treat minor injuries instead of crowding the Emergency Room. New smartphone applications simplify the ER visit nowadays with patient being triaged selecting options on their phone for fractures, fever, or other. This simplifies the budget and regroups physicians with multiple specialties. Modern medicine has continued to exist in a growth economy by continuing to increase demand in natural resources to supply outpatient surgery, gene therapy, a wellness program, etc.; however, the most efficient way to cut healthcare costs is with preventive measures. Exercise, the National Institute of Health All of Us research, good nutrition, DNA screening, DNA telomere extensions, therapeutics and staying intellectually sharp, are some examples of preventative measures. In the future, global leadership challenges will include how to deliver preventative medicine. Answering the challenge of preventative care will save resources in the long run. For example, the OECD estimate of $10,000+ per person spent in the USA alone, and according to Neff et al. (2008) can reach as high as $50,000. Preventative care can potentially stop economic crashes on a global scale due to the over-extended economy bound by insurmountable debt toward its healthcare system. With the advent of the internet, it is now possible for individuals to help complete strangers. A company called LendingClub, for example, allows citizens with large savings to finance other citizens who need financing.

Technology

According to Fig. 8.4, metrics are necessary, and a cadre of leaders need to hold associates accountable, by using the tools of Servant Leadership, acting as a prosumer, limiting waste. Waste, in the past, was difficult to avoid, but with metrics, it becomes possible to monitor (e.g., the Enterprise Data Warehouse—EDW). These same tools which brought us descriptive statistics about productivity also created time guzzling software, which primarily comes from "the Four", which include Amazon, Apple, Facebook and Google, but in China, there is Baidu, Alibaba, Tencent, and Xiaomi.

Fig. 8.4 Metrics and leadership

Basically an efficient waste of time. Japanese populations have demonstrated that unlike their western counterparts, productivity at all costs is sometimes placed above employee pride in work well done, saving time, but impacting employee morale. What is worse is that these companies advertise they save you time with their services, which is true only if these business models did not end up guzzling so many people's precious hours getting distracted. Used wisely, Amazon automates purchasing and soon will deliver prescription drugs, Apple platforms function faster because often virus free, Facebook provides inexpensive advertising and Google is an encyclopedia.

Global leaders in the future will be able to use much more powerful computers than today to handle a more challenging number of economic externalities. A system like an EDW, Online Analytical Processing (OLAP), and Online Transaction Processing (OLTP) helps global leadership face the challenge of storing future productivity (Kemper & Neumann, 2011). EDW is a tool that can assist the analytics team decisions on which hourly wage associate has the most potential. In a dissertation by Casati (2012), this was calculated by Erlang-C, and Erlang-C can also be used in conjunction with quality of service: QoS software (Casati, 2012). This is all happening within the confines of the FDA's Digital Health Innovation Action Plan (DHIAP), which will provide care on time, with better quality and safety.

If IBM buying Merge Healthcare, Inc. is any sign, future global systems are being geared toward making medical doctor leaders at ease with challenging hospital monitoring systems—Watson computer interpreted

medical imaging can now be ubiquitous. Another significant advancement is vital sign monitoring systems that can now use special kinds of tattoos and work off of Wi-Fi, possibly in the future with Quantum Experiment at Space Scale (QUESS) or White-Fi. It will soon become ubiquitous to precisely compare millions of patients' charts to find small geographically isolated groups with similar medical conditions and find the best care for that group, without scrupulosity (using EDW). Unfortunately, the internet age is uncertain with ICANN giving up net neutrality.

Overview

The body of this chapter is going to look at 10 leaders. The first leader is Elon Musk, who streamlined environmentally friendly transportation (whether it is automobiles, hyperloop, or space travel). The second set of leaders is Valentina Rognoli, Jakus, and Shah, specializing in reprinting plastic and tissue in three dimensions. The third leader is Stephanie Leffler who started crowdsourcing, which changed the labor force. The fourth leader is Sol Cates, who specializes in CloudIoT, which would potentially allow Mazor Robotics Renaissance® Guidance System to do spine surgery in the operating room over the Internet wirelessly and potentially assisted by anesthesia robot Sedasys. The fifth leader is Elizabeth Holmes, who started Theranos, which tried to make clinical diagnostic tests cheap. The sixth leader is Philippe Horvath who initiated reparatory medicine. The seventh leader is Wigginton who had the idea of plastic-eating bacterium which could potentially recycle all of the plastic coverings used to keep instruments sterile (the amount of waste generated to guarantee sterility assurance is staggering). The eighth leader is Bill Inmon (father of the EDW). The ninth leader is Dr. Shetty, who started 3 dollars per year health insurance, and finally, Jennifer Neff from Allvivo Vascular, Inc. antimicrobial constructs.

The challenge of future global healthcare leadership can be approached in 2 ways. The first approach to global healthcare leadership is from the moral education standpoint of business, and due to the change in the way business is managed, business schools need to teach how to adapt to change in a moral way, not only in a law abiding ethical way (Kierkegaard's aesthetic, the ethical and the religious). Second, in addition to acting with morality, there is practical usefulness in following moral conscience at work and the phronesic question is no longer "can we?", but "should we?". As a foreword to the visions that follow,

this chapter is not meant to be a business plan, a life cycle costing analysis-LCCA- (LCCA is able to show that GDP percentage used on healthcare can be directly proportional to plastic pollution), a sales representative pitch for surgical instrumentation or 3D construction, a sterile processing consultation, a financial analysis, a seminar on information technology, a survey of international affairs, nor a macro-economic report, but it is however meant to bring awareness to all of these aspects of life and suggest improved tools for outpatient center operations.

All while keeping ethics standards high, future healthcare global leaders in Surgical Services will have to deal with how to keep outpatient operating rooms sterile at a low cost, while following a "queuing process" (Casati, 2012).

Leadership Visions

Visions

(a) Vision of the future of global healthcare leadership includes behavioral analysis of leaders past and present. The population at large has greater and greater needs, and healthcare needs to increase supply in the era of ever-increasing demand.
The Harvard Grant Study simply states that happiness comes from relationships in life and at work. Another large study is the Global Leadership and Organizational Behavior Effectiveness (GLOBE) study and shows the difference between cultural leadership. Depending on the country, leadership behaves in different ways.

(b) A vision on attempted cost cutting in global healthcare leadership for the future by Theranos' Elizabeth Holmes. The population at large has greater and greater needs, and healthcare needs to increase supply.
As a head-on challenger-healthcare global leader, Elizabeth Holmes had a good concept for the future. This leader's idea to cut diagnostic testing costs in the future was not without challenge, especially in a global environment where Walgreens Boots Alliance is a major player. As a global leader in her industry, she is in principle correct in asking the future market to decrease the challenge of obtaining diagnostic testing. This would in turn decrease the challenge of the future population that can afford to get their medical testing from a global industry leader. For this to

happen, the device had to work, and the device called "Edison" produced test results which were voided. The idea of an economy of scale was brilliant, but even if the packaging is immaculate, the customer will still hold the company accountable for the QoS rendered. Bridgewater CEO Ray Dalio with his Dot Collector delivered the desired service with his device, which was used successfully unlike Holmes, who had a device which did not take off. Devices like Holmes', if it had worked are what would have allowed healthcare to be accessible at home and make a trip to the clinic or hospital a rare occasion due to health issues.

This futuristic trend is visible today since people try to take care of as much as possible of their healthcare challenges through their device (cell phone) ordering over-the-counter medication and if needed, go to a walk-in global clinic leader run by Walgreens Boots Alliance or a local hospital. Traditional US hospitals are becoming large academic medical systems with peripheral outpatient clinics and use their devices more and more for their care.

(c) Vision of future global healthcare leadership's technology in a Crowdsource company like Stephanie Leffler's Vormetric's Chief Security Officer (CSO), Sol Cates. The population at large has greater and greater needs, and healthcare needs to increase supply. Stephanie Leffler, leader of Crowdsource, saw the need for distributing work to employees who are not necessarily local, which is in contrast to crowdfunding, the principle of raising cash. Futuristic technology is developing so quickly that traditional high-school graduate blue-collar employment will be replaced with Crowdsource technology which is good news, because instead of unemployment, it would be a job market displacement accompanied by job retention. Some proposed crowdsourcing projects work, and others do not, but hopefully, Sterile Processing Technicians in the future will not face unemployment because even though robots could potentially replace current job responsibilities, other job responsibilities will be created, like plastic instruments remolding. Crowdsource allows flexibility to both the global healthcare associate who can work on multiple large-scale projects and to the global healthcare employer, to keep overhead low. Crowdsource enterprises are not all the same, some are proprietary, and some are open-source. The avenues for open-source will only expand as Moore's Law accelerates

towards Rose's Law (the theory here is that proprietary computing will become more and more complex to encrypt).

Vormetric Chief Security Officer (CSO), Sol Cates is in the forefront of the revolution we are now involved in regarding Cloud Internet of Things. The reason why some technological progress is not lightning fast is that important security measures have to be put in place before everyone connects their kitchen, their self-driving cars, and their home to their cell phone. Many services are available on the Internet, but they are not yet ubiquitous. As CSO, Cates, a global leader is bringing his company into the future by continuously challenging the security of the network built.

In the healthcare space, Vormetric technology could connect hardware such as the Mazor Robotics Renaissance machine to telemedicine, but internal hardware, firmware and network security remain fragile (not to mention nurses are needed to connect robot arms and a surgeon is needed for robot arm insertion incisions). When network security is no longer a concern, Vormetric could also potentially connect to nanotechnology which can "cure" the body from inside (Bhat, 2014). Experiments and treatments can now be measured in pico-moles in reference to Lee Cronin's Chemputer. This type of pico-therapy will need high-powered computing, and these computers will need highly efficient network security. This Chemputer would "print" prescriptions from inside the body if the Chemputer were miniaturized enough. The medication would only be delivered to the site of need, bypassing the liver and the kidneys (the liver and kidneys experience long-term damage from prescription drugs). These pico-mole amounts also directly protect the environment from large amounts of drugs ingested by patient, then metabolized and sent into the sewage systems which can cause harm to aquatic life. The logical step, after nanotechnology research takes off, is the industrial level. Climeworks Inc. is using technology to suck pico-particles out of the atmosphere. Climeworks, Inc. can suck out 900 tons of CO_2 from the air per year and sell it as fertilizer. Microscopic pico-particles therefore become a commodity and future research can be financed, from the sale of the fertilizer produced from this Carbon Dioxide.

Even if the chance is small that a project works at the industrial level, Dan Schulman famously says: "I want to see that you failed

somewhere and then I want to see what you're made of and how you came back from that." Like the unsuccessful Theranos, Thomas Edison "failed" 1000 times before inventing the lightbulb. All of these technologies could use the Internet and the future of CloudIoT. Technology can only result in "a number of applications" which "are gaining momentum" (Botta, de Donato, Persico, & Pescapé, 2016). The combined use of "Big Data, Cloud Computing, Internet of Things and Virtual Reality" is becoming mainstream to increase access to healthcare (Lytras, Al-Halabi, Zhang, Haraty, & Masud, 2015).

Granted that there is sufficient cybersecurity, the ambition of this chapter is to plan a business model for global healthcare leaders of the future to use Mazor technology and democratize this process to the most challenged areas of the planet.

The greatest challenge for any area on the planet is the appreciation of real estate over time for something as simple as housing private servers off-site with Network Address Translation and a fixed cost of cooling the server, which makes it a barrier to entry for smaller players (3-D printing Dahir Insaat building could be useful here, but still in the experimental stage).

(d) Vision of future of global healthcare leadership in patient transportation and environmentally friendly power generation using ideas from Elon Musk is funding a Peter Diamandis, MD global learning X-Prize for literacy in Africa. The population at large has greater and greater needs, and healthcare needs to increase supply. Elon Musk is an innovative leader in the sense that he encourages many players in different industries to advance the global economy in different directions, even up into space. Elon Musk, a South African native from the common wealth, unlike some of his fellow billionaires, has been known to work alongside his fellow Engineers. The global economy often is equated with the US Dollar, but the Common Wealth of Nations has a Common Wealth of Nations Currency Union, with its 2.4 billion members and 52 nations who do not share a common currency, but are quite large as well. One of the inspirations which could be extrapolated from Musk is to use Tesla's asynchronous motor inside emergency vehicles to transport patients (the electric motors could be based on a fuel cell which harnesses the energy of hydrogene and oxygene to produce electricity). Elon Musk's electricity theoretically would come from a Solar City, but solutions need to be found to make the majority of

photovoltaic cells without zinc sulfide, cadmium sulfide and silicone tetrachloride. Some researchers have started to study near infrared harvesting transparent luminescent solar concentrators such as the one studied by Zhao, Meek, Levine, and Lunt (2014). Elon Musk founded OpenAI, Solar City, Space X, PayPal, Tesla, Hyperloop, the Boring Company, and Neuralink. All of these projects are just the beginning of a new generation of researchers who will eventually find even better ways to improve tools that leaders use. Researchers are building Hydrogen Internal Combustion engines, build artificial intelligence (reminiscent of Yamakawa, Osawa, and Matsuo (2016) research), harvest energy (like Bristol Cabot Institute's diamond battery), go to space, and recycle (which in part inspired this chapter). Another area of interest is wireless communication. QUESS—a completely secure communication channel for connected devices and appliances or White-Fi could be used in less developed countries, which is an unoccupied space in global healthcare corporations' intellectual property hunt for maximizing profits only when wireless Mazor Robotics can finally function without a nurse inserting and retrieving robot arms and when surgeons no longer need to be present for the initial arm insertion incisions, could this become a possibility.

(e) Vision of future of global healthcare leadership in reprintable surgical instruments and prosthetics and the idea of Valentina Rognoli as well as Jakus and Shah. The population at large has greater and greater needs, and healthcare needs to increase supply. Valentina Rognoli is a leader who contributes to facing the challenges of global future healthcare leadership. She has taken plastic and recycled it into other objects, which is the concept of prosumers and extrapolated to recycling plastic material (Rognoli et al., 2015). This is the concept of being a prosumer and using plastic to remanufacture Mazor Robotics Renaissance® Guidance System arms (Ritzer, Dean, & Jurgenson, 2012). An inexpensive solution, until stocks are depleted, is using the model-20a plastic injector priced at $595.00 (the drill press, a mold clamp, a mold for the specific surgical instrument and unlimited plastic pellets are not included in this price), to remold plastic Mazor Robotics Renaissance® Guidance System arms in the outpatient unit.

Jakus and Shah (2016) took it a step further by developing "3D-printing (3DP) as a vital tool in tissue engineering and medicine" with bone which is "hyper-elastic" composed of "90% hydroxyapatite, and 10% polymer" printed at a rate of "272 to 550 cubic centimeters per hour," which allows for a "mandibular to be printed in 3 hours" (Jakus & Shah, 2016). Printing entire organs has been considered with the help of stem cells. Three-dimensional printed prosthetics are another option for reprints of plastic objects. Intelligent elastomers, mostly based on silicium and using nanotechnology, will provide efficient prosthetics, such as bones, nerves, muscles, and skin artifacts. This use of 3-D printing is an alternate to printing arms with a Model 20a plastic injection machine for a Mazor Robotics Renaissance® Guidance System. Model 20a plastic injection machine might seem like a more attractive proposition at a $595.00 price tag, but this does not include the drill press, a mold clamp, a mold for the specific surgical instrument and unlimited plastic pellets.

(f) Vision of the future of global healthcare leadership in waste management using Nicholas S. Wigginton's discovery of plastic-eating bacterium. The population at large has greater and greater needs, and healthcare needs to increase supply.

A global leader, Nicholas Wigginton, faced the challenge of plastic waste using plastic-eating bacterium, in contrast with Rognoli who recycles for future use. This creates endless entrepreneurial opportunities and jobs, because the population at large will always consume plastic. As the demand for more healthcare facilities increases, there is also an increase in waste generation from these facilities. This situation requires an organized system of healthcare waste management to curb public health risks as well as occupational hazards among healthcare workers as a result of poor plastic materials waste management (our health is definitely affected by the great Pacific patch of plastic the size of Mexico). Wigginton (2016) has some hope for the future of waste management, especially the fact that plastics can be digested by microbes, because there is currently research on a bacterium called Ideonella sakaiensis, which is a bacterium that breaks down one type of plastic.

(g) Vision of the future of global healthcare leadership advances in EDW.

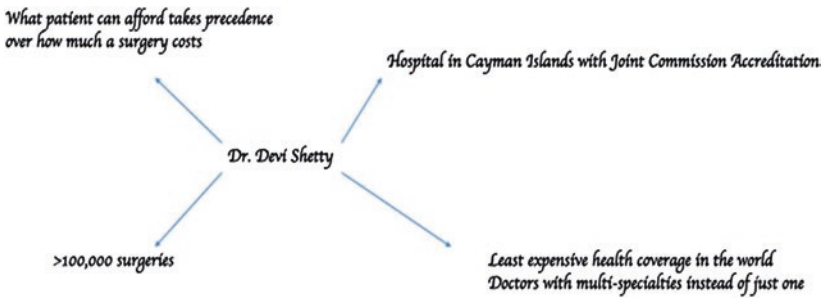


Fig. 8.5 Dr. Devi Shetty (Anand, 2009)

Bill Inmon published a book on EDW in 1992. This book has been a key tool in future global healthcare leadership's hands to meet challenges, just like the thermometer was first used as one of many tools to advance science in the eighteenth century (Casati, 1997).

(h) Vision of an economy of scale according to Dr. Shetty.
The population at large has greater and greater needs, and healthcare needs to increase supply (Fig. 8.5).

(i) Vision of antimicrobial constructs by Allvivo Vascular, Inc. The population at large has greater and greater needs, and healthcare needs to increase supply.
The global leader's vision of the future is such that the coating containing nisin will eliminate all types of ICU infections challenges. Allvivo Vascular, Inc. is the company which owns the patent and "Nisin can be made to form a long lasting antimicrobial compound […] that may be coated onto a substrate, a medical device" (Neff, McGuire, & Joshi, 2008). These "medical devices may be coated with this antibacterial coating, including drug delivery pumps, vascular access devices, transcutaneous devices, neural simulation devices, neural intervention devices, intubation tubes, sutures, shunts, drainage tubes, feeding tubes, orthopedic devices" (Neff et al., 2008). This is not an exhaustive list because there are "other medical devices which are inserted into the patient's body or which comes into contact with the body or body fluids" (Neff et al., 2008). Neff's present "invention is based on the recognition that known antimicrobial compounds,

such as Nisin or other antimicrobials, can be made to form a long lasting antimicrobial surface coating" (Neff et al., 2008). This is done "by linking the peptide with a block polymer" (Neff et al., 2008). The novelty here is that "antimicrobial product formed by the present invention […] may be coated/absorbed onto a substrate" (Neff et al., 2008). Any instrument inserted inside the body can benefit from this "including catheters and the like" (Neff et al., 2008). The invention has antimicrobial properties preventing central line-associated bloodstream infections (CLABSI) and catheter-associated urinary tract infections (CAUTI) and "catheters are routinely implanted in the bloodstream, urinary tract, chest, abdomen, leg and spinal cord" (Neff et al., 2008). A significant portion of patients who get these infections are admitted to a hospital for illnesses related to diabetes (diabetics represents 8.3% of the world population and worldwide addiction through our food supply to sugar induced dopamine release in the brain does not help).

This is important because patients with CLABSI or CAUTI "are particularly susceptible to microbial infection, blood clotting and occlusion that can begin within hours of implantation" (Neff et al., 2008). In conclusion, "the cost of ICU infections alone is USD 296 million to USD 2.3 billion with between 2,400 and 20,000 deaths per year" (Neff et al., 2008). This is staggering because a "single episode of central venous catheter-related bacteremia has been estimated to cost between USD 3,700 and USD 50,000." Furthermore, "an attributable mortality rate between 4 and 35%" (Neff et al., 2008).

(j) Vision of the future of global healthcare leadership in reparatory medicine using Philippe Horvath's leadership. The population at large has greater and greater needs, and healthcare needs to increase supply.

Scientists collaborate persevere, motivate, take risks testing a fundamental hypothesis and then deliver results sometimes find extraordinary ways to improve the possibility for new ventures and therefore new leaders through global healthcare challenges. Philippe Horvath and his four partners discovered these genetic "scissors" which can help "repair" the body in the future. Other possibilities include using Clustered Regularly Interspaced Short Palindromic Repeats—CRISPR to "repair" the body (Chylinski,

Makarova, Charpentier, & Koonin, 2014). Yehuda et al. (2009) discovered, "alterations from stress" are all that you need to repair the body (Yehuda et al., 2009). At the macro-physiological level, Katz (2015), found a way to stop bleeding without manual compression gauze. In the beginning of the twenty-first century, one of the most innovative discoveries in surgery, after the advent of laparoscopic surgery in the last quarter of the twentieth century, was Mazor Robotics Renaissance® Guidance System robotic surgery and other robots which assist surgeons, such as the DaVinci robot and Smart Tissue Autonomous Robot (STAR). Now we are poised for yet one more step forward in the next decade and beyond: "surgical nanobots will be ready for human trials by 2020" (Bhat, 2014). Nanobots have a bright future in the surgical field, but will need all the brightest minds on Earth to bring them into the operating suite after passing trials.

The futurist view that these minds, these leaders could actually tap into all of the human resources at their disposal because the person with the solution to the problem at hand could be in a small remote village. One individual among many, who has a revolutionary cost-cutting idea that can change the world and cannot or does not share it (Fuller, 1975). Daniel Keith Ludwig came to the same conclusion when asked about his ability to build a billion-dollar fortune with a $5000 loan at age 19 by saying all of us have the talent, but few of us act on it.

Author Experience

Dr. Cybulski, is an expert neurosurgeon. Dr. Cybulski posits that leadership in neurological surgery will face several challenges in the twenty-first century. These challenges include defining the framework for incorporating rapid technological innovation such as robotic-enhanced surgery into patient care along with creating concomitant ways to improve the value of safety, efficiency, and cost of providing this care. The effectiveness of the Mazor Robotic Spine Surgery System will be measured against these criteria as will other technological innovations. In addition, the leadership of neurological surgery will be faced with the challenge of creating an environment that stimulates recruitment of the brightest minds to the specialty and continuously improves their training.

Dr. Casati, a decontamination expert, uses aseptic technique and standard precautions daily. The current practices pose a challenge to the future where it may be possible to remanufacture plastic surgical instruments onsite and expand globally afterward.

It is the future of a department like Central Sterile Supply to challenge the reuse of everything possible especially plastic, by taking leadership in helping the globe.

Partial thermoplastic remanufactured within the confines of manufacturer's instructions for use limits refurbishing (Eriksen et al., 2013). In the future, healthcare industry leaders can manage this challenge instead of the onsite repair specialist services used today. It would just be a new role of Sterile Processing Technician, since much time would be freed up by automation.

Current sterile processing machines already have the capability of being connected to the Internet. Instead of having an online connection for information technology diagnostic purposes like today's washers and sterilizers, Cloud IoT will physically move surgical trays with robotic arms through the Sterile Processing Department (trays may no longer be necessary since individual instruments can now be inventoried reliably using RFID). Moving merchandise across the factory floor can be done with Kawasaki's RD80N robot. Tray assembly can be done with a robotic arm such as the Kawasaki MC004N robot. Quality assurance will still be done by humans (Casati, 2012).

This means the global healthcare system leaders need to challenge the way that plastic is being disposed of and not currently using ISO 14040:2006 on Life Cycle Costing (LCC). A health system should aim to live in close autarky.

International Organization for Standardization (ISO) rules are enforced by many different global agency leaders since these rules touch a vast share of the future total domestic commerce (e.g., the Food and Drug Administration, the Federal Trade Commission, US Department of Agriculture). What we covered are consumer products, which should be "measured" for recycling unlike water for instance, because water is a vital necessity, which should be free.

A recent invention called WaterSeer™ condenses drinking water from the air. Another option than condensation is water purification using "vertically Aligned MoS2 Nanofilms and Visible Light" (Liu et al., 2016). This would be a leap forward for global access to clean water. Skipping Rock Lab, which produces water-filled balls of a material, which look, and acts impermeable, like plastic, but are edible, hence subtracting the

challenge for recycling plastic for drinking water storage in the future, because the plastic is biodegradable in the body and most importantly, the water stays sterile. Based on direct experience, it is challenging for future leaders to consume single-use plastic in a Central American and other challenged global Sterile Processing Departments. In the experience of the co-author, sterilization wrapping paper such as Kimberly-Clark™ and Medline™ sterile plastic peel packs, for example, if used by future Central American leaders, could be remanufactured by melting and remolding, because sterilization wrapping paper is a rare commodity in the developing world. Global healthcare leaders need to face the challenge of creating the perception of a leadership system where all plastic is reused in a decontaminated and sterile way, so that access to global high-quality sterile processing and consequently surgery may become a reality.

Ideas for the Future

The population at large has greater and greater needs, and healthcare needs to increase supply. Below the authors will deliberate whether the future can be sustainable by comparing GDP per capita with Accounts Receivables and Assets of a futuristic neurosurgery center using robot surgery. The hypothesis testing below is based off of a large amount of data, which for the sake of space could not fit here, but the authors can make it available if requested.

If healthcare industry growth can be similar in a statistically significant way to GDP per capita growth, then building outpatient centers such as the one described below is financially sound.

H0 There is no significant difference between USA per capita Gross Domestic Product costs and independent variables Account Receivables and Assets of Neurosurgery Unit.

H1 There is a significant difference between per capita Gross Domestic Product costs and independent variables Account Receivables and Assets of Neurosurgery Unit.

To appreciate a predictive model of healthcare leadership challenges, historical data are analyzed using statistical software (through SaaS—Software as a Service) to determine trends that might prolong into the future (Vielmetter & Sell, 2014). The researcher will be using public data from a Midwest Academic Medical System surgical services neurosurgery department. The datasets include three variables (2 degrees of freedom). There are two independent variables (Account Receivables, Total Assets) and one

dependent variable (per capita GDP). The equation plotting an exponential increase in Total Assets of 153% per annum, against a weak 3% increase in per capita GDP per annum is demonstrated in the following equation (the equation would be more predictive if more data were available):

$$y = e^{0.0003x}$$

Data should be heteroskedastic in order for the multiple regression, to obtain reliable analytics (another useful tool for this would have been Monte Carlo simulation—MCS). Beyond MCS, if using factor analysis there would theoretically be equally heavy loading on accounts receivables, total assets and GDP per capita since the null hypothesis is not rejected. Factor analysis specifically looks at unobserved factors, which might not have been considered in this study. This can be debated since real wages, an unobserved factor, which has not been considered in this study has not moved significantly in comparison to inflation.

In a separate study, according to McKinsey Credit Swiss, going back to 1960 to the present, there is a growing gap between the GDP curve and healthcare expenditures. Using the Big Mac index, the Swiss Franc is 27.2% overvalued compared to the dollar, but the gaps should still be statistically significant for the McKinsey study. This is observed when measuring purchasing power parity, which has diminished due to inflation with unmatched increase in salaries. Furthermore, the derivatives market has grown out of control, absorbing the fruits of economic growth (i.e., productivity). The Aggregate of Demand or GDP includes consumer spending, investment banking, and government expenditures.

The "aggregate per capita GDP is assumed to advance at the same pace as in 1990–2003" when innovation was booming with the dot-coms (Maddison, 2008). This chapter projects trends in revenue sources for a period from 2014 to 2021. It was observed that there is a 153% growth from 2014 to 2015 and therefore a 153% growth trend was applied every year from 2016 to 2021. The data for 2014 and 2015 are based off of historical numbers from a Midwestern Academic Medical System. The predicted growth of approximately 153% was estimated based on observed historical growth from 2014 to 2015. This local Academic medical system growth was observed within a US economy with per capital GDP growing at an average in 2014 at 0.76%, in 2015 at 0.73%, in 2016 at 2.07%, but a 3% long-run inflation rate was adopted. It was decided to run a multiple regression analysis to compare account receivables with total assets because Levy (2010) used this method in a dissertation: "to control for the levels of Accounts Receivable each

Table 8.3 Aggregate per capita GDP growth trends

	Account receivables (M)	*Total assets (M)*	*Per capita GDP +3%/yr*
2014	$0.31	$255.94	$0.05
2015	$0.52	$282.67	$0.06
2016	$0.79	$319.22	$0.06
2017	$1.22	$370.6	$0.06
2018	$1.65	$444.51	$0.06
2019	$2.54	$552.7	$0.06
2020	$3.68	$713.12	$0.07
2021	$5.43	$953.26	$0.07

of the regressions includes the variable Accounts Receivable /Assets" (Levy, 2010). The ratio of Accounts Receivables to Assets is between 0.001 (2014) and 0.006 (2021). Proportionality between 0.001 and 0.006 is within the 0.05 acceptable range. The number 0.05 represents a normal curve tail. When statistics is applied to assets, it is important to hedge intelligently, because the high risk of great gains at the 0.05 tail also inversely has a 0.05 tail for great losses. In Taleb's book, The Black Swan, the discussion regarding fat tail shows this concept of risk of high gains and high losses. If Taleb's principles and Dodd-Frank are kept in mind, risks of extreme market fluctuations should not be a concern.

Conventional ways of looking at Gaussian statistics always concluded with rejecting or not rejecting the null hypothesis. Taleb posits that trying to dismiss the alternative hypothesis of the normal curve, calling it just a type II error when it should have been accepted, can actually lead

Table 8.4 Regression statistics R-squared calculation

Regression statistics	
Multiple *R*	0.850
R Square	0.723
Adjusted *R* S	0.612
Standard err	39898
Observation	8

Table 8.5 *P*-value

	P-value
Per capital GDP	0.470
Account Receivables	0.903
Total Assets	0.949

to a Black Swan. The authors of this chapter see the data with optimism, unlike Noam Chomsky, who predicts doomsday scenarios. Another option to consider is Stephen Hawking's goldfish in a curved bowl analogy whereby our principal tool of observation, our eyes, distort reality. The current data in Table 8.3 has good validity because it is representative. These numbers represent process improvement, salaries, benefits, computers and continuing education. Process improvement will be funded out of the "salaries, benefits and other costs" budget of 28 million dollars of which an estimated 4 to 5 percent is approximately 1.5 million. This is in addition to the existing computers and telecommunications budget of 1.5 million dollars and the continuing education and employee emergency fund of 4 million dollars. The reliability of the data from the Academic Medical System is consistent trustworthy numbers.

Table 8.4 shows the R-squared value of 0.723, which shows that the independent variables (account receivables and total assets trends of the Midwestern Academic medical system) are good predictors of the dependent variable (per capita GDP trends).

Table 8.5 shows that there is not a significant difference between the datasets and that the *p*-value is above 0.05, which means the null hypothesis is not rejected. This means that unless there is a type II error (incorrectly retaining of a false Null), US GDP per capita trends into the future accurately predict trends in account receivables and total assets of the Midwestern Academic Medical System. US GDP per capita trends into the future are good predictors for account receivables and total assets trends.

Discussion

In summary, this chapter studied the perception of leadership and in some sections focused on global healthcare leadership's role in the future to make wise use of partially plastic instruments in medicine, which still need decontamination and sterilization, but will be safer for the environment, if remanufactured. It is doubtful that all plastic could be replaced with Skipping Rock Lab-type plastic, which is completely biodegradable.

Technicians will do quality assurance on the cleanliness and sterility of the product, as well as remanufacture plastic instruments using Model-20a plastic injection machines or other machines.

Facing challenges in global healthcare leadership is the key to the sustained development of the healthcare industry and even though companies like Theranos have had a challenging path, they are the way to proceed if breakthroughs in future global healthcare leadership are to be attained.

In the case study we saw, there is no significant difference between GDP per capita versus Total Assets and Account Receivables which means that the null hypothesis is not rejected because p-value is above 0.05. The rate of growth of total assets and Account Receivables is similar to the rate of growth of per capita GDP. This means that domestic growth over the years studied has matched the industry's growth, which is likely to continue into the future (the Credit Suisse study seen earlier does pose some questions on equality of GDP per capita growth). An outpatient neurosurgery center using robotic technology should seek financial support from better reimbursement, help from a charitable foundation, or a good process improvement team that can capture costs. Minimally invasive neurosurgery pavilions using Mazor Robotics Renaissance® Guidance System technologies will necessitate a $255 million initial investment reimbursable through donations for the actual building (or if using sole revenue from net patient receivables, $95 million in net patient receivables per annum). The entire initial investment should be reimbursed by year 10, assuming process improvement project creates exponential growth in productivity (produces growth in general).

The vision of this chapter is that future global leadership will be inspired to use practical wisdom and simultaneously be flexible in the face of challenge. The construction of an outpatient neurosurgery centered around robotic technology and recyclable plastic arms is the proposed vision. This should improve patient comfort and increase confidence level, reduce costs, and eliminate waste. The benefit will outweigh the risk in a Nash equilibrium scenario where doing nothing is worse than trying and failing. If plastic consumption were under control, the great Pacific garbage patch would cease to exist. Reusable plastics could benefit from something similar to the HR 5632—Plastic Recycling Assistance Act of 1990. Even while taking into consideration the limits of reuse of plastic it should be made possible with a model-20a plastic injection machine, but also with biodegradable Skipping Rock Lab plastic (Caleffi & Cacciapuoti, 2016).

In a not too far-off future, the neurosurgery department and other surgical units across the globe will exist in a world of technological singularity. Global leadership challenges will increase exponentially in this world where the singularity has been achieved. At a micro-level, the singularity has happened—at the level of a worm genome (the Openworm project has uploaded a *C. elegans*' brain). Human-assisted robotics will be ubiquitous, and non-invasive treatments with laser beams, magnetic fields, or nanotechnology introduced in blood vessels will be household terms.

In future research, to do a significant Factor Analysis or a Monte Carlo simulation—MCS a plethora of data would be necessary, more

than is accessible here, but could spawn another study with the information present as a basis for reproducibility. A GLOBE study, which takes up many resources, more than available here, could show that the outpatient neurosurgery clinics could be implemented differently from country to country. Research on decontamination practices in less developed countries needs further financing. In OECD countries, even before the instrument is handled, a $400 per gallon bottle of Klenzyme is used at the sink and a $50 single-use HumiPak plastic bag is used to humidify body fluids before it reaches the Sterile Processing Department (this is unaffordable to less industrialized countries). If solar panels like Zhao et al. (2014) were installed worldwide, energy inequality would certainly not be what it is today. Finally, water should be ubiquitous, if apparatus like the Liu et al. (2016) WaterSeer™ were readily available.

Entrepreneurship and good relationships, according to the Harvard Grant Study: the necessary instruments for a change in direction of an enterprise. Healthcare corporations are faced with a high barrier to entry in the healthcare market, reminiscent of Elizabeth Holmes' Theranos unicorn failure, from $1 billion to bankruptcy. The leadership challenge in healthcare is to create innovation at low costs, collaborate with venture capitalists and angel investors with high liquidity or partner with healthcare institutions with high profit margins. All that is needed is a little perseverance, a lot of motivation, longterm collaboration, and not being afraid to take risks testing models before a "go-live" event.

Conclusion

Whether it be equal opportunity afforded to individuals to fairly compete against multinationals and nationalism, whether it be informatics advancements, whether it be CRISPR, printing drugs, printing buildings or printing prosthetics, whether it be environmental protection, whether it be Dr. Shetty's affordable healthcare, Kierkegaard's ethics and aesthetics create a sense of moral deontology versus a climate of utilitarianism, sidestepping current society's aboulia, which prevents de facto equality.

Appendix A

List of healthcare reimbursement systems

1. The Veteran's Healthcare Administration.
2. Planned Parenthood (James Grisson's cancer treatment).
3. Military programs.

4. Medicare.
5. Medicaid.
6. State's Children Health Insurance Program.
7. Department of Defense Tricare.
8. The Indian Health Services.
9. The Affordable Care Act/American Health Care Act.
10. The Walgreens walk-in clinics.
11. Non-profit Academic medical systems.
12. Outside the USA, there are programs like French Social Security.
13. National Health Service in the UK.
14. MD leaders like Dr. Shetty's clinics in India.
15. Executive Health.

Appendix B

Keyword map categories: Information Systems, Organizational Behavior Studies, Trade Agreements, Finance, and Plastic Recycling

	Central Sterile Supply	Logic bombs	Externalities
	Safety	Worm viruses	
Virtual Reality	Mazor Robotics Renaissance	Rootkit	
	Sedasys	Bootsector executable	
Cybersecurity		Macro- and polymorphic viruses	
Epic's Optime		HIPAA	Firesale
	Multi-disciplinary team	Ethics	Prosumer
Diamond battery	Specialists	Morality	CETA
	Generalists	Phronesis	JEFTA
			VEFTA
Zinc sulfide	Rentier capitalist	Inspirational leadership	TTIP
Cadmium sulfide	S.T.R.E.A.M.	Myer–Briggs	OECD
Silicon tetrachloride	Blockchain	GLOBE	
	Bitcoin		
	Litecoin		
	Ethereum		Crowdsource
			Crowdfund
90% hydroxyapatite, 10% polymer bone	Intellectual Property		Moore's Law

(continued)

Plastic-eating Ideonella sakaiensis	Singularity		
OLAP			
OLTP	CloudIoT	Kierkegaard-aesthetic, ethical, religious	Refurbish
Nisin			Remanufacture
CRISPR	EDW		Process improvement
Anti-virus	QUESS	Autarky	
Anti-spyware	White-Fi	Life Cycle Costing	Productivity/ Quality tracking
Firewall			
Intrusion detection systems		Account Receivables	Lean
Intrusion prevention systems	Telemedicine	Total Assets	5S of Sort, Straighten, Shine, Standardize, Sustain
Malware	WaterSeer	Per capital GDP	HR 5632—Plastic Recycling Assistance Act of 1990
Adware, Trojan horses	Nanotechnology		Capital gains
Spyware, Ransomware	Big data	Reimbursement	

References

Adrianzen, D. (2014). *Implementing lean process improvement in the sterile processing department at the academic medical system* (Doctoral dissertation, Worcester Polytechnic Institute, Worcester).

Anand, G. (2009). The Henry Ford of heart surgery. *The Wall Street Journal,* A1.

Bhat, A. S. (2014). Nanobots: The future of medicine. *International Journal of Management and Engineering Sciences, 5*(1), 44–49.

Botta, A., de Donato, W., Persico, V., & Pescapé, A. (2016). Integration of cloud computing and internet of things: A survey. *Future Generation Computer Systems, 56,* 684–700.

Caleffi, M., & Cacciapuoti, A. S. (2016). On the achievable throughput over TVWS sensor networks. *Sensors, 16*(4), 457.

Casati, F. (1997). *Le Thermometre de Lyon*. Lyon, France: Edition Lyonnaise d'Art et d'Histoire.

Casati, N. (2012). *Examining queuing theory and the application of Erlang-C to improve productivity and quality in central sterile supply* (Doctoral dissertation, Argosy University, Seattle).

Chylinski, K., Makarova, K. S., Charpentier, E., & Koonin, E. V. (2014). Classification and evolution of type II CRISPR-Cas systems. *Nucleic Acids Research, 42*(10), 6091–6105.

Eriksen, M., Maximenko, N., Thiel, M., Cummins, A., Lattin, G., Wilson, S., Rifman, S. (2013). Thermoplastic pollution in the South Pacific subtropical gyre. *Marine Pollution Bulletin, 68*(1), 71–76.

Fuller, R. B. (1975). *Synergetics.* Basingstoke, UK: Macmillan Publishing.

Hu, X., Ohnmeiss, D. D., & Lieberman, I. H. (2013). Robotic-assisted pedicle screw placement: Lessons learned from the first 102 patients. *European Spine Journal, 22*(3), 661–666. https://doi.org/10.1007/s00586-012-2499-1.

Jakus, A. E., & Shah, R. (2016). Multi-and mixed 3D-printing of graphene-hydroxyapatite hybrid materials for complex tissue engineering. *Journal of Biomedical Materials Research Part A, 105*(1), 274–283.

Kashyap, A. K., Berner, R., & Goodhart, C. A. (2011). The macroprudential toolkit. *IMF Economic Review, 59*(2), 145–161.

Katz, A. (2015). New products squelch bleeding, saving lives and limbs. *Emergency Medicine News, 37*(7), 22–23.

Kemper, A., & Neumann, T. (2011). HyPer: A hybrid OLTP & OLAP main memory database system based on virtual memory snapshots. In *Data Engineering (ICDE)* (pp. 195–206). Piscataway, NJ: IEEE.

Levy, H. (2010). *Accounts receivable financing and information asymmetry* (Doctoral dissertation, Columbia University, New York).

Liu, C., Kong, D., Hsu, P., Yuan, H., Lee, H., Liu, Y., …, Cui, Y. (2016). Rapid water disinfection using vertically aligned MoS_2 nanofilms and visible light. *Nature Nanotechnology, 11,* 1098–1104.

Lytras, M. D., Al-Halabi, W., Zhang, J. X., Haraty, R. A., & Masud, M. (2015). Enabling technologies and business infrastructures for next generation social media: Big data, cloud computing, internet of things and virtual reality. *Journal of Universal Computer Science, 21*(11), 1379–1384.

Maddison, A. (2008). The west and the rest in the world economy: 1000–2030. *World Economics, 9*(4), 75–99.

Neff, J. A., McGuire, J., & Joshi, P. R. (2008). U.S. Patent No. 2009/0022888. Washington, DC: U.S. Patent and Trademark Office.

Phillips, J. J. (2012). *Return on investment in training and performance improvement programs.* New York, NY: Routledge.

Ritzer, G., Dean, P., & Jurgenson, N. (2012). The coming of age of the prosumer. *American Behavioral Scientist, 56*(4), 379–398.

Rognoli, V., Bianchini, M., Maffei, S., & Karana, E. (2015). DIY materials. *Materials & Design, 86,* 692–702.

Smith, T. R., Rambachan, A., Cote, D., Cybulski, G., & Laws, E. R. (2015). Market-based health care in specialty surgery: Finding patient-centered shared value. *Neurosurgery, 77*(4), 509–516.

Umeh, J. (2016). Blockchain double bubble or double trouble? *ITNOW, 58*(1), 58–61.

Vielmetter, G., & Sell, Y. (2014). *Leadership 2030: The six megatrends you need to understand to lead your company into the future*. New York, NY: American Management Association.

Wigginton, N. S. (2016). Some bacteria think thermoplastic is fantastic. *Science, 351*(6278), 1162.

Yamakawa, H., Osawa, M., & Matsuo, Y. (2016). Whole brain architecture approach is a feasible way toward an artificial general intelligence. *International Conference on Neural Information Processing* (pp. 275–281).

Yehuda, R., Cai, G., Golier, J. A., Sarapas, C., Galea, S., Ising, M., & Buxbaum, J. D. (2009). Gene expression patterns associated with posttraumatic stress disorder following exposure to the World Trade Center attacks. *Biological Psychiatry, 66*(7), 708–711.

Zhao, Y., Meek, G. A., Levine, B. G., & Lunt, R. R. (2014). Near-infrared harvesting transparent luminescent solar concentrators. *Advanced Optical Materials, 2*, 606–611. https://doi.org/10.1002/adom.201400103.

Authors' Biography

Dr. Nicolas M. Casati, DBA, has over 15 years of experience in the healthcare field. Dr. Casati is a recognized expert in decontamination of surgical instruments, as a Certified Registered Central Service Technician and Certified Healthcare Leader by the International Association of Healthcare Central Service Material Management, consulted by equipment manufacturers. Dr. Casati has contributed over the years to two process improvements at the hospital, environmental, and staff related. Dr. Casati has experience working at an international bank as an Intern and three years of information systems experience. He is currently obtaining the CompTIA A+ certification through Microtrain. Using his knowledge learned during a BS in environmental sciences and minor in chemistry, Dr. Casati has advised on 70 published papers as a Reviewer of the Journal of Cleaner Production and particularly interested in the Life Cycle Costing (LCC) and Green Chemistry. Dr. Casati is creative, with two patent filings in regard to noise control, assigned to Woxx Incorporated, a start-up company at which he holds an executive position. Dr. Casati is Vice-President at the Groupe Professionnel Francophone in Chicago and has done voluntary work in a hospital in Honduras.

Dr. Kartik Kesavabhotla, M.D., is a Resident in Neurological Surgery at Northwestern University Feinberg School of Medicine and at Northwestern Memorial Hospital. He has published on the topic of safety in specific surgical procedures.

Dr. George R. Cybulski, M.D., M.B.A., is a National Cancer Institute Investigator in Radiation Therapy Oncology Group Trials for the treatment of malignant gliomas. His primary clinical interests include surgical treatment of diseases of the spine, surgical treatment of spinal cord injury, and surgical treatment of tumors of the brain (including pituitary tumors and gliomas) and spinal cord (including schwannomas and meningiomas). Dr. Cybulski is an Associate Professor of Neurological Surgery at the Feinberg School of Medicine of Northwestern University and an Attending Neurosurgeon at Northwestern Memorial Hospital. Dr. Cybulski researches, writes, and presents on the topic of leadership development in healthcare.

CHAPTER 9

Nonprofit Leadership and Decision Making: Radical Choice Application for Nonprofit's Sustainability

Christiana O. Ntamere

Introduction

Background Problem

Nonprofit is chronicled as a sector that is chronically financially delimited mainly because most of its revenue comes from charitable contributions. That notwithstanding, the significant effect of nonprofit contribution to global economic development of countries around the world has been acknowledged by many scholars including Salamon (2003) and Frumkin (2002). Volunteer charitable contributions are indisputably part of nonprofit's global contributions (United State Department of Labor, 2010). The researcher contextualizes that one of the ways nonprofits can sustain vitality is by increasing their volunteer numerical strength, especially the Baby Boomers. This will be made possible through the utilization of integrated leadership style enhanced by decision-making theories and decision support system (DSS).

C. O. Ntamere (✉)
Handmaids of the Holy Child Jesus/Franciscan Health, Munster, IN, USA

B. S. Thakkar (ed.), *The Future of Leadership*,
https://doi.org/10.1007/978-3-319-73870-3_9

As a result of constant financial bottlenecks, some experts in nonprofits contend that nonprofit organizations should find strategies to generate funds without jeopardizing their tax exemption status. Most nonprofit scholars support the need for nonprofits to embark on entrepreneurial activities if they are to survive the brutality of the market forces with the antecedent technological challenges (Ntamere, 2012). Entrepreneurship may be synonymous with commercialization; the two concepts are intertwined. Scholars are yet to decipher commercial activities from entrepreneurial engagement to help crystalize the distinction between nonprofit and for-profit activities. This dichotomization will demarcate for-profit and nonprofit organizations. When and until such distinctions are made, for-profit and nonprofit will continue to engage in activities that are not easily dichotomized (Ntamere, 2012).

Business Strategies for Nonprofits

The application of entrepreneurial strategies and commercial terminologies should not be a prerogative for only the for-profit firms. Commercial strategies and terminologies will continue to evolve for for-profits and nonprofits alike as the global economic, technological, political, and social challenges abound (Ntamere, 2012). One of the challenges for nonprofits' leaders will be that of making decisions that will neither revoke their tax exemption status nor compromise their core values. The adoption of business decision-making models along with integrated leadership styles will help nonprofits to avoid pitfalls.

This paper utilizes and recommends commercial strategies and terminologies that may help nonprofits to advance their missions especially with the application of decision-making theories. Government policies, like in recent US healthcare mandate (Catholic News Agency [CNA], 2017), rapid changes in technology, and environmental and socioeconomic challenges should compel nonprofit organizations to adopt decision-making strategies; some situations that confront nonprofit leaders may warrant outlying alternative line of action (rational choice or rational decision making = RDM), while others may gravitate toward spontaneity (natural decision making = NDM) like in emergency situation with bias theory as a watchdog against unethical behavior.

Objectives

The objective of this paper is to increase awareness in nonprofit world of the need to position their organizations to alleviate their financial constraints with the application of decision-making theories to enhance integrated leadership that will survive the growing hostile business environment in the next decade. One of the themes embedded in the research criteria is to encourage, in the nonprofit world, the need to utilize commercial strategies and the services of the Baby Boomers to advance their missions. Therefore, one of the goals of this study is to highlight how the utilization of decision-making models can help nonprofits to maximize their expected monetary value (EMV) and invariably increase their sustainability. The paper will also exemplify how nonprofits can use rational choice model (RCM) decision to maximize expected momentary value (EVM) of volunteer services. It uses decision-making model in deciphering demographics of volunteers, as well as in segmentation of volunteers.

Volunteer Contributions in Relation to Nonprofits' Sustainability

US Bureau of Labor Statistics (2016) referencing Corporation for National and Community Services indicated that approximately 62.6 million people in USA donated 7.9 billion volunteer hours, worth about $184 billion in 2014. Lindenmeier (2008) asserts that UK volunteers gave about $75 billion dollars to gross national product and approximately 22 million people got involved in volunteer services and contributed roughly 90 million hours per week. In the 1990s, the annual contribution of UK Charity volunteers could be equated to a workforce of about "three million full time employees" (Bennett & Kottasz, 2001, p. 47). Furthermore, about 36% of German population above 14 years old participated in volunteer service in 2004 (Lindenmeier, 2008, p. 45). In Canada, volunteer labor services, estimated to be about 549,000 full-time jobs, accounted for about 20% of total GDP in 1999 (Quarter, Mook, & Handy, 2007, p. 58). Many developing countries are yet to document and database their volunteer contributions.

A pilot study of five NGOs or non-governmental organizations/nonprofit conducted in the eastern region of Nigeria, West Africa, in 2010 by the researcher on volunteer productivity and accountability showed that although people participated in volunteerism at both board and episodic levels, data do not exist to show such contributions. Such charitable contributions are viewed as part of community effort ingrained in the culture; as a result, no record or data was kept for such humanitarian charitable services.

Additionally, there was no monetary or hourly qualification and quantification of volunteer labor. While this charitable attitude is admirable and praiseworthy, it robs the country's record of volunteers via-à-vis nonprofit contributions to the world's economic growth. Nonprofits in Nigeria have contributed to the national economic growth, but it is yet to be quantified in relation to the national GPA like other nations around the world. It is hoped that Nigeria has data on National Youth Corp Service (NYCS). A five-country study in Southern Africa by Patel, Perold, Mohamed, and Carapinha (2007) also indicated lack of databases for volunteer services.

It is abundantly clear that volunteerism is part of nonprofits' contributions to global economy; however, studies showed that there is a decline in volunteerism in recent years. Since volunteer engagement is declining, ability to increase or maintain a strong volunteer numerical strength is part of leadership poise. Again, the ability to build and maintain local and national databases for volunteer contributions will be a leadership challenge for countries that are yet to build such databases. Record of volunteer contributions provides incentive to them as well.

Positioning Nonprofit: Cultivation of Baby Boomers

Nonprofit organizations are not immune to hostile economic environment that beset for-profit firms. Overtly or covertly nonprofits' ecology is fraught with competition. Positioning is a critical concept in Porter's theory highlighted in Marcus' (2005) book. Positioning is a means of having profit or revenue driven influence in ecology or market. Nonprofits are under pressure to be accountable and to deliver quality services. "The distinct areas accounting for these pressures and needs are Baby Boomer and population issues, hiring challenges, shifting leadership styles, and the newly needed skills, for executive" (Gamble, 2008, p. 20).

Nonprofits have assets in Baby Boomer retirees who will emerge as volunteers. The number of retiring Baby Boomers will continue to increase astronomically in the future till about 2029 (Foster-Bey, Grimm, & Dietz, 2007). Baby Boomers are racially and professionally diverse, as well as versatile in their skills and knowledge. The challenge of possessing the skills and talents needed to recruit, assign duties, manage, and retain Baby Boomers who are highly skillful and talented will be humongous.

In the next decade, about four generational workforce will be in the domain of future leaders because of increase in longevity or change in life span fueled by advancement in technology, research, medicine, and a growing consciousness of health wellness seen in increase in exercise and choice of healthy food. In the face of many challenges, nonprofits need to "position" themselves strategically to harness the ingenuity of not only the Baby Boomers but also the Millennial and post-Millennial generations that are most likely to pose complex leadership dilemma in the future. Trans-generational skills are required by future leaders to handle the complexity of about three to four generations of workforce (senior citizens, Baby Boomers, Millennial, and post-Millennial).

Mission

Positioning nonprofits includes being true to their missions; adherence to the unique core ideologies that differentiate them from one another and from other nonprofit organizations is crucial. It includes the ability to imbibe the immutable charisma that identifies them to the public, as well as the ability to communicate their missions to the public and interested parties for possible buy-in and support. Furthermore, it includes the utilization of technologies to build networks of those needing their services and those supporting their services. Positioning nonprofits encompasses building relationships and networking with internal and external constituencies.

Global Mind-Set and Culture

Organizational System Theory highlights some principles on which to base facts about corporate interactions with the environment that has established cultures. An organization is a system that functions in relation to a larger system that has multiple sub-systems to accomplish goals and objectives. Positioning nonprofit organizations includes having global mind-set that breaks shells of myopic views, cultural and other barriers without compromising their values.

Future global leaders or survival in the next decade's business environment requires that leaders and employees interact, appreciate, and learn different cultures other than their own. Cultural shock with its antecedent pain and embarrassment should not deter leaders or people from continuously and positively recasting conflicting cultures to meet the demands for individual and organizational growth. Myopic cultural view of the world will rob leaders the richness that cultural mix brings.

Culture and Diversity: Recruitment, Management, and Retention

Positioning nonprofits includes strategies in recruiting and managing volunteers to enhance sustainability. It involves the ability to utilize volunteer talents to enhance productivity. It includes evaluation and identification of organizational and volunteer needs (Ntamere, 2012). Positioning nonprofit also includes knowledge of how and where to attract volunteers of diverse nature with needed potentials since institutions are becoming more diverse than ever and the population of clients they serve are also increasingly more diverse than before. To increase and retain volunteers, it is important to ascertain what is prevalent in some volunteers' cultures so as to coin strategies of recruitment, management, and retention.

Furthermore, in the past, what happened in one country had little or nothing to do with other countries around the world; presently, advancement in technology has not only shrunk long distances but also connected the world in such a way that people who previously did not care about other peoples' culture are now forced to pay great attention if they want to stay in business or move their missions forward. While some nonprofit organizations and corporations are international in character, a few more are becoming international, and it becomes relevant to use Hofstede's cultural orientation to facilitate the recruitment, management, and retention of volunteers and employees.

Hofstede Cultural Orientation: Relevance in Volunteerism

The level of nonprofits' achievement or productivity will partly depend on how diversity is managed or facilitated. Hofstede (1980) grouped countries of the world in regions based on their cultural orientations, and this classification will help nonprofit organizations to recruit, retain, and increase the numerical strength of their volunteers, as well as recruit, manage, and retain their skillful staff. "Cultural values were associated

with outcomes in management and applied psychology domains, including: change management; conflict management; decision making; human resource management, leadership; organizational citizen behavior; work-related attitudes, negotiation behavior; reward allocation and individual behavior relating to group process and personality" (Kirkman, Low, & Gibson, 2006, p. 288).

Additionally, future nonprofit leaders may have to synthesize House, Hanges, Javidan, Dorfman, and Gupta's (2004) study on cross-cultural management based on Hofstede's cultural orientation to extrapolate necessary management information embedded in the study as a useful tool in leading diverse workforce in their organizations. A few of the cultural orientations will be discussed in relation to leadership recruitment and management of workforce.

Future Orientation: Is "the degree to which individuals in organizations or societies engage in future oriented behavior such as planning, investing in the future and delaying individual gratification" (Javidan, House, Dorfman, Hanges, & De Luque, 2006, p. 79). Based on the skills volunteers possess, assignment for the volunteers from this group should be crafted around planning and development of projects. Recognition for people from this group should be after they have completed a long-term project. Shifting recognition to the near future will give the future-oriented volunteers or employee a sense of identity, and long-term career development is likely to guarantee the motivation and retention of these types of volunteers. Workforce from USA and Japan fall into this category.

Humane Orientation: Is "the degree to which an organization or society encourages and rewards individuals for being fair, altruistic, friendly, generous, caring and kind to other" (House et al., 2004, p. 469). South Asian and sub-Saharan Africa scored high in Human Orientation than other cluster groups. The managerial implication in recruiting, managing, and retaining volunteers from this region is a diligent plan to maintain good relationship and ensure that volunteers from this region feel accepted in the organization. With the help of region cluster, managers should understand that volunteers or workforce from human orientation culture will be more productive and committed with good relationship. Building strong relationship should be crafted in the plan to recruit and retain them in the organization. Additionally, managers should also understand that volunteers from low-humane-oriented culture like USA may not need such strong sense of belonging to a group.

However, the leader should incorporate flexible work schedule to accommodate volunteers and employees from high-humane cultures that value nurturance, care, and work at their pace.

Collectivism: It is the extent an organizational or society accepts the practice of social networking and the reward of collective endeavors. Collectivism "is the degree to which organizational and societal institutional practices, encourage and reward collective distribution of resources and collective action" Latin America, Confucian Asia, Southern Asia, Middle East, and Eastern Europe scored high in In-Group collectivism. In-Group collectivism "refers to the degree to which individuals express pride, loyalty, and cohesiveness in their organizations [sub-groups,] and families" (House et al., 2004, p. 12). Professional skills are not the only criteria for employment; people may be hired based on their network.

In recent times, US healthcare has gravitated toward networking. Insurance companies and hospitals are in networking relationships. If patients see doctors that are outside the network of their insurance companies, they will pay high premium. This network may be called artificial In-Group collectivism because it is not culturally related but work-related and can disband or disintegrate if a new healthcare system crops up. Hospitals are consolidating and forming alliances, as well as creating new organizational cultures to help them stay in business.

Volunteers from high In-Group collectivism will help to recruit professionals from their In-Groups and network and therefore increase the numerical strength and sustainability of their organizations. In countries that are high in collectivism, e.g., Brazil, cultivation of lasting and trusting relationships is more important than meeting deadlines and details are also very important in establishing lasting business relationships. A group interaction is energizing and helpful in accomplishing tasks.

Asians students, who are prominently collectivistic in nature, produced more ideas when they work with transformational leaders as opposed to transactional leader (Kirkman et al., 2006). Invariably, US students, volunteers, and employees, who by national classification are individualistic oriented, will generate more ideas working with transactional leaders and as individuals.

Uncertainty Avoidance: Refers to the extent to which a country avoids uncertain events, the degree to which a country is comfortable at taking risk. Kirkman et al. (2006) showcased a study of 64 countries by Shane, Venkataraman, & MacMillan (1995), which discovered that countries with low uncertainty avoidance took roles like "the organizational

maverick, the network facilitator, the transformational leader and the organizational buffer" (Kirkman et al., 2006, p. 300). While countries with high score in uncertainty avoidance will be reluctant if not completely avoid getting involved as movers of organizations, the countries that scored low in uncertainty avoidance will take necessary risks to improve their organizations. Implicitly, countries that are comfortable with uncertainty are more proactively innovative than countries with high uncertainty avoidance. Implicitly, volunteers from low uncertainty avoidance should engage in proactive ventures like negotiating new partnership ventures.

Technology

In environment fraught with head-to-head competition, economic, social, and political challenges, information technology (IT) has and will become the trigger of organizational success in the next decade especially in the areas of quality service, identification of revenue sources, fundraising and cost saving, research, volunteer identification, recruitment, education, and management in nonprofit organizations. A lot of literature point to the fact that there is a decrease in the number of volunteers and the amount of time people are willing to commit to volunteerism.

The common reason cited for this lack of time and commitment is that most volunteers are full-time employees who try to manage their time between taking care of their children and their elderly parents whose longevity is spurred with advancement in technology. Volunteer time is a real problem that can be solved by the application of IT.

The researcher believes that IT can augment the deficiency in volunteer time. For example, if IT is deployed, volumes of work could be completed within a short time. Volunteers make little or no effort for some of the donations that come to an organization as a result of IT. For example, social media was used to raise huge amount of money during Haiti earthquake of 2010 (Pepitone, 2010). They do not need to be on the computer or in the office to collect money and issue receipts for donations that come through the portal. Again, volunteers can work at the comfort and convenience of their homes if privacy code of the organization permits.

Furthermore, with technological advancement, virtual leadership is becoming common. However, the challenge for nonprofits leaders will be how to lead in an environment increasingly defined to include globalization, technology, and three generations of workforce. Positioning nonprofit organizations includes knowledge and utilization of standard and safe technological devices that facilitate organizational performance and sustainability.

Trend in Volunteerism

Furthermore, knowledge of the trends in nonprofits and volunteerism will equip nonprofit managers to position and reposition their organizations toward a sustainable performance (Ntamere, 2012). Positioning nonprofit organizations includes knowledge of trend in gender, racial, and age disparity in volunteerism. For example, consistently, women have been known to volunteer at a higher rate than their male counterparts. For example, in 2015, women volunteered at the rate of (27.8%) while volunteer rate for men was (21.8%).

Furthermore, people aged 35–44 and 45–54 volunteer at a higher rate than other age groups. It is important to note that Baby and Millennials fall into this category of higher turnout. On the same note, racially and ethnically, the white race has consistently volunteered at a higher rate (26.4%) than any other race, black (17.9%), Hispanic (15.5%). Additionally, people who are more educated volunteer more (38.8%) than those with lower level of education (26.5%) and married people volunteer at a higher rate than unmarried people (Bureau of Labor Statistics, 2016).

Awareness of the trend in volunteerism will be a leadership tool that will foster decision making and positioning of nonprofits to achieve sustainability. Chiagouris (2005) supports the consensus of other scholars on the position of nonprofits as agent of global economic development but was skeptical of nonprofits' ability to avail themselves the opportunities in Baby Boomer as volunteers. Implicitly, the next generation of nonprofits' leaders must have versatile leadership tools to engage in decision making that will result in sustainable operations that will advance their missions.

Opportunities and Challenges: Baby Boomers as Volunteers

The Baby Boomers (born from 1946 to 1964) are most likely to boost volunteerism. The Bureau of Labor Statistics (2016) on volunteerism indicated that Baby Boomers fall in the categories of those with high rate of volunteer services. This group of people is more talented and educated than their older counterparts and has wealth of experience than the Millennial or younger generation. Nonprofit leaders who want to benefit from the economic growth linked to volunteer services should know how to use volunteer services.

The group this paper puts on highlight, the Baby Boomers, will contribute more to organizations if they are deployed as board members or asked to play supervisory roles or assist organizations administratively. Skillfully, they gravitate toward planning and coaching, and they are highly tech savvy. The view of Baby Boomers as treasures that will help to emancipate nonprofits from financial hurdles was noted earlier. Chait, Ryan, and Taylor (2005) likened the recruitment of volunteer board members with intellectual, reputational, economical, and social capital to embarking on a capital campaign of high momentary value (Chait et al., 2005, p. 138). Despite the fact that some Baby Boomers will continue to work after retirement, there is a higher probability that most of the Baby Boomers will engage in volunteerism.

The retirement of Baby Boomers presents not only additional treasure but also additional pressure to nonprofits that are already stretched and stressed out on all fronts. Additional pressure because nonprofits have to deal with not only hiring, recruiting, and managing but also retaining the Baby Boomers and the millennial generations who are mostly skillful and knowledgeable in diverse areas. Gamble (2008) noted that nonprofit's pressure will include changes in leadership and management styles, as well as learning new skills required to deal with the evolving challenges.

The Need to Adopt Commercial Strategies in Nonprofits' Domain

Nonprofit leaders face tough decisions as they deal with complex challenging circumstances that buffet their organizations. A typical example is the recent governmental healthcare policy (Obama Care) that requires nonprofit health organizations to comply with a mandate that could be detrimental to their missions and values. Another leadership challenge includes the revocation of tax exemption status of many nonprofit organizations. For example, Guide Star newsletter of June 2011 showed that about 279,595 nonprofit organizations lost their tax exemption status; this number includes 13,218 nonprofit organizations in the state of Illinois, 33,733 in California, 21,468 in Texas, 19,408 in New York, 13,903 in Florida, etc. The loss of tax exemption is a leadership problem that has serious financial consequences.

The utilization of theoretical business decision-making models as an enhancement to integrated leadership will assist nonprofits to strategize their business operations within the realm of their missions. Importantly, the application of decision-making theories will capture shifting leadership styles associated with societal challenges as they are becoming complexly more of moving targets. Such theories include but not limited to rational choice, naturalistic, and bias models.

Integrated Leadership

This paper tries to describe integrated leadership as one that uses the best practices in leadership and organizational theories as springboard in conjunction with a global mind-set that crafts the business pressing needs of the next decade into its leadership practices. Dimensions of integrated leadership in researcher's view include integrity, cultural awareness, diversity, social responsibility, collaboration, honesty, authenticity. The researcher conjectures that business decision-making theories can enhance integrated leadership; this can be done by analyzing the traditional leadership styles with the aim of selecting the best functional leadership characteristics that will stand the test of time.

Globalization and rapid change in technological evolution pose unique problems as never seen in the traditional challenges of nonprofit world. Modern nonprofit leaders are challenged to have a global mind-set as technology dismantles cultural and geographical boundaries and shrinks distances with increase in networking and communication. Global nonprofit enhanced-integrated leadership for the next decade should not only generate compelling/spellbound and innovative vision based on their missions but they must also have the ability to market and exemplify the vision to a global constituencies. Vision marketer will definitely leverage the asset embedded in DSS.

Importantly, nonprofit leaders should not only be ready to invest in rapid evolving technology, but also be technologically savvy. Thus, the services of Baby Boomer volunteers who are generally educated, intelligent, and technologically and professionally savvy will be invaluable in this regard. Furthermore, global mind-set, network, technology, culture, and integrity, etc., should be parts of decision-making facets central to integrated leadership that will achieve growth and sustainability in nonprofit organizations. For example, nonprofit leaders should be conscious

of multiculturalism and its impact in their global business environment, their customer services, business alliances, and partnerships. The concern of leaders in various sectors, i.e., public, for-profit, and nonprofits organizations revolves around making result-oriented decisions that lead to sustainability. It cannot be over emphasized that decision making is central in translating strategies into actions that positively impact sustainability.

With scandals in public, for-profit, and nonprofit organizations and the speed with which such scandals spread around the world, ethical behavior and authentic leadership have become more important than ever. In the next generation of service, consumers and supporters are most likely to disassociate themselves from any nonprofit that is unethical.

Leadership

Leadership has always been the focal point of interest to organizations; it has gained more attention in recent times with the collapse of many institutions and companies like the Enron. Business environment poses a lot of challenges to corporations and nonprofit organizations alike. Such challenges include economic recession, dwindling donation and the collapse of financial institutions, disappearance of "good to great" corporations, government policy, speed of technology, global market, diversity of the work place, etc. Managers will play vital roles in nonprofits' sustainability through the use of a combination of different theories to help nonprofits survive environmental pressure. Increase in volunteer numerical strength through quality volunteer recruitment and management is likely to make nonprofits more sustainable.

Difference Between Leadership and Management

Leadership is hard to define; Stid and Brandach (2009) defined leadership as "the set of activities required to articulate an organization's vision and ensure that all its stakeholders will support the vision," and management is defined as "a set of activities required to ensure that an organization will reliably produce result" (Stid & Brandach, 2009, p. 36). Leadership "is a process whereby an individual influences a group of individuals to achieve a common goal" (Northouse, 2007, p. 3). Austin and Kruzich (2002)

view the relationship between leadership and administrative activities to be a matter of change of process. In the review of administrative text books, they found that the two concepts are used interchangeably by some texts (Austin & Kruzich, 2002, p. 123). The underlining concept in these definitions is decision making; it is decision that brings leaders to the stage and out of the organizational stage. It is through good decision that activities are harnessed into reliable results. Good decision influences group of individual to support organizational vision.

From the researcher's perspective, the difference between a leader and a manager is so slim; managers could be leaders, and leaders could also be managers. Chait et al. (2005) contend that board's and CEO's responsibilities are interwoven. The board develops organizational policy, hires CEO, and monitors the work of CEO. The CEO manages organizational internal activities with the help of employees and volunteers. However, the CEO helps in hiring (new board members) and firing board members just like the board hires and fires CEOs.

Sometimes board members engage in management especially in new organizations. For example, in some voluntary agencies there are no paid staffs; volunteers direct the organizational affairs from planning to execution stage (Riemer, Dorsch, Hoeber, Paskevich, & Chelladurai, 2004). Northouse (2007) seemed to have made clear distinction between leadership and management but noted that leadership and management share many things in common. Managers and leaders use influence, as well as work "with [other] people," and both set out to accomplish goals (Northouse, 2007, p. 9).

Managers share activities that are designated to leadership. However, Northouse (2007) contends that difference exists between leadership and management; one remarkable difference is that leadership dated as far back as Aristotelian age while management is the offshoot of industrial age in the twentieth century. Management came to ameliorate "chaos in organization and to make them run effectively and efficiently" (Northouse, 2007, p. 9). Management "produces order and consistency" [through] planning and budgeting, organizing and staffing, controlling and problem solving [while leadership] "produces change and movement [through] establishing direction, aligning people, motivating and inspiring" (Northouse, 2007, p. 10).

From the researcher's experiential perspective, the two concepts, "management" and "leadership," should be used interchangeably because a person can engage in leadership and management simultaneously. Managers

are generally viewed as people who do all the micro-managing of organizations, i.e., people who develop detailed organizational operations, while leaders deal with organizational vision and external activities. Managers and leaders receive similar education in both practice and theory.

The difference seems to be in terminologies. Financial manipulations and embezzlement could be avoided if both leaders and managers know how to compute and read financial statements. It is advantageous for leaders to be able to read, analyze, and interpret financial data instead of leaving it only to specialists. Managers should be able to seek out sources of revenue and develop relationships with the internal and external constituencies as well.

The researcher defines leadership as a two-way or multiple process of influence between or among individuals at the upper level of operation and those at the lower level of operation geared toward attainment of a common goal. The leadership of a person is powered by internal and external constituencies. For example, one could rightly say that President Obama or the USA killed Bin Laden or the US Navy Seal killed Bin Laden. Therefore, the killing of Bin Laden is a joint effort of levels of leadership.

Sometimes leaders take the credit for the work of the subordinates, and the work of the subordinate will not be possible without the leader's authorization. The president of the USA may wish that Bin Laden be captured yet may not be the one to do the capturing; he may give the order and fund yet the subordinates can give excuses and may not want to carry out the president's order because of the high risks involved. Therefore, leadership is a joint effort of people with a goal of which somebody must be designated as a spokesperson or a leader with the help of sub-leaders rightly called "a team." It takes the best team to keep organizations sustainable.

Leaders should give directives based on the expertise of a cross-functional team. If the expertise of the Navy Seal had considered the operation to be a mission impossible, the operation could not have been carried out. Recognition and acknowledgment of individuals and team contributions help to sustain viability. Global leaders for the future have to realize the importance of all-inclusive effort and shared victory or success. Definition notwithstanding, leadership is easily theorized than practiced. In real-life situation, it is hard to translate theory into practical terms. However, it is important to be explicit on roles and responsibilities, as well as do cross-training and acknowledge the efforts made at various levels of leadership or team effort.

The Traditional Leadership Styles in Brief

Despite the enormous literature on this subject, reports show that leadership practices have not changed much (Taylor, 2004). Nonprofit scholars have for years focused on the types of leadership styles relevant to nonprofits' sustainability. Such theories include transactional, situational, transformational, and servant leadership, the corporate level 5 leadership style. However, in practical terms none of the leadership theories suffices to meet the complex business challenges. As organizational environment becomes still more complex, more leadership theories will continue to emerge to crystalize the phenomenon and aid organizational response.

Transactional Leadership

Transactional leadership is historically viewed as task-oriented leadership that cares little about values, dedication, and the trust the subordinates have in the organization or its leaders. The focus is how much work the leader can get from the subordinate. Reward and punishment encapsulate the relationship between the subordinates and the leaders. That is, transactional leaders use reward and punishment as a way to enhance organizational performance. Subordinates' motivation is a reward to continue to exhibit accepted or expected behavior, and punishment is given to prevent unacceptable work behavior or performance.

As the name suggests, the transactional leader intervenes only when there is an eminent problem, generally called "management by exception leadership". In "passive management by exception the manager is unperturbed except in absolute necessity" (Harrison, 2011, pp. 93–94). Implicitly, organizational growth takes precedence over subordinates' growth. Investment in the subordinates, if any, will be executed with maximum financial security of the organization as a driving force. A transactional leader is most likely to apply punishment where transformational and servant leaders will apply caring, coaching, and empowerment.

Without a critical look at this leadership model, a quick conclusion is to get rid of transactional leadership from the modern leadership models since the needs of the subordinates or employees, which are crucial factors in modern business sustainability, are not taken into consideration. However, some scholars argued that the care transformation and servant leaders give to their subordinates is intangible reward when compared to the material reward transactional leaders give to their subordinates to ensure that they exhibit "expected behavior" (Egri & Herman, 2000).

Situational Leadership Style

The theory was originally called life cycle theory of leadership and later in 1977 changed to situational leadership theory (Graeff, 1983). The main factor that drives the leader's style is the task-maturity of the followers. The followers' task-maturity is of two dimensions, namely the ability to perform assignment, which relates to the level of education, skills, and practical experience, and psychological maturity which relates to motivation that springs from self-esteem and confidence. Followers are viewed as posessing little maturity if they have the desire to work but could not due to lack of skills. Contrarily, critics argue that a person who is motivated and ready to work but has no skill could be viewed as more mature than one who has talent but unwilling to work because of lack of motivation particularly if the person has interest to learn (Graeff, 1983).

The researcher supports the above argument because people who are willing to learn on the job can equally perform skillful tasks. However, Graeff's (1983) argument implies that if talent is not put to use, the person is not mature. The flaws in both arguments are the failure to recognize that maturity does not necessarily go with talent. A person may have PhD and still not mature in some aspects of life; the person's education may correlate with his or her responsibility but not with emotional or psychological maturity.

Additionally, people who have talents may not be willing to perform tasks associated with their talents if they are not motivated. Thus, the caring attitude of transformational or servant leaders brings out the best in their subordinates, as well as increases their productivity. The challenge lies on the leader to motivate both people who have the talents and unwilling to use them and train those who are willing but do not have the talent or skills. Again, inability to perform a task could be as a result of lack of clear job description.

The problems associated with situational leadership limit its utilization or application (Graeff, 1983). Taking the concept, "situational" literarily, its leadership style still applies in the present hyper business environment. The speed with which technology changes and imposes more challenge requires that people learn new skills to adapt to the situation. Technology and globalization have rendered some aspects of traditional mode of leadership irrelevant as situation changes and makes the response to the challenges situational or circumstantial. If the business environment changes, leaders should be able to adjust their resources (human and material) to meet the situation. Sometimes organizations

will be forced to downsize, or consolidate to meet the needs of the time; of course change or adjustments should not happen with every wind of change in the environment, hence the need for sophisticated intellectual decision making.

Servant Leadership Model

Servant leadership is rooted in the Scripture. For example, in (Matthew 23:11) Jesus challenged his disciples with this phrase "He who is greatest among you must be your servant" Jesus consistently exemplified his preaching; he "walk the talk." To drive the lesson home, in (John 13: 1–17) he humbly and symbolically demonstrated his teaching by washing the disciples' feet. This concept of servant leadership was promoted by Robert Greenleaf; Greenleaf's hands-on experience as AT&T executive for 40 years informed him on the best way to develop employees and increase their productivity (Hannay, 2009).

As the name implies, service is crucial in servant leadership theory. It is challenging for some leaders to transcend their selfish ends to give first priority to the needs of their subordinates. Servant leadership model emphasizes stewardship, quality service, and ethical principles in the application of power because they realize that the inherent power that emanates from serving others can move individuals and organizations beyond what they are capable of accomplishing, i.e., achievement of excellent result.

Most servant leadership and transformational principles have become part of the modern business prescriptions especially in the area of investing in employees, listening, and motivating them. Today's leadership, for example, is about how to empower employees to translate organizational vision, mission, and goal into success. In order to achieve high performance, modern leaders are expected to lead by example through being accountable, dependable, responsible, transparent, reliable, and trustworthy.

Russell and Stone (2002) marshaled out the components of servant leadership that were used in most management leadership literature, and these include but not limited to trust, modeling, pioneering, empowerment, honesty, integrity, humility (Russell & Stone, 2002, p. 146). Furthermore, Kouzes and Posner (2005) recommend similar attributes for future generation leaders, and these include inspiring a vision, modeling the way, challenging the process, enabling others to act, and encouraging the heart (Kouzes & Posner, 2005, p. 13).

Transformational Leadership Style

Caring, listing, empowering, etc., characterized transformational leadership. Transformational leadership, as the name implies, has the qualities to transform differences that could deplete the energies of diverse team of volunteers or workers and channel them into positive ideas needed to solve organizational problems (Mitchell & Boyle, 2009). Transformational leaders in Egri and Herman's (2000) study were characterized to be more open and value self-discipline more than other types of leaders.

Their comparative study of government, for-profit, and nonprofit environmental leaders highlighted that nonprofit environmental leaders exhibited transformational leadership style more than for-profit leaders. In that study, nonprofit leaders give more of personalized attention to their subordinates, as well as inspire and act as a role models; there were also differences in values between for-profit and nonprofit leaders (Egri & Herman, 2000, p. 591). Nonprofit leaders are strong advocates for change in governmental and community policies that could degrade the conditions of the poor and the marginalized.

Some nonprofit leaders embody transformational and servant leadership characteristics profiled by Egri and Herman (2000), Kouzes and Posner (2005), and other scholars. For example, transformational leaders generate compelling vision that scale through huddles of resistance to change; their personal conviction and honesty propelled the "support" and commitment of subordinates to them and to their visions and missions. Most of the nonprofits were founded by visionary leaders who were authentic, honest, caring, self-disciplined, self-effacing, and able to present compelling pictures to win the hearts of their subordinates.

St. Vincent De Paul, founder of the Vincentian Mission, and Mother Mary Charles Walker, founder of the Congregation of the Handmaids of the Holy Child Jesus, were some of these founders; their compelling vision passed the test of the time and still lives into the present age. They amass followers through caring, firmness, exemplification, authenticity, integrity, honesty, sharing power, and development of their followers. They used exotic symbolic images that not only portrayed their core ideologies but also captured people's appreciation and admiration.

Not only that these leaders crafted alternative strategic approach to problematic issues, their exemplification of values, i.e., "walk the talk" in Kotter and Cohen's (2002) concept, testified to their honesty and integrity. They engaged in risk ventures that have high returns. For example,

Vincent De Paul walked distances on foot, disregarding the impact on his health and transverse cultural and political huddles to take care of the underprivileged in different parts of the world. Charles Walker also left her cozy mother land of England and ventured into the unknown jungles of Africa to empower, encourage, and care for women and children. She opened successful projects for women and the poor in southern part of Nigeria specifically.

Again, despite economic, social, and political huddles, few nonprofit organizations have recorded consistent success. For example, the quantitative study of Ntamere (2012) on volunteer numerical strength and nonprofits' sustainability (measured by revenue, contributions, and assets) highlighted that some 501(c)(3) nonprofit organizations that had been in existence for decades strongly and successfully survived series of recessions and other challenges that could have put them out of existence. In the same study, strategic leadership differentiated sustainable from nonsustainable nonprofits. Implicitly, there are core organizational ideology, values, and strategies that stand the test of time, and organizations should seek out and guard jealously these core values and strategies that make other organizations successful in the face of mired of problems.

Critics might seek answer to why the researcher is advocating for integrated leadership style if these nonprofit leaders were able to accomplish extraordinary work that survived through many decades till the present time. The explanation the researcher partly subscribes to is that some nonprofits have gone on extinction, and others have lost their tax exemption status; frequent scandals, loss of care, integrity, and exemplification compounded by hyper-environment and speed of technological advancement create a market or leadership vacuums waiting to be filled. The researcher re-iterates that the utilization of enhanced integrated leadership will help nonprofit leaders for the next decade to navigate the multidimensional challenges toward sustaining their missions.

Additionally, the researcher argues that caring, inspiring, self-discipline, integrity, etc., listed under the transformation and servant leadership are not the prerogative of leaders alone to the exclusion of the subordinates. Some subordinates can be role models to their fellow subordinates and leaders can equally be inspired by their subordinates.

Level 5 Leadership Style

Collins (2001) made an in-depth study of about twenty-eight companies that have been in existence for fifty years and above to un-earth what leadership qualities made them sustainably great in the face of many problems such as "dog-eat-dog" or "cutthroat competition," evolving technology, governmental policies, recessions, etc. Some of the characteristics of level 5 leadership includes a combination of humility and professional will (Collins, 2001 p. 12), shyness and firmness in decision making. Level 5 leaders are quiet and self-effacing. These are leaders who are very passionate about success; they are ready to take risks, as well as take blame when things do not go as planned. For level 5 leaders, success is not for self-aggrandizement or self-glorification; success is celebrated as a team.

The application of level 5 leadership style seems to require a total overhauling of a good or bad company with the aim of making it a great company. Believing that the "right people" are the most important assets in organization, Level 5 leaders started by getting the right people into the organization while removing the wrong people who may hinder the success of organizational greatness. Good to greatness companies focused not only on how to achieve greatness, but they also identified what they should not do or what they should stop doing so as to achieve their goal.

Level 5 leadership consideration of putting the right people in the right position as its number one priority is contrary to many organizations that view formulation of vision and strategic plan as a pivot on which success revolves. Stockdale paradoxical prevalence paradigm demonstrated the perseverance and unyielding spirit level 5 leaders apply in the pursuit of success. Collins (2001) also used hedgehog ideology to explain of how companies should filter out unnecessary diversification of resources (human and material) that could be detrimental to organizational mission and success so as to focus on what the organizations are best at doing.

It is at the level of confrontation that some organizations disintegrate or move to a new level of reality that is most likely to bring success to their organizations. The "confrontation of brutal facts" and the removal of wrong people from positions prescribed by Collins (2001) could be executed by utilizing servant leadership and transformational principles of love and care. The strong determination to break through the statuesque is likened to "challenging the process" in Kouzes and Posner (2005)

transformational leadership style. Some of the level 5 leadership characteristics underscored some of themes that are also part of servant and transformational leadership styles. Such themes include honesty, humility, ethical, integrity, and authenticity.

From Greatness to Good, and to No More

It is important and sad to note that some of the good to greatness companies identified in Collins' (2001) study have gone on extinction due to lack of sustained greatness. Examples of such companies include Fannie Mae and Circuit City. They failed to sustain the momentum of greatness. Just as these companies never recovered, some of their laid-off staff never recovered from loss of dreams with its rippling effects on their families and other dependents.

It might be helpful to study why these companies failed. Some of the reasons for Fannie Mae's extinction include inability to meet up with competitors, wrong decisions in sale and acquisitions (interview with former staff, 2016). Some of the reasons for the failure of Circuit City, the second electronic company in USA, include poor customer service, inability to innovate or adapt to changes, and poor management of inventories. Both companies suffered from insolvency.

While scholars focused on the types of leadership styles used in both for-profit and nonprofit organizations, little or no study has been done on how nonprofit will survive in the next decade through the application of integrated leadership enhanced by decision-making models with the help of technology like DSS. There are different decision-making theories that can be of great help to nonprofits. This study will make a brief comparative analysis of three decision-making models, namely naturalization, rational, and bias with a focus on the radical choice model with the intent of helping nonprofit leaders draw useful insight. It will exemplify how rational choice theory (RCT) can be applied in recruiting volunteers.

A Brief Comparative Analysis of Business Decision-Making Theories

There are many decision-making theories; this study will focus on three of the theories. The three relevant theories that are related to decision making which can help nonprofits are: naturalistic decision making

(NDM), rational decision making (RDM), and bias decision making (BDM). NDM centers more on emergency while rational decision theory focus on following a process that will result in alternative line of action (Paton & Jackson, 2002).

Morrell's (2004) study suggests that RCT is dominant in business decision-making model while the application of NDM Theory is common among the firefighters, military personnel, and organizations that deal with natural and man-made disaster like the Red Cross. Bias theory seems to focus more on the underlying motives in both naturalistic and rational theories. Nonetheless, the three theories acknowledge the existence of challenges and uncertainties.

Rational Decision-Making Model

Morrell (2004) espoused RDM model since it elucidates some of the ambiguities in decision making. The prescriptions of RCT or RDM have gained support from empirical studies. Rational decision theory is a critical component of the two main management decision-making approaches: (a) normative decision, which utilizes logistics in statistical and economical operational rules (Shanteau, 2001). (b) Descriptive analysis segment of normative decision making is concerned with the analysis of the gap between expected outcome and the actual outcome of the decision made, which is contingent to future decision making (Shanteau, 2001).

In normative approach, a decision maker tries to decipher certainty decision from uncertainty decision outcomes. The decision maker should be aware that there are risks associated with uncertainty decision. Decision tree analysis (DTA) is used to make decision in uncertain situation (Golub, 1997/2000; Shanteau, 2001). As the name suggests, decision tree is graphically crafted to show alternative sequence of decisions as the branches of the decision tree. Each alternative decision is ascribed with expected value (EV) or EMV, which is the "average outcome value over all possible events" (Shanteau, 2001, p. 2). The decision maker will definitely choose the alternative with the highest expected (monetary) value. Decision tree model is used as a guide in making decisions in risky ventures such as new business location, public policy planning, urban planning, and marketing strategies (Shanteau, 2001, p. 2).

Certainty decision outcomes are usually classified as "riskless" multiattribute utility (MAU) "applies to decisions made with more or less certain outcomes" (Shanteau, 2001, p. 1). Referencing Gardiner and

Edwards (1975), Shanteau (2001) indicated that MAU is used to establish a utility value ascribed to each alternative decision with the intent of choosing a decision with the highest maximum value. The linear aspect of certainty outcome is utilized to "prescribe and describe judgment or value" ascribed to each alternative decision in certainty conditions. Studies have shown that random prescription of values/weight is as effective as the equal weight and optimal weight (Shanteau, 2001). Referencing the work of Goldberg (1970), Shanteau (2001) asserts that linear model could be used in health decision making, clinical diagnosis, graduate school admissions, etc.

Naturalistic Decision-Making Model

In NDM, there is no time to follow detailed, logical, and sometimes collaborative debates that generate number of goals as in RDM. At the upside scenario, there is cognitive and sequential process involved in decision making but on the downside "decisions are made without [engagement] in cognitive process and at times are even automatic" (Cohen, 2008, p. 101). One may argue that decision making has bias dimension to it even in automatic or emergent situation. For example, decision makers are overtly or covertly guided by their value judgments and interpretations of the situations, which are sometimes riddled with biases. The biases associated with qualitative research method for example emanate largely from interpretations.

The Quality of Decisions Made

From the perspective of the rational theory, it may seem that devoting enough time to decision making will result in quality decision making since decisions are made based on the best line of action emanating from alternatives. Contrarily, the protagonists of NDM contend that "quality of decision-making process is determined not by its logical consistency but by the quality of decisions which tend to emerge from the process" (Elstein, 2001, p. 365). In other words, quality decision making does not necessarily result from consistent sequential decision process.

The researcher contends that if leaders fail to use proper diagnostic questions and engage in critical analysis of possible alternatives before providing solutions, they may not achieve their goals or they may achieve undesirable outcome. A person can make quality decision within a split

second like in emergency situations without laying out the alternatives. In hospital setting for example, there is a process in place for patients brought through the emergency room. Some situations can be so overwhelming that the process may not work as planned.

Again, with series of natural and man-made disasters most organizations have put "emergency preparedness" in place to handle such situations. However, in some overwhelming situations, emergency preparedness may not suffice; they are augmented by automatic decision making. This may account for why some organizations thrive where others fail. It is obvious that the quality of decision making is also a determinant factor in good decision. Nonetheless, it is hard to determine when a person has made a good decision (one that yields desired result). For example, if a decision maker of an organization signs contractual agreement with another party that defaults, the organization suffers loss of time and money. Though the decision did not meet the expected result, it could be classified as "good" (Cohen, 2008).

Bias Theory Model

Edward, Scott, Ronald, and Elaine (1996) argue vehemently that rational and naturalistic decision theories seem not to have taken into consideration the level of judgmental bias that can be present in group discussion especially in the sequential development of decision process. Bias theory has naturalistic and rational choice dimensions especially in their application. Saha, O'Donnell, Patel and Heneghan (2008) argue that the decision to enact equal employment (EE) or equal employment opportunity (EEO) in many countries of the world was a rational decision not a naturalistic decision. However, the application of the legislature may not stand the scrutiny of bias theory. A critical analysis of the discrepancies between decision and implementation of such important declarations may highlight themes like bias, value, self-interest, interpretation, and perception of justice.

The researcher conjectures that managers may have to use different decision-making theories simultaneously depending on the situation. Some situations may warrant emergent decision making, while others may not be urgent and therefore require deliberation and generation of alternatives solutions to problems. In the application of decision-making models, morality and ethics act as checks and balance to ensure that decisions are made within the realm of nonprofits' missions and values.

Time-Critical and Non-time-Critical

A lot of studies focused on "time-critical and non-time-critical decision making" (Cohen, 2008, p. 100). Situations in most organizations lean toward time-critical direction since uncertainty and fierce competitions abound. Timing and speed are crucial in a highly competitive industry; for example, the first adopters of technology reaped more and faster economic benefits than non-adopters or late adopters of technological innovation (Eapen & Krishnana, 2009). Aldhmour and Shannak (2009) listed speed, cost, quality, and flexibility strategies as factors that help organizations to gain competitive advantage.

However, the researcher cautions that leaders of corporations should be shrewd especially when speed involves large-scale production in a highly competitive market; otherwise, they may incur obsolete stock pillage and loss of profit and market share. For example, Sony brought the original version of VCR before most of its rivals. However, to their greatest dismay, consumers gravitated toward VHS; consequently, Sony lost a major share of the market (Gilbert, 2001, p. 4). It is obvious that some companies that were first to launch new products were out-smarted by other companies that joined later in the race.

Furthermore, Federal Emergency Management Agency (FEMA) and Red Cross have had series of experiences dealing with victims of natural disaster; they are aware that the public look up to them for expedient response yet the wisdom of past experiences sometimes does not provide all the answers needed to respond appropriately to future eventualities. These two organizations were equally widely criticized for their slow response toward, e.g., Hurricane Katrina. The noble cause of providing relief and ultimately saving lives of victims of disasters, the speed of delivering relief services left much to be desired or regretted.

The speed of relief delivery could make all the difference between life and death. It is not only a matter of how much relief is targeted for disaster victims but how fast the relief items or products reach individual victims. If the relief never reached or got to the victims too late, the decision-making process of the organization may be faulty. However, the overwhelming nature or magnitude of some of the Hurricanes could not be overlooked; the magnitude could contribute largely to not meeting expectations.

Natural disaster like Hurricane or Tsunami has confounded the best of brains in planning strategies and in the appropriation of resources;

therefore, blames should be apportioned to these two agencies, FEMA and Red Cross with some reservations. Nonetheless, nonprofit leaders should have a bank of decision-making strategies to enable them to respond to natural disasters with a higher degree of success.

Cost-Effective Related

Bias theory is value related, while rational and naturalistic theories are cost-effective oriented. In naturalistic and rational models, the manager makes decisions that will likely maximize benefit or EMV. NDM appears contrary to the conventional RDM, which is defined as "a psychological process in which the decision maker chooses between various alternatives with the intent of reaching a maximal number of goals, while avoiding damage and unnecessary risk and by minimal amount of resources" deployed (Cohen, 2008, p. 101). However, in naturalistic setting, the choice a manager makes even in acutely limited time frame focuses on benefits though the full cost may not have full consideration.

Limitations of the Models

Due to time constraint, there was no exhaustion of existing literation on the topic. A thorough literature review would have given this topic the richness it deserves. Real-life situations have demonstrated the limitation of the conception of effective decision maker as expert that matches appropriate response to situations. The protagonists of NDM contend that it is vital to study life circumstances so as to craft strategies to deal with stress situations while engaged in high performance (Cohen, 2008). They also argue that real-life circumstances are not rampant to provide needed experiences and skills, but they occur in tremendous magnitude when they happen.

There is also a challenge to craft "mental models capable of reconciling knowledge of multiple goals with the collective expertise of those responding" (Paton & Jackson, 2002, p. 115) to emergencies. Managers can develop strategies to deal with emergency situations; for example, simulations are useful exercise that provides people with real-life scenario needed to respond to emergency situations. Central to disaster or emergency preparedness that could compensate for limitations in education or prior experience is development of innovative training (Paton & Jackson, 2002).

The researcher strongly believes that decisions are made according to the decision makers' values, perception, self-interest, and interpretation of what constitutes a good decision or judgment. Every decision involves judgment. All the three theories are intertwined. There is no all-encompassing effective tool to respond efficiently to all shades of emergencies in any discipline. In other words, one size does not fit all even in similar situations. It is important that managers learn how to make decisions in stressful and non-stressful situations. Decision making is a herculean task that faces organizations, managers, and individuals alike.

Additionally, the researcher contends that personal temperaments of decision makers may affect the choice of decision-making model. Some decision makers are quick in making decision even in non-emergent situations, while some people take their time to brainstorm and come up with alternatives before responding to situations even in emergency cases. Exigency notwithstanding, the ability to make quick decision may emanate from accumulation of experiences, skills in knowledge management, which helps decision makers to draw from their bank of innovative ideas and best practices. It may also come from intuitive ability to make decisions instinctively.

The researcher does not claim to have come up with a panacea for business or organizational decision-making problems but attempted to venture into the realm of integrated leadership and decision making as a help to leaders of organizations while encouraging more study on the subject.

Nonprofit Leaders and Decision Support System (DSS)

Decision Support System, i.e., an "interactive computer based systems that help decision-makers use data and models to solve ill-structured, unstructured or semi-structured problems" (Sprague & Carlson, 1982, as cited in Power, 2000, ppt. 4), will be of great importance in linear certain outcome. DSS assists decision makers to work with multiple and large databases. For example, data-driven DSS "emphasizes access to and manipulation of large databases of structured data …" (Power, 2000, p. 9), while model-driven DSS "use data and parameters provided by decision-makers to [enable] them in analyzing a situation but they are not usually data intensive" (Power, 2000, p.11). Innovation-based strategy applies decision skills of the past into the current problem-solving

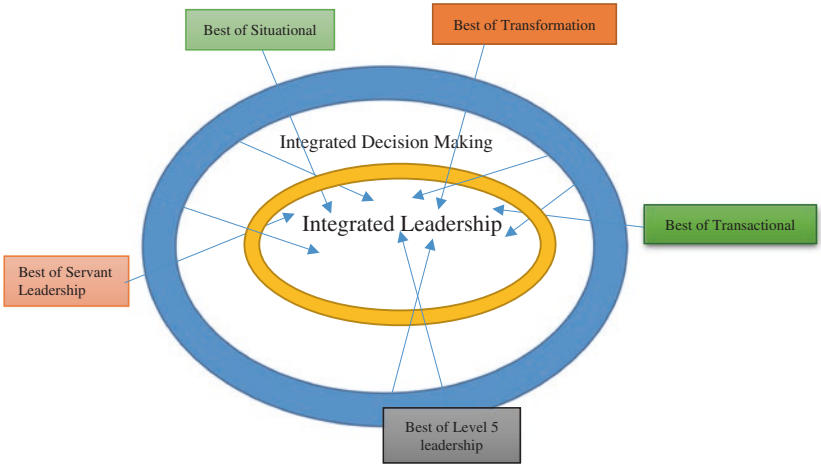


Fig. 9.1 Integrated leadership model

decisions. The adaptation or utilization of past decision pattern in the present problem solving gives a decision maker not only leverage in controlling risk but also in the ability to avoid the pitfalls in the decision-making process.

Document-driven DSS or knowledge management system gives managers competitive leverage if they are able to observe patterns and trends in their field and apply appropriate intervention strategies (Stanescu, Chete, & Giurgiu, 2009). In medical field, for example, knowledge-oriented support system (DSS) consists of information on diseases, their symptoms, and cure. It is cumulative information that sometimes but not always goes with stringent laws (Gaindric, 2009).

The use of DSS can enhance decision makers' skills in decision making, as well as equip them with new perception of their career as they gain deeper knowledge from experts. As a result, DSS can increase one's level of confidence in theoretical-based decision (Gaindric, 2009). Group support system is computer-based system that helps groups to solve problems; Groupware includes document sharing, electronic communication, and series of group activities. Inter-organizational or intra-organizational DSS is of great service to organizational stakeholders (Fig. 9.1).

How to Use Rational Choice Decision Making to Enhance Leadership

Organizations, powered by a cross-functional team, should analyze the various leadership styles using rational choice decision model to choose the best alternative qualities or characteristics in each of the traditional leadership theories and mesh them into what the researcher called "integrated leadership style." The best alternatives should be based on what worked best and will work best in practical future terms. The utilization of DSS is vital in data storage, documentation, retrieving information, and observation of pattern of best practice. Replication of best practice is part of good leadership style. At the point where the integrated decision model arrows intersect the leadership arrow, the best alternatives with the highest ranks (0–5 or 0–100) emerge into the integrated leadership circle after analysis of the leadership characteristics using integrated decision-making model. Integrated decision making, because in each of the analysis, the bias theory

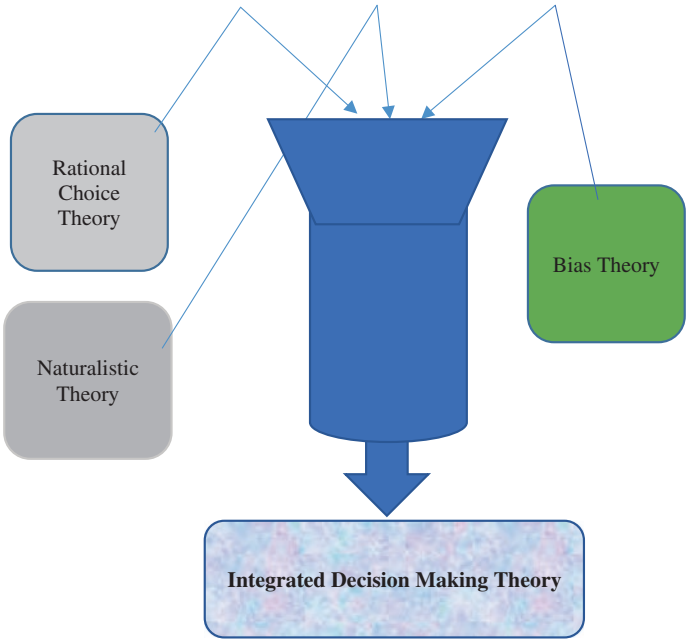


Fig. 9.2 Integrated decision-making theory

will play vital part on the value and ethics surrounding the choice made. The naturalistic model will be used to analyze the urgency of the situation at hand for the selection of the leadership characteristics that will work best.

From Fig. 9.2, the extraction of integrated decision-making theory was done by meshing or pouring the various theories in a funnel, ground in a cylindrical-shaped receiver through unleashing brain energy or automatic decision making mixed with bank of innovative ideas fueled by research. In any business venture, the urgency of the event must be ascertained, the competitors' strategic move must be analyzed, and the criticality of time must be determined to know what strategy or solution to apply. A close look at the integrated decision-making box shows its multicolor resulting from the different colorful strategies embedded in each of the theories.

Strategic Recruitment of Volunteers Using Integrated Leadership and Decision-Making Models

All volunteer work is valuable; some organizations have needs for all classes of volunteers; some are racially diverse and have to look for volunteers of diverse racial background. Organizational need of volunteers differs, but almost all nonprofit organizations have need for board of directors. Strategic recruitment requires that volunteer recruiters should first think in the direction of what race, age, gender, and level of education are most likely to volunteer to meet their needs (Fig. 9.3).

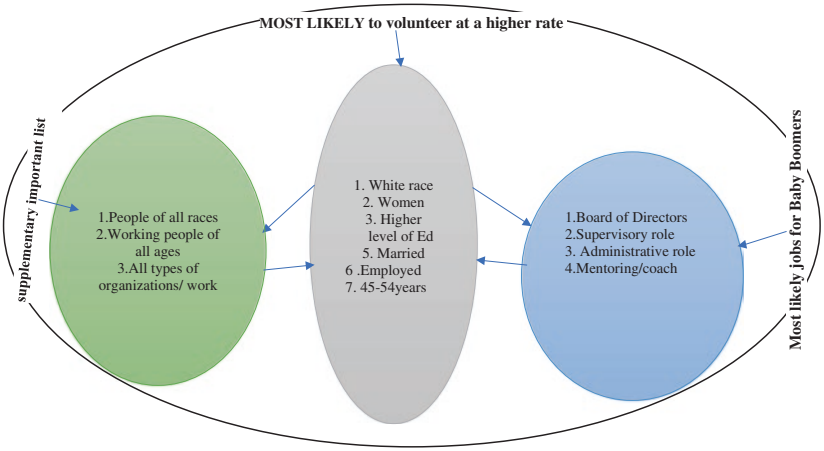
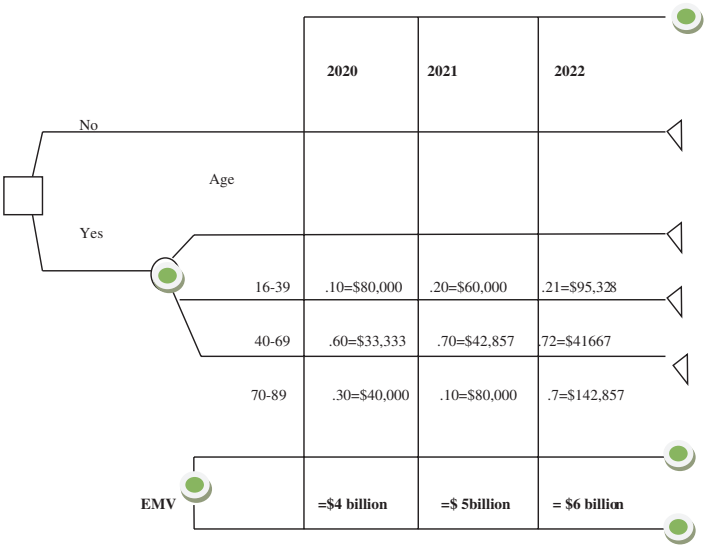


Fig. 9.3 Tips to facilitate stategic volunteer recruitment

Exemplification of Rational Choice and EMV of Nonprofit

Rational and naturalistic decision models may be applied in recruiting volunteers based on rational choice of age range that could maximize revenue or EMV in relation to IT. Maximization of EMV through volunteer technological recruitment targeting more on Baby Boomers is illustrated in Fig. 9.4.

Solving a decision problem that maximizes EMV is not an easy task. The EMV diagram, using the scale of (0–100%), shows that the older generation of volunteers (60–80) has a higher point (.30) and will generate more revenue than the younger generation (.10) in 2020. By 2021,



(Adapted from Golub, 1997)

EMV= 2020= .10 x $80,000+.60 x $33,333+.30 x $40,000 = ($800,000+$2b+$1.2b) =$4 billion

EMV=2021 = .20 x $60,000+.70 x $42,857+.10 x$80,000 = ($1.2b+$3b+$800,000) =$ 5billion

EMV=2022 = .21 x $95,328+.72 x$41667+ .7 x $142,857 = ($2b+$3b+$1b) = $6 billion

Fig. 9.4 Decision analysis to maximize EMV through volunteer recruitment targeting more on Baby Boomers

most traditional volunteer work of paper and pen will be overtaken by computerized data management. Gravitation toward technological data processing and management will pose a big challenge to those in the age range of 60–80 who may not be keen to engage in technology education as the Baby Boomers. Thus, their number will reduce while the number of the younger generation (16–39) will increase. Recruiting effort yielded more of the younger and episodic generation because they are technologically savvy than the older generation (60–80). However, the Baby Boomers have a higher prospect not only in administration but also in technology, as well as in tremendous growth in number.

The EMV diagram shows that the younger generation of volunteers aged 16–39 has a higher EMV of $925 than the older generation volunteers (60–80) that have $825 since they are more technologically savvy than the older generation. However, the radical decision favors the Baby Boomers because they have double advantages over the other age groups (in terms of administrative and technological skills) and their EVM is $6840. In the above example, a radical choice was made after considering the alternatives with a focus on cost and benefit.

In the above illustration, the choice of Baby Boomers is obvious because their EMV is higher than other age groups. Based on the RCT, evidenced in the examples above, nonprofit leaders for the next generation will do well to consider increasing the numerical strength of the Baby Boomers who will not only provide technological services but also expert skills and knowledge in administration and leadership that will ensure the survival of nonprofits in the next generation.

Risk Involved

As stated earlier, nonprofits are not immune to competition in the marketplace. Cultivation of Baby Boomers will not be achieved without some risks. The highest amount a strategist is ready "to pay in order not to face a risk is, in a sense, the value of the risk to that individual" (Golub, 1997, p. 136). His view paralleled the economic concept of opportunity cost. The opportunity of securing high performance through deploying the services of the Baby Boomers is the cost (risk) an organization is willing to incur in procuring technologies and providing on-going training or upgrading and other incentives to the Baby Boomers.

(RP = risk price; EMV = expected monetary value) (ER = expected risk; ZR = zero risk; NR = negative risk). Every venture has a risk; a greater risk will be involved if nonprofit managers fail to secure the services of the Baby Boomers, i.e., they may suffer a higher risks of going into liquidation or deficit. Assuming that the cost or risk a group of nonprofit organizations in Downtown Chicago are ready to pay (Certainty Equivalent—CE) in 2020 to secure the services of Baby Boomers (that yields $2 billion) is $200 million, the risk premium = EMV − CE, ($2b − $200m) will be $1.8b. In 2021, the risk premium + EMV − CE ($3b − $300m) = $2.7b. In 2022, EMV − CE, ($3.5b − $3.5m) = $3.1b. Premium risk is based on the Baby Boomers' contribution to the overall EMV.

Leaders and Ethical Decision Making

Ethics has been in existence since the prehistoric time down to Aristotelian and Platonic age. The Old Testament bible encapsulates chronicles of good and bad kings. Globally, in modern times, there are series of stories and documentaries of good and bad people at various levels of leadership. Strong and "weak presidents" (Northouse, 2007, p. 341) also exist. The complexity of business world requires honest, capable, ethical, intellectual, and sophisticated leadership, leaders that will bring global perspective to their strategy so as to meet the growing challenges. The performance of corporations hinges on their leadership. Leadership gives organizations characteristics and image they present to the shareholders and to the public.

Ethics is implicitly or explicitly part of business operations and could not have been more important than in the modern business environment with series of scandals. Therefore, ethics is critical component of decision making; it provides guidelines on business operations.

Sustainability and profitability are crucial part of business operations; that could account for why some organizations are no longer in existence. Quest for sustainability is resulting into amalgamation or alliance and outsourcing of businesses around the world. Since organizational sustainability is a determinant factor in managers' promotion and bonus allocations, sometimes managers are faced with ethical challenges that could compromise their integrity and mar organizational or personal goals. Authentic leadership surpasses a combination of transformational

and ethical leadership. "Authentic leader demonstrate self-awareness, relational transparency, internalized moral perspective and balanced processing" (Goldsmith, Greenberg, Robertson, & Hu-Chan, 2003; Walumbwa, Avolio, Gardner, & Perte, 2008, pp. 1, 94).

Some Recommendations to Prevent Unethical Decision Making

- Keep the mission in view, i.e., check whether organizational decisions reflect organizational mission.
- To prevent unethical decision making, leaders should follow the ethical standards of their profession and organizational policies.
- Be considerate of the needs and safety of customers.
- Organizations should use a combination of decision-making theories or models since no one-model-fits-all situations.
- Identify all the stakeholders and engage at least, a cross section to ensure collaborative participation and consensus in decision making.
- Communicate ethical information to stakeholders.
- Develop information management system or DSS to ensure effective decision making.
- Provide personal and professional development including training on ethical issues; constantly remind stakeholder their ethical obligations and rights.
- Follow federal, state, and local laws on issues relating to organizations operations, e.g., EEO.
- Be abreast with trends, e.g., federal and organizational policies.
- Goldsmith et al. (2003) stipulate that leaders should "speak up" when there is need to do so.
- "A Single spokesperson for the organization should be identified" (Barbeito, 2004, p. 16) to ensure accuracy and consistency especially when providing information to the media.
- Ensure safe and supportive environment and provide protective equipment.
- Always remember that the end does not justify the means.
- Remember that unethical behavior has consequences.
- Be agent of positive change.

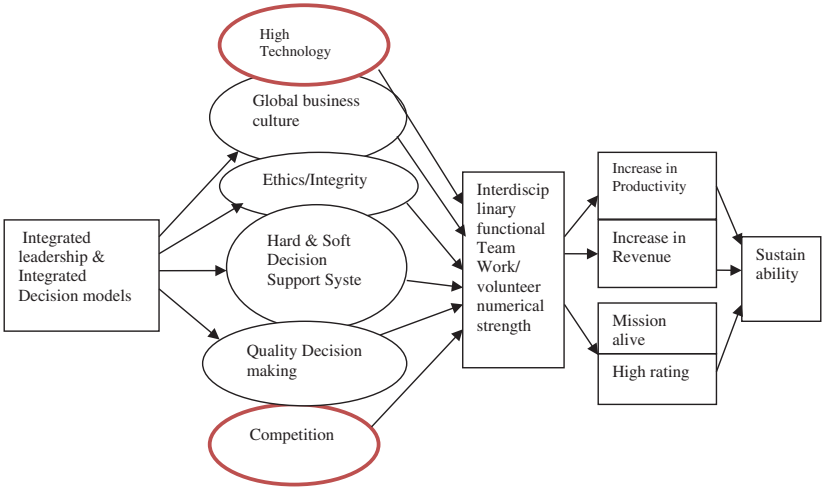


Fig. 9.5 Key to successful nonprofit decision making

In Fig. 9.5, technology and competition are uncertain events. DTA is used to make decision in uncertain situation (Golub, 1997/2000; Shanteau, 2001). People from cultural regions that scored low in uncertainty avoidance in Hofstede's study could be deployed to champion decision making in uncertain events. While people from collectivistic culture could generate more ideas in brain storming, they can tap ideas from their In-Group or network (Kirkman et al., 2006). Knowledge and data-driven support systems could be deployed to assist decision makers. While some decisions encapsulated in the key to successful nonprofit leadership can be made with comparatively high level of certainty, the direction of technology and competition are fraught with high level of uncertainty. Leaders can avoid unethical decision making by following organizational policy and professional standards. Organizational internal problems have been identified as risk factor to the implementation of total quality management (TQM) (Johnston, 2008). In order to survive in competitive environments, leaders must take care of internal problems. Successful leadership requires a collaborative effort of all the organizational members; quality decision making that results in

Table 9.1 Characteristics of sustainable and nonsustainable nonprofits

Sustainable nonprofits	*Nonsustainable nonprofits*
Focus on organizational mission	Make little or no reference to organizational mission
Follow professional and organizational policy without neglecting societal policy	Make no reference to professional and organizational policies
Utilize integrated decision-making theories	Do not apply decision-making theories
Consider multicultural dimensions of organization as strength and asset	View multiculturalism as a threat to be avoided
Integrity and transparency are integral part of the organization	Play down on integrity and transparency
Formulation of healthy network with external constituency	Negligence of good relationships and networks
Emergency preparedness in place	No emergency preparedness
has leadership with a conscience	Capitalism without a conscience
Has talents and ideas in the bank, value creativity and innovation	Do not identify talents do not have bank of ideas
Engage in knowledge enhancement and management	Play down on knowledge management
Recognition and affirmation of individual and teamwork. Celebration of success as a team	Misappropriation of team success to self
Utilization of integrated leadership style	Myopic focus on one leadership style
Ability to adapt to important changes that enhance sustainability	Hard to adapt to changes that result in sustainability
Ability to recast strategic plan to capture changes	Utilize one-size-fits-all mentality
Have trans-generational skills to handle emerging future workforce	Lacks focus on the complexity of future leadership

increased productivity and increase in revenue should involve at least a cross-functional team of all the organizational members or departments. Cross-functional team is gravitating toward inter-disciplinary team as the environment becomes so complex. Implicitly, in future people will be forced to learn from other disciplines other than their specialized field of study. Continuous education and training will ensure that organizational workforce learn the skills needed to align their organization with necessary changes needed to be made to stay sustainable.

Some of the characteristics that differentiate sustainable nonprofit from nonsustainable nonprofits are shown in Table 9.1.

Managerial Implications

It is imperative that future nonprofit leaders will face a herculean task in leading and managing three to four generational workforce. Therefore, the utilization of integrated leadership model enhanced through the application of integrated decision-making modes will be of great importance to nonprofits. The realization that leadership will shift from the center to the heart of organizations and the knowledge that members of organizations are agents of innovation and success is a must for future nonprofit leaders. The knowledge and utilization of technological tools like DSS are equally important. Knowledge of environmental challenges including the challenges of internal, local, and global constituencies will help nonprofit managers to make decisions that will position their organizations to achieve sustainability. The application of integrated leadership in nonprofit will enrich sustainability if geared toward recruitment and management of skillful and knowledgeable employees and more importantly volunteers who can boost the EMV of the organizations.

Baby Boomers, Millennial, and post-Millennial are assets nonprofit organizations need to maintain sustainability. Furthermore, this study will help nonprofit managers to strategically allocate scarce resources in ways that will maximize volunteer productivity. In nonprofit organizations, decisions may include acquisition of technology and improvement of Web pages to help volunteer services to become more productive. Increased utilization of DSS in nonprofit organizations will enhance productive decision making and productivity by the application of integrated leadership enhanced by integrated decision-making models, as well as monitoring trends in volunteerism.

A nonprofit's good reputation in adherence to its mission coupled with the provision of quality service at a comparatively lower price is an asset. For example, an organization that observes ethical guidelines and establishes good reputation will draw people (donors, volunteers, supporters, and clients) to advance its mission. Managers will understand that good reputation and long-term sustainability is better than immediate gratification of ill-gotten riches and short-term sustainability. This study will help managers in making quality decision concerning their organizational sustainability through allocation of resources especially in the areas of technology and training, strategic volunteer recruitment, and management. Furthermore, this paper will challenge nonprofit leaders, as well as the government leaders of developing countries to build and maintain local and national databases for volunteer contributions and reflect such in the national GDP.

Tips for Future Leaders

The researcher earlier described leadership or management as a two-way or multidimensional influence between or among individuals at the upper and middle levels of operation and those at the side and lower levels of operation geared toward the attainment of a common goal. Hence, future global leaders especially those at the top level should not view themselves as the only people that make good decisions. In other words, formulation of vision or organizational policy will not be the prerogative of only the leaders; every motivated member of the organization should know the current position of the organization and will have the passion or zeal to visualize a sustainable direction for the organization.

Furthermore, leaders should have the humility to acknowledge and tap the talents their employees bring to the workplace. Therefore, teamwork and formulation of a cross- or interdisciplinary functional team are crucial. Future leaders should realize that workers who translate theory into practice are the ones who usually identify problems easily and most often they are the ones who provide on-the-spot solution to the problems they encounter. Future leaders should be aware that some worker's creative energy is unleashed when they face unfamiliar problems or puzzles.

Those spontaneous solutions could be crafted into seminars and continuous education of the workforce. These spontaneous problem solvers can be called "ad hock fixers" emanating from natural giftedness. These people are not necessarily leaders but people who work directly with clients. Bringing individual encounters to a functional or dynamic group or team for analysis and feedback may result in harnessing of new ideas. In order words, problem solution resides within every member of organizational workforce.

Let the leader be warned that they may not harness these talents if the workplace is hostile or unfriendly and more importantly if the workforce is not motivated and respected. Caring and "encouraging the heart" in Kouzes and Posner's (2005) words are still part of leadership strategy that resonate with many workforce. In future, great leaders of great organizations will see business departments become family oriented, i.e., organizations may start functioning more like a family. Workers will be energized not only by leaders' acknowledgment of their contributions to the organization but also by leaders' and co-workers' concern about their needs—e.g., professional growth, family, and otherwise.

Furthermore, since no leadership suffices to meet the demands of future global business in both nonprofit and for-profit organizations, the utilization of enhanced integrated leadership model will harness the ingenuity of not only the Baby Boomers but also the Millennial and post-Millennial generations that are most likely to pose complex leadership dilemma in the future. Again, since institutions are becoming more diverse than ever and the population of clients they serve are also increasingly more diverse than before, future global leaders or survival in the next decade's business environment requires that leaders and employees interact, appreciate, and learn different cultures other than their own.

Positioning nonprofits includes being true to their missions. Adherence to the unique core ideologies that differentiate them from one another and from other nonprofit organizations is crucial. Leading nonprofits in the future includes the ability to imbibe the immutable charisma that identifies them to the public, as well as to the ability to communicate their missions to the public and interested parties for possible by-in and support.

Utilization of integrated decision-making model can help future nonprofit leaders to maximize their EMV and invariably increase their organizational sustainability.

Additionally, in the past, change is driven mainly by leaders, top to bottom; Chait et al. (2005) contend that structural approach is ineffective and no nonprofit organization would wish to function bureaucratically. Their line of thought is grounded in modern leadership practices for global leaders of the future, i.e., leadership devoid of top-down traditional leadership style. Simple organizational structure and "adhocracies" enhance innovation and acceptance of organizational change (Egri & Herman, 2000, p. 578). However, Chait et al. (2005) are aware that without bylaws organizations would be in constant chaos; implicitly, they are advocating for a balance in the use of leadership styles. In future, change could be initiated by those at the lower level of management, as well as by those on the side of organizations. In recent times, around the world, some of the political changes are driven by the masses especially those who feel marginalized in the share of national resources.

Figure 9.6 shows leadership interaction at every intersection; leadership may be shifting from top to bottom concept to a cross-central, cross-left, right, up, and down functional interdisciplinary teams. One may also call it vertical, horizontal, triangular, and rectangular functional team leadership.

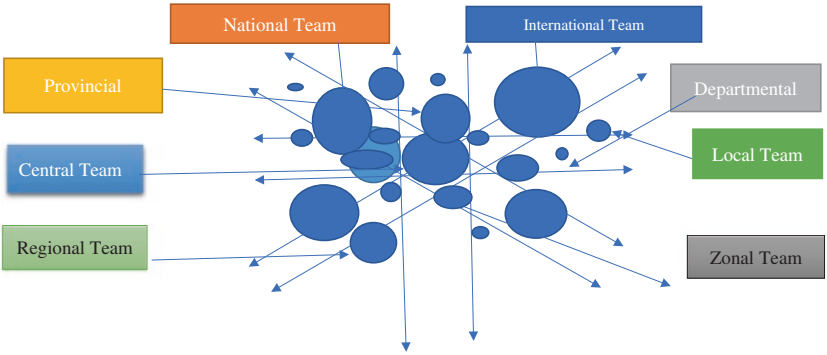


Fig. 9.6 Inter-disciplinary functional team leadership

Leadership in Fig. 9.6 shows that leadership is at the heart of the organization not at the head of the organization and so will future leadership be. The circles represent teams or interdisciplinary teams of different sizes and the teams may have sub-teams depending on the size of the organization. Furthermore, global mind-set, network, technology, culture, integrity, etc., should be parts of decision-making facets central to integrated leadership that will achieve growth and sustainability in nonprofit organizations as business environment becomes more complex. For example, nonprofit leaders should be conscious of multiculturalism and its impact in the global business environment, as well as customer service, business alliances and partnerships. Additionally, future leaders should be aware that cultural tolerance and appreciation will flourish to make organizations sustainable.

Cross- or interdisciplinary motivational team will make organizations thrive. Motivational team will find new ways to make their organizations sustainable since they feel that they have a stake in the organization and their livelihood mainly depend on the organization they serve. Open mindedness and teaching or coaching leadership programs will evolve. In other words, leaders should be able to learn from their employees, as well as teach or coach their employees. Finally, clear communication and education play vital roles in the links at various levels of interdisciplinary functional teams. In the age of cyber-attack, organizations should protect and guard against social engineering and hacking activities.

Summary

Nonprofits' sustainability hinges on the utilization of integrated leadership style enhanced by integrated decision-making models. Cultivation of volunteers and strategic use of their time, intellectual, social, and cultural capital involve strategic decision making. Sometimes the twists and turns of disaster or challenges allude organizations and some fail to function adequately to rebound during major changes. Therefore, positioning and re-positioning of nonprofit organizations is crucial to meet the challenges.

The application of integrated leadership model, enhanced decision models, and DSS will help organizations to maximize EMV. Given that Baby Boomers are highly sophisticated in their talents, skills, and motivation, scholars who are experts on aging postulate that nonprofit organizations need to adjust their strategies to offer Baby Boomers attractive opportunities (Foster-Bey et al., 2007). Hence, the application of integrated leadership style will meet the challenges involved in recruiting, managing, retaining, and planning activities that will result in high productivity and sustainability. Offering Baby Boomers the challenge of continuous knowledge enhancement and professional development opportunities and crafting cost-effective health insurance pool for the Baby Boomers will reduce attrition and the quest for continuous employment.

As noted earlier, in the next decade, the workforce will mainly comprise of about three generations, namely Baby Boomers, Millennial, and post-Millennial; therefore, trans-generational skills are required by future leaders to handle the complexity of emerging workforce. Sophisticated leadership tools should be crafted not only to accommodate but also to harness the ingenuity of the Millennial and post-Millennial generations that are most likely to pose complex leadership dilemma in the future.

Again, understanding the implications of ethics, competition, globalization, and technology is another crucial asset to the leadership of an organization (for-profit or nonprofit). Global business leaders must have a combination of intellectual and emotional sophistication and well-diversified portfolio comprising of technological, ethical, cultural, and a combination of decision theories coupled with utilization of DSS necessary for competitive leverage in the nonprofit world.

Finally, integrated leadership enhanced by integrated decision models will gravitate toward the heart of organizations comprised of functional and interdisciplinary teams at all levels through on-the-sport diagnosis, communication, research, education, to capture and proactively and reactively provide response to the changes and challenges of business environment.

References

Aldhmour, M., & Shannak, O. (2009). Effective utilization of information and communication technology and its impact on competitive advantage. *European Journal of Scientific Research, 29*(3), 302–314.

Austin, M. J., & Kruzich, J. M. (2002). Assessing recent textbooks and casebooks in human service administration: Implications and future direction. *Administration in Social Work, 28*(1), 115–137.

Barbeito, C. L. (2004). *Human resource policies and procedures, for nonprofit organizations.* USA: Wiley.

Bennett, R., & Kottasz, R. (2001). Advertisement style and the recruitment of charity volunteers. *Journal of Nonprofit & Public Sector Marketing, 8*(2), 45–63.

Bureau of Labor Statistics. (2016). *Volunteering in the United States, 2015.* Retrieved November 2017, from https://www.bls.gov/new.release/volun.nr0.htm.

Catholic News Agency (CNA). (2017). *Little Sisters face new lawsuit over their HHS mandate exemption.* Retrieved November 26, 2017, from https://www.catholicnewsagency.com.

Chait, R., Ryan, W., & Taylor, B. (2005). *Governance as leadership.* London, USA: Wiley.

Chiagouris, L. (2005). Nonprofit brands: Come of age: Nonprofit branding. *Marketing Management, 14*(4), 30–33.

Cohen, I. (2008). Improving time-critical decision making in life-threatening situations: Observations and insights. *Decision Analysis, 5*(2), 100–110.

Collins, J. (2001). *Good to greatness.* New York: HarperCollins.

Eapen, A., & Krishnan, R. (2009). Conform or rebel: When does keeping to the rules enhance firms' performance. *Canadian Journal of Administrative/de I'Administration, 26*(2), 93–171.

Edward, W. F., Scott, Ronald, J. W., & Elaine, S. S. (1996). The impact of group discussion on the theory-perseverance bias. *The Journal of Social Psychology, 136*(1), 85–98.

Egri, C. P., & Herman, S. (2000). Leadership in the North American environmental sector: Values, leadership styles, and contexts or environmental leaders and their organizations. *Academy of Management Journal, 43*(4), 571–604.

Elstein, A. S. (2001). Naturalistic decision making and clinical judgment. *Journal of Behavioral Decision Making, 14*(5), 353–384.

Foster-Bey, J., Grimm, R., & Dietz, N. (2007). *Keeping baby boomers volunteering.* Washington, DC: Corporation for National & Community Service.

Frumkin, P. (2002). *On being nonprofit: A conceptual and policy premier.* Cambridge, MA: Harvard University Press.

Gaindric, C. (2009). Decision support systems in ultrasound diagnostics. *Computer Science Journal of Moldova, 17*(3), 51.

Gamble, J. L. (2008). Leadership trends in the non-profit sector: A North American sample of United Way Executive Directors (*Dissertation*). *ProQuest Management, 14*(4), 30–33.

Gardiner, P. C., & Edward, W. (1975). Public values: Multiattribute utility measure for social decision making. In M. F. Kaplan & S. Schwartz (Eds.), *Human judgement & decision process.* NY: Academic Press.

Gilbert, T. (1993). "Faster! Newer!" is not a strategy. *Society for the Advancement of Management, 58*(4).

Goldberg, I. R. (1970). Man versus model of man: A rationale, plus some evidence for method of improving on clinical inferences. *Psychological Buletein, 73*(6), 422–432.

Goldsmith, M., Greenberg, C. L., Robertson, A., & Hu-Chan, M. (2003). *Global leadership: The next generations.* USA: Prentice Hall.

Golub, L. (1997). *Decision analysis: An integrated approach.* Canada: Wiley.

Graeff, C. L. (1983). The situational leadership theory: A critical view. *Academy of Management Review, 8*(2), 285–291.

Hannay, M. (2009). The cross-cultural leader: The application of servant leadership theory in the international context. *Journal of International Business and Cultural Studies*, *1*, 1–12.

Harrison, J. L. (2011). Instructor transformational leadership and students outcomes. *Emerging Leadership Journey, 4*(1), 82–136. Regent University *School of Global Leadership & Entrepreneurship.*

Hofstede, G. (1980). *Culture's consequences: International differences in work-related values.* Beverly Hills, CA: Sage.

House, J., Hanges, J., Javidan, M., Dorfman, W., & Gupta, V. (2004). *Culture, leadership, and organizations.* Thousand Oaks, CA: Sage.

Javidan, M., House, R. J., Dorfman, P. W., Hanges, P. J., & De Luque, M. S. (2006). Conceptualizing & measuring cultures and thier consequences: A comparative review of GLOBE's & Hofstede's approaches. *Journal of International Business Studies, 37*(6), 897–914.

Johnston, R. (2008). Internal service—Barriers, flows and assessment. *International Journal of Service Industry Management, 19*(2), 210–231.

Kirkman, B. L., Lowe, K. B., & Gibson, C. B. (2006). A quarter century of culture's consequences: A review of empirical research incorporating Hofstede's cultural values framework. *Journal of International Business Studies, 36*(3), 285–320.

Kotter, J. P., & Cohen, D. S. (2002). *The heart of change.* Boston, MA: Harvard Business School Press.

Kouzes, M., & Posner. (2005). *Leadership challenge 2002.* San Francisco, CA: Jossey-Bass.

Lindenmeier, J. (2008). Promoting volunteerism: Effects of self-efficacy, advertisement-induced emotional arousal, perceived cost of volunteering, and message framing. Department of Business Administration. International Society for Third Sector Research and Johns Hopkins University. Published online. Retrieved June 2, 2009, from EBSCO database.

Marcus, A. A. (2005). *Management strategy*. Minneapolis, MN: McGraw-Hill.
Mitchell, R. J., & Boyle, B. (2009). A theoretical model of transformational leadership's role in diverse teams. *Leadership & Organization Development Journal, 30*(5), 455–574.
Morrell, K. (2004). Decision making and business ethics: The implications of using image theory in preference to rational choice. *Journal of Business Ethics, 50*(3), 239–252.
Northouse, P. (2007). *Leadership theory and practice*. London: Sage.
Ntamere, C. O. (2012). *Volunteer numerical strength, recruiting and managing volunteers as a measure of nonprofit's sustainability* (Doctoral dissertation). ProQuest Dissertations and Thesis (Accession Order/Publication #3536443).
Patel, L., Perold, H., Mohamed, S. E., & Carapinha, R. (2007). Five country study on service and volunteering in South African. *Center for Social Development*. St. Louis, USA: Washington University.
Paton, D., & Jackson, D. (2002). Developing disaster management capability: An assessment center approach. *Journal of Disaster Prevention and Management, 11*(2), 115–122.
Pepitone, J. (2010). Twitter mobilizes Haiti aid effort. *Journal of Social Psychology, 143*(4), 479–491. Retrieved July 13, 2010, from www.wib.com/home/headline/81322052.
Power, D. J. (2000). *Supporting decision-makers: An expanded framework*. Retrieved March 23, 2010, from http://dssresources.com.
Quarter, J., Mook, L., & Handy, F. (2007). Reporting volunteer labour at the organizational level: A study of Canadian nonprofits. *International Journal of Voluntary and Nonprofit Organizations, 18,* 55–71. https://doi.org/10.1007/s11266-007-9030-z.
Riemer, A., Dorsch, D., Hoeber, L., Paskevich, M., & Chelladurai, P. (2004). Motivations for volunteering with youth-oriented programs. *Canadian Center for Philanthropy*.
Russell, R. F., & Stone, A. G. (2002). A review of servant leadership attributes: Developing a practical model. *Leadership and Organizational Development Journal, 23*(3), 145–157.
Saha, S. K., O'Donnel, D., Patel, T., & Heneghan. J. (2008). *Equal Opportunities International, 27*(7), 629–645.
Salamon, L. (2003). *The resilient sector*. Washington, DC: Brookings Institution Press.
Shane, S., Venkataraman, S., & MacMillan, I. (1995). Cultural differences in innovation championing strategies. *Journal of Management, 21*(5), 931–952.
Shanteau, J. (2001). *Encyclopedia of psychology and behavior science* (3rd ed.). Hoboken, NJ: Wiley.
Sprague, R. H. Jr., & Carlson, E. D. (1982). *Building effective decision support systems*. Englewood Cliffs, NJ: Prentic Hall Inc.

Stanescu, A., Chete, C., & Giurgiu, L. (2009). Knowledge enriched decisional environments. *Buletin Stiintific*, *14*(2), 133–138.

Stid, D., & Brandach, J. (2009). How visionary nonprofits leaders are learning to enhance management capabilities. *Emerald Group Publishing Limited, 37*(1), 35–40. https://doi.org/10.1108/10878570910926052.

Taylor, C. R. (2004). Retention leadership. T + D 58: 40–45. *American Society For Training and Development. Human Resource Management, 16*(8), 1454–1474.

United State Department of Labor. (2010). *Volunteering in the United State*. Retrived May 2011, from https://www.bls.gov/new.release/archieves/volunt_01262011.pdf.

Walumbwa, F. O., Avolio, B. J., Gardner, W. L., & Perterson, S. J. (2008). Authentic leadership: Development and validation of a theory-base measure. *Journal of Management, 34*(1), 89–126.

Author Biography

Dr. Christiana O. Ntamere, HHCJ, was a pioneer staff member of Catholic Institute of West Africa and the first CIWA Bookshop Manager. She worked as a Bursar General of the Congregation of the Handmaids of the Holy Child Jesus where she was responsible for the finances of her order (nationally and internationally), conducting accounting workshops, developing, approving and monitoring budgets, as well as recommending to project managers a more cost-effective management program. She also served as an Executive member and Treasurer of National Association of Religious Treasurers and Bursars (NARTAB). Prior to that, Dr. Christiana served as a Director of Novices where she was responsible for Novices' training and community outreach. She is a member of National Society of Collegiate Scholars and The Golden Key International Honour Society. Currently, Dr. Christiana serves as a Chaplain at Franciscan Health in Indiana and as a Finance Council Member of St. Jude, the Apostle Church in South Holland, Illinois. In the domain of Clinical Pastoral Education and practices, she presented an interesting paper on the business side of chaplaincy; Dr. Christiana Ntamere is also an author.

Subject Index

B. S. Thakkar (ed.), *The Future of Leadership*,
https://doi.org/10.1007/978-3-319-73870-3