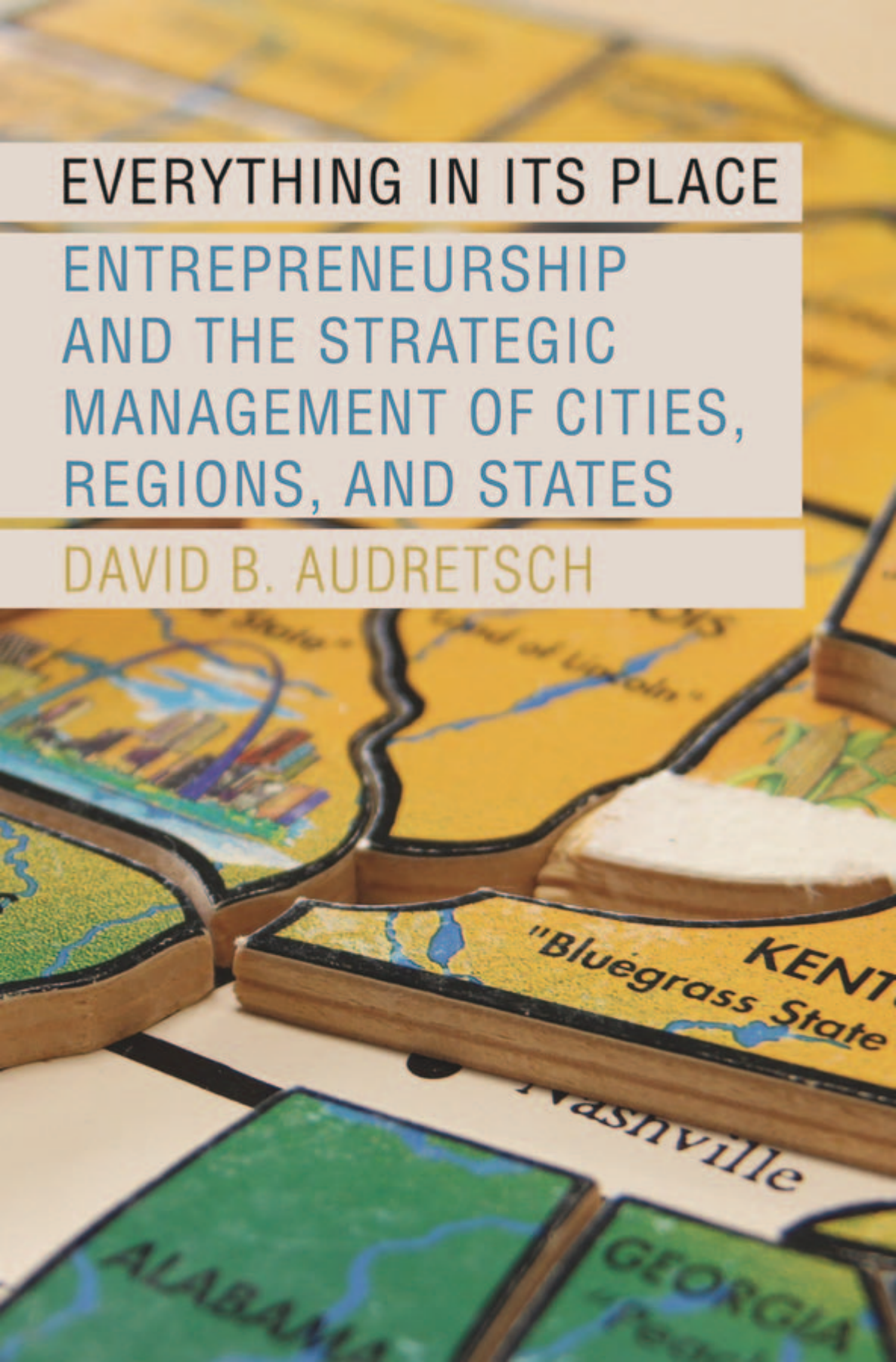
# EVERYTHING IN ITS PLACE

## ENTREPRENEURSHIP AND THE STRATEGIC MANAGEMENT OF CITIES, REGIONS, AND STATES

DAVID B. AUDRETSCH



# Everything in Its Place

# Everything in Its Place

## *Entrepreneurship and the Strategic Management of Cities, Regions, and States*

By David B. Audretsch

OXFORD
UNIVERSITY PRESS

OXFORD
UNIVERSITY PRESS

Oxford University Press is a department of the University of Oxford.
It furthers the University's objective of excellence in research, scholarship,
and education by publishing worldwide.

Oxford New York
Auckland Cape Town Dar es Salaam Hong Kong Karachi
Kuala Lumpur Madrid Melbourne Mexico City Nairobi
New Delhi Shanghai Taipei Toronto

With offices in
Argentina Austria Brazil Chile Czech Republic France Greece
Guatemala Hungary Italy Japan Poland Portugal Singapore
South Korea Switzerland Thailand Turkey Ukraine Vietnam

Oxford is a registered trade mark of Oxford University Press
in the UK and certain other countries.

Published in the United States of America by
Oxford University Press
198 Madison Avenue, New York, NY 10016



Library of Congress Cataloging-in-Publication Data
Audretsch, David B.
Everything in its place: entrepreneurship and the strategic management of cities,
regions, and states / by David B. Audretsch.
p. cm.
Includes bibliographical references and index.
ISBN 978–0–19–935125–1 (alk. paper)
1. Regional economics—United States. 2. United States—Economic conditions—
Regional disparities. 3. Entrepreneurship—United States.
4. Urban policy—United States. I. Title.
HC106.84.A93 2015
352.3'4—dc23
2014046360

1 3 5 7 9 8 6 4 2

Printed in the United States of America on acid-free paper

# CONTENTS

*Preface* *vii*

1. Introduction *1*
2. The Mandate *13*
3. Resources and Factors *28*
4. Organization and Structure *58*
5. The Human Element *84*
6. Public Policy *104*
7. Conclusions *127*

*Notes* *137*
*References* *147*
*Index* *159*

# PREFACE

Shortly after the Berlin Wall fell in 1989, I was interviewed by a journalist in my office in Berlin, Germany, where I was working at a research institute, the Wissenschaftszentrum Berlin für Sozialforschung (Social Science Research Center Berlin). She wondered, "If it took New England in the United States well over half a century to recover from the devastation of losing the textile industry, how would rapid transformation of the antiquated East German economy be possible?" Even though I was intrigued by the question, I was bewildered by my inability to provide some sort of answer or perspective. I did not even know where to begin thinking about the problem.

My academic background had been in one of the core fields of economics, industrial economics, with its focus on firms and industries. This scholarly discipline provided a compelling basis for the field of strategic management, which emerged to inform and guide decision-makers in firms and other organizations. But East Germany was neither a firm nor an organization—it was a place. There was little in my background that would shed light on what places should do to improve their situation.

In fact, as *The Economist* proclaimed through its startling cover story, "The Death of Distance," a consequence of the fall of the Berlin Wall and the subsequent globalization, place simply did not matter anymore. But it certainly mattered to people in East Germany; and not just there. As the post-Wall world made clear, while some places boomed, such as Silicon Valley in California, other places, such as Detroit, seemed to recede further and further into despair.

It was not as if places were not trying. Every place I have ever worked, lived, or even visited hardly keeps its efforts to improve, or at least sustain its performance, a secret. Rather, most places would like to get better and are going to considerable efforts to do so. Towns, cities, states, and regions are busily upgrading education, investing in infrastructure, opening incubators and science parks, making their place culturally attractive by loading it up with luring amenities, and trying to entice people, entrepreneurs,

and companies to their place. They are busy investing in costly campaigns to convince their own residents and businesses, as well as those living and operating elsewhere, about all of the compelling advantages offered by their place.

In the context of the United States, such efforts are often clothed in the rather uninspired characterization of regional economic development or urban development plans and increasingly in university offices of community impact or outreach. Perhaps this reflects the ambiguity, or more strongly, the cognitive dissonance created by undertaking strong and directed policy interventions to enhance economic performance in a society where the prevalent norm and knee-jerk reaction is that markets are best for picking winners and losers, not governments.

But every place wants to win. Every place wants to get better. So they do it without being exactly sure of what to call it. It is certainly no secret or revelation that the great political divide in Washington, DC, that seems to be pulling the country apart, disappears at the local and state level. Mayors and governors are the champions for doing whatever it takes to make their place better, regardless of the party or political affiliation. Perhaps political differences dissipate with the realization that place and the market are not at all the same thing.

In 1997 I was involved in a project to advise Atlanta and the state of Georgia how to transform the city and region into a knowledge-based high-technology entrepreneurial driven economy, with the goal to enhance the standard of living or economic performance. Upon accepting this assignment, I quipped, "I don't know what the answer is, but whatever it is will be of great interest in Brussels, Paris, and all around the world as the industrial policy for the next century." My sponsor from the State Legislature immediately protested, "Whatever you do, don't call it that." So I never did call it that again.

But what should it be called? In Europe things are different. When I lived and worked in Germany, I struggled with a word appearing almost daily in the news media—*Standortpolitik*. This was something that governments were doing that clearly was linked to the success or failure of the particular place. They did it at the level of towns and cities but also for the *Bundesland*, or state, and even for the entire country. But what was it? The word literally translated means "location policy" or perhaps "place policy." This is neither particularly lucid nor insightful. Rather, it slowly dawned on me that *Standortpolitik* refers to the efforts, or the strategies, of places, including governments, businesses, nonprofit organizations, and residents, to consciously and purposefully make their place better.

In this book, I understand and have adapted this sense of the German concept and word as the *Strategic Management of Place*. It is what places—communities, towns, cities, regions, states, and even entire countries—do to enhance their economic performance or, more simply put, to get better. While most (if not almost every place) does it, those policymakers, leaders in business, nonprofit organizations, universities, and private residents lack a general framework for thinking about *Standortpolitik*, or the strategic management of their place. This is just as true in Germany, as well as throughout Europe, as it is in North America. Decision-makers involved in the strategic management of their place might have studied economics, sociology, political science, engineering, science, law, business, or, in fact, anything—but they clearly did not come from a program of study providing an intellectual framework for the strategic management of place.

Decision-making and leadership to enhance and sustain the performance of firms and organizations was deemed sufficiently important that an entire field was created to at least frame thinking about and devising strategies—the academic field of strategic management in business schools. But it would be a mistake to think that this field automatically maps onto the strategic management of places simply because both have economic performance as a goal and strategies as an important way of attaining that goal. In fact, a firm is not a synonym for place, as seductive as that might seem. "What is good for General Motors" proved not necessarily to be what is good for the United States, let alone Detroit, just as what is good for, say, Nokia, may or may not be good for Helsinki.

As I set about to answer the question about strategies to enhance the transformation of not just East Germany but, in fact, to enhance and improve the economic performance of any particular place, I discovered that the scholarly disciplines in the social sciences were ripe with insights, theories, and empirical evidence about why some places did better than others, or were able to improve, or, alternatively, deteriorated over time. Scholars in academic disciplines as disparate as economics, psychology, sociology, geography, management, and regional studies have vigorously and enthusiastically responded to the intellectual puzzle posed by variations in economic performance across geographic space; however, most of these valuable insights, theories, and empirical evidence are embedded in the methodology and seen through the lens of the particular academic discipline. What decision-makers need to guide them in thinking about which strategies their place needs is not necessarily the unique perspective, nuances, traditions, and complexity offered by each scholarly discipline, but rather a framework that spans and incorporates the multiple disciplines and perspectives and is accessible and understandable by those

people actually devising and implementing the strategic management of place, much in the same way that the field of strategic management draws on the insights, theories, and evidence garnered by scholarly disciplines as diverse as economics, sociology, and psychology.

This book is devoted to providing such a framework to guide thinking and decision-making about how to enhance the economic performance of places. It takes the concerns, problems, challenges, but also the joys and delights, associated with place seriously, along with the idea that decision-makers, spanning private business, nonprofit organizations, universities, governments, along with residents can actually do something to make their place better.

The current generation engaged and charged with, or that has a stake or interest in the strategic management of a place is not dissimilar to an immigrant. Their intellectual background and roots are almost invariably from somewhere else, so they do their best to adapt and adjust to the current challenge. Perhaps future generations of thought leaders, decision-makers, and activists will be better equipped with the intellectual tools and framework that directly addresses ways to think about the challenges of making their place better.

I would like to thank a number of people for their invaluable help, assistance, and support in writing this book. I am particularly grateful to the Ewing Marion Kauffman Foundation for providing generous financial support through a research grant financing the early stages of research for this book. In particular, I would like to thank Bob Strom of the Kauffman Foundation for his strong and continued support of this and related projects over the years.

I also am very grateful to the Dean of the School of Public and Environmental Affairs (SPEA) at Indiana University, John D. Graham, for providing support through a grant from the Dean's Advisory Board to support the research project on the strategic management of places. The Associate Executive Dean of SPEA, David Reingold, similarly provided crucial support for this book, which is greatly appreciated.

I also would like to thank Erik Lehmann of the University of Augsburg, Al Link of the University of North Carolina-Greensboro, Donald S. Siegel at Albany State University, A. Roy Thurik of Erasmus University, and Mike Wright of Imperial College, for their very helpful comments and suggestions on earlier drafts of the manuscript.

Adam Lederer of the Deutsches Institut für Wirtschaftsforschung Berlin (German Institute of Economic Research Berlin) provided very helpful assistance with an earlier draft of this manuscript. I am particularly grateful to Chemain Nanney, of the Institute of Development

Strategies at Indiana University, who went way beyond the call of duty to ensure that this book was as well written, accurate, coherent, and compelling as possible. With the capable assistance of Aileen Richardson, of the Institute of Development Strategies, she provided invaluable corrections, modifications, and enhancements to multiple drafts of this manuscript. Her patience with, support, and understanding of a sometimes impatient and self-absorbed author is, as always, greatly appreciated.

Finally, I would like to express my thanks to Scott Paris, the Executive Editor of Economics and Finance, and Cathryn Vaulman at Oxford University Press for their enthusiastic support of this book and their care, effort, and wisdom in guiding the writing process from inception to initial drafts and finally to publication.

D.B.A.

# Everything in Its Place

## CHAPTER 1

# Introduction

Even before the advent of the economic crisis, it was clear that some places fared considerably better than others. Throughout the crisis, certain places like San Francisco, North Dakota, and Brooklyn have survived the storm better than other places, such as Stockton, California, Mississippi, or East St. Louis. As Harvard University economists Edward Glaeser and Joshua Gottlieb point out, the disparities in economic performance across cities and regions are considerable.[1]

What is true within the United States is also true around the world. As Auckland, Bavaria, and Singapore grow and thrive, Athens, Sicily, and Portugal are experiencing stagnating economies, if not actual declines. For every place where the quality of life and economic performance are soaring, there are dozens struggling.

The initial outbreak of the 2008 financial crisis was not contained; instead it spread, triggering the most severe global recession since the Great Depression. As it diffused, places as diverse as Las Vegas, Dublin, and Athens were victims; businesses shut their doors, housing markets soured, and their citizens faced unprecedented challenges in finding employment locally.

Of course, this was not the first economic crisis or recession to adversely impact cities, states, and entire regions. Since World War II, the traditional response for communities in the United States was to tough it out and wait for the business cycle, perhaps facilitated by enlightened macroeconomic policy, to restore prosperity. For example, in the economic slowdown of the early 1960s, economic growth slowed and unemployment rose for most communities in the United States. President John F. Kennedy is

generally credited with restoring a strong economic performance for most places through his now famous tax cuts, which stimulated aggregate demand and reignited growth. President Kennedy articulated this as, "A rising tide lifts all boats."[2] Thus, whenever the economic performance of a place was suffering, people living at that place in the United States learned, through experience, to look to Washington, DC, for enlightened policy intervention at the aggregated or national level.

Such a deeply embedded passive reaction essentially abdicated the responsibility for the economic performance from that place and instead shifted it to the national level. In fact, having clawed its way out of the deep economic pit carved out by the Great Depression, the United States seemingly made the responsibility for economic performance at the national level explicit with the passage of the Employment Act of 1946. With the Employment Act,

> The Congress hereby declares that it is the continuing policy and responsibility of the Federal Government to use all practicable means consistent with its needs and obligations and other essential considerations of national policy, with the assistance and cooperation of industry, agriculture, labor, and State and local governments . . . for the purpose of creating and maintaining, in a manner calculated to foster and promote free competitive enterprise and the general welfare, conditions under which there will be afforded useful employment opportunities, including self-employment, for those able, willing, and seeking to work, and to promote maximum employment, production, and purchasing power.[3]

The Act explicitly mandated that the formulation and implementation of strategies to generate and ensure strong economic performance was to be undertaken by the federal government. According to the Act, Section 2, it is "the continuing policy and responsibility of the Federal Government . . . to coordinate and utilize all its plans, functions, and resources for the purpose of creating and maintaining . . . conditions under which there will be afforded useful employment opportunities. . . . The Congress has placed on the President the duty of formulating programs designed to accomplish the purpose of the Act."[4] With this, the federal government was clearly ensconced in the role of being responsible for the economic performance for every place in the United States.

However, as the economic crisis reminds us, having a legislated mandate does not necessarily translate into attaining the stated policy goals. The roots of the current unemployment problems and stagnant growth rates in American cities, and regions, are widely attributed to a

macroeconomic cause—the twin economic disasters of the financial crisis and recession. There is a sense that if the catalyst of the current economic misery emanates from macroeconomic sources, so too must the policy solutions. Consequently, in the United States the ongoing heated debates between increased government spending and tax cuts are actually only focused on macroeconomic solutions to restore jobs, growth, and prosperity for all American places simultaneously. As the *New York Times Magazine* wondered in a 2013 single issue, "Boom vs. Doom (Can Washington Fix This Economy?)."[5]

While policymakers focus on this explosive debate, it leaves American cities, states, and regions with a *de facto* policy of waiting until the tide rises, lifting, hopefully, all boats. Local policymakers and practitioners are frozen, like deer, in the headlights of national macroeconomic policy debates.

However, starting in the 1980s, two economic truths became clear; first, not all boats will be lifted by a rising tide—just because San Francisco surges, it does not mean that Gary, Indiana, will follow. Second, and even more alarmingly, local economies are increasingly impacted by global shifts in such a manner that the tide cannot always be readily lifted by national macroeconomic policy. Just as some firms and organizations have been negatively impacted, or even devastated by globalization, so too have some places fallen victim to the brutal force of global competition.

At the same time, other places thrive by taking advantage of the opportunities afforded by globalization. It is no secret that places like California's Silicon Valley or Bavaria, Germany, are soaring despite facing an imposing financial crisis and recession. These places, while striking in their ability to sustain economic growth even while their neighbors are struggling, are not isolated examples.

Globalization has changed the spatial dimension of economic winners and losers. No longer are all boats lifted by a rising tide; rather it is the boats able to navigate wisely through the turbulent tides that ultimately reach their goals. Those communities harnessing the forces of globalization achieve strong economic performance. Meanwhile those caught unaware, falling victim to globalization, are seemingly doomed to deteriorating economic performance. Thus, while the Employment Act of 1946 dictated the formulation and implementation of a coherent national policy to ensure a strong and positive economic performance by the federal government, it has seemingly overlooked the importance and significance of strategies implemented at the local level. Bruce Katz and Jennifer Bradley examine this in their 2013 book *The Metropolitan Revolution: How Cities and Metros are Fixing our Broken Politics and Fragile Economy.*[6]

Germany has defied the euro crisis by generating a contemporary *Wirtschaftswunder*, or economic miracle, even while its neighbors have been suffering economic stagnation and rising rates of unemployment. However, a closer look at the particular regions of Germany suggests that this strong economic performance is actually concentrated in a few regions and *Bundesländer*. As Figure 1.1 shows, the disparities in economic performance have been considerable within the German context. For example, even as unemployment has virtually disappeared in the prosperous *Bundesländer* of Bavaria and Baden-Württemberg, both of which registered unemployment rates in 2012 below 4 percent, in other regions, such as Sachsen-Anhalt and Mecklenburg-Vorpommern, the unemployment rate exceeded 11 percent. While they are both states from the former German Democratic Republic (GDR), the economic performance of the West German region of Bremen, with an unemployment rate also exceeding 11 percent, is hardly better.[7]

That is, place matters. It matters not just in the American context but also in the European context, just as it does throughout the world.

It is also now clear that the macroeconomic policies will not restore prosperity, growth, and sustainable employment equally across cities, states, and regions. Policymakers may once have been reassured that in an era of macroeconomic growth, "all boats are lifted by a rising tide";[8] what was good for American growth was no doubt good for both St. Louis and Topeka. The naivety of that era is gone. National economic forecasts predict a slow, prolonged recovery, with stubbornly low rates of growth and nagging levels of high unemployment. In an era of slow growth in a globalized context, it is up to each place to fend for itself.

As Christian Ketels, a faculty member of the Institute for Strategy and Competitiveness at the Harvard Business School and a world-leading expert on competitiveness, points out, "Regions have a responsibility for their own future."[9] Ketels challenges each community, "It starts with what you can do for your community. Don't be passively resigned to global trends but focus on what a community can do to shape its own economic performance."[10] According to Ketels, "It starts with the uniqueness of each place. Every place has its own context and its own unique situation."[11]

And this is exactly what places, at least in the United States, are not prepared to do—at least not in a thoughtful, systematic, and pervasive manner. Considerable resources and attention are devoted to developing frameworks that generate and sustain a strong economic performance for private firms and other organizations. Business schools house professors and practitioners of strategic management who are devoted to providing


**Figure 1.1:**
Variations in German Regional Unemployment

frameworks for devising and implementing firm strategies that lead to firm success. The academic field of strategic management provides an analytic framework for achieving and sustaining a strong performance for a company or organization. The field of strategic management focuses on how best to deploy resources available to the firm in order to achieve such a positive performance.[12]

However well developed and propagated it is, the field of strategic management, in keeping with typical business school stakeholders, is concerned almost exclusively with firms and organizations, but not places. No analogous tradition exists providing an analogous framework for the strategic management of places. Where can leaders and those involved in

trying to improve or sustain the performance of a place or a community look for insights into why and how some cities and regions prosper while others stagnate or even deteriorate?

In fact, the number of people directly and indirectly involved in shaping the performance of their place is enormous and diverse. It certainly involves more than just elected government officials and civil servants. Business leaders, community activists, civic leaders, concerned citizens, and in some cases the general population all have a key stake in how well a place does or does not do. This is true for virtually every community, city, and region in the world. I know of no survey identifying the educational backgrounds of this massive community involved in the strategic management of a place within a national context, let alone a global context. My casual impression, from working on this issue for many years, is that the community of people managing places comprises a broad spectrum of academic backgrounds. Certainly, while the business degree is prevalent, its relevancy may be limited and even misleading. After all, business degrees focus on how to make businesses and organizations successful, not places. These are not at all one and the same. While some practitioners earned degrees in urban planning or regional studies, often these degrees do not include coursework appropriate to help develop strategies that generate the economic competitiveness of a particular place.

There are a number of specific approaches, designed to generate and sustain a strong economic performance, that have gained widespread currency and have emerged as mantras in the economic development community. Perhaps the hunger for a systematic and simplistic framework is illustrated by the enthusiasm to embrace one of the dual policy mantras that have mesmerized the imagination and energies of policymakers and economic development practitioners.

One of the most important, developed and made famous theory by Michael Porter, focuses on policies to develop clusters.[13] A business cluster is considered to be a spatially concentrated group of related businesses, including both suppliers and buyers, along with the ancillary institutions that provide supporting and developmental services. That advantages to business can be procured from spatially concentrating economic activity is not a novel observation. As Nobel Prize economist, Paul Krugman, points out, Alfred Marshall was the first to articulate the economic returns to spatial concentration.[14] Porter's critical contribution was to operationalize many of the basic concepts and adapt them in such a way as to resonate, at first with decision-makers in business organizations, but subsequently within the public policy community and practitioners concerned with the economic performance of places. Typically known as

"cluster policy," it is often the principal tool deployed by places to generate a strong and sustained economic performance. It would be hard to overstate or exaggerate the impact and prevalence of the cluster approach and of cluster policy in the economic development community around the world. The creation and sustainment of clusters is the main approach in both developed and developing economies.

The prevalence of a cluster approach is evidenced by the 9,000 professionals from over one hundred different countries that are members of the TCI Global Practitioners Network for Competitiveness, Clusters and Innovation. The members come from a wide range of professional contexts, including regional and national development agencies, cluster agencies, a myriad of nonprofit organizations, and, even, companies. The TCI Network is "the leading global network for practitioners, policy makers, researchers, and business leaders working towards improving competitiveness in regions and clusters."[15]

There is no paucity of empirical evidence supporting the effectiveness and impact of clusters on economic performance. A large body of literature has identified an empirical link between the propensity for a city or region to have successfully established viable clusters and that place's economic performance; typically measured in terms of productivity or innovative activity.[16] The role of clusters in generating a positive economic performance for firms within the cluster as well as for the region hosting the cluster is well documented. It would not be inaccurate to say that many policymakers consider economic development policy and cluster policy to be one and the same. However, the concern here is not for the efficacy of cluster policy, or perhaps even primacy of cluster policy. Rather, there is an excessive obsession and fixation on clusters as if they were the sole remedy to high unemployment, stagnant economic growth, and a vulnerability to global competition. As this book will make clear, there is more to the strategic management of places than clusters.

The second approach, popularized by Richard Florida, is based on the link between what he termed as the "creative class" populating a place and that place's economic performance.[17] The measurement used to identify what actually constitutes the creative class is based on a classification of job categories. Those people employed in certain job categories, such as artists or engineers, are measured as belonging to the creative class. By contrast, those people employed in other job categories, such as plumbers or secretaries, are not defined as belonging to the creative class. Thus, the actual measure introduced by Florida is not about the actual creativity of the person or how the person actually approaches their job and tasks, but rather about the classification of their particular job. The idea captured

the imagination of policymakers around the world, many deciding that the key to improving their place's economic performance was to attract the creative class to move in.

The extent to which the creative class has become a mantra for economic development policy, at least throughout developed economies, is exemplified by a report on "Activists in Hamburg Resist Creative Class Policies."[18] The city of Hamburg, Germany, has adopted Florida's approach to focus on the creative class as the driver of competitiveness, jobs, and growth. It is a tribute to the power of the concept that it has not only been adopted and implemented in a broad array of places, including Hamburg, but that it is also deemed worthy of protest and resistance by political activists!

The contrast between these two approaches is striking. The cluster approach puts the focus directly on bringing complementary firms at a specific place with the key to enhancing performance to attract the right firms. By contrast, the creative class approach puts the focus on bringing creative people to a specific place. Attracting more of these people is the key objective of policy designed to improve economic performance of that specific place.

The point of this book is not to argue that the cluster approach is wrong, or that the creative class approach is wrong. However, as the ensuring chapters will argue, focusing exclusively on either of these policies while ignoring a much richer portfolio of approaches and instruments will not achieve the goal of economic development. In fact, having both clusters and a creative workforce contributes to economic performance. However, a rich body of scholarship—supplemented by policy practices—has identified a much broader set of instruments that also help promote the economic performance of places.[19]

Some of the hints that there is more to the strategic management of places than clusters or the creative class are found in a number of meticulous studies that each focus on a particular place and why the economic performance of that place has been exceptionally strong. Most strikingly, the careful scholarship of Martin Kenney, in *Understanding Silicon Valley: The Anatomy of an Entrepreneurial Region*, provides compelling documentation of the role of institutions facilitating entrepreneurship as the key to generating a strong economic performance.[20] The key role of entrepreneurship is barely touched upon in the cluster approach of Porter and is only peripheral for Florida's creative class. Similarly, work by Lamoreaux et al. focuses on the innovative decline of a sole place, Cleveland.[21] Dan Breznitz is able to extend his meticulous analysis of the role of public policy to foster innovative activity to three national contexts—Israel, Taiwan, and Ireland.[22]

Annalee Saxenian, in *Regional Advantage*, points to the key role played by networks and linkages between people in generating the strong economic performance of Silicon Valley when compared to the weaker performance of Route 128 around Boston.[23] While these case studies illuminate the policies underlying the immensely successful economic performance of places like Silicon Valley, their applicability to the strategic management of, say, Weimar, Germany, or Cheyenne, Wyoming, is not readily apparent or obvious. At the same time, these penetrating and insightful case studies of why one particular place has succeeded in generating a high economic performance over a prolonged period of time make it clear that the policy approach is considerably more nuanced and multifaceted than is captured by the simple, but compelling, policy mantras of either "clusters" or "the creative class."

So why have policymakers fallen into a "policy trap," where they either passively wait for the federal macroeconomic policies to remedy current circumstances, or else singularly grasp on to one of the just reviewed policy mantras? One interpretation is that the gap between the academic research and practitioners of economic development policy is simply too great. While other fields have meticulously developed translational research and programs, there is a glaring gap between the scholarship focusing on what contributes to the economic performance of a place and the debates, dialogues, and rhetoric in which the policymaking and practitioner communities are engaged.

Perhaps not surprisingly, there is a stronger tradition for the strategic management of places outside of the United States. When I moved to Germany in the 1980s, I was befuddled by the word *Standortpolitik*. I learned that *Standort* means location. *Politik* means policy. But there seemed to be no obvious translation. What could "Place Policy" mean? After living and working in Germany and Europe for well over a decade, I crystalized that *Standortpolitik* refers to the policies of a place to generate a strong economic performance. Each community in West Germany, spanning from neighborhood, to town, city, region, and state, was responsible for the economic performance of their own *Standort*, or place. The booming West German economy, which was built on the *Wirtschaftswunder* of post–World War II Germany, could be decomposed in a rich quilt of enlightened and highly effective strategies implemented by communities, towns, cities, and states.

Thus, the conceptual framework underlying the analysis and policy insights to facilitate entrepreneurial cities, states, and regions is founded on my loose translation into English of the German *Standortpolitik* concept—the *Strategic Management of Place*. Many readers will wonder

with discomfort about what is meant by place, which seems vague and undefined. In fact, the beauty of the concept *Standort* is that it is undefined and vague, until it is considered in the context of a particular place, be it a neighborhood, town, city, region, state, or even a country. It can even be applied to larger geographic and political units of analysis and decision-making, such as Europe. Serious studies have been undertaken trying to understand the competitiveness and economic performance at each of these levels. An attraction of the concept of *Standort* is, in fact, its inherent flexibility and elasticity, such that it can contract or expand to fit the dimensions as defined by the interested parties.

While there is no translatable word or concept for *Standortpolitik* in the United States, many, if not most places, are concerned about their economic performance and attempts are made to improve that performance. Similarly, the economic performance of places, such as cities and regions, has long been an important topic for scholars.

In particular, the field of urban economics has generated a vast and robust literature focusing on why some places do better while others struggle. As Glaeser and Gottlieb point out, "Just as macroeconomics explores both differences in growth rates and differences in GDP levels across countries, urban economists wonder why some cities are rich, some cities are growing, and others are doing neither."[24] However, the field of urban economics has by no means a monopoly on the subject. Insights that can contribute to understanding the variance in spatial economic performance can also be garnered from a broad spectrum of disciplines and fields, including sociology, innovation and technological change, labor economics, entrepreneurship, growth economics, psychology, regional studies, economic geography, and management. In addition, there exists an enormous literature generated by the economic development profession, ranging from cities to states and to national-based agencies, nonprofit organizations, foundations, and consulting firms.

Thus, the supply side of research and thought leadership on the strategic management of places is problematic in that it is diffused across disparate fields of scholarship and academic traditions. Moreover, the priority of the scholarly literature has been more to advance academic knowledge and keep within the scholarly rigor of its source disciplines, such as economics and sociology, rendering it of little immediate use to a community of policymakers and practitioners confronted with the urgency of day-to-day demands.

Bringing together the scholarly literatures on why some places generate a superior economic performance than do other places is challenging due to the fact that they span a disparate set of fields and disciplines. Each

field and discipline brings its own research agenda, theoretical frameworks, and particular focus; all of which shape the underlying research questions, methodologies, and ultimately the policy relevance. For example, the economics literature, and particularly the urban economics literature, has an overriding concern for spatial equilibrium under the assumptions of factor mobility across geographic space. This results in insights that concern the importance of agglomerations and spatial concentrations of economic activity.

In contrast, sociologists have a particular scholarly focus on the role of networks and linkages in creating social capital within cities, and how such social capital promotes innovation and, ultimately, city performance.[25] Management scholars focus on the role of clusters in shaping city performance, while the entrepreneurship literature tends to focus on the link between start-up activity and city performance. Still, a very different scholarly literature highlights the role of leadership in generating a strong and sustained economic performance of a place.[26]

Thus, while scholarly research has uncovered considerable and important insights into why the performance of places varies so greatly, to grasp the full understanding and depth requires reading across a number of disparate academic disciplines and fields, with each wrought with its own jargon and research agenda. As Richard Florida observes, "I have yet to find an American community whose leaders and citizens have sat down and written out an explicit strategy for building a people climate."[27] Similarly, Jack Hess, President of the Chamber of Commerce of Columbus, Indiana, pointed out to me, "We lack both a play book and board to keep score."[28]

In order to develop and articulate entrepreneurial strategies for any particular place, whether it is a community, town, city, state, or region, a framework of devising the strategic management of place is needed. In proposing such a framework, this book attempts to fill the great void between the valuable, but often complex and specialized, basic research generated by the traditional academic disciplines, such as economics and sociology, and the much more applied public policy community, which is mandated with generating and sustaining a strong economic performance for specific places. Just as schools of business, and the field of strategy in particular, have filled the void between these basic disciplines and their constituency interest group—business, this book focuses on the strategic management of places and attempts to provide a bridge between the insights and research offered by the basic disciplines and the constituency user groups who are mandated with or have an interest in improving the economic performance of their place.

Thus, while strategic management professors, employed by business schools, have a central focus on understanding how firms and other organizations can formulate and implement strategies that generate a strong performance for those firms and organizations, no such analogous field exists to guide leaders seeking to strategically manage their place. As Christian Ketels points out, "The reality is that many regions do not get it right because they do not start with the right framework."[29] This book posits a systematic and strategic framework to stimulate and guide practitioners, policymakers, and other constituents in framing and implementing strategies designed to enhance the economic performance of their place.

This book is aimed at all policymakers, practitioners, and individuals with a mandate to engage in the strategic management of their place. I would stress that this includes not just public officials, such as state and city economic development agencies, but also a much broader spectrum of practitioners, such as Chambers of Commerce, consulting firms, local activists, city leaders, and concerned citizens, as well as businesses with any kind of link or vested interest to a particular place. I know of no attempt to quantify the constituents for the strategic management of place, but I have no doubt that it is vast. The demand for a systematic framework guiding the strategic management of places knows no national borders. The policy euphoria for cluster policy and creative class policy has swept around the globe. It is hard to find a country without a city or region that has not embraced clusters or the creative class. This reinforces the conclusion that the mandate for places to generate a strong economic performance is certainly not constrained to the American, North American, or even OECD context, but rather is a global phenomenon.

More often than not, that mandate for generating an enhanced economic performance involves transforming that place, whether it is a community, city, state, or region, into being driven by entrepreneurship. Entrepreneurial activity has emerged as a key mechanism to deliver prosperity for many, if not most places across the globe.[30] As the next chapter shows, the insights for a strategic management of places framework were garnered within a historical context in that they reflected experiences in real places at real points in time, which, in fact, seemingly made the encouragement of entrepreneurial activity to be largely irrelevant if not counterproductive. As has proven to be the case for entrepreneurship, each particular dimension of the framework has emerged as a result of recognizing the limitations of the extant thinking and approaches. Thus, the approach taken in this book is to explain each specific dimension of the framework, which reflects a new layer of insight won from the harsh teacher of economic performance at real places and at real points in time.

## CHAPTER 2

# The Mandate

If ever a place had no need for a strategy it was Bilbao, Spain, at least during the first eighty years of the twentieth century. Blessed with an Atlantic coast harbor, the city thrived on a competitive shipbuilding industry along with the economic activity generated by its well-located port. As long as the Atlantic was there and the world needed ships, Bilbao, along with the Basque region, thrived. This simple and uncontested formula worked splendidly, year after year, decade after decade. Talk of devising a strategic approach to managing Bilbao would have seemed to be superfluous at best and a waste of resources at worst.[1]

Until the 1980s, when the simple formula that had worked so effectively to deliver a seemingly unending strong economy, for so long, ceased to deliver. The culprit was not that the Atlantic had somehow drifted away from Bilbao. Nor had the demand for ships drastically dwindled. What changed was the arrival of international competition, principally from South Korea and Japan. The great shipbuilding companies of Bilbao, such as Euskalduna, which was founded in 1900 and at its peak employed nearly 4,000 workers, closed as they were outcompeted by their international competitors.

The closure of Euskalduna, and other Basque shipyards, devastated Bilbao and the region. Unemployment skyrocketed, economic growth plummeted, and future prospects vanished. The European Community Commission declared the region a crisis area. The Basque region desperately needed something that it had not needed for decades: a coherent and compelling strategy of how to move forward in regenerating a strong economy.[2]

Bilbao was not alone in its unprecedented need to develop a strategic management approach toward the end of the last century. Countless examples abound, ranging from the devastation wreaked by the closure of steel mills in places like Gary, Indiana, Youngstown, Ohio, and Dortmund, Germany, or the reduction of employment due to outsourcing and offshoring in the automotive industry for places like Detroit and Birmingham, England.

It is not that places were spared a negative economic performance in the past. As students of macroeconomic history know, the business cycle is an economic reality that, to this day, has not been solved or mitigated. Economic downturns and recessions are an inevitable part of economic reality. Nor are individual places immune to the economic cycle. When an economic downturn comes along, unemployment rises, economies stagnate or fall, and places seem to suffer from diminished prospects. Thus, the economic performance of places seems invariably tied to the business cycle, at least to some degree. When the overall conditions are stagnant, many, if not most, places suffer. When the overall economy is thriving, most places benefit.

While the business cycle is at least as old as capitalism itself, the idea that a place needs to be strategically managed is considerably newer and would no doubt startle many people. In fact, if having a coherent and well-formulated strategy matters so much in generating a strong performance for a place, why is this a seemingly new idea? As long as times were good for places in the United States, there was no particular mandate to develop a framework for a systematic strategy to generate a strong economic performance. Conversely, it did not seem to be within the power of places to struggle against the gale forces of the business cycle during economic downturns. How and why the strategic management of place is emerging as an important and systematic approach to improving and sustaining its economic performance is the focus of this chapter. This chapter will explore the traditions, myths, and instincts of locational strategy inherited from the post–World War II era, when a strong economic performance was linked to the ability to attract and retain manufacturing. However, when this singular strategy stopped working, policymakers and leaders were left with an intellectual vacuum. The purpose of this chapter is to explain what emerged in response to this intellectual void, which is essentially a framework for the strategic management of places.

This framework, which is based on the insights from both the scholarly literature and the experience of practitioners and professionals striving to create and sustain a strong economic performance of cities and regions, is organized into four main elements. These four elements, or approaches,

are (1) resources or factors of production, (2) spatial structure and organization, (3) the human dimension, and (4) public policy. This chapter introduces the framework in terms of the big picture, without becoming immersed in the specificity and richness of the separate literatures, which is the task of subsequent chapters. To understand the mandate underlying the strategic management of places, along with why and how it emerged, the historical context needs to be understood, which is examined in the following section.

## WHAT'S GOOD FOR GENERAL MOTORS . . .

Someone tasked or concerned with ensuring or creating a strong economy for their place in the post–World War II era would probably have had a pretty good sense of what to go after. The Chairman of General Motors, Charlie "Engine" Wilson made that clear in his famous assertion, "What's good for General Motors is good for America."[3] What Charlie neglected to point out was that if it was good for the country, it was really good for Detroit, the place where General Motors was located. In fact, at that point in time, Detroit had one of the best economic performances not just in the United States, but the entire world. Without a doubt, the key to that unique and enviable economic performance was the fact that Detroit was the place where General Motors made its home and headquarters.

What General Motors bestowed on Detroit was what every place at that particular point in time coveted: a massive investment in factories and plants that enabled large-scale manufacturing of a key and desired product, automobiles. This enabled the company to crank out thousands of units of a manufactured product that virtually every household wanted, with unprecedented and unrivaled efficiency. While people from Miami to Seattle and Los Angeles to Boston coveted such a manufacturing capability, the cradle of automobiles, and therefore an unrivaled engine of economic prosperity, was Detroit.

Detroit's strategy coincided with the strategy used by General Motors, Ford, and Chrysler. What was good for the automakers was, in fact, the right strategy for the place, Detroit. That is, the strategy of the firms and industry coincided with that of the place. And that strategy consisted of, more than anything else, being the most efficient and productive producer of automobiles. As David Halberstam poignantly describes in his book, *The Fifties*, "Driven by the revolutionary vision of Henry Ford, the United States had been the leader in mass production before the war; ordinary Americans could afford the Model-T, while in Europe where class lines

were sharply drawn, the rather old-fashioned manufacturers preferred building expensive cars for the rich."[4]

The key to efficiency in producing goods like cars, steel, or refrigerators was scale economies in manufacturing. Economies of scale are achieved through investment in factories that facilitate mass production that, in turn, lowers the unit cost of the good. Assembly line production enables increased specialization of tasks by workers. In his classic book, *The Principles of Scientific Management*, Winslow Taylor explained how the specialization of tasks simplified the skills and decision-making required by workers to actually produce the product.[5]

Observing and analyzing what drove a strong and sustained economic performance, not just in the automobile industry but also in the other key post–World War II industries like steel, tires, petroleum, and refrigerators, leading scholars found that investments in large factories was key to the strategic management of firms. In *Scale and Scope*, Alfred Chandler provides compelling evidence that these investments by firms paid off.[6] In addition, meticulous studies focusing on the productive efficiency and cost structure in such industries determined that the scale of production that exhausted scale economies, referred to as the minimum efficient scale of production, required a magnitude of capital investment and production that accounted for a considerable share of the product market.[7] Such studies typically concluded that in industries such as aluminum, steel, and tires, there was room for only a handful of firms, if they were to be operating at a scale large enough to maximize efficiency.

Such economies of scale in production yielding a high minimum efficient scale of production posed a substantial barrier to entry for potential rivals. A minor army of scholars provided consistent and compelling empirical evidence demonstrating that in such large-scale industries, a high degree of concentration of production among firms resulted in a high level of profitability.[8] Other firms, outside of the industry, might be lured into entering by the prospects of high profitability, as was the case in automobiles and steel, but the massive investments required to attain the requisite scale of production to be competitive proved to be a daunting barrier that stopped most firms from entering. Of course, these studies echoed the much earlier observation by Karl Marx, in his famous treatise, *Das Kapital*, "The battle of competition is fought by the cheapening of commodities. The cheapness of commodities depends, ceteris paribus, on the productiveness of labour, and this again on the scale of production. Therefore, the large capitals beat the smaller."[9] Big became beautiful, or at least the most efficient, resulting in the domination of the industry by just a handful of large companies with considerable market power.

This strategy for firms coincided with the strategy for places. Just as substantial scale economies in production deterred competition for the dominant large-scale firms, it also deterred entry and, therefore, competition from other places. Such barriers to entry in industries like automobiles, steel, tires, and home appliances guaranteed a strong performance not just for the firm but also for the place where the firm was located. Therefore, the strategic management of Detroit revolved around attracting and retaining companies like Ford, Chrysler, and General Motors, and finding mechanisms to share some of the firms' profits with the people residing and working at the place. It was not just automobiles in Detroit. The same strategy could be found for steel firms in Pittsburgh and tires in Akron.

Scholars of industrial organization in economics and management in business schools conducted a series of statistical studies and determined that the firms that harnessed large-scale production and ranked among the dominant leaders in an industry also tended to enjoy a significantly higher level of profits.[10] While such high levels of profits were clearly good for the firm, and in fact, one of the *prima facie* indicators of a superior firm performance, this did not necessarily correspond or translate into higher incomes and standards of living for the people living at the place.

Rather, mechanisms, like organized labor, had to be developed in order for people living at the place to be able to appropriate some portion of the higher level of returns generated by dominant firms. Unions were able to capture some of the profits earned by large corporations with dominant power in industries protected by high barriers to entry. Numerous careful studies found that wages were systematically higher in firms and industries not just where unions played a large role but which were characterized by a high degree of concentration and substantial barriers to entry.[11]

The threat posed by work disruption by unionized labor was daunting to the companies. The high fixed costs required by assembly line production meant that work stoppages would hurt firm profitability. Firms in such industries came to view the unions as delivering an important and positive contribution: ensuring that workers showed up on time and did what they needed to do to keep the assembly lines running. As Halberstam points out, "The only thing standing between the corporation and virtually limitless profits was the possibility of labor unrest. During 1945–46, there was a bitter strike over wages at General Motors that lasted some one hundred days. The issue came down to a one-penny-an-hour difference, which GM could easily have afforded."[12] General Motors ended the strike by settling with the union, which *Fortune* magazine famously referred to as "The Treaty of Detroit,"[13] because "General Motors

may have paid a billion for peace, but it got a bargain."[14] In fact, the wages of blue-collar workers in Detroit ranked among the highest in the world at this time, creating a wealthy and prosperous middle class. In 1967 the mean wage of workers involved in automobile assembly was nearly 30 percent higher than average for manufacturing in the United States.[15]

Unions were not the only mechanism designed to keep at least some of the profits generated by these uniquely efficient large corporations tied to the place. Another key mechanism, as explained by Professor Zoltan Acs of the London School of Economics, was philanthropic giving.[16] Just as General Motors and Ford provided funding and resources for massive projects in Detroit, U.S. Steel donated funds for projects in Pittsburgh. For example, Ford Motor Company Chairman Henry Ford II teamed up with other business leaders to form Detroit Renaissance, a private nonprofit organization to foster economic development in Detroit. A principle project championed by Detroit Renaissance was to rebuild the downtown area of the city.[17] Similarly, U.S. Steel played a key role in the development of the University of Pittsburgh, dating as early as 1926, when it provided 7,142 tons of steel for construction of the now famous Cathedral of Learning that is the symbol of the university.[18]

That only a handful of places were successful at attracting and retaining large-scale production did not stop many or most places from pursuing this same strategy. It emerged as the gold standard of economic development, not just in North American but also throughout much of the noncommunist world. The mantra of economic development policy was attracting and retaining large-scale factories and plants; to the point that strategic management for most places was synonymous with what became known as "smoke stack chasing."[19] It was all about the firms, and especially the big firms. If a place did not have them, it needed to implement instruments such as subsidies, enticements, and preferential treatment to lure them. If it was lucky to already have large firms at that place, the strategy revolved around keeping them content enough to remain at that place.

South Carolina has a long tradition of pursuing a strategy based on attracting investments in manufacturing facilities from foreign companies. Since the 1970s, it has pursued a strategy of providing incentives to manufacturing companies in order to attract them to locate in areas such as Spartanburg and Greenville. During the 1970s and 1980s, upstate South Carolina succeeded in attracting companies such as BMW, Hoechst A.G., Michelin Tire Group, Robert Bosch, Bertelsmann, Adidas, and Hitachi. The policy instruments used to induce the location of such manufacturing operations in South Carolina ranged from tax breaks to subsidized interest rates and targeted training programs. S. Hunter Howard, Jr.,

executive vice president of the South Carolina Chamber of Commerce, interpreted the strategic decision-making of foreign companies as, "They see incentives, they see the tone of the legislature being pro-business, and those things combined with the quality of life and labor issues—I just think it's a composite decision."[20]

Seen from the perspective of today, this earlier rendition of the "strategic management of a place" seems strikingly simple, naïve, and one-dimensional. It is now obvious and self-evident that it is not anything like a strategy. After all, when there appears to be one policy that works, it can hardly be called a strategy. Still, when it worked, the results were breathtaking, at least for the people at that place. Thus, the tradition and approach inherited about what places should do are the remnants of a one-dimensional strategy that historically worked. However, as the economy grew more complex and complicated, this one-dimensional approach was doomed to fail, at least for most contexts and most places.

Two key changes facilitated the demise of the simple, tried-and-true formula inherent in "smoke stack chasing" along with its implicit recognition that what a place needs to prosper is large-scale manufacturing. The first was the advent of competition, even in the industries that traditionally had substantial monopoly or market power, such as automobiles, steel, and tires. At the close of World War II, the United States emerged not only victorious over communism and fascism but also as the only major developed country to emerge with a stronger and more robust economy. In order to achieve this great victory, government contracts to support the war in both Europe and the Pacific reignited industrial production, which had stalled during the Great Depression. By the time war was over, the United States was the only country with its productive capacity still intact. By contrast, the manufacturing capabilities in not only the defeated countries (such as Germany, Japan, and Italy) but also the victorious allied countries (such as England and France) were not just severely reversed but, in fact, devastated. Most of Europe was decimated from the fighting, which left the United States with a virtual monopoly in many manufacturing industries.

Thus, the devastation from war erased a crucial ingredient, highly capital-intensive factories, from Europe and Japan, leaving America as the sole place with this resource. "The United States found itself an economic lord set far above the destroyed powers, its once and future competitors among both Allies and Axis powers. . . . While European and Japanese factories were being pulverized, new American factories were being built and old ones were back at work, shrinking unemployment to relatively negligible proportions."[21] In fact, estimates of the stock of physical capital, which was at the heart of capital-intensive industries

such as automobiles and steel, placed around two-thirds of it in the United States.[22] With neither their own factories nor, more generally, physical capital, competitors in Europe and Asia could merely watch with astonishment and envy the mighty American production. And what an astonishing economic performance it was.

It was the wealthiest places, or those places exhibiting the strongest economic performance, where such production was located. For example, Detroit, with its factories turning from wartime military production back to peacetime automobiles, soared to unprecedented heights. Not only did Detroit emerge as the wealthiest city in the United States, and therefore undoubtedly the world during this era, but also it generated an unimaginable and unprecedented standard of living for Detroit. "No one at General Motors could ever have dared forecast so much prosperity over such a long period of time. It was a brilliant moment, unparalleled in American corporate history. Success begat success; each year the profit expectations went higher and higher. The postwar economic boom may have benefited many Americans, but no one benefited more than General Motors."[23]

It is no wonder that the second wealthiest place in the United States of this era, measured by per capita income, was another Midwestern city, with a similar strategy of accessing the same scarce resource—physical capital—to generate a strong economic performance, Cleveland.[24] The key to a strong, sustained economic performance seemed to be harnessing the physical capital needed to create the goods.

Not surprisingly, by virtue of possessing the scarce and requisite resource of physical capital, those places in the United States generated a sustained and rising standard of living for a large share of its population. The average real hourly wage in the United States rose from $5.34 in 1950 to $6.79 a decade later.[25]

Massachusetts Institute of Technology (MIT) economist Robert Solow was awarded a Nobel Prize for his research that identified the key ingredient influencing the capacity for a place to grow—physical capital, which typically consisted of plants and factories.[26] What mattered for a strong and sustained economic performance was what was not only abundant in American cities exhibiting a strong economic performance, such as Detroit, but also seemed unattainable or inaccessible in most other cities, not just in the United States but also throughout the world—factories, machinery, mechanization, and large-scale production. It was all about capital. After all, the title of Karl Marx's massive treatise on economics pointed to the key ingredient—*Kapital*.

The starting point in the field of urban economics is the same model of economic growth that won Robert M. Solow his Nobel Prize. This growth

model, when applied to cities, links the endowment of the factor of physical capital and labor to economic growth.[27] Growth policy, if not shaped by the Solow theoretical growth model, certainly corresponded to the view that inducing investments in physical capital was the key to generating economic growth and advances in productivity. An extensive set of studies found that investment in physical capital has an unequivocal positive impact on growth and economic development.[28]

The simple formula delivered a strong and sustained economic performance for many places in North America and Europe over the span of the post–World War II generation. But, by the 1980s, it proved to be considerably more difficult, if not impossible, to sustain. The reasons for this shift, which triggered the emergence of a mandate for the strategic management of places, are made clear in the following section.

## THE DEMISE OF THE SINGULAR STRATEGY

What changed, as much as anything, was the recovery of the rest of the world from the devastation of World War II. If not the entire world, then key parts of the world caught up to America. In fact, a significant success of American policy was to reignite the productive capabilities of its allies as well as former enemies through policies such as the Marshall Plan. As these countries recovered their productive capacity, they actually leaped ahead in terms of efficiency and productivity. It happened stealthily, often going unnoticed until imports of automobiles and steel from Germany and Japan into the United States exploded in the early 1970s. The awareness that American competitiveness was no longer a given, but was increasingly contested from key allies, was called by both policymakers and academics the *internationalization* of American industry.[29]

What this internationalization signified was the end of an era of unilateral trade in manufactured goods and the advent of competition from companies located in other countries. June 1987 saw *Business Week* ask the question, "Can America Compete?" In the decades following World War II,

> The United States was virtually unchallenged as an industrial leader. Americans could make anything, and because their products were the best, they could sell whatever they made, both at home and abroad. But somewhere around 1973, the gravy train was derailed—and it never really has gotten back on track. It may have been a combination of things; Vietnam, the OPEC price shock, the inflation spiral. U.S. producers met fierce competition from foreign industries that churned out high-quality goods made by low-wage workers.[30]

What had happened was that the United States stopped being "the only kid on the block" and began to face serious and substantial competition from places in Japan, Germany, and elsewhere in Western Europe. The internationalization and competitiveness debate of the 1980s focused on the emergence of competition from the most developed countries that had, through their postwar economic recoveries, rapidly approached the standard of living of the United States.

By contrast, the second development, which is characterized as globalization, extended this focus to include places in developing or less developed contexts. It was one thing for places in the most developed countries to compete with each other. It was another to now be facing competition from goods manufactured in China. As Thomas Friedman famously titled his book, the world had become flat.[31]

Not only did industries and companies from the most developed countries face competition, but places did as well. The advent of globalization ended the era of singularity between the competitiveness of a place and of companies.[32] What was good for the companies was no longer necessarily good for the place. After all, companies had available in their arsenal the twin strategies of outsourcing and offshoring. A key strategic decision available to companies is the ability to move its facilities to a new location where less expensive and perhaps more advantageous resources can be accessed. By contrast, places, whether Laramie, Wyoming, or Weimar, Germany, cannot pick up and move.

The era of the singular physical capital formula, which was more implicit than explicitly articulated, ended with bewilderment and confusion as international competition increased, thus paving the way toward globalization. What replaced this singular formula is the subject of the remainder of this book.

## EMERGENCE OF A STRATEGIC MANAGEMENT APPROACH

As the singular formula revolving around the factor of physical capital crumbled, it left places, whether cities, states, or regions, lost for direction. Places had not developed the discipline and practice of systematically and explicitly articulating their strategy, the physical capital strategy, because since there was only one available strategy there was no point to analyze and reflect on it; to do so would be squandering time and resources.

However, as it became increasingly clear that the strategy was failing, the intellectual void that existed presented a challenge to those mandated

with ensuring a strong economic performance for their place. Where could policymakers and place-advocates look for guidance and for a framework to help structure a strategy designed to improve their place? Where could city and regional leadership find insights as to why some cities and regions prosper while others stagnate or deteriorate? Typically policymakers responded to the failure of their existing strategy with a stunned immobility, reminiscent of deer staring into headlights.

In fact, there were many contributions from a broad spectrum of scholarly fields and academic disciplines that filled the ensuing intellectual void, suggesting new approaches and strategies to deliver a strong economic performance. City and regional economic performance is not a new topic. In particular, the field of urban economics has many studies focusing on why some places do better and others struggle. As the Harvard University economists Edward Glaeser and Joshua Gottlieb point out, "Just as macroeconomics explores both differences in growth rates and differences in GDP levels across countries, urban economists wonder why some cities are rich, some cities are growing, and others are doing neither."[33]

Contributions did not just come from urban economics. Understanding the problem and proposed strategies originated from sociology, innovation and technological change, labor economics, entrepreneurship, growth economics, sociology, psychology, regional studies, economic geography, and management—to name a few. In addition, economic development professionals, ranging from experts on cities, states, and national-based agencies to nonprofit organizations, foundations, and consulting firms, have all contributed their thoughts and wisdom.

Out of all this research, thought, and practical experience comes a diverse set of insights, which taken together, provide the basis for identifying and articulating the underlying forces shaping and influencing the performance of a place, along with what a place in turn can do to influence those underlying forces. This framework, depicted in Figure 2.1, provides the basis for the strategic management of places.

This framework, based on the insights offered by scholarly research and insights from practitioners, is organized into four main elements. These four elements are (1) factors of production and resources, (2) spatial and organizational dimension, (3) the human dimension, and (4) public policy.

The first element, factors of production and resources, is a direct extension of the singular formula discussed in the previous section, but instead expands on the set of factors influencing the performance of a place. This includes not just the traditional factors of natural resources, as well as physical capital and infrastructure, but also human capital, skilled labor, creative workers, finance, and knowledge capital. Just as

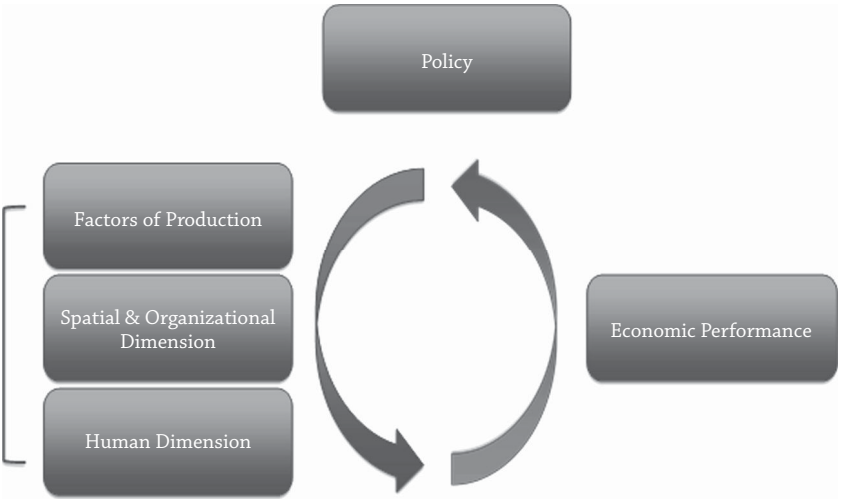



**Figure 2.1:**
Framework for the Strategic Management of Places.

the resource-based view of the firm has become a cornerstone for the field of strategic management of organizations, the role of resources and factors also plays a central role for the strategic management of a place.[34] The role of sources of knowledge, such as universities and their commercialization activities embodied in science parks, incubators, and offices of technology transfer, is included as a factor enhancing the knowledge capabilities of a place. The main point of Chapter 3 is that having a strong endowment of productive factors, including the traditional ones (such as natural resources, physical capital, and infrastructure), as well as the less traditional ones (such as universities, creative and high human capital workers, research institutes, and venture capital institutions), will contribute positively to the economic performance of a place.

While Chapter 3 considers the factors available at a place, Chapter 4, "Organization and Structure," explains why having even an abundance of key resources and factors at a place may not be enough to generate a strong economic performance. Rather, what is done with those resources and, in particular, how they are organized and structured into coherent and fluid meaningful economic units within a specific spatial dimension makes a difference. This chapter examines the geographic organization and structure of those factors and resources. Case studies and systematic econometric studies now suggest that it is not just the endowment of factors that shape the performance of a city or region. Rather, these studies suggest that it is the configuration—the structure and organization of those

factors—that influences city performance. In particular, these studies examine the extent to which economic activity is specialized in a city or, alternatively, characterized by diversity. Similarly, studies focus on the extent to which economic activity is characterized by more competition or market power and how that influences city performance.

Organizational and structural dimensions, such as the degree of specialization, the extent of diversification, monopolization, and decentralization, all seem to influence a place's economic performance. Certainly the strategy that has readily captured the attention of the policymaking community focuses on clusters and their positive impact on economic performance. Although headlines are grabbed by Silicon Valley in California and Research Triangle Park in North Carolina, such spatial clusters exist in many places. They also involve less well known but no less impressive technology clusters, such as life sciences in Madison, Wisconsin, or software engineering in Austin, Texas. Outside the United States, there are software engineering clusters in Ottawa, Canada, and Bangalore, India; information technology is in Stockholm, Sweden; and biotechnology in Cambridge, England, and Jena, Germany.

Clusters are not just about high technology and science. Country music clusters have driven a strong economic performance in Nashville, Tennessee. Production of pop music is centered in Los Angeles and New York, with recently emerging clusters in Stockholm and Dublin. Cutting-edge fashion designers cluster in Milan, Paris, Tokyo, and New York.

A very different but important dimension of the structure of assets and resources at a place involves whether they are organized in large, mature firms or in entrepreneurial start-ups and small business. The extent to which the organization of economic activity is characterized by entrepreneurship also influences the economic performance of that place. Entrepreneurship, in the form of a new-firm start-up, is considered to have a positive impact on city economic growth by serving as a conduit for the spillover of knowledge from an organization, whether a firm or university (where that knowledge is created), to a new firm (where that knowledge is commercialized). Examples of such knowledge-spillover entrepreneurship include Google, which was founded from knowledge created at Stanford University. Similarly, Intel is an example of knowledge spillover entrepreneurship, as it was founded from knowledge created in Fairchild. A European example is SAP Software and Solutions, which was founded from knowledge created at IBM. In each of these cases, the founder(s) left an established organization, where they obtained the crucial knowledge and ideas, and then started a new firm where those ideas were commercialized first. These entrepreneurial firms, in many cases, drove economic growth.

Many of these ideas were ignored and thrown away in the organization where they originated. It took an entrepreneurial act to get these ideas out into society and, in the process, generate innovations and growth.

There is mounting empirical evidence linking the extent of entrepreneurship in cities and regions to economic growth. A series of studies find compelling empirical evidence that those regions within a country exhibiting a higher degree of entrepreneurial activity, as measured by start-up rates, also exhibited higher rates of economic growth.[35]

The focus on resources and factors, as well as how they are deployed and structured by differently structured organizations, overlooks a key element that is the focus of the fifth chapter—that people and individuals can make a key difference in how well a place performs. In particular, the literature developed in sociology has identified an important role for individuals who engage in social networks. Places where people like to engage with others in a plethora of venues are considered to possess a high degree of social capital.[36] Lebron James's return to his hometown and home team, the Cleveland Cavaliers, is a perfect example of this. Emotional attachment and loyalty to a place apparently mattered significantly to the biggest basketball star in the world. In announcing his departure from Miami to return to Cleveland, he explained, "my relationship with Northeast Ohio is bigger than basketball," James told SI.com in a first-person essay. "I didn't realize that four years ago. I do now."[37] As Lorenzen observes, "Social capital consists of social relations among agents combined with social institutions that allow for cooperation and communication."[38] Similarly, just as leadership has been identified as providing a crucial contribution to the strategic management of organizations, it is also important for the strategic management of places. Thus, while factors refer to the extent that productive inputs exist in a region and structure refers to their organization and configuration within the region, this strand of literature identifies that certain processes involving the main economic actors and institutions are needed for harnessing the potential performance from the first two sources. For example, inspired leadership plus the existence of vital, dynamic networks and linkages both contribute to the economic performance of a place. These three underlying elements—factors and resources, spatial and organizational structure, and the human dimension—provide the cornerstones highlighting the varied underlying forces shaping the performance of a place. However, while it is one thing to identify the cornerstones shaping the economic performance of a place, it is a very different thing to advocate policy intervention and institutional change to change or influence those underlying forces in such a way as to improve or enhance economic performance. In fact, as it

became clear that relying on physical capital was no longer working, experimentation with a myriad of policy approaches and attempts blossomed, resulting in a broad range of results and outcomes. This helps us explicitly identify the role of policy in formulating and implementing the strategic management of places. Chapter 6 tries to make sense of the role for policy in formulating and implementing the strategic management of a place. In particular, the focus is on what places can and should do to positively influence their economic performance.

## CONCLUSIONS

How places have strived to attain a strong economic performance has changed dramatically within a generation. The tried and true formula from the post–World War II era of attracting and retaining physical capital—plants and factories—was rendered ineffective by globalization. This simple, singular mantra of local economic development was replaced, at first, by shock; it no longer worked. As time passed, however, it has gradually and painstakingly given way to a mandate for the strategic management of individual places.

As President Harry S. Truman observed, when signing the Employment Act of 1946, which mandated a nationally coherent and cohesive strategy to be formulated and implemented, "The Employment Act of 1946 is not the end of the road, but rather the beginning. It is a commitment by the Government to the people—a commitment to take any and all of the measures necessary for a healthy economy, one that provides opportunities for those able, willing, and seeking to work. We shall all try to honor that commitment."[39] What neither Truman nor the congressional leadership anticipated is that the relevant locus for developing and implementing this strategy may be more important at the local than at the federal level.

The pragmatism of policymakers, in combination with academics from varied scholarly fields and disciplines, has made considerable progress in filling in this void, resulting in what has emerged as the mandate for the strategic management of places. This strategy revolves around a framework consisting of four main pillars—resources and factors, spatial organization and structure, the human dimension, and policy. The ensuing chapters will delve into each of these pillars in more detail, beginning with the most traditional and best known and understood source—the role that resources and factors play in shaping the economic performance of a place.

# CHAPTER 3

# Resources and Factors

## INTRODUCTION

The Nobel Prize economist Milton Friedman once observed that "there is no such thing as a free lunch," which made it clear that in order to get something, you have got to give something—inputs or factors of production.[1] While Friedman's insight is typically used in reference to individual choice, it also applies to a place. A place makes choices, or perhaps more accurately, choices by individuals, firms, and nonprofit organizations are made at a place that influence and shape how well that place does in terms of economic performance.

The wisdom and insight inherent in Friedman's observation about the primacy of inputs in order to generate output have not been lost in the management profession, with the focus on how to best formulate strategy for firms and nonprofit organizations. One of the main frameworks for thinking about the strategic management in organizations is referred to as the resource-based view (RBV) of the firm.[2] This perspective focuses on the resources available to an organization, whether for-profit or nonprofit, as central to influencing or shaping its performance. Harnessing these resources can create a competitive advantage, allowing an organization to cultivate and sustain a high level of performance over time. As Harvard economist Michael Porter points out, what is generally understood to constitute a high level of return on investment exceeds that which would be considered to be "normal" or typical.[3]

A key feature of linking resources to organizational competitiveness is the ability and ease for competitors, both actual and potential,

to duplicate the firm's strategies by accessing the identical resources. Barriers to entry, as well as access to crucial resources, facilitate the sustainability of any competitive advantage enjoyed by any particular firm or organization.

While decision-makers concerned with the strategic management of a firm focus on those resources available to that particular company, an analogous framework for the management of places suggests that one key to achieving a strong and sustained economic performance of a place, albeit a town, city, county, state, region, or even entire country, is to focus on the resources and inputs that can be harnessed by a particular location.

As the resource-based theory suggests, it is not enough to just have access to a resource or a factor that is key to a particular industry. It is also important that other places are not able to copy or clone the same type of economic activity by accessing the same resource. One of the key insights for the strategic management of places is that a strong and sustained economic performance is shaped not just by access to the key resources that underlie economic activity for any particular industry or service, but that impeding competitors' access to the same resources or other suitable substitutes is also important.

Thus, this chapter focuses on the main types of resources and factors that a place can focus its strategy on in order to attain or maintain a strong economic performance. The next section is concerned with physical assets, which consist of factors such as natural resources, factories, machines, and infrastructure. The chapter then turns its focus on knowledge resources, which are generated, at least to some extent, by research and development. The next main factor considered by this chapter is the role of human resources, including both unskilled and skilled labor, human capital, and what has become known as the "creative class." In particular, this chapter emphasizes that no single factor or resource is enough to achieve strong economic growth. Rather, a central challenge for the strategic management of a place is how to focus on the types of resources and factors that will yield a strong and sustained economic performance.

## PHYSICAL RESOURCES

Key physical resources located at a particular place can form the basis for competitiveness. Vail, Colorado, and many other tourist destinations, have deployed a strategy based on leveraging a key natural resource—in Vail's case, the beautiful Rocky Mountains. This is a natural asset for

which there is not only a substantial demand, when it comes to skiing and other outdoor activities, but it is also an asset that cannot easily be replicated. Just ask people living in Kansas.

However, tourism is not the only means of encouraging development based on natural resources. As the maxim goes, necessity is the mother of invention. Such was the case in The Netherlands, where historically a lack of strong water currents throughout the country created difficulty powering mills. However, the Dutch were able to harness another resource, wind, in order to power their mills, aiding the country's growth. Today, The Netherlands is again turning to wind power in order to meet stringent alternative energy quotas set force by the European Union.[4]

As we know, natural resources are also often valuable commodities which can be used locally or traded. Oklahoma City has exhibited a remarkably strong economic performance in recent years: "While other cities slog along, the Sooner capital has been an economic powerhouse. In 2009, it was dubbed the best place to launch a business, by the Kauffman Foundation; three of its major companies were among the 'best to work for' in Fortune's 2012 list; its unemployment rate sits comfortably low . . . it looks like a lovely place."[5]

This strong economic performance in Oklahoma City is attributed to an abundance of a key natural resource—oil. The driving force of prosperity is that Oklahoma City is at the heart of the country's energy belt. When oil prices dropped in the 1980s, the region suffered through stagnant growth. Now, as petroleum spurts as a hot commodity, the energy business is fueling a steady employment environment. Two of the companies atop the Fortune list, Chesapeake Energy and Devon Energy, are major contributors to the 1,300 new energy jobs birthed in the city in 2010 alone. The number of oil and gas rotary drill operators in the metropolitan region is 14 times the national average.[6]

## PHYSICAL CAPITAL

Other places have supplemented their natural resource endowments with significant investment in physical capital in order to improve performance. For example, located on Lake Michigan, Chicago has traditionally been an important transportation hub. Whether its historic role as a conduit for ships passing from the Great Lakes to the Mississippi River through the Illinois and Michigan Canal or its role, even today, as a critical rail hub, Chicago's transportation has been key to growth not just for the place, but for the entire United States. This easy access to transportation

in turn provided a competitive advantage to manufacturing located in Chicago, facilitating both the delivery of key raw materials and the shipping of finished manufactured products.[7]

Other places have deployed the strategy of investing in infrastructure to generate a competitive advantage. For example, Indianapolis acquired a competitive advantage by developing a strong transportation infrastructure that takes advantage of its geographic location in the heart of the Midwest, rendering the city a transportation hub. Indianapolis is not the only place that has generated a competitive advantage through capital investment in infrastructure. In fact, careful research studies have identified a consistent and systematic link between infrastructure investments and the economic performance of places.[8]

While infrastructure represents investment in public capital, private capital can also be a catalyst for growth. Throughout the first three-quarters of the last century, General Motors amassed huge reserves of physical capital in the form of production plants and machinery, which served as the impetus for manifold increase in worker productivity. This strategy allowed General Motors to produce automobiles much more quickly and at much lower cost. As General Motors came to dominate the automobile market, the city of Detroit enjoyed similar prosperity, as this private investment in physical capital stock augured decades of prosperity for Detroit.

Another type of investment in physical capital in a place involves infrastructure. For example, the city of Tucson recently invested in a four-mile-long streetcar system of tracks that will run between the campus of the University of Arizona and the downtown part of the city. The impact of this investment in physical capital at the place (in the form of infrastructure) has already been realized in terms of an improvement in economic performance. "Local business leaders say the streetcar has already revived the center of this sprawling, artsy city of 524,000."[9] In particular, 150 new businesses started, $230 billion of construction, and 2,000 jobs were created or relocated to the downtown area as a result of the streetcar strategy in Tucson. Tucson is not alone in deploying a strategy of investing in infrastructure to spur economic performance. Seattle, Los Angeles, and Norfolk, Virginia, have all implemented a strategy of infrastructure investment in the form of streetcars because: "They help drive development. They help create a sense of place. They help shape a community and bring a vitality to a community."[10]

The link between the endowment of physical capital of a place and its economic performance is based on more than just examples, anecdotal evidence, and case studies. Robert Solow presented strong and

unassailable empirical evidence that those places endowed with more physical capital exhibited a stronger economic performance than those places with only a paucity of physical capital. Thus, Solow's compelling empirical evidence verified what most people had already concluded from obvious examples and real world experience—that having a stout stock of physical capital in the form of infrastructure, factories, and plants to efficiently crank out manufactured goods from assembly lines using large-scale production is certainly conducive to generating a strong economic performance, for both the firms producing those goods and for the place where that production takes place.

## KNOWLEDGE

If physical capital is so important in explaining why some places exhibit a strong economic performance, while others do not, then the long and sustained strong performance of Silicon Valley in California would seem to pose something of an anomaly. After all, anyone traveling through this region, which encompasses several cities, including San Jose, Menlo Park, and Palo Alto, would note the absence of large-scale factories and plants. This anomaly is not restricted just to Silicon Valley. In fact, highly successful prosperous regions, such as the Research Triangle Region of North Carolina, or Fairfax County, Virginia, that are similar to Silicon Valley in their noticeable lack of physical capital can be found across the globe. Such places, for example, Heidelberg, Germany, have been able to thrive even in the absence of a strong endowment of physical capital. Instead, these places are rich in a different factor or input—knowledge.

While Solow's seminal research was able to explain that differences in the stock of physical capital mattered in generating a strong economic performance, it also revealed that it was not the only thing that mattered. Solow was only able to attribute the unexplained determinants of economic performance as constituting the residual in his econometric model, which he assumed to constitute "technical change." Where does this knowledge come from and how can it be enhanced? One source is research and development (R&D), which refers to investments to generate new ideas.

## RESEARCH AND DEVELOPMENT

The most valuable company in the world, at least measured in terms of stock market value, is Apple.[11] Apple's market cap, which approached

$500 billion in 2012, exceeds the gross domestic product of Denmark. In fact, only twenty countries in the world have a gross domestic product higher than the market value of Apple.[12] In 2011 Apple's income, before taxes, soared to $34.2 billion.[13]

People who visit the Apple Computer Headquarters in Cupertino, California, often come away impressed by the quiet, reflective, almost Zen-like atmosphere that resembles a university campus more than the mammoth factories and manufacturing plants that drove the wealth created by industrial giants such as General Motors and United States Steel. The focus of Apple Computer is on research and development and generating new ideas which can lead to marketable innovations. In fact, the soaring and unprecedented performance of Apple is based on a very different resource—brains. The resource that has bestowed such an amazing performance not just at Apple but also at an all-star cast of high technology companies, including Microsoft, Twitter, Google, and Intel, has been knowledge and ideas.

This same resource, research and development, is the focal point for strategies that generate success not just for companies, such as Apple, but also for places. The Milkin Institute ranked Austin, Texas, as the "best performing" city in 2009. Its strong economic performance may be attributable to many different factors, but physical capital is not one of them. Anyone who has driven through Austin or around it knows that this is not a landscape full of mighty plants and factories. The same holds true for the city of Munich in Bavaria, Germany, which is full of research institutes, universities, think tanks, and research and development facilities from leading technological companies.

The role of knowledge as a key factor driving economic growth is prevalent in a number of places in the most developed countries, and certainly in North America and Europe. As the German Institute for Economic Research (DIW Berlin) points out:

> The competitiveness of companies is increasingly determined by the extent to which they succeed in developing new products and production processes and establishing new products on the market. Increasing complexity and division of labor are leading to companies not only carrying out research and development themselves, but also sourcing knowledge from other companies, from universities, and research institutions. Proximity to the cooperation partners can simplify the exchange processes.[14]

Researchers at the Institute find that knowledge resources vary considerably across German regions and cities. In terms of industrial research

and development, two places in Germany clearly exhibited a considerably greater investment in new knowledge—Stuttgart in the state of Baden-Württemberg and Munich in the state of Bavaria. As Table 3.1 shows, the 2007 share of employment accounted for by R&D employees averaged 5.3 percent across all of Germany. However, in Munich it was 13.8 percent and in Stuttgart it was 10.1 percent. In contrast, other places in Germany invested considerably less in new knowledge, including the five, formerly East German, states that joined Germany during reunification in 1990, where only 4.3 percent of industrial employment involved R&D. The economic performance of Stuttgart and Munich has been excellent and sustained over a long period of time, in terms of unemployment, growth, standard of living, and the quality of life, unlike that in the former East German states.

The significance and primacy of knowledge as a driving force for economic performance is yet another area of focus for many scholars. The explicit introduction of knowledge into growth models goes back to Paul

***Table 3.1.*** R&D INTENSITY BY REGION IN GERMANY, 1998 AND 2007

| 1998 | | | 2007 | | |
|---|---|---|---|---|---|
| | In percentage | Index[1] | | In percentage | Index[1] |
| Total | 4.2 | 100 | Total | 5.3 | 100 |
| *Thereof:* | | | *Thereof:* | | |
| Munich | 10.9 | 260 | Munich | 13.8 | 261 |
| Stuttgart | 7.7 | 184 | Stuttgart | 10.1 | 191 |
| Nuremberg/Erlangen | 7.7 | 183 | Nuremberg/Erlangen | 9.7 | 183 |
| Darmstadt | 6.8 | 163 | Darmstadt | 8.6 | 163 |
| Friedrichshafen | 6.5 | 155 | Bremen | 7.9 | 150 |
| Rhine-Main | 5.8 | 139 | Karlsruhe | 7.7 | 146 |
| Bremen | 5.7 | 137 | Dresden | 7.7 | 146 |
| Cologne | 5.7 | 137 | Friedrichshafen | 7.6 | 145 |
| Ludwigshafen | 5.6 | 134 | Hamburg | 7.3 | 139 |
| Dresden | 5.6 | 133 | Kiel | 7.2 | 136 |
| Agglomeration areas | 5.3 | 128 | Agglomeration areas | 6.8 | 128 |
| Urbanized Areas | 3.2 | 76 | Urbanized Areas | 4.2 | 79 |
| Rural Areas | 2.3 | 55 | Rural Areas | 3.0 | 56 |
| West Germany | 4.2 | 101 | West Germany | 5.4 | 103 |
| East Germany | 4.0 | 96 | East Germany | 4.3 | 81 |

1 Germany = 100.
*Source*: DIW Berlin (2008). Employment statistics; calculations by DIW Berlin.

Romer and Robert Lucas, who argued that, as a result of externalities and spillovers, knowledge is particularly important for growth and economic development.[15] In the Romer and Lucas models of what is now known as endogenous growth, or the new growth theory, knowledge is assumed automatically to spill over from a firm or organization, spreading information that can then be commercialized by third-party firms. While the more traditional concept of technology transfer identifies knowledge as flowing across different organizations for a market price, knowledge spillovers are free of charge. Third parties just need to be present in order to soak up the run off.

The fact that General Motors is our example for physical capital and Apple is our exemplar for knowledge capital implies a larger trend; over time the importance of physical capital as a source of competitive advantage has diminished in the most developed countries. Consequently, and as a result of globalization, knowledge capital has emerged in its place. This is because of a peculiar spatial characteristic involving knowledge and ideas. While the high propensity for knowledge to spill over makes it easy for outside firms to capitalize on knowledge that they did not create, such externalities or spillovers are also spatially bounded.

The theory of the localization of knowledge spillovers is based on a crucial distinction between *knowledge* and *information*.[16] Information has a singular meaning and interpretation. Information can be codified at low cost and the cost of transmitting that information across geographic space is virtually zero. By contrast, knowledge is vague, difficult to codify, and often serendipitously recognized. Even though the cost of transmitting information across geographic space is trivial, thanks to the telecommunications revolution, the cost of transmitting knowledge across geographic space, and especially tacit knowledge, increases significantly with distance. Thus, face-to-face interaction and nonverbal communication facilitate the transmission of ideas and intuition that cannot be communicated through text, television, or telephone. Perhaps it was this insight that led the trio of Edward Glaeser, Kallal Scheinkman, and Andrei Shleifer to conclude that "intellectual breakthroughs must cross hallways and streets more easily than oceans and continents."[17]

## UNIVERSITIES

Knowledge not only comes from the R&D investments of private companies but also is often derived from the university setting. A famous example is the development of Gatorade by University of Florida

researchers. Although it was subsequently monetized by a private firm, the knowledge and ideas were created in the laboratories of a university. The brutal weather conditions facing the university's football team prompted research into the frequent fatigue exhibited by players. The result was the development of a sports drink containing electrolytes and carbohydrates which allowed players to be less affected by the Florida heat during practice and games. While Gatorade was first developed to fuel the performance of the Gator's football team, it also became an important driver of success for the university and the Indianapolis-based Stokely-Van Camp Company, who oversaw the distribution of the product for commercial sale.[18]

Gatorade is not the only company whose innovative prowess has been fueled on the back of research and ideas generated at universities. The founders of Google, Larry Page and Sergey Brin, were both students at Stanford University, where they were exposed to the ideas that ultimately materialized into Google. The underlying knowledge and potential to build a search engine emerged at Stanford, which resulted in their creation of their first search engine, which was called BackRub.

Capitalizing on research derived from the university setting has been an effective strategy not just for firms seeking new ideas and knowledge to be translated into innovative new products but also for places in generating a source of knowledge that drives the economic performance of that place. Not only did the ideas at Stanford contribute to the success of Google, but in doing so they also contributed to the 40,000 jobs at Google, many of which are located in the same region as Stanford University. As the Governor of the state of Washington, Gary Locke advocated, "Our colleges and universities are powerful engines of economic development. They have spawned industries of the future in advanced computing, biotechnology, advanced materials, and environmental technology. Industries, which have already created thousands of jobs, and will provide thousands more in the future. The investments we make in these technology areas through targeted tax incentives will fuel this growth."[19]

Just as the strong and sustained performance of companies like Apple and Google have been based on accessing and leveraging the crucial resource of knowledge and ideas, harnessing the vibrant knowledge base that emerged in Austin has enabled the city to generate one of the best economic performances in the United States. Austin is a place that Richard Florida ranks as being both exceptionally technologically advanced and highly creative.[20] In *Forbes*, Joel Kotkin, a

Distinguished Presidential Fellow in Urban Futures at Chapman University, observes that

> Brains are flocking to Austin for good reason. . . . Along with Raleigh-Durham, Austin is emerging as the next Silicon Valley, luring lots of brains who would have previously headed toward the West Coast. Austin owes much both to its public-sector institutions (the state government and the main campus of the University of Texas) and its expanding ranks of private companies—including foreign ones—swarming into the city's surrounding suburban belt. Its vibrant cultural scene certainly helps in attracting college-educated millennials.[21]

Where does the knowledge in Austin come from? A half century ago Austin was little more than a typical, sleepy, American college town.[22] However, what the city did have was a large research university, the University of Texas–Austin. This formed the basis for substantial investments in research and education. The ascendency of the University of Texas–Austin accelerated when oil prices spiked in the 1970s as the state invested a share of the windfall into higher education, in particular the University of Texas–Austin.

The results from these strategic investments, first in terms of academic research and education, then, and more broadly, in terms of knowledge spilling over to drive Austin's economy, have been stellar. Not only has the University of Texas–Austin grown into one of the top-ranked universities in the world, it can boast of its world-class educational and research facilities, Nobel Prize laureates and Pulitzer Prize winners. As the university grew in stature, so too did its impact. Dozens of leading technology companies have located or were founded in Austin, including Dell, AMD, Freescale, Semiconductor, National Instruments, and Whole Foods Market.[23] Not only are these companies large, global corporations but also they are among the most R&D intensive in the world. Corporate research is one of the cornerstones generating ideas that ultimately lead to innovation and growth.

According to the *Wall Street Journal*, Austin ranks among the most innovative cities in the United States.[24] Not only did Austin have the third highest number of inventions registered with the US Patent Office in 2005, it followed two cities in California: San Jose and Sunnyvale. These two cities are at the heart of Silicon Valley. Thus, it is not just Austin that has generated a competitive advantage by developing and harnessing knowledge and ideas as a resource. This approach is the key to the strong and sustained economic performances of places ranging from Silicon Valley to Madison, Wisconsin, to Hamburg and Helsinki.[25]

It is worth pointing out that the institutional context matters decisively in the process of creating and accessing new knowledge, as well as in the process of transforming that knowledge into growth-driven, innovative activity. Universities, once derided as "Ivory Towers," seemed unable to generate knowledge that was relevant and applicable for industry. University contributions to commercialization and innovative activity in business were no doubt limited by the legal constraints, at least in the United States. Expensive investments in science and research at universities developed a mountain of scientific breakthroughs that could have been transformed into breathtaking innovations by the right entrepreneurs. However, there was a catch. The intellectual property created by professors at universities belonged to the people who paid for it. For American universities, a vast amount of research is funded by federal agencies in Washington, DC—and, consequently, belonged to the government. The bureaucratic red-tape involved in trying to arrange a commercial deal that included transferring the intellectual property from the government to a private company proved to be impossible to cut.

In the late 1970s, Senator Birch Bayh, working with Senator Bob Dole, recognized that while investment in research and science was a prerequisite for developing knowledge, once the knowledge was gained, it was impossible to use the results, "A wealth of scientific talent at American colleges and universities—talent responsible for the development of numerous innovative scientific breakthroughs each year—is going to waste as a result of bureaucratic red tape and illogical government regulations."[26]

Based on this imposing institutional constraint, Senator Bayh went on to challenge the usefulness of investments in universities, research, and science if the results could not contribute to innovation-generating knowledge. "What sense does it make to spend billions of dollars each year on government-supported research and then prevent new developments from benefiting the American people because of dumb bureaucratic red tape?"[27]

The passage of the Bayh-Dole Act triggered a new approach, enabling university-generated knowledge to be used for commercialization.[28] Since its passage, the act has had a profound affect and garnered positive reviews:

> Possibly the most inspired piece of legislation to be enacted in America over the past half-century was the Bayh-Dole Act of 1980. Together with amendments in 1984 and augmentation in 1986, this unlocked all the inventions and discoveries that had been made in laboratories through the United States with

> the help of taxpayers' money. More than anything, this single policy measure helped to reverse America's precipitous slide into industrial irrelevance. Before Bayh-Dole, the fruits of research supported by government agencies had gone strictly to the federal government. Nobody could exploit such research without tedious negotiations with a federal agency concerned. Worse, companies found it nigh impossible to acquire exclusive rights to a government owned patent. And without that, few firms were willing to invest millions more of their own money to turn a basic research idea into a marketable product.[29]

Passage of the Bayh-Dole Act of 1980[30] by the US Congress can be interpreted as a mandate to mitigate the knowledge filter impeding the spillover of knowledge for commercialization and innovation emanating from university research. By shifting the ownership of the intellectual property from research funded by the federal agencies of the US government from the federal government to the universities, the Bayh-Dole Act achieved its explicit goal to facilitate the commercialization of knowledge generated at universities.

Universities continued to evolve in yet another direction subsequent to passage of the Bayh-Dole Act. Not only had their role expanded from the classical Humboldt model, where knowledge is pursued for its own sake, to creating knowledge to solve societal problems and contribute to economic growth, universities began to create mechanisms for facilitating the spillover of knowledge for commercialization and innovative activity. Conduits of technology transfer and knowledge spillovers, such as offices of technology transfer, incubators, offices of engagement, and science parks, were created or gained in prominence on university campuses.[31]

The mechanism or instrument attributed to facilitating the spillover of knowledge from university scientist research to commercialization and innovative activity is the university Technology Transfer Office (TTO). The TTO was not explicitly created or mandated by the Bayh-Dole Act, but subsequent to passage of the Act in 1980 most universities created a TTO dedicated to commercializing university-based research. Virtually every research university has a TTO or similar office today.[32]

The TTO not only oversees and directs the commercialization efforts of a university. In addition, the TTO is charged with the painstaking collection of the intellectual property disclosed by scientists to the university along with the commercialization activities achieved by the TTO. A national association of offices of technology transfer, the Association of University Technology Managers (AUTM), collects and reports a number of measures reflecting the intellectual property and commercialization of its member universities.[33]

The activities undertaken by university TTOs have been compiled by the AUTM, which has facilitated the analysis of the economic impact of the Bayh-Dole Act in a large body of studies. As a number of studies document,[34] the number of inventions at universities receiving patent protection from the US Patent Office exploded subsequent to passage of the Bayh-Dole Act in 1980. These studies document that the absolute number, as well as the share of overall registered patents accounted for by university patents, increased dramatically after the Bayh-Dole Act was enacted by the US Congress.[35]

Universities themselves have appreciated the impact of the act, with the president of the Association of American Universities claiming that "before Bayh-Dole, the federal government had accumulated 30,000 patents, of which only 5 percent had been licensed and even fewer had found their way into commercial products. Today under Bayh-Dole more than 200 universities are engaged in technology transfer, adding more than $21 billion each year to the economy."[36] Similarly, the Commission of the U.S. Patent and Trademark Office found that

> In the 1970s, the government discovered that inventions that resulted from public funding were not reaching the marketplace because no one could make the additional investment to turn basic research into marketable products. That finding resulted in the Bayh-Dole Act, passed in 1980. It enabled universities, small companies, and nonprofit organizations to commercialize the results of federally funded research. The results of Bayh-Dole have been significant. Before 1981, fewer than 250 patents were issued to universities each year. A decade later universities were averaging approximately 1,000 patents a year.[37]

Thus, universities in the United States were able to shift from being a minor feature of a place to being a critical piece in the strategic management of a place. Today, places endowed with a university, like Austin, can turn to the university as a lever for competitiveness and, ultimately, a source of knowledge that provides a strong and sustained economic performance. For example, the founder of the biotechnology company, Amgen, made a philanthropic gift of $5 million to the University of California at Santa Barbara in 2012 to grow new retinal cells to replace those that have malfunctioned, in order to treat age-related macular degeneration, the leading cause of visual impairment among people older than 60. According to Bowes, who served as the founding partner of U.S. Venture Partners, a venture capital firm located in Silicon Valley, "For me, philanthropy is the best use of resources, by far. I've come to respect UC Santa

Barbara as a very important technological institution. My firm has used Santa Barbara technologies to start companies, and that has enabled me to get a pretty good look at what's going on down there. . . . The people at UC Santa Barbara and the technology there are ripe for a program that makes some real accomplishments in the vision field."[38]

Whether knowledge is created by R&D at private companies, from research undertaken at universities, or a combination of both, it represents a very different resource from physical capital, thus giving places without tangible assets an alternative potential path to success. While knowledge is intangible, it no doubt reflects a very real and highly valued resource upon which a strong economic performance can be created and sustained. Just ask the stockholders of Google or Apple, or the residents of Austin.

## UNSKILLED LABOR

Whether the competitiveness of a place is generated by physical assets in the form of natural resources, or physical capital in the form of manufacturing plants and factories, or knowledge resources in the form of universities or research laboratories, people are needed to mobilize these advantages. However, the kind of people, or labor, that a place needs varies considerably, depending upon the assets or resources. Take physical capital: while factories and machines can provide the source for a sustained economic advantage, people need to work in factories and with machines. This takes a particular type of labor, where unskilled labor is more important or plays a relatively larger role than does human capital.

General Motors, heavily equipped with physical capital, needed more than just its mighty factories and assembly lines to begin is historic ascension. While General Motor's machinery allowed for unprecedented efficiency, it relied on a legion of factory workers to achieve its potential. However, when combined with heavy machinery, the tasks required of assembly line workers were relatively simple and inherently repetitive—a brand of work that became known as unskilled labor. In 1914, Henry Ford offered many of his employee's five dollars for a shortened eight-hour work day. For many, this represented an unheralded opportunity, as five dollars a day was approximately double the typical salary of an autoworker at the time. Detroit's population immediately reflected this opportunity, as its population tripled from 1910 to 1930.[39]

The nature of work at General Motors was such that there were few prerequisites for work on the assembly line. General Motors high wages were extended to African Americans as well, creating a rare opportunity

to receive pay equal to their white counterparts. As such, General Motors represented a vehicle for social mobility among African Americans lacking formal training and struggling to assimilate into post-Emancipation, pre–Civil Rights Movement America.[40]

While capital-intensive production using low-skilled workers is becoming less of a source of competitive advantage for both companies and places throughout the most developed countries, the developing world is reliving America's industrialization growing pains. Citing opportunity for a better life, millions of Chinese have been drawn from the countryside to large cities in order to work in factories for minimal wages. As China continues its protracted flirtation with industrialization and capitalism, scrutiny is being given to the working conditions in its newly populated production facilities. News reports, replete with allegations of long hours, nonexistent bathroom privileges, worker suicides, and limited freedom to leave plant grounds, conjure images of an Upton Sinclair novel. While employing low-skilled labor for mass-production has offered success to many firms and places without dehumanizing employees, Western economies are guilty of these transgressions in recent history as well, as evidenced by fierce labor rights struggles at the firm, state, national, and (increasingly) international levels. In his indictment of the meat-packing industry in early-1900s Chicago entitled *The Jungle*, Sinclair sounds a cautionary note, "To Jurgis the packers had been equivalent to fate. . . . They were a gigantic combination of capital, which had crushed all opposition, and overthrown the laws of the land, and was preying upon the people."[41]

While unskilled labor is essential to the process of economic development, a place involved in industrialization should be keenly aware of the devastating effects of overzealous attempts to mechanize human inputs to production through the singular reliance on unskilled labor. In *The Principles of Scientific Management*, Winslow Taylor addresses this very issue.[42] Relying on his hard-earned practical experiences from organizing and managing factories, he set forth a series of principles outlining how human labor could be transformed into an unthinking commodity, that, when combined with the precious capital of factories, machines, and plants, could generate levels of output that were previously unimaginable. Taylor termed his new approach for managing and organizing people for the sake of mass production "scientific management."

At the heart of his research, which ultimately became known as *Taylorism*, was the elimination of thinking and decision-making on assembly lines. According to Taylor, "the science of handling pig iron is so great and amounts to so much that it is impossible for the man who is best suited to this type of work to understand the principles of the science, or even to

work in accordance with those principles without the aid of a man better educated than he is."[43]

The inherent genius of Taylorism and the ensuing explosion of mass production was that enormous leaps in productivity and efficiency could be attained—ultimately improving the standard of living—but while requiring very little, in terms of intelligence, education, training, and decision-making from the very workers who generated those massive productivity gains.

That is not to say that Taylorism, and ultimately mass production, was indifferent to the types of people that a place could offer up as a labor force. The key characteristics for workers employed in assembly lines of the great manufacturing companies in automobiles, steel, and heavy industry were first, and foremost, reliable; able to follow the instructions and rules. In some cases, it only took a single mistake by a single worker to shut down an entire assembly line. Thus, this ability to follow the rules and to be reliable was critical.

As William Whyte emphatically pointed out, not all workers were blue collar.[44] In his bestselling book, *The Organization Man*, Whyte observed the emergence of workers who made decisions for corporations. They may have been educated, but like their blue-collar brothers, the Organization Man was a conformist, responding to company dictates and obedient to the managerial hierarchy. According to Whyte, the conformity "was supposed to buy contentment."[45]

Such conformity was apparently prevalent at General Motors and pervasive throughout Detroit, as noted by Todd Gitlin:

> There was in all of this success for General Motors a certain arrogance of power. This was not only an institution apart; it was so big, so rich, and so powerful, that it was regarded in the collective psyche of the nation as something more than a mere corporation; it was like a nation unto itself, a separate entity, with laws and a culture all its own; loyalty among employees was more important than individual brilliance. Team players were valued more highly than mavericks. It was the duty of the rare exceptional GM employee to accept the limits on his individual fame. . . . The individual was always subordinated to the greater good of the company.[46]

According to Whyte, workers were to "be loyal to the company and the company will be loyal to you. After all, if you do a good job for the organization, it is only good sense for the organization to be good to you."[47]

Places pursuing a strategy leveraging the factor of physical capital to generate a strong economic performance developed a labor force

compatible with the demands of Taylorism and mass production. This gave workers, as well as the entire social and cultural context, a particularly distinct flavor, characterized by what David Halberstam observed as a "blandness, conformity, and lack of serious social and cultural purpose in middle-class life."[48]

The strategy of combining relatively unskilled, but disciplined, labor with highly capital-intensive large-scale manufacturing in heavy industries paid off richly for places such as Detroit, Cleveland, and Pittsburgh. It also paid off for the workers working in those industries and in those places. Automobile workers in Detroit earned the highest wages in the world at that time. This was a strategy that paid dividends for all involved—the companies, the workers, and certainly people living and working at those places successfully pursuing and implementing this strategy.

## SKILLED LABOR

However, not all places singularly pursue the strategy of combining low-skilled and relatively uneducated labor with high investments of physical capital. The strategy generating so much prosperity and wealth for places based on production in the great heavy industries fails in places that lack physical capital. Such places had to pursue a differentiated strategy, one that was based on leveraging a very different type of resource.

The southwest is among the least forgiving environments in the United States. However, its extreme climate lends itself to the harnessing of significant solar power. In fact, California played host to just under 50,000 jobs in the solar power industry in 2013.[49] Solar power is a form of alternative energy that is clamoring to fill the energy demands of the industrialized United States, which has demonstrated a desire to shift away from fossil fuels under the Obama administration. To harness solar power, sunlight must be harnessed by receptacles, stored for later use, and distributed to consumers. The infrastructure to achieve this is evolving technology, which requires highly skilled operators. Maintaining and improving this energy delivery infrastructure has huge implications for the economic performance of the American southwest, both in terms of employment opportunities and energy security. However, it is also reliant on highly skilled workers to make the industry competitive.

Humans are capable of much more than repeated lever-pulling, button-pushing, and time-clock punching. Indeed, we are capable of honing acute skills across a variety of fields. Given a certain amount of aptitude,

combined with education or practice, humans can develop expertise in fields ranging from athletics to musical performance to accounting to electronics repair. By forcing employees to check their individual talents at the door, employers fail to exploit the full potential of their employees. While this can work for a firm and a place where the competitive advantage is based on leveraging physical capital, places where competitiveness is based on developing industries such as alternative energy require their employees to possess certain skills to drive the success of both the firm and the place.

Skilled labor is generally considered to characterize a worker who has learned a set of skills to perform a specific task. Skilled labor involves work where specific skill sets or training, and in some cases experience, lead to a higher performance. Examples of skilled labor include driving a forklift, bricklaying, and earthmoving. Not only does empirical evidence suggest that those occupations classified as skilled labor earn a higher wage than unskilled labor, but those firms utilizing skilled workers tend to generate higher levels of profitability, and what is the most important for this book, those places, ranging from cities to states, regions, and countries, that utilize skilled labor exhibit a higher level of economic performance.

## HUMAN CAPITAL

General Motors is one of the largest corporations in the world. With a value of total assets in 2013 of $166.34 billion its 219,000 employees were able to generate $56 billion of valuation by the stock market. By contrast, Microsoft is considerably smaller, with total assets in 2013 of $142 billion. Yet its 101,914 employees were able to generate $324 billion of valuation by the stock market. If, as the Solow model implies, physical capital is so crucial to generating economic value, how could the smaller company, Microsoft, create more than five times the value of a company with three times as much assets and two times as many employees?

The answer is brains instead of brawn. Microsoft's strategy revolves around human capital rather than physical capital. Human capital generally refers to the stock of capabilities, knowledge, cognitive abilities, and even personal attributes embodied in an individual that enables that person to create economic value. Gary Becker, an economist at the University of Chicago, was awarded the Nobel Prize for identifying the role that human capital plays in creating economic value.[50]

Human capital has been frequently operationalized by and measured in terms of formal education, either the highest degree attained or alternatively the number of years in school.[51] A broad and extensive set of studies have found consistent compelling empirical evidence that those individuals with a greater degree of human capital, typically measured as the number of years in school or the highest degree attained, exhibit systematically higher levels of wages and incomes.[52]

Figure 3.1 shows that those individuals with a higher level of human capital, measured in terms of educational attainment, also tend to earn higher levels of income. While this table refers to data from the United States, in fact, the positive relationship has been found to hold for virtually every country in the world.

Investing in human capital has been found to increase the returns not just to individuals but also to firms. Those firms utilizing higher levels of human capital, generally exhibit higher levels of performance. Thus, the superior performance of Microsoft relative to that of General Motors reflects a strategy of investing in human capital rather than relying largely on physical capital to generate competitiveness. Part of the explanation for the performance bias has to do with globalization. While physical capital can be located and effectively deployed throughout the world, human capital has been found to be most effective only in clusters where many other workers also have high levels of human capital. Thus, human capital will not necessarily be productive or effective in many spatial contexts throughout the world but rather is crucially dependent upon the complementarities of other workers involved in the production process. The same

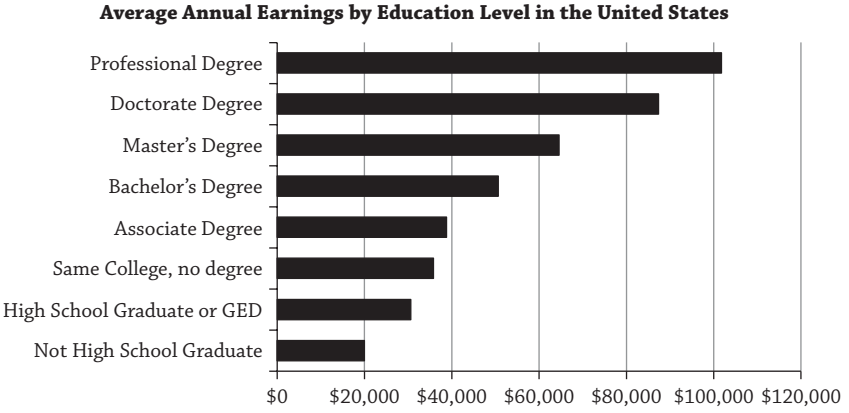



**Figure 3.1:**
*Source*: US Census Bureau (2010).

worker with a specific stock of human capital might be expected to be more effective and productive in say, London, than in the Sahara Desert.

What holds for individuals and firms can also hold for places—those cities, regions, states, and entire countries with a higher degree of human capital also tend to exhibit a superior economic performance. Not only does human capital serve as the foundation for the new macroeconomic growth theory, or the models of endogenous growth, but a plethora of systematic empirical studies has generated compelling evidence suggesting that those places with more human capital also enjoy a better economic performance, measured in terms of economic growth or standard of living.[53]

Despite the obviously diverse nature of human capital, researchers consistently find that there is a strong, positive relationship between the degree of human capital of a city or region and its economic performance.[54] According to Glaeser and Gottlieb, "The evidence from cities supports the view that human capital is a particularly important source of productivity and productivity growth. Urban intellectual interactions mean that innovations are highly correlated within cities and we should expect to see significant heterogeneity in the rate of technological change across space."[55]

Human capital plays a central role in the strategic management of places. "As cities try to reinvent themselves after losing large swaths of their manufacturing sectors, they are discovering that one of the most critical ingredients for a successful transformation—college graduates—is in perilously short supply."[56]

Table 3.2 identifies those places in the United States that have the highest amounts of human capital, as measured by educational attainment.[57] These very same places also tend to have a very high standard of living. For example, the Washington, DC, region exhibits the highest level of human capital, where 47 percent of the residents have attained a university degree, which is closely followed by the San Jose region, where 45 percent of the residents have attained a university degree. Those places with high human capital also tend to have a strong economic performance.[58]

The recent success of technology firms such as Google has been characteristic of the Internet era. Google was started by doctoral students at Stanford University. Just as it began under the vision of highly educated entrepreneurs, its success has depended on a stream of innovation and technical expertise to continually and strategically reposition the company. Google now boasts almost 50,000 employees, encompassing a whole spectrum of capabilities (from software engineers to custodial engineers). The resource or factor that has driven the strong economic performance

***Table 3.2.*** US CITIES WITH THE MOST COLLEGE-EDUCATED RESIDENTS, BY PERCENTAGE, 1970 AND 2010

| Rank | Metro Area | 2010 (%) | 1970 (%) | Change (%) |
|---|---|---|---|---|
| 1 | Washington-Arlington-Alexandria, DC-VA-MD-WV | 46.8 | 22.1 | 24.7 |
| 2 | San Jose-Sunnyvale-Santa Clara, CA | 45.3 | 19.3 | 26.1 |
| 3 | Bridgeport-Stamford-Norwalk, CT | 44.0 | 17.6 | 26.4 |
| 4 | San Francisco-Oakland-Fremont, CA | 43.4 | 16.8 | 26.5 |
| 5 | Madison, WI | 43.0 | 20.0 | 23.3 |
| 6 | Boston-Cambridge-Quincy, MA-NH | 43.0 | 14.2 | 28.8 |
| 7 | Raleigh-Cary, NC | 41.0 | 13.4 | 27.7 |
| 8 | Austin-Round Rock-San Marcos, TX | 39.4 | 16.3 | 23.0 |
| 9 | Denver-Aurora-Broomfield, CO | 38.2 | 16.2 | 22.0 |
| 10 | Minneapolis-St. Paul-Bloomington, MN-WI | 37.9 | 14.1 | 23.9 |
| 11 | Seattle-Tacoma-Bellevue, WA | 37.0 | 14.7 | 22.3 |
| 12 | New York-Northern New Jersey-Long Island, NY-NJ-PA | 36.0 | 12.4 | 23.5 |
| 13 | Provo-Orem, UT | 35.2 | 15.8 | 19.5 |
| 14 | Baltimore-Towson, MD | 35.1 | 10.3 | 24.8 |
| 15 | Hartford-West Hartford-East Hartford, CT | 34.6 | 13.2 | 21.3 |
| 16 | Atlanta-Sandy Springs-Marietta, GA | 34.1 | 12.0 | 22.1 |
|  | Colorado Springs, CO | 34.1 | 16.4 | 17.7 |
| 18 | Chicago-Joliet-Naperville, IL-IN-WI | 34.0 | 11.2 | 22.7 |
| 19 | San Diego-Carlsbad-San Marcos, CA | 33.7 | 14.0 | 19.8 |
| 20 | Albany-Schenectady-Troy, NY | 33.2 | 12.4 | 20.8 |
| 21 | Philadelphia-Camden-Wilmington, PA-NJ-DE-MD | 33.1 | 10.9 | 22.2 |
| 22 | Omaha-Council Bluff, NE-IA | 33.0 | 10.9 | 22.1 |
|  | Portland-Vancouver-Hillsboro, OR-WA | 33.0 | 12.5 | 20.4 |
|  | Rochester, NY | 33.0 | 13.3 | 19.6 |
| 25 | Worcester, MA | 32.7 | 8.9 | 23.8 |
| 26 | Columbus, OH | 32.5 | 12.3 | 20.3 |
|  | Kansas City, MO-KS | 32.5 | 11.1 | 21.4 |
| 28 | Charlotte-Gastonia-Rock Hill, NC-SC | 32.2 | 9.7 | 22.4 |
| 29 | Des Moines-West Des Moines, IA | 32.0 | 11.5 | 20.5 |
| 30 | Charleston-North Charleston-Summerville, SC | 31.9 | 9.9 | 22.0 |
|  | Honolulu, HI | 31.9 | 15.5 | 16.3 |
| 32 | New Haven-Milford, CT | 31.8 | 11.7 | 20.1 |
| 33 | Milwaukee-Waukesha-West Allis, WI | 31.7 | 11.2 | 20.6 |
|  | Richmond, VA | 31.7 | 10.9 | 20.8 |
| 35 | Dallas-Fort Worth-Arlington, TX | 31.1 | 12.9 | 18.2 |
| 36 | Los Angeles-Long Beach-Santa Ana, CA | 31.0 | 13.2 | 17.7 |
| 37 | Poughkeepsie-Newburgh-Middletown, NY | 30.9 | 12.0 | 18.9 |
| 38 | Oxnard-Thousand Oaks-Ventura, CA | 30.8 | 12.3 | 18.5 |

*continued*

| Rank | Metro Area | 2010 (%) | 1970 (%) | Change (%) |
|---|---|---|---|---|
| 39 | Indianapolis-Carmel, IN | 30.7 | 10.4 | 20.3 |
| 40 | Ogden-Clearfield, UT | 30.1 | 12.7 | 17.5 |
| 41 | Tucson, AZ | 30.0 | 15.7 | 14.3 |
| 42 | St. Louis, MO-IL | 29.9 | 9.7 | 20.2 |
| 43 | Columbia, SC | 29.8 | 13.1 | 16.7 |
| 44 | Nashville-Davidson—Murfreesboro—Franklin, TN | 29.7 | 9.7 | 20.0 |
| 45 | Sacramento—Arden-Arcade—Roseville, CA | 29.4 | 13.2 | 16.3 |
| 46 | Cincinnati-Middletown, OH-KY-IN | 29.3 | 10.0 | 19.3 |
| | Albuquerque, NM | 29.3 | 15.4 | 13.8 |
| 48 | Syracuse, NY | 29.2 | 13.2 | 16.0 |
| 49 | Springfield, MA | 29.1 | 10.5 | 18.6 |
| 50 | Pittsburgh, PA | 29.1 | 9.1 | 20.0 |
| 51 | Salt Lake City, UT | 29.0 | 14.7 | 14.3 |
| 52 | Knoxville, TN | 28.8 | 10.7 | 18.1 |
| 53 | Harrisburg-Carlisle, PA | 28.7 | 9.4 | 19.3 |
| 54 | Virginia Beach-Norfolk-Newport News, VA-NC | 28.5 | 9.9 | 18.6 |
| | Akron, OH | 28.5 | 10.8 | 17.8 |
| | Providence-New Bedford-Fall River, RI-MA | 28.5 | 8.3 | 20.2 |
| 57 | Houston-Sugar Land-Baytown, TX | 28.4 | 13.4 | 15.0 |
| 58 | Boise City-Nampa, ID | 28.3 | 11.4 | 17.0 |
| | Jackson, MS | 28.3 | 12.2 | 16.1 |
| | Buffalo-Niagara Falls, NY | 28.3 | 9.6 | 18.7 |
| 61 | Miami-Fort Lauderdale-Pompano Beach, FL | 28.1 | 10.7 | 17.4 |
| | Orlando-Kissimmee-Sanford, FL | 28.1 | 10.6 | 17.4 |
| 63 | Cleveland-Elyria-Mentor, OH | 27.7 | 10.5 | 17.2 |
| 64 | Oklahoma City, OK | 27.6 | 12.8 | 14.8 |
| 65 | Detroit-Warren-Livonia, MI | 27.3 | 9.4 | 17.9 |
| 66 | Phoenix-Mesa-Glendale, AZ | 27.2 | 12.5 | 14.7 |
| 67 | Wichita, KS | 27.1 | 11.7 | 15.4 |
| 68 | Jacksonville, FL | 26.9 | 8.8 | 18.2 |
| | Greenville-Mauldin-Easley, SC | 26.9 | 9.7 | 17.2 |
| | North Port-Bradenton-Sarasota, FL | 26.9 | 12.2 | 14.7 |
| 71 | New Orleans-Metairie-Kenner, LA | 26.9 | 10.2 | 16.5 |
| 72 | Baton Rouge, LA | 26.6 | 11.8 | 14.8 |
| | Allentown-Bethlehem-Easton, PA-NJ | 26.3 | 7.8 | 18.8 |
| 74 | Birmingham-Hoover, AL | 26.3 | 8.3 | 18.0 |
| 75 | Grand Rapids-Wyoming, MI | 26.2 | 9.2 | 17.1 |
| | Tampa-St. Petersburg-Clearwater, FL | 26.2 | 9.0 | 17.2 |
| | Little Rock-North Little Rock-Conway, AR | 26.2 | 10.0 | 16.3 |
| 78 | Louisville/Jefferson County, KY-IN | 25.8 | 8.5 | 17.3 |
| 79 | Greensboro-High Point, NC | 25.6 | 9.9 | 15.6 |

*continued*

***Table 3.2.*** CONTINUED

| Rank | Metro Area | 2010 (%) | 1970 (%) | Change (%) |
|---|---|---|---|---|
| 80 | San Antonio-New Braunfels, TX | 25.4 | 9.8 | 15.6 |
| 81 | Memphis, TN-MS-AR | 25.1 | 8.9 | 16.1 |
| | Palm Bay-Melbourne-Titusville, FL | 25.1 | 15.1 | 9.9 |
| 83 | Tulsa, OK | 24.8 | 10.6 | 14.2 |
| 84 | Augusta-Richmond County, GA-SC | 24.5 | 9.4 | 15.1 |
| 85 | Dayton, OH | 24.4 | 11.0 | 13.4 |
| 86 | Toledo, OH | 24.3 | 9.3 | 15.0 |
| 87 | Lancaster, PA | 24.1 | 8.2 | 15.8 |
| 88 | Cape Coral-Fort Myers, FL | 23.4 | 9.9 | 13.5 |
| 89 | Chattanooga, TN-GA | 23.2 | 8.3 | 14.9 |
| 90 | Scranton—Wilkes-Barre, PA | 22.2 | 5.7 | 16.5 |
| 91 | Las Vegas-Paradise, NV | 21.6 | 10.0 | 11.7 |
| 92 | Fresno, CA | 20.1 | 10.2 | 9.9 |
| 93 | El Paso, TX | 19.6 | 11.4 | 8.2 |
| 94 | Riverside-San Bernardino-Ontario, CA | 19.5 | 9.8 | 9.7 |
| 95 | Youngstown-Warren-Boardman, OH-PA | 19.3 | 7.1 | 12.2 |
| 96 | Lakeland-Winter Haven, FL | 17.9 | 8.8 | 9.1 |
| 97 | Stockton, CA | 17.7 | 8.0 | 9.8 |
| 98 | Modesto, CA | 16.0 | 8.2 | 7.8 |
| 99 | McAllen-Edinburg-Mission, TX | 15.8 | 7.3 | 8.5 |
| 100 | Bakersfield-Delano, CA | 15.0 | 8.9 | 6.1 |

*Source*: Brookings Metropolitan Policy Program, 2013, cited in Cities with most College Educated Residents (2012, May 30).

has not been physical capital. While Google, of course, owns buildings, facilities, and high-technology equipment, its strong and sustained economic performance is clearly attributable to the high levels of education and technological ability. According to one industry observer, "In 2006, Google was selected by MBA students as the ideal place to work. In 2007 and 2008 Fortune Magazine named Google the Number 1 employer in their annual ranking of best companies to work for. Google is a high-energy, fast paced work environment. While the dress code might be 'casual' the company attracts and retains some of the brightest minds in the technology industry."[59]

Rather than relying on the factor of physical capital to generate its impressive economic performance, Google instead has deployed a strategy revolving around human capital. Human capital is generally considered to constitute the extent of a worker's education. It is the highly developed human capital that drives success in this firm. What holds at the level of the individual and the firm also holds for a place. Those places with a

greater endowment of human capital tend to exhibit a superior economic performance. Thus, the success of Google contributes to the success of Silicon Valley, a huge oasis of high-tech firms and highly developed human capital.

The type of human resources needed in these so-called high-tech or knowledge-based industries, human capital, is decidedly different than those needed on the assembly line. Gone are the armies of unskilled but obedient blue-collar workers, who were the life force of the great manufacturing plants in heavy industries. In their place are workers who, first and foremost, have the knowledge necessary to understand state-of-the art technologies, as well as contribute to technological advancement. If manning the great assembly lines and factories of the Midwest meant working with your hands in a mechanized and routinized manner, then employment in these new emerging industries is about working with concepts and ideas.

According to Matthews, "If there's one thing that economists agree on, it's that the United States needs more 'human capital.' That's jargon for 'people with skills.' Just as buying physical capital—like computers, robots or factory equipment—lets companies produce more goods and services with less labor, hiring people with skills or specialized knowledge that makes them more productive helps companies produce more without increasing the man-hours producing it."[60] In terms of states, the best educated, measured as the share of residents aged 25 years or older with a college degree or more in 2012, are Massachusetts (39.1 percent), Maryland (36.9 percent), Colorado (36.7 percent), and Connecticut (36.2 percent). By contrast, those states that are the worst educated, in that they have those lowest share of residents with at least a college degree are West Virginia (18.5 percent), Mississippi (19.8 percent), Arkansas (20.3 percent), and Kentucky (21.1 percent).

According to Yu, the city in the United States exhibiting the highest degree of human capital is Washington, DC, followed by Boston and San Francisco. By contrast, cities in the south of the United States are characterized by considerably lower levels of human capital.[61]

Human capital is a critical resource in the high-technology sector, labor that needs years of education. Firms seeking to develop the cutting-edge technology need to be able to access this human capital in order to be competitive and to do well over the long haul, as suggested by the resource-based theory of the firm. Places, on the other hand, can become competitive by supplying the critical resource to firms—and in order to do so, the place's strategy is to become rich in the resource—in the case of high technology, the place needs to supply human capital. When the strategy of the place supplies what the firm strategically needs, the firm will strategically

locate at the place. For example, we find many well-educated people in Washington, DC, Boston, New York, San Diego, and San Francisco.[62] These are places that are also important to the high-technology industry.

The great Russian novelist Leo Tolstoy famously wrote in chapter 1 of *Anna Karenina* that "happy families are all alike; every unhappy family is unhappy in its own way." It may also be the case that while unskilled labor is relatively similar, skilled and high human capital labor is strikingly individualized and specialized in its own way. An unskilled worker in an assembly line in, say, textiles could conceivably be interchanged for a different unskilled worker from, say, a cannery. On the other hand, it is inconceivable that a researcher with a Ph.D. working in the pharmaceutical industry could be interchanged with an aeronautics engineer.

## CREATIVE CLASS

Madison, Wisconsin, has enjoyed its recent success for a somewhat different reason. The town is able to attract a desirable subset of the population known as the "creative class" by virtue of its large state university, the University of Wisconsin. Madison is able to attract and retain this talent and attract additional talent due to the presence of large high-tech employers, such as Epic Systems, which employs 5,200 people,[63] drawing primarily on recent graduates from top universities. The city's vibrant music scene and diverse dining options are attractive amenities for Madison's creative class, serving to retain the existing creative class and further attract new talent to the city. As such, it is no coincidence that Livability.com recently ranked Madison as one of the very best best places to live in the United States.[64]

Richard Florida, in *The Rise of Creative Class*, took a novel and creative way of thinking about and measuring what has traditionally been considered to constitute human capital.[65] Rather than rely on measures of education, such as number of years in school, Florida uses occupational classifications to categorize workers as belonging to the creative class, the working class, or the service class. He decomposes the creative class into the super-creative core, which consists of scientists, academics, and artists. The remaining creative professionals consist of management, finance, law, healthcare, and high-end sales. His point is that there is more to creativity than just years in school, and that it is an activity, not an educational attainment. Using US cities, Florida finds a strong and compelling link between the share of a city's workforce accounted for by the creative class and its economic performance.

Under Florida's classification scheme, the creative class consists of around 40 million workers in the United States. This corresponds to about one in three workers. The super-creative core is accounted for by just over one in ten jobs in the United States. A broad spectrum of occupations are classified as belonging to the super-creative core, including not just "hard" fields like science, engineering, education, and computer programming, but also the traditional "soft" occupations, including arts, design, and media workers. Florida considers these occupations to constitute the "super-creative" core of the creative class because they are "fully engaged in the creative process,"[66] focusing on creating new products and services. As Florida points out, "Along with problem solving, their work may entail problem finding."[67] In contrast, what Florida terms "creative professionals" consists of occupations of "classic knowledge-based workers." According to Florida, creative professionals "draw on complex bodies of knowledge to solve specific problems."[68] That is, they utilize their investments in human capital to contribute to solutions for particular problems and situations.

The places exhibiting the highest share of the workforce accounted for by the creative class includes cities such as Durham, North Carolina, San Jose, California, Austin, Texas, and Washington, DC, as Table 3.3 shows.

This research has prompted places to alter their strategies, seeking to encourage the creative class to move in, thus providing the knowledge resource that will attract firms seeking knowledge. Even as oil and gas may have shaped the competitiveness and ultimately the economic performance of Oklahoma City historically, a new strategy has been forged to develop the creative class as the driving force underlying economic performance. As *Forbes* notes, "Although it ranked near the bottom of Richard Florida's perennial list, the city is aiming higher."[69] The expansion of the creative class is largely attributable to a new strategy shaping the competitiveness and economic performance of Oklahoma City. According to Derek Thompson, who concluded that Oklahoma City is the metro of the future, "The 20th century perspective was that people went where the jobs were. Today the jobs are going to go where the people are. Highly talented young people are coming to us because of the low cost of living. People want to work here."[70]

Florida's research has a far-reaching impact; reports now detail where the creative class is living in Europe.[71] Cities such as Munich, Hamburg, Stockholm, and Helsinki exhibit the highest share of the workforce. Evidence shows that cities with a bigger share of the creative class also exhibit higher rates of economic growth.[72]

The strategy of human capital-based competitiveness for places seems to be particularly compelling in light of the pervasive evidence suggesting

***Table 3.3.*** METRO AREAS WITH THE HIGHEST AND LOWEST PERCENTAGES OF THE WORKFORCE IN THE CREATIVE CLASS HIGHEST PERCENTAGE OF THE WORKFORCE IN THE CREATIVE CLASS

| Rank | Area | Percentage of the Workforce in Creative Class |
|---|---|---|
| 1 | Durham, NC Metro Area | 48.42 |
| 2 | San Jose-Sunnyvale-Santa Clara, CA Metro Area | 46.93 |
| 3 | Washington-Arlington-Alexandria, DC-VA-MD-WV Metro Area | 46.82 |
| 4 | Ithaca, NY Metro Area | 44.64 |
| 5 | Boulder, CO Metro Area | 44.41 |
| 6 | Trenton-Ewing, NJ Metro Area | 42.92 |
| 7 | Huntsville, AL Metro Area | 42.65 |
| 8 | Corvallis, OR Metro Area | 41.66 |
| 9 | Ann Arbor, MI Metro Area | 41.26 |
| 10 | Boston-Cambridge-Quincy, MA-NH Metro Area | 41.21 |

Lowest Percentages of the Workforce in the Creative Class

| Rank | Area | Percentage of the Workforce in Creative Class |
|---|---|---|
| 1 | Myrtle Beach-Conway-North Myrtle Beach, SC Metro Area | 17.12 |
| 2 | Dalton, GA Metro Area | 21.07 |
| 3 | Ocala, FL Metro Area | 21.15 |
| 4 | Ocean City, NJ Metro Area | 21.76 |
| 5 | Elkhart-Goshen, IN Metro Area | 21.77 |
| 6 | Houma-Bayou Cane-Thibodaux, LA Metro Area | 22.07 |
| 7 | Naples-Marco Island, FL Metro Area | 22.14 |
| 8 | Sandusky, OH Metro Area | 22.58 |
| 9 | Michigan City-La Porte, IN Metro Area | 22.68 |
| 10 | Las Vegas-Paradise, NV Metro Area | 22.69 |

*Source*: Martin Prosperity Institute (2011).

that cities in North America and Europe are losing, or have lost, the comparative advantage for economic activity based on physical capital. Globalization has drastically reduced the cost of shifting production to lower cost regions around the globe. In the 1990s, *The Economist* famously observed that "the death of distance as a determinant of the cost of communications will probably be the single most important economic force shaping society in the first half of the next century."[73] With globalization delinking the competitiveness of a place from the competitiveness of the

firms and industries operating at that place, it has shifted production from the high-cost locations in North America and Western Europe to lower cost locations in Asia and Eastern Europe.

As the *Wall Street Journal* points out, "Originally the Midwest's economy was built on its farms, then later on its factories. The best way to secure growth was through big companies and big labor unions."[74] For example, the state of Indiana is typical of Midwestern American states that successfully implemented a strategy of combining low human capital labor with large investments in physical capital during the post–World War II era. With factories across the state, Indiana was among the wealthier states in the country. As recently as 1965, Indiana ranked seventeenth in per capita income among the fifty states and the District of Columbia. In 1970, around one-third of Hoosiers were employed in the manufacturing sector, a proportion considerably higher than in the rest of the country. Yet, manufacturing jobs in Indiana have declined dramatically since then, with only 20 percent of the population working in manufacturing by 2012. "Manufacturing in Indiana, once a core strength of the Hoosier state, has shriveled. And it hasn't happened just in northern Indiana, where you'd find the nation's recreational vehicle production capital—now on its deathbed—and the heavily industrialized region spilling over from Chicago into Hoosier counties."[75]

Indiana has maintained its national leadership in manufacturing employment shares—it has the highest share of the labor force in manufacturing in the country. However, with easier access to the cheaper labor and materials in foreign countries, it is highly likely that the traditional, assembly-line manufacturing jobs will only continue to vanish from not just Indiana but the rest of the country as well. As the president of the Bloomington Economic Development Corporation Ron Walker laments, "The difference here is that Indiana's industrial investment has always been greater than that of most other states. The part of the economy that was manufacturing was much higher than the rest of the country. We had more at risk. We stand to possibly lose more."[76] Thus, the strategy of combining unskilled workers with large-scale physical capital has largely been abandoned in Indiana, as elsewhere in the Midwest, for strategies based on human capital and knowledge.

## CONCLUSIONS

Most policymakers concerned with the strategic management of a place would not be surprised at how important resources and factors

are in shaping the economic performance of their place. However, it is difficult for policymakers to move beyond the two unfortunate misconceptions prevalent in discussions addressing the strategic management of places.

The first misconception is obsession with a singular resource or factor. In some ways, the focus on a singular factor at the exclusion of the alternatives reflects the overwhelming success and traction that the focus on a singular resource or focus has achieved. For example, attracting or generating the creative class has emerged as the sole factor driving the strategic management of many places. This is true both in Europe and North America, "Richard Florida's ghost roams throughout Europe these days. We live in a world of global cities that are involved in interurban competition to attract investors and the so-called international knowledge worker. Keynesian economic policy has a shift to an entrepreneurial and managerial approach to metropolitan governance. The inevitable rise of city branding and Florida's creative class theory are direct derivatives from these developments."[77]

This criticism of the failure of the factor of the creative class to provide a universal panacea for places is common,[78] appearing in mainstream media. In "Thunder in Oklahoma City: Creative Class or Oil and Gas?" *Forbes* points out that, "despite the assertions of the mayor, Mick Cornett, attributing the strong and sustained economic performance to attracting the creative class to Oklahoma City, it is actually the natural resources of oil and gas . . . (Mayor) Cornett has put the cart before the horse. It's not the arrival and retention of young professionals that is fueling the city's growth, but the city's unique young professionals that is fueling the city's growth, but the city's unique economic situation—one which keeps homes cheap, jobs aplenty, and a financial crisis at bay—that is retaining the young professionals. Whether or not the "creative class" is truly behind the city's prowess is a disputable question."[79]

More than anything, this chapter should have made clear that there is no singular factor or resource, whether physical (natural or man-made) or intangible (knowledge, human capital, or the creative class), that provides a guarantee of a strong economic performance. Rather, the central feature of the strategic management of places is to jointly focus on a profile of resources and factors that can work together. A place, whether it is a city, state, or region, is not at all restricted by a singular approach but rather has an opportunity to design its own approach that takes advantage of its historical, institutional, social, and political strengths.

The second misconception is that it is enough for a place to have a rich investment in a factor or resource that will generate a strong economic performance. As the next chapter makes clear, the economic performance of place is influenced not just by the presence of a factor or resource but also the spatial structure and organization of that factor.

## CHAPTER 4

# Organization and Structure

### INTRODUCTION

If resources or factors matter so much, as the previous chapter concludes, why did my hometown of Poughkeepsie, New York, fare so badly during the 1980s and early 1990s? The city, and the surrounding region, thrived since the 1950s by being a prime location for IBM, the dominant firm in the rapidly growing computer industry, which provided good jobs, stability, and the bedrock foundation for a thriving community. In Dutchess County alone, IBM provided 60 percent of the manufacturing jobs and 20 percent of the overall jobs during the 1960s and 1970s, resulting in the lowest unemployment in the state, which was 3 percent in 1978. Certainly, the key resources that were paramount to the firm's strategy of innovating in the computer industry were abundant in a region populated with college graduates and a lot of computer engineers and scientists from the nation's top universities.

However, in the early 1990s, IBM laid off nearly 10,000 workers in the Hudson Valley area, which encompasses portions of roughly three counties between New York City and Albany. Unemployment in Dutchess County jumped from the state's lowest in 1988 to its highest, nearly 12 percent, by 1993. The *New York Times* assessed the economic wreckage from IBM's downsizing and concluded that very few, if any, of the middle-level managers laid off would "ever make anywhere near the salaries of $80,000 or more that they once made, or keep their self-respect."[1]

What went wrong in Poughkeepsie, in Dutchess County, and in the entire Hudson Valley region? The answer has less to do with the topic of

the previous chapter, the endowment or presence of key resources and factors, which would no doubt be an abundance of top computer scientists and engineers, and more to do with how those resources were organized and structured. In fact, they were essentially organized into a single firm, IBM, which was the dominant firm with considerable monopoly power.

The place, whether from the perspective of the city, Poughkeepsie, the county, Dutchess County, or the region, the Hudson Valley, clearly suffered from having its economic activity concentrated in a single company that specialized in one main product, the main frame computer, and operated as a dominant firm with substantial market power. The *New York Times*, reporting on the region, interviewed a county executive, William R. Steinhaus. "'Dutchess County has had this warm comfortable security blanket called IBM for decades,' said Steinhaus, the county executive. 'People before me were very passive when it came to job diversification because they felt IBM was their meal ticket. That has come back to haunt us big time.'"[2]

Without intending to, Poughkeepsie's organizational structure looked an awful lot like the monolithic Combines that dominated the Soviet Union and its Eastern European satellite countries. Even though it was anything but a state-owned communist Combine, the organizational structure and employment policies, as well as the company's relationship to the place, bore some uncanny similarities. For example, IBM offered lifetime employment and benefits that extended well into the social and personal lives of its employees. However, this abruptly ended in the early 1990s. According to the *New York Times*,

> "To be an IBM executive was to have great significance," Mrs. Young said. Mrs. Young, a school social worker, did not lose a job at IBM; her husband did. It is a measure of the power of the cutbacks that her identity has also been unhinged. . . . "We were part of a great big family," said John Young, a tall, broad-shouldered man of 52. "The manager was a father figure. In exchange, workers put in long hours and the spouses dutifully did their part." "There was no question what the wife did," Mrs. Young said, "The wife's primary role [*sic*] was enrolling the kids in a new school, redecorating the house, finding a new church, begin entertaining the I.B.M. employees." . . . Mrs. Young said she felt a "sense of great betrayal" and was angry at her husband's "blind faith." "He was being crucified and he was still loyal."[3]

The purpose of this chapter is to make clear that while having the key resources, whether natural, physical, or human, may be important in generating a positive economic performance, as the previous chapter

concludes, it also may not be sufficient. Rather, this chapter suggests that what is done with the underlying resources and factors, in terms of how they are organized and structured into firms and industries, is crucial in shaping the economic performance of a place.

In particular, six distinct dimensions of spatial organization and structure are considered. The first is the extent to which economic activity is organized within firms possessing market power. The second dimension involves exactly the opposite—the extent to which economic activity is organized by firms operating in competitive markets. The third involves the organizational dimension of the firms within the region—the extent to which entrepreneurial start-ups and new firms play a role. The fourth dimension is the extent to which economic activity is specialized to take advantage of scale economies and lower transactions costs. The fifth dimension focuses on the degree of diversity of economic activity located at a particular place. The sixth dimension involves the organization of firms into clusters of complementary economic activity.

This chapter explains how and why these six key dimensions of locational organization and structure are linked to economic performance of a particular place. A plethora of evidence supports each dimension, even as some of these dimensions are the antithesis of other dimensions. For example, a place that is dominated by firms with market dominance and monopoly power is the opposite of places with competitive and entrepreneurial firms. Similarly, locational specialization is the antithesis of locational diversity. In fact, this chapter will show that there are compelling arguments, convincing empirical evidence, and striking case studies that each dimension can be effective in generating positive economic performance in different scenarios and distinct contexts. Ultimately each place, whether it is a community, city, region, state, or even an entire country, must create its own configuration of resources, factors, institutions, and opportunities to their particular organizational and structural strategy that will be most conducive to a positive and sustainable economic outcome.

## MARKET POWER

In the early 1990s, Helsinki, along with the rest of Finland, was suffering from a severely depressed economic performance. Prior to the fall of the Berlin Wall, the sale of wood products to the Soviet Union ensured competitiveness and strong economic performance in terms of growth and employment. Unemployment was rare and sporadic. However, with the

collapse of the Soviet Union, these markets vanished, triggering a sharp spike in the unemployment rate from 2.5 percent in 1990 to over 17 percent by 1994. The prospects for Helsinki, along with the rest of Finland, seemed dismal.

One of the leading wood-producing companies, Nokia, was on the verge of bankruptcy. In a radical change in direction, born more out of desperation than anything else, the company abruptly shifted its priorities and orientation to what at the time was generally unused and unaccepted—mobile telephones. In fact, Nokia had stumbled onto *the next big thing*. Demand for and sales of Nokia's cellular telephones exploded, as first the Nordic countries, subsequently followed by continental Europe, and then the United States and the rest of the world realized the enormous advantages of going mobile. The use of mobile telephones diffused with amazing rapidity around the globe. And it was Nokia that provided the product coveted by consumers seeking to go mobile.

As demand for the new cellular telephones, or mobiles, as they were affectionately referred to in Europe, skyrocketed, Nokia found itself in the fortunate position for the strategic management of a firm that was, more or less, the only kid on the block. In the 1990s, Nokia dominated the market and offered products that everybody wanted. This market dominance generated a strong and sustained performance for Nokia, so that the company enjoyed record profits and enviable growth. The strong economic performance was not restricted only to Nokia. The employment creation, growth, and increase of wealth also spilled over to Helsinki and other parts of Finland. Within just a few short years, Helsinki transformed itself from being a European problem child to an emerging economic powerhouse able to deliver high-quality sustainable jobs, enviable economic growth, and one of the highest levels of living standards not just in Europe, but in the world.[4]

Unemployment began a thirteen-year decline, going from a peak of 17.5 percent in 1995 to around 6 percent by 2008. Today, Helsinki continues to register exceedingly low levels of unemployment, despite the financial and European crises, and is regularly ranked among the top quality of life cities.[5]

How did such a breathtaking transformation take place? Helsinki was fortunate enough to be the home to what emerged as the dominant firm with substantial market power, Nokia, in what has become one of the most important industries in the world, mobile telephones. And Helsinki was smart enough to quickly and effectively orient its own strategic management toward leveraging the high economic performance from Nokia's success to its own exceptionally strong economic performance.

Helsinki certainly did not invent or discover that the performance of a place can be leveraged from the sustained competitive performance of a firm enjoying a dominant market share and monopoly power. Both historical and contemporary examples abound. My grandfather, Don Lochbiler, was a newspaperman much of his adult life with *The Detroit News*. After retiring, he published his sole book, *Detroit's Coming of Age*, which celebrated the emergence of not just a dominant auto industry proudly imposing its market power on the rest of the country and world but also the emergence of one of the most prosperous and wealthy cities of its day, Detroit.[6]

That the strategic management of Detroit revolved around that of the Big Three in the automobile industry—General Motors, Ford, and Chrysler—was not lost on policymakers charged with ensuring a strong economic performance. As Martin S. Hayden, who served as the editor of *The Detroit News* at the time, wrote in the preface to *Detroit's Coming of Age*, "In the story of urban America it would be difficult to parallel the evolution of the city of Detroit from a localized hub of Michigan and Great Lakes commerce to the 1973 sprawling giant known worldwide as the birthplace of the industrial mass production."[7]

Detroit was not alone; Rochester, New York, similarly provides an example where the performance of a city was inextricably linked to that of a dominant firm possessing considerable market power, Kodak. As Kodak emerged as a dominant firm possessing substantial market power in the photography and film industry, its strong economic performance was leveraged by Rochester to ensure that the city enjoyed its share of wealth and prosperity. Similarly, the impressive ability of Cleveland, Ohio, to generate jobs, growth, and wealth was clearly linked to the market power and dominance of Standard Oil, just as the strong economic performance of Akron, Ohio, was linked to the market power of the dominant US tire companies.

The emergence of large corporations, accounting for a large share of the market, was largely attributable to the prevalence of scale economies in key industries. Only the largest companies attained sufficient scale in manufacturing to fully exhaust scale economies and therefore attain the lowest possible average cost.[8] There were three different strands in the scholarly literature analyzing how the prevalence of market power and oligopoly impacted economic performance. The first approach, which comprised the field of industrial organization within the academic discipline of economics, focused on how large, dominant firms with market power influenced the economic performance of industries.[9] By contrast, the field of strategy within the discipline of management focused on the impact of large size and market power on firm performance.[10]

The third strand in the literature focused on the implications of large dominant firms on the performance of a place. In what has become referred to as the Marshall-Arrow-Romer model in economics—named after three leading economics thinkers: Alfred Marshall, the famous neoclassical economist of the nineteenth century; Kenneth Arrow, the Nobel Prize winning economist of the previous century; and Paul Romer, one of the architects of contemporary growth theory—monopoly power is superior to competition because it creates a high, sustained, performance and rate of the return, not just for the firm, but ultimately for the place where the firm is located.[11]

How exactly is monopoly power possessed by dominant firms transformed into a high economic performance for the place? There are a number of transformative mechanisms, ranging from organized labor, to civic engagement, and to philanthropic giving. Whatever one thinks politically or socially about unions, a number of labor economic studies find compelling and systematic evidence that wage rates for workers belonging to a union were consistently higher than for their nonunionized counterparts. Thus, organized labor provided one mechanism for shifting some of the returns enjoyed by firms with dominant market power to people living at the place.

Similarly philanthropic giving from successful economic dominance is often linked to the place. For example, the Ewing Marion Kauffman Foundation, which is the philanthropic foundation created by Marion Kauffman, has an explicit mandate to promote the standard of living and economic performance of his home city, Kansas City. Among the central missions of the Kauffman Foundation is to "treat the Kansas City region as a program incubator where feasible, in which new approaches can be tried and tested before being disseminated nationally."[12] A few states to the east, in Indianapolis is the home of Eli Lilly Pharmaceuticals. It has ranked among one of the largest, most dominant companies in the pharmaceutical industry for decades. The foundation bearing its name, the Lilly Foundation, has an explicit mandate to promote the economic performance of the place where Eli Lilly Pharmaceuticals has its headquarters—Indianapolis. According to the mission of the Lilly Foundation, "The Lilly Foundation supports select cultural and community development organizations and projects that meaningfully enhance the quality of life in Indianapolis. Organizations and projects that distinguish Indianapolis on a national or international basis are best positioned for funding."[13]

Many of the greatest and most prominent entrepreneurs in the United States have also been among the most notable philanthropists. While striking historical examples abound, such as John D. Rockefeller III,

Andrew Carnegie, Ewing Marion Kauffman, and the Guggenheims, more contemporary examples have caught the attention of the entire world, such as Bill Gates, Warren Buffett, Mario Batali, Michael Bloomberg, and Mark Zuckerberg. According to Gaudiani,

> The outstanding characteristic of American generosity is its entrepreneurial character. By this I mean a drive to build something of value through hard work and risk taking. Identifying a problem or an opportunity is the crucial starting point. But the entrepreneurial spirit drives the individual or group to take action and to do so with a sense of urgency. Over the decades, and in fact centuries, private donors in America have typically made their gifts far earlier and far more quickly than other funders and investors, such as businesses or government, usually even before the market or our legislators have realized that there is a crucial need.[14]

As Rockefeller (1984) pointed out, "How vast indeed is the philanthropic field! It may be argued that the daily vocation of life is one thing, and the work of philanthropy quite another. I have no sympathy with this notion." While philanthropy and entrepreneurship seem to be opposed in nature, they have fundamental similarities in the sense that they both provide a service or solve a problem for a group of targeted recipients, and they both reap benefit from their activity. Entrepreneurs typically receive financial independence and marginal monetary profits, while philanthropists receive something different. As Ewing Marion Kauffman once explained, "The more you give, the more you get. It's just that simple. The more you give to any association in life, the more you will get in return. It's not altruistic either. I don't consider myself an altruist. It's just a simple formula. . . . It works in all aspects of life."[15] Similarly, Henry Bloch lends some insight into the motivations for philanthropic behavior by explaining his beliefs that "true success is not measured in what you get, but in what you give back"[16] and that "a commitment to the greater good is good business."[17]

Philanthropy can come in many forms. For example, Leland Stanford amassed considerable wealth as president of Central Pacific, a railroad possessing considerable monopoly power. He subsequently founded the Pacific Union Express Company, whose tracks connect the transcontinental railroad. In fact, it was Leland Stanford who, on May 10, 1869, hammered in the famous golden spike that completed the transcontinental railroad.[18] Stanford later became president of the Southern Pacific Company. When it came time for Stanford to share his wealth, his thoughts turned to the place where he had his country house. With his 8,000 acres, and the $11 million that his wife later gave, Stanford University was born.

The point is that, although he was born in the state of New York, Stanford moved to San Francisco in 1874, which is where his business wealth was created. Stanford's philanthropic generosity, of course, benefited the entire world, and certainly the United States, but most of all, it benefited the place that is now known as Silicon Valley as home to Stanford University. As Zoltan Acs explains,

> Perhaps no university can claim to have had a greater economic impact in the last quarter of the 20th century than Stanford. One hundred years after Leland Stanford's magnanimous gift, Stanford University is in fact the model that all other higher education communities look to. Stanford has built a community of scholars and a world class network, and its graduates have founded many of the most successful high-tech companies in the world, including Hewlett Packard (William Hewlett and David Packard), Cisco Systems (Leonard Bosack and Sandra Lerner), and Google (Sergey Brin and Larry Page).[19]

Acs makes a direct link between the philanthropic generosity of Stanford and the performance of the place, which subsequently became known as Silicon Valley, "Today Silicon Valley is home to 33 of the 100 largest high-tech firms launched since 1965, including Oracle, Sun Microsystems, Cisco Systems, Intel, National Semiconductor, Excite, and Yahoo. Silicon Valley also has one of the highest percentages of high-tech firms with fewer than 20 employees (55.9 percent) and one of the highest percentages of locally owned high-tech firms (65.9 percent)."[20]

As these examples make clear, philanthropic giving is a key mechanism for transforming the wealth created by market dominance and monopoly power to a sustained economic performance for the place where that company is located. Whether the redistribution mechanisms for transferring wealth created by market power to the place are based on the power of organized labor, taxes, philanthropic giving and other civic engagement, high-wage sustainable employment, or all of the above, there are two key implications for the strategic management of a place. The first is that if a place is blessed, or what is referred to more neutrally as "endowed" in the economics literature, with a firm or several firms with market power and dominance, the strategy for a high performance should revolve around retaining that firm or those firms at that place. Keep firms with monopoly power happy with their choice of location.

Second, if a place is not fortunate enough to be home to a firm possessing monopoly power, it should do everything in its power to induce such a company to locate at that place. Such locational inducements range from subsidies to tax and loan incentives, and to specialized training programs

and infrastructure targeted toward what that particular firm needs to be competitive. The main thing is that strategic management is not just about retaining those firms in command of market power but also in attracting them to locate at the place to begin with.

## COMPETITION

A very different view, in fact, the polar opposite, about what spurs locational performance is put forth by other scholars and policymakers. In fact, two academic giants, Jane Jacobs and Michael Porter, argue that having an organizational structure of monopoly will actually hinder locational performance and that the exact opposite—competition—is important for a sustained high level of economic performance.[21]

Consider Silicon Valley; what has generated its enviable level of strong economic performance has not been the presence of one or several firms possessing market power. Rather, it has been exactly the opposite. The spur of competition is what has driven the strong performance in Silicon Valley. A plethora of firms, both established and startups, as well as an inevitable draw for entrants from around the world has rendered Silicon Valley arguably one of the most competitive places on the planet.

However, it may not be competition in the product markets that is driving Silicon Valley's high performance. Rather, it is competition in the factor of input markets, especially the market for new ideas, which has generated such a strong locational performance. If someone has a new idea to do something in a new and different way, whether it involves a new product, process, or organizational and managerial function, if one Silicon Valley company is not interested in pursuing that idea, they can easily find other companies that are open to considering that new idea. The currency driving the fabric of Silicon Valley society is new ideas, such that everyone is sensitive and responsive to the possibilities opened up by a new idea. Thus, the competition for such new ideas prevalent throughout Silicon Valley is tenacious, persistent, and relentless.

What happens in the absence of such pervasive localized competition for new ideas? David Halberstam reports that the arrogance bred by market power and dominance held by the automobile companies was such that the "young automobile designers who went to work for the company in the mid-fifties . . . were stunned"[22] by the continual rejection of new and innovative ideas in favor of superficial and increasingly gaudy design changes. In fact, Halberstam painstakingly details how the Detroit

automobile companies made a habit of ignoring the ideas and insights from engineers, resulting in annual new model introductions that were

> actually a kind of pseudo-change. The industry's engineers were largely idle, as their skills were ignored. Thus, during a time when the American car industry might have lengthened its technological lead on foreign competitors, it failed to do so. Instead, the industry fiddled with styling details, raising and lowering the skirts, adding and augmenting fins, changing color combinations. Fins, the most famous automotive detail of the era, represented no technological advance; they were solely a design element whose purpose was to make the cars seem sleeker, bigger, and more powerful. . . . That failure would come back to haunt the entire industry in the seventies.[23]

As Harley Earl, who served as the chief automobile stylist at General Motors in the 1950s confessed, "General Motors is in business for only one reason. To make money. In order to do that we make cars. But if we could make money making garbage cans, we would make garbage cans."[24] Earl was similarly quoted as sharing, "Listen, I'd put smokestacks right in the middle of the sons of bitches if I thought I could sell more cars."[25]

Clearly Halberstam attributes the demise of the economic performance in Detroit to an organizational structure characterized by monopoly power, which ultimately choked off the implementation of innovative new ideas in its key industry. Had there been more competition in the automobile industry in Detroit, those automobile engineers and other employees with innovative ideas would have been able to find alternative organizations in which to pursue their innovations. There was simply too little competition, however, in Detroit.

The significance of localized competition is that much more accentuated if the source of competitive advantage is knowledge and ideas. This is because of the key role played by knowledge spillovers or knowledge externalities. Scholars such as Jane Jacobs[26] and Michael Porter[27] argue that competition is more conducive to knowledge externalities than is local monopoly. It should be emphasized that by local competition Jacobs does not mean competition within product markets, as is traditionally envisioned within the field of industrial organization. Rather, Jacobs is discussing the competition of new ideas embodied in economic agents. Not only do an increased number of firms provide greater competition for new ideas, but greater competition across firms also facilitates the entry of new firms specializing in some particular new product niche. This is because the necessary complementary inputs and services are likely to be

available from small specialist niche firms, but not necessarily from large, vertically integrated producers.

There is considerable systematic and compelling evidence from scholars linking the local structure dimension of competition to the performance of a place. Studies find that those cities with a higher level of competition among the firms also tend to exhibit higher levels of economic growth and register more innovative activity.[28] The theory, case studies, and systematic empirical evidence highlight the key role played by localized competition in generating a higher locational performance presents something of a dilemma confronting policymakers. Should the strategic management of a place set a priority of attracting and retaining firms possessing monopoly power or in fostering a competitive environment? On the one hand, they are striking examples, supported by theoretical arguments, suggesting that a strategy prioritizing firms with monopoly power is more conducive to a locational performance. On the other hand, there is systematic econometric evidence, backed by case studies and theoretical insight that the spur of competition is more conducive to locational performance.

In fact, there are arguments and evidence supporting both views. The dimensions of monopoly power and competition seem to matter for locational performance, but the strategic management of a place should consider idiosyncratic factors that are particular to that specific place in order to identify whether that place is better served by a strategy focusing on monopoly power or competition. However, the next section suggests that a very different dimension of spatial structure and organization, entrepreneurship, can have a positive impact on economic performance. What these two opposing types of firms have in common is that they both involve the structure and organization of economic activity at a particular place, albeit in very different ways.

## ENTREPRENEURSHIP

In 1972, five young men working for IBM, Dietmar Hopp, Klaus Tschira, Hans-Werner Hector, Hasso Plattner, and Claus Wellenreuther, were convinced about the value of an idea they had for a new product and direction. Their idea, which involved a new range of business software, was the result of their considerable experience with IBM, plus their investments in education and training that had been undertaken by a myriad of people and organizations, including their families, the taxpayers, and their company, IBM. After all, the superb education each of them had gained going to

school in Germany, their broad cultural experiences ascertained from extensive travel, and, of course, the more technical training, but also very specific knowledge about opportunities in the industry ascertained at IBM, were expensive.

The five young men dutifully offered their employer, IBM, the fruits harvested from all of these expensive investments. But when they took their precious idea first to their boss, and subsequently to their boss's boss, among others, they were rebuffed. There just did not seem to be viable prospects for this untested, unknown, and uncertain new business software.

Perhaps even more important, they were repeatedly told that IBM was in the business of manufacturing and selling computers. In the widely read and discussed book by Peters and Waterman, *In Search of Excellence*,[29] IBM was identified as being the best company in the United States and, presumably, the world. IBM did not get to be number one by deviating from their core product that had propelled them not just to excellence but to be the best of the best.

The five young employees refused to be dejected and abandon the project despite IBM's rejection. They were passionate about their idea, knowing how important and valuable it could be. So they decided to start their own business. But they needed financing to launch their new business. When they took their new idea to the most obvious place to obtain start-up finance—the three main banks in Germany, Deutsche Bank, Dresdner Bank, and Commerzbank—they were again rebuffed with the logic that if the idea were any good, IBM would be doing it!

Fortunately, they found financing from a small regional bank near Heidelberg, based on a family connection, which enabled them to launch their new firm, SAP.[30] Since then SAP has grown substantially. Globally, in 2010, SAP reported a global employment of 53,000. Many, if not most, are high-paying jobs with great benefits and long-term security. The employment impact of SAP, as it flourished and grew, has been substantial, particularly in the place where the company was founded, in the Baden-Württemberg region of Germany. With the benefit of hindsight, it is clear that this entrepreneurial business, which has created a substantial amount of wealth, originated in investments by IBM.

How could the decision-makers at IBM have been wrong about the value of the innovations proposed by the five young engineers? The knowledge filter. The *knowledge filter* prevents or impedes knowledge accruing from investments made by incumbent firms and other organizations from actually being implemented and commercialized by that incumbent firm. The *knowledge filter* prevents or impedes knowledge accruing from

investments made by incumbent firms and other organizations from actually being implemented and commercialized by that incumbent firm.

New ideas, which are always the basis for innovative activity, are inherently uncertain. No one can know what outcome or value will be generated from pursuing and implementing new ideas. If this were not the case, the ideas would not really be new.

Universities and other public institutions are usually the focus of discussion when it comes to examining where the knowledge filter blocks investments in ideas and knowledge from becoming commercialized. But, as we can see with SAP, the knowledge filter wreaks havoc in the private sector as well.

New ideas also tend to be asymmetric in that the valuation of the new idea by one person is not the same as by other people, even within the same group or organization. This was clearly the case in the example of the new idea generated by the five young engineers at IBM. They clearly placed a high value on their idea, while the parent organization, which had invested a lot of money to develop new ideas, did not.

But there are also indirect benefits generated by an entrepreneurial start-up such as SAP. A number of academic studies find that places—whether a city, region, or country—with a greater amount of entrepreneurial activity also tend to generate a greater amount of economic growth, measured in terms of employment or gross domestic product.[31] It is also important to point out that the impact of entrepreneurship on economic growth, in general, and jobs, in particular, is not instantaneous, but it takes time to appear. According to two important scholars of entrepreneurship, Marcus Dejardin and Michael Fritsch, "A main result of this research was that the most important growth effects of startups tend to occur with a time lag of up to ten years."[32]

Perhaps the most compelling example of the performance of a place being positively impacted by entrepreneurship involves the entrepreneurial start-up of Fairchild, which is generally credited with triggering not only an entire industry of successful semi-conductor firms, but perhaps even more striking, the most innovative and entrepreneurial region in the world—Silicon Valley.

The best-known Fairchild originating start-up is Intel. It was the result of a vision by Robert Noyce; a vision that deviated from his employer, Fairchild Semiconductor, in the manner of how employees were compensated. Noyce wanted Fairchild to reward employees on the basis of the company performance, which among other things, included stock options to all employees of the company. But he ran into resistance, "Noyce couldn't get Fairchild's eastern owners to accept the idea that stock options should be

part of compensation for all employees, not just for management. He wanted to tie everyone, from janitors to bosses, into the overall success of the company."[33] In fact, Noyce's clashing vision extended well beyond linking employee compensation to company performance. Perhaps just as important, he wanted a radically different corporate culture, where the employees felt empowered and participatory, rather than constrained by the traditional corporate hierarchy. This amounted to abandoning the traditional and standard dress code along with the tried and true executive perks, such as privileged parking places, elite offices, executive dining rooms, and other amenities bestowing the executive elite with all of the symbolic trappings of power.

Noyce's proposals were met with determined resistance by the decision-makers at Fairchild. Finally, in an act of desperation, he combined forces with Gordon Moore and started their independent firm, Intel. While Intel emerged as one of the flagship Silicon Valley success stories, Fairchild would have vanished into virtual obscurity, in the graveyard of failed start-ups, had scholars and researchers not noticed that, in fact, Fairchild had spawned not only Intel but also a host of other high-powered start-ups, such as Advanced Micro Devices (AMD) and National Semiconductor, many of which spawned start-ups of their own. Steven Klepper, a professor at Carnegie Mellon University, refers to these spin-offs as "Fairchildren." According to Klepper, Fairchild was the origin and driving force of what became known around the world as "Silicon Valley." Klepper's important point is that the impressive performance of Silicon Valley was in large part the result of its entrepreneurial heritage, "Nearly all of the spinoffs were descended in one way or another from Fairchild, whose direct descendants are so numerous they have been dubbed the Fairchildren."[34]

These spin-offs play a key role in spurring innovative activity at a place because they provide a valuable conduit to penetrate what was explained above as constituting a knowledge filter.[35] As a result of the knowledge filter, scientists and engineers coming up with new ideas and potential innovations are unable to pursue them in the company which employees them. The only way they are able to actually pursue and develop their idea, and ultimately transform it into an innovation, is by starting a new company. Thus, the new startup serves as a conduit penetrating the knowledge filter and enabling ideas created in one organizational context to be commercialized in the context of the new entrepreneurial startup.The high cost of transacting asymmetric knowledge and beliefs is illustrated by an incident at the Xerox Corporation during the 1970s. Xerox had made substantial investments in research and development of computer technology at its main research facility, Xerox PARC, where many of the main

breakthroughs for the personal computer were made. For example, the keyboard, mouse, and screen were all developed at Xerox PARC. However, the company did not pursue commercial development of these products, based on the decision that there was no potential value associated with these inventions. When Steve Jobs saw these inventions, however, he thought they could have enormous value, forming the basis for the Apple Macintosh.

Due to inherent uncertainty, asymmetries, and high transaction costs, it is inevitable that new ideas—whether they are generated by private companies or at universities—will get lost in the knowledge filter. The uncertainty associated with innovative entrepreneurship must be distinguished with and contrasted to what people typically refer to as a high-risk situation or project. A decision about a new venture, investment, or project involves risk if the various projected outcomes can be identified and predicted, or approximated, with reasonably certain probabilities. Taking a flight involves risk in that a likelihood can be assigned to a safe journey or a deadly crash. Similarly, eating *Fugu Sushi*, the puffer fish sushi that is potentially deadly, incurs a risk of a more or less known likelihood. In both of these examples, the outcomes can be identified, and the risks associated with those outcomes approximated. The degree of risk in having a negative outcome should not be confused with uncertainty. By contrast, a decision about a new venture, investment, or project where the outcomes are not known and cannot even be approximated or reasonably predicted, involves inherent uncertainty.[36]

In fact, as history shows, time and again, from the adversity and rejection met by the great inventors of civilization, ranging from the Wright Brothers, to Thomas Edison, to Steven Jobs and Mark Zuckerberg, people are generally hesitant and resistant to investing their money, time, and human capital, let alone their future, in ventures and projects where the outcomes are unknown, thus making risk analysis irrelevant. Investors of all types tend to shy away from committing their precious resources to projects, ventures, and investments that are inherently uncertain.

As a result of the knowledge filter, the inability of incumbent firms and organizations to completely commercialize all of the knowledge they create generates opportunities for entrepreneurs to do so by starting a new firm. Thus, entrepreneurship provides a conduit for the spillover of knowledge from the firm creating that knowledge in the first place, to a new firm that actually innovates on the basis of that knowledge. As the examples of SAP, Intel, and Apple suggest, entrepreneurship is an important mechanism that transforms those ideas that might otherwise never get used or implemented into innovative activity.

While classic examples of entrepreneurial climates tend to focus on Silicon Valley or Austin, Texas, entrepreneurial development can be achieved by others as well. For example, some small communities in the Mississippi Delta have managed to turn their disadvantages into a source of competitiveness. The region has been struggling in the wake of the financial crisis, indicated by shrinking populations and creeping blight. However, among these symptoms of economic struggle, the region is enjoying an influx of professional refugees from more traditional centers of innovation. Some of these new Delta residents are Teach for America workers who decided to stay put after their appointment, while others simply prefer the quiet atmosphere to that of the big city. Regardless of their reasoning, they are beginning to mold the economy of the Delta. The Delta is attractive to this entrepreneurial group, as it has a relatively low cost of starting and maintaining a business, leading to the formation of business incubators seeking to spawn businesses in order to revitalize the Delta, while also preserving its small town allure.[37]

Entrepreneurship can benefit not just those individuals starting the new company, or their employees, but also the place where the entrepreneurship occurs. By serving as the conduit for the spillover of knowledge, entrepreneurial start-ups take the knowledge created in one organizational context and facilitate the innovation in a very different organizational context, which can ultimately spur growth, jobs, and competitiveness of not just the new firm but ultimately the entire place. Not only have the founders and employees of Microsoft benefited from entrepreneurial growth but so too has the entire region around Seattle.

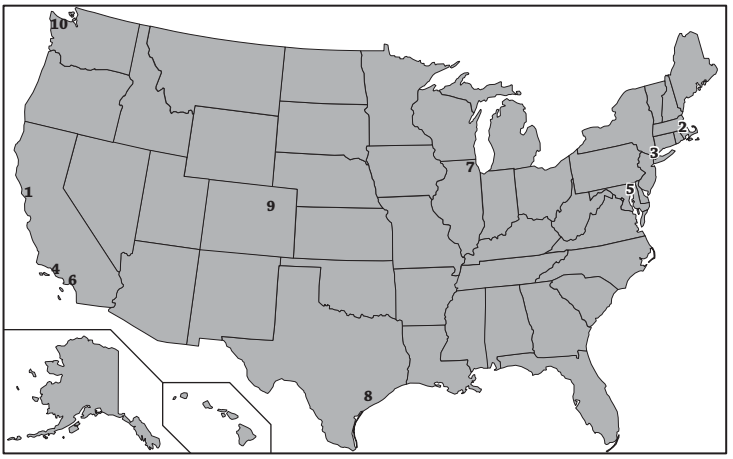
This link between entrepreneurship and economic growth is certainly not new. In his 1911 treatise, *Theorie der Wirtschaftlichen Entwicklungen* (Theory of Economic Development), Joseph Schumpeter[38] proposed a theory of *creative destruction*, where new firms with the entrepreneurial spirit displace less innovative incumbents, ultimately leading to a higher degree of economic growth. Even in his 1942 classic, *Capitalism and Democracy*, Schumpeter still argued that entrenched large corporations tend to resist change, thus forcing entrepreneurs to start new firms in order to pursue innovative activity. "The function of entrepreneurs is to reform or revolutionize the pattern of production by exploiting an invention, or more generally, an untried technological possibility for producing a new commodity or producing an old one in a new way. . . . To undertake such new things is difficult and constitutes a distinct economic function, first because they lie outside of the routine tasks which everybody understand, and secondly, because the environment resists in many ways."[39]

Much evidence supports Schumpeter's idea that entrepreneurship generates a superior economic performance of a place.[40] These studies generally find that those places which are more entrepreneurial also generate a better economic performance, typically measured in terms of economic growth, productivity, or job creation. The positive relationship between entrepreneurship and economic performance has been found to hold for virtually all of the possible dimensions of place—for cities, counties, states, regions, and entire countries. As the *Milwaukee Journal Sentinel* points out, "There are many paths to economic growth, all with their advocates. There's the cluster approach, which taps the benefits of tight geographic groupings of similar types of businesses. There's the idea of dangling incentives to lure companies from elsewhere, which is great if your incentives trump your opponents' but in the aggregate creates as many losers as winners. There's human capital theory, probably the leading school; attract lots and lots of smart folks to one place and watch the good things happen. But many scholars and business believe the spark for growth comes from the entrepreneur."[41]

Figure 4.1 identifies Entrepreneur.com's ranking of the twenty best start-up climates around the world, while Figure 4.2 offers a top ten list of entrepreneurial cities in the United States.


| | | | | |
|---|---|---|---|---|
| 1 Silicon Valley | 5 New York City | 9 Vancouver | 13 São Paulo | 17 Singapore |
| 2 Tel Aviv | 6 Boston | 10 Chicago | 14 Moscow | 18 Melbourne |
| 3 Los Angeles | 7 London | 11 Paris | 15 Berlin | 19 Bangalore |
| 4 Seattle | 8 Toronto | 12 Sydney | 16 Waterloo (Canada) | 20 Santiago |

**Figure 4.1:**
Top Twenty Start-Up Ecosystems




1 San Francisco | 3 New York | 5 Washington, DC | 7 Chicago | 9 Boulder
2 Boston | 4 Los Angeles | 6 San Diego | 8 Austin | 10 Seattle

**Figure 4.2:**
Top Ten US Cities for Tech Start-Ups
*Source:* Gelles, K. (2014, August 24).

The capacity of a place to generate entrepreneurial activity depends on its extent of entrepreneurship capital.[42] Entrepreneurship capital can be considered to be a sub-component, or specific aspect, of social capital. Entrepreneurship capital differs from social capital in that it focuses solely on those aspects of social capital that promote entrepreneurial activity. There are other aspects of social capital that actually may inhibit entrepreneurship. However, a high presence of entrepreneurship capital should enhance economic performance.[43]

The implications for the strategic management of a place are to promote those factors, institutions, and conditions generally conducive to entrepreneurial activity and more specifically to invest in the creation of entrepreneurship capital. But, it is not just the type of firm that matters in terms of organizational structure. A very different dimension of spatial organization, the extent to which economic activity is either specialized in one type of industry or sector, or alternatively diversified across a broad spectrum of industries or sectors, is analyzed in the next two sections.

## SPECIALIZATION

The city of Huntsville, Alabama has had one of the strongest economic performances in the United States.[44] In particular, it has been ranked by

the Milken Institute as being one of the top five performing cities in the United States. Huntsville was identified as one of the country's fastest growing cities by *Forbes*[45] and as one of the top ten technology cities by *Cybercities*.

In fact, employment grew by 12.6 percent between 2000 and 2010.[46] This high performance, measured by employment growth, is a striking contrast to the –1.5 percent growth that the entire United States exhibited over the same period. But it was not just the United States that was doing more poorly than Huntsville, it was also the state of Alabama, which had employment growth of –3.2 percent between 2000 and 2010.[47] Clearly, Huntsville was not simply the case of a boat enjoying a rising tide from the economic sea surrounding it. Huntsville's employment growth also tended to come from so-called high-quality and high-wage jobs. Professional and business service employment grew at 45.9 percent for the decade 2000–2010. By contrast, cities such as Atlanta actually lost 4.2 percent of professional and business service employment.

Most strikingly, there were 15,300 net new technology jobs created in this period.[48] Not surprisingly, the strong creation of high-quality employment resulted in a mean annual salary for Huntsville of $49,240, which ranked considerably higher, around 25 percent, than the rest of the state, about 10 percent higher than the national average, and above most other cities in the South.[49]

What accounts for Huntsville's outstanding performance, one that exceeds that of comparable cities and other places throughout the South and Midwest by a considerable amount? While Huntsville has a strong presence of highly educated scientists and engineers—a key resource for technology—it also developed and implemented a strategic management plan that evolved around specialization in a particular industry and sector. The strategy of specialization in Huntsville has been in the aerospace industry and more broadly technology. By 2010 there were over ninety companies employing more than 11,000 people in the aerospace industry in Huntsville, accounting for around 5 percent of the total employment.[50] However, a broader measure of related employment in related economic activities suggests an even greater specialization. In 2010 there were 32,000 people employed through military and support contracts.[51] Over one-half of the sales by the US Army to foreign countries are facilitated through Redstone Arsenal. Taken together, this amounts to around one-fifth of Huntsville's total employment.

It may well be that the Huntsville strategy of specialization, along with the ensuing high economic performance, was triggered by a historical accident or at least historical circumstance. Prior to World War II,

Huntsville was tiny, with a population never exceeding 13,000 citizens. However, during the war, its relative isolation made it a desirable location for three chemical munitions facilities. While these were scheduled to be closed following the war, the intervention of US Senator Sparkman led to Huntsville being selected for the development of the rocket and missile program of the US Army. When the German prisoner of war Wernher von Braun and his team of German scientists and engineers were relocated from Fort Bliss, Texas, to Huntsville, the city had the basis for leadership in the missile program of the United States. This led to a significant amount of activity in the space program being undertaken in Huntsville.[52]

Huntsville was subsequently selected to be the location for the National Space Science and Technology Center (NSSTC), which is a federal–state partnership between NASA and the research universities of Alabama. This has resulted in Huntsville serving as the epicenter of aerospace employment, with around 50,000 workers or around 55 percent of the total direct jobs in the industry in 2010.[53]

It is important to emphasize that Huntsville was not content with the fortunate turn of events that landed von Braun and, ultimately, NASA. Rather, it engaged in a specific, focused strategy of leveraging those assets to generate a strong specialization in aerospace. In 1962 a public–private partnership created Cummings Research Park to serve as a mechanism for attracting and retaining companies in the aerospace industry. Cummings Research Park was built around the University of Alabama at Huntsville, which is the anchor tenant, and ranks as the second largest university-based research park in the United States.[54] The park succeeded in attracting the leading aerospace companies to locate considerable economic activity in Huntsville, including Boeing, Northrop Grumman, Lockheed Martin, and Raytheon.

Huntsville is a prime example of how specialization has generated a strong economic performance. Based on examples such as Huntsville, a locational strategy fostering specialization may be conducive to a high-performing economy. Huntsville is certainly not alone in generating a positive economic performance through specialization. Regions such as Champagne, France, have similarly exhibited a strong long-term economic performance by specializing in a sole industry—champagne. Similarly, Aspen, Colorado, has a long, sustained positive performance by specializing in skiing and winter sports. Whether a place pursues a strategy of specialization or diversity may have a significant impact on its performance. However, it is important to emphasize, that compelling examples exist where specialization is associated with a positive and sustained economic

performance, just as there are examples of places where specialization is associated with a poor economic performance. Thus, while the organizational dimension of specialization certainly matters, it does not matter in such a way that can be reduced to a formula that every place can blindly implement and follow.

## DIVERSITY

If specialization can bestow a positive economic performance on a place, why are there so many striking examples of places that are anything but specialized which exhibit a strong and sustained economic performance? For example, cities such as New York, London, Paris, Hamburg, and San Francisco all exhibit a strong performance year in and year out. While specialization in a particular industry may yield a greater performance for a place, as the above section suggests, there are also compelling arguments suggesting the exact opposite—a diversified portfolio of economic activity across different industries and sectors—may, in fact, be more conducive to a better economic performance.

Perhaps the best way to understand the gains from diversity of types of economic activity is to examine the impact on economic performance from a paucity of diversity. For example, Bochum, Germany, has specialized in a single industry for well over half a century—automobile production.[55] With a 2012 population of 367,000 people, and located in the Ruhr Valley, the city has been dependent upon Opel, which is a subsidiary of General Motors, for the bulk of its employment. However, after suffering $747 million in losses on its European operations in 2011, Opel has made a wave of drastic job reductions and plant closings, which have devastated Bochum. As a result, not only has employment been reduced by 17,000, but the unemployment rate in 2012 shot up to 10 percent, compared with a national average of 7.2 percent.[56] As the company made the strategic decision to downsize its employment in Bochum and relocate jobs to lower cost regions of Eastern Europe and elsewhere in the world, Bochum lacked the diversity to absorb the dislocated employment in other firms and industries.

It is more than just simple examples or empirical observation that links diversity to economic performance for places. In fact, scholars have compiled a compelling series of theoretical arguments suggesting that the degree of diversity, as opposed to homogeneity, in a location will influence the growth potential. The theoretical basis linking diversity to economic performance is provided by one of the giants of urban thinking and policy, Jane Jacobs, who argues that the most important source of knowledge

spillovers are external to the industry in which the firm operates and that cities are the source of considerable innovation because the diversity of these knowledge sources is greatest in cities.[57] According to Jacobs, it is the exchange of complementary knowledge across diverse firms and economic agents that yields a greater return on new economic knowledge. She develops a theory that emphasizes that the variety of industries within a geographic region promotes knowledge externalities and ultimately innovative activity and economic growth.

However, a slightly different twist to the diversity theory was provided by Richard Florida,[58] who argues that the degree of diversity reflected by the population and workers in a place contributes to the tolerance and acceptance of new ideas. Essentially diversity of population and workforce translates into a diversity of ideas and ultimately innovative activity. Thus, while the more traditional argument involving diversity referred to the industrial or economic structure, Florida's more contemporary version refers to the people and workforce at the place.

In addition, the degree of diversity at a place plays a key role in shaping economic performance according to models of evolutionary economics. In fact, evolutionary economics provides a focus on two central principles shaping economic performance—diversity and selection.[59] The process of evolution takes place by a process of selection among diverse entities, which propels an economy into a new direction. An economy with no diversity and no selection will not evolve. It will remain permanently locked in a long-run steady-state equilibrium.

The first important test linking diversity to economic performance, measured in terms of employment growth, was by a group of Harvard scholars,[60] who employ a data set on the growth of large industries in 170 cities between 1956 and 1987 in order to identify the relative importance of the degree of regional specialization, diversity, and local competition in influencing industry growth rates. The authors find evidence that diversity promotes growth in cities. Similar studies identified the degree to which the extent of diversity influences innovative output.[61] They link the innovative output of product categories within a specific city to the extent to which the economic activity of that city is concentrated in that industry, or conversely, diversified in terms of complementary industries sharing a common science base.

In fact, a number of places that more traditionally embraced the strategy of specialization have more recently evolved or transformed their strategy into placing a priority on diversity. For example, Riyadh in Saudi Arabia was traditionally highly specialized in one industry, oil. Riyadh has experienced rapid and impressive economic growth in the last decades on

the basis of its production of crude oil. The wealth of oil resources has been a double-edge sword. On the one hand, it has endowed the region with one of the most valuable natural resources in the global economy. On the other hand, this has enabled Riyadh to avoid developing a knowledge-based economy along with the concomitant institutions and policies. Thus, there has been no tradition of the institutions and mechanisms that are the cornerstone of a successful knowledge economy—technology transfer and knowledge spillovers. More recently a strategy of diversity has begun to replace the traditional strategy of specialization. This new strategy of diversity is triggering a technology transfer revolution in Riyadh to meet the mandate that it become globally competitive as a knowledge-based innovative economy.[62]

In fact, there are a number of reasons to suspect that the traditional strategy of specialization may no longer ensure a positive economic performance. Mathew Simmons, in *Twilight in the Desert*, predicts the inevitable decline of oil production in the region.[63] The inevitable decline of oil production was confirmed in a massive collection of over 200 technical studies by the Society of Petroleum Engineers.

It has been estimated that, given the demographics, where a large share of young people account for the population of Riyadh, jobs must be created to ensure full employment. However, oil production will not come close to creating that number of jobs. Thus, in the Eighth Development Plan (2005–2009) of the Kingdom of Saudi Arabia, it was concluded that "revenue from oil resources, which are non-renewable by nature, should best be invested in renewable assets that would contribute to diversifying the economic base and achieving sustainable development. It is, therefore, essential for non-oil public revenues to be enhanced, so that oil revenues may be gradually transformed into productive assets and effective human capital."[64]

In response to the inevitable decline and perhaps demise of the natural-resource-based economy, the Ninth Development Plan (2010–2014) of the Kingdom of Saudi Arabia has an explicit mandate to develop a globally competitive knowledge-based economy. In particular, this involves establishing a world-class science and technology sector so that innovative activity would emerge as a driving engine of economic growth for Saudi Arabia. The Ninth Development Plan of the Kingdom sets thirteen goals.[65] Four out of the thirteen goals clearly concentrate on the drivers of a knowledge-based economy—developing sectors of small and medium-sized enterprises to increase their contribution to the gross domestic product, diversification of the economy to enhance economic competitiveness, achieving sustainable economic and social development through the acceleration of the pace of economic and social

welfare, and moving toward a knowledge-based economy. In particular, the plan calls for

> Industries that could contribute effectively to moving toward a knowledge-based economy. These are technology-and-capital intensive industries, capable of advancing several other industries, in addition to creating competitive advantages, which are increasingly more important than comparative advantages internationally. Most important among such industries are information technology (particularly software) and capital-goods industries. . . . Small and medium size enterprises which play an important role in diversification of the economic base and provision of employment opportunities.

The Plan envisages increased investment in scientific and technological education plus development of technical and research manpower, with particular emphasis on redirecting scientific and technological education toward supporting the innovative capabilities of Saudi youth and producing capable cadres of scientists, researchers, and educationalists who would play a major role in the development of local technologies.

The implication for the strategic management of places is that policies that foster a diversity of different, but still complementary, types of economic activity may promote a strong economic performance. This argues directly against a strategy of specialization and instead suggests that a broader strategy fostering diversity may be more conducive to a sustained long-term performance.

## CLUSTERS

The concept of industry cluster, which is sometimes referred to as a business cluster, was introduced and popularized by Michael Porter in *The Competitive Advantage of Nations*. According to Porter, a cluster consists of businesses in related industries operating at the same place, "geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions . . . in particular fields that compete but also cooperate."[66]

However, the word "cluster" is used to describe a broad spectrum of economic phenomena, sometimes quite distant from Porter's original concept. Examples of clusters include software and semiconductors in Silicon Valley, wine in Northern California, fashion in Paris, filmmaking in Hollywood, biotechnology in San Diego, and orthopedics in Warsaw, Indiana.

According to the cluster theory developed by Porter, and the case studies he provided to illustrate and support his theory, clusters promote the economic performance of a place, or what he terms competitiveness by bestowing gains from agglomeration economies on those firms operating within the cluster.[67] For example, Delgado, Porter, and Stern find that being located within a cluster increases employment growth, the growth of wages, the number of establishments, and the propensity to patent.[68] As Bresnahan and Gambardella observe,

> Clusters of high-tech industry, such as Silicon Valley, have received a great deal of attention from scholars and in the public policy arena. National economic growth can be fueled by development of such clusters. In the United States the long boom of the 1980s and 1990s was largely driven by growth in the information technology industries in a few regional clusters. Innovation and entrepreneurship can be supported by a number of mechanisms operating within a cluster, such as easy access to capital, knowledge about technology and markets, and collaborators.[69]

Similarly, Wallsten observes that "policy makers around the world are anxious to find tools that will help their regions emulate the success of Silicon Valley and create new centers of innovation and high technology."[70]

One of the most prominent and compelling clusters is the high-tech cluster comprising what is called Silicon Valley. As Gordon Moore, the cofounder of Intel, who has been attributed to rank among one of the founding fathers of Silicon Valley, and Davis suggest, "We hold that the central element in the history of Silicon Valley is the founding of a previously unknown type of regional dynamic, high-technology economy."[71] Certainly at that point in time, innovation and new technology were generally associated with the large flagship corporations, such as IBM, Wang, and the Digital Equipment Corporation (DEC), which seemed invincible with their large armies of engineers and scientists. These scientists demonstrated undying loyalty to their employers forged from lifetime contracts and a generally paternalistic stance toward their employees. The incipient high-technology cluster of Silicon Valley provided a striking contrast, where people were quick to leave their companies to start new firms and, on occasion, even entirely new industries.

While IBM was large and bureaucratic with rules and hierarchical decision-making, the emerging Silicon Valley entrepreneurial economy thrived on spontaneity, participation, openness, and a general disdain for rules and hierarchy. If obedience and conformity were trademarks of the capital-driven economy corresponding to the Solow Model, the Silicon

Valley cluster values above all creativity, originality, independence, and autonomy. High-technology clusters subsequently diffused to, and emerged in, places such as Route 128 around Boston, Research Triangle in North Carolina, and Austin, Texas.

High-technology clusters typically include institutions that focus chiefly on networks and linkages, which include research universities, technology parks, plus non-traditional sources of early stage capital, such as angel capital and venture capital. However, there is also evidence that even having a world-class university and spillover mechanisms may not suffice to guarantee technology transfer and knowledge spillovers from the university.

## CONCLUSIONS

Could the economic disaster that befell my hometown of Poughkeepsie, as well as Dutchess County, and the entire Hudson Valley region in the state of New York in the 1990s have been avoided? Certainly the problem did not lie in a paucity of the resources and factors of computer engineers and scientists that are requisite for the computer industry. Rather, this chapter suggests that perhaps this economic disaster could have been avoided through policies that might have challenged the strategy of placing the performance or well-being of the place, Poughkeepsie, in the hands of a sole firm, IBM.

Not only do factors and resources, both natural and man-made, matter in shaping locational economic performance, but the organization and structure of that economic activity matters as well. There are compelling theoretical arguments, systematic empirical evidence, and striking case studies supporting each of the six organizational and structural dimensions identified in this chapter—monopoly, competition, entrepreneurship, specialization, diversity, and clusters.

These six organizational and structural dimensions are not mutually exclusive. A strategy of promoting entrepreneurship does not preclude a strategy to develop a cluster at a particular place. In some cases, one dimension is actually the antithesis of a different dimension. Thus, this chapter in no way advocates any singular locational strategy in terms of organization and structure to achieve a positive and sustainable economic performance. Rather, each place, whether it is a community, city, region, state, or even an entire country should formulate its own locational strategy based on the configuration of resources and factors, and opportunities for competitiveness afforded by global markets.

## CHAPTER 5

# The Human Element

### INTRODUCTION

At the end of the 1990s, people were puzzled about the relative economic performances of two highly visible places: Boston's Route 128 and Silicon Valley. When looking at the simple, obvious facts, both places had comparable levels of investment in knowledge factors, in terms of human capital, R&D, and university research.[1] Both places were also similar in that both fostered successful high-technology industries.

But this is where similarities end. When it came to economic performance, their paths diverged; Silicon Valley exhibited a decidedly stronger economic performance than Route 128. Anna Lee Saxenian, a professor at the University of California at Berkeley, found this divergence interesting and sought to understand why these two places differed so dramatically. In her groundbreaking book, *Regional Advantage*, Saxenian discovered that the key difference was not the investments in research, whether public or private.[2] Rather, the main differences were the differences in the people. The key differences, however, were not necessarily their levels of human capital or talent, but rather their propensities to engage each other in interactive behavior. By the term "interaction," she and others mean their propensity to meet over coffee or at a bar where they exchange ideas and views about the latest developments, thus exploring new ideas.

In particular, Saxenian attributes the superior economic performance to the high propensity of people in Silicon Valley to actively

interact through personal networks, casual linkages, and social capital. While the people of Silicon Valley were actively engaged, across the country along Route 128, the people tended to be autonomous. What Saxenian realized is that the human element matters in shaping economic performance.

Linkages, networks, and interactions with others are not the only way in which the human element matters for economic performance. In explaining the ascendance of North Carolina from the third poorest state in 1952, based on per capita income, to one of the wealthiest and most prosperous states in the country, Albert Link, an economics professor at the University of North Carolina at Greensboro and leading scholar of entrepreneurship and innovation, suggests that it was another aspect of the human element—leadership—that transformed the state. In particular, leadership is what generates and implements a vision, which is then linked to a strategy, to improve a place's economic performance. Leadership also must communicate this vision to others and persuade people to buy into their vision. Effective leadership is important in changing perceptions of a place, both for the people at the place and the perceptions of others everywhere else.

Professor Link suggests in his insightful book, *A Generosity of Spirit*, that exceptional and enlightened leadership in North Carolina led to the creation of Research Triangle Park, which, in turn, fostered the growth and development of the entire state. At the same time, this leadership helped change the stereotype of, and the factual ranking of, the state from being one of the most backwards to that of being home to cutting-edge research and innovative thinking.[3]

This chapter considers a third pillar shaping the economic performance of a place—the human dimension. The human dimension includes a variety of factors, including the propensity for people to interact, network, and link with others. Equally important is the emotional attachment that people have toward their place, the stereotypes that people have (whether resident or not) about that place, the role of leadership, as well as social capital.

The main conclusion of this chapter is that the human dimension matters. While it is certainly important for a place to engage in a strategy to invest in and harness the appropriate factors, as well as to shape the organization and structures of the industries operating at a place in a way that is most conducive to a positive economic performance, it also is important to develop and nurture the human dimension. This human dimension includes interactions, linkages, networks, as well as stereotypes and capacity for leadership.

## NETWORKS AND LINKAGES

The Emilia-Romagna region is located in Italy's northeast, in the very heart of the country's most productive area, and it is bordered from northwest to southwest by five other regions (Veneto, Lombardia, Liguria, Toscana, and Marche) and to the east by the Adriatic Sea. What is particularly striking about the Emilia-Romagna region is its stellar economic performance. Residents have a standard of living comparable to the wealthiest places in Europe. Economic growth greatly outpaced other Italian regions during the 1970s and 1980s, and seems to defy conventional wisdom. Even as the economic performance of other regions in Italy deteriorated during the current economic crisis, Emilia-Romagna is prospering. In 2010, the superior performance of Emilia-Romagna included per capita GDP that was 25 percent greater than the mean GDP for Italy and 36.4 percent greater than the EU-25 mean GDP per capita. Equally impressive was the low unemployment rate of 3.1 percent, compared to 9.1 percent for the EU-25. Moreover, Emilia-Romagna's employment growth rate of 3.5 percent exceeded the EU-25 mean employment growth rate of 2 percent.

How can Emilia-Romagna, a place with limited physical capital, human capital, and other natural resources, do so well? Two American scholars, Michael Piore and Charles Sabel, uncovered the secret of Emilia-Romagna in their book, *The Second Industrial Divide*.[4] The secret of Emilia-Romagna is its people. It was not their education or human capital. There was not even what Richard Florida terms the creative class present. Plenty of other places in Europe and around the world have higher levels of human capital, skilled labor, knowledge, and concentrations of the so-called creative class.

Rather, what Piore and Sabel stumbled on was the way that the people of the region interacted with each other. The most important differences in generating economic performance were the unusual and exceptional networks, linkages, and interactions in the region. People in the region, especially in the key high-value specialized textile industry, were linked through a rich web of organizations, institutions, and cultural traditions. According to Piore and Sabel, such interactions facilitated a high flow of knowledge and best practices, as well as a complex combination of both competition and cooperation, across people, ultimately resulting in a strong economy.

The key role played by networks, linkages, and interactions in generating the superior economic performance of Emilia-Romagna is emphasized by Vasco Errani, who served as president of the Emilia-Romagna region,

> The Emilia-Romagna Region is committed to ensuring socio-economic dynamism, innovation capacity and quality of development to foster the creation

> of new business, the growth of the existing ones and to create therefore new employment opportunities. In Emilia-Romagna innovation at all levels is the result of the initiative and creativity of our entrepreneurs and skilled manpower, in a very heterogeneous business system which is all the more robust (from very small to medium-small and large enterprises, from manufacturing and agricultural to co-operative enterprises). It is a continuous process, embedded in the widespread culture of the Emilia-Romagna society, and supported by politics and institutions.[5]

San Diego provides another context where the human dimension plays a key role in economic success. San Diego, with a US naval base and other military facilities located in and around the city, built a strategy based upon exploiting the assets in their city. This strategy was highly effective throughout the post–World War II era in generating a strong and sustained economic performance, thus achieving the twin policy goals of high growth and low unemployment.

However, this changed in the early 1990s. The peace afforded by the end of the Cold War, triggered by the fall of the Berlin Wall in 1989, led to a series of downsizings and reduced budget growth for the US military. The naval bases and operations located at San Diego fell victim to this military downsizing, which had enormous repercussions on the city and region. Economic growth stalled and unemployment skyrocketed.

San Diego had to reinvent itself. According to Mary Walshok, Professor of Sociology and Vice President of Outreach at the University of California at San Diego, San Diego's reinvention into one of the world's leading life science regions depended upon local people, their rich networks, and their willingness to reach out to others. These networks and linkages were facilitated through programs, such as CONNECT, which facilitated networks and linkages across San Diego. CONNECT was created in 1985 with the goal of linking and connecting innovators, entrepreneurs, scientists, and engineers. The network also included people in the angel capital, venture capital, and finance communities. According to Professor Walshok,

> The key purpose of UCSD CONNECT was to link academic researchers with entrepreneurs, and then to link both of these parties to venture capitalists and business service providers who could help grow new companies that would create high-wage jobs and regional prosperity at a time when a number of regional economic 'drivers' such as real estate, banking and defense contracting, were in disarray. CONNECT was truly a bottom up collaborative which developed after extensive consultation with university researchers, private-sector executives and professional business service providers.[6]

Walshok referred to a 2010 *Time* magazine article praising San Diego's strategy of creating linkages and networks through the CONNECT program, "In 1985 CONNECT sprang up to link the scientists and inventors at top research institutions . . . with investors, advisors and support services so their new ideas could become new products and companies. . . . The inventive brew that CONNECT fermented has made San Diego home to a cluster of life sciences and technology companies such as Qualcomm, Biogen Idec, Life Technologies and Gen-Probe."[7]

In her detailed study comparing Silicon Valley and Route 128, Saxenian emphasizes the key role that networks, linkages, and interactions play in shaping the performance of a place.[8] After documenting that the knowledge factors, in terms of human capital, R&D, and university research, are comparable between the two places, she shows that the economic performance exhibited by Silicon Valley is vastly superior to that of Route 128. She attributed the superior economic performance of Silicon Valley to the rich networks prevalent in the Silicon Valley, but that do not seem to exist around Route 128,

> It is not simply the concentration of skilled labor, suppliers and information that distinguish the region. A variety of regional institutions—including Stanford University, several trade associations and local business organizations, and a myriad of specialized consulting, market research, public relations and venture capital firms—provide technical, financial, and networking services which the region's enterprises often cannot afford individually. These networks defy sectorial barriers; individuals move easily from semiconductor to disk drive firms or from computer to network makers. They move from established firms to startups (or vice versa) and even to market research or consulting firms, and from consulting firms back into startups. And they continue to meet at trade shows, industry conferences, and the scores of seminars, talks, and social activities organized by local business organizations and trade associations. In these forums, relationships are easily formed and maintained, technical and market information is exchanged, business contacts are established, and new enterprises are conceived. . . . This decentralized and fluid environment also promotes the diffusion of intangible capabilities and understandings.[9]

Saxenian further claims that even the language and vocabulary used by technical specialists can be specific to the region, to the point where a technician from Silicon Valley would not understand one working along Route 128.

Martin Kenney, a professor of Human and Community Development at the University of California at Davis, together with his colleague, Donald

Patton, similarly emphasize the key role played by the rich networks linking people in generating Silicon Valley's strong economic performance. According to Kenney and Patton, "Silicon Valley is often considered the ideal-typical innovation region, and many have credited its networks of organizations and individuals that are dedicated to assisting startups as being an important factor in the region's innovative vitality."[10]

Kenney and Patton's point is echoed by Jack Harding, the founder and CEO of eSilicon, a Silicon Valley semiconductor start-up, who also attributes the strong economic performance of Silicon Valley to the rich linkages among various key people,

> There are durable reasons why we lead the country. Silicon Valley, as a hotbed for entrepreneurial success, combines; (1) The most experienced concentration of risk capital in the world; (2) a vast, deep relationship with its region's higher-education institutions, whose leaders understand and participate in our innovation model, and (3) friendly local government infrastructure that understands it must excel in support of Silicon Valley's unique and thriving climate for innovation. Further, as ground zero for this architecture for innovation, we attract a diverse, sophisticated and motivated workforce from around the world. Here at eSilicon, a small company of about 100 people, we have nearly 20 nationalities represented—clearly not a sign that Silicon Valley is fading. There's a technical and cultural integration here that results in better business practices, better products and a better understanding of how to market these products on a global basis. I'd suspect that there are few, if any, other communities where everyone, from the CEO to the bench engineer, understands and is singularly motivated by the innovation model; how it works, where its risks lie and what its rewards are.[11]

As the Emilia-Romagna and Silicon Valley examples suggest, the key role played by the human dimension in the form of linkages, networks, and interactions is not restricted to just a specific high-technology or a highly skilled industry context. The human element that propels technology forward can also be harnessed in other, distinct contexts. For example, as Al Link points out, leadership transformed a piece of North Carolina that was struggling into Research Triangle Park, which is now an economic powerhouse. The successful transformation that resulted from Research Triangle Park was attributed by the former governor of North Carolina, Governor Hunt, to the interactions and linkages among key people, "The secret of the Park's success is the relationships between those people who teach, those people who do research, and the public and the private sector and those of us in government."[12]

Systematic scholarly research has meticulously uncovered a link demonstrating that the extent that key people at a place interact and are linked together through networks is critical for that place's economic performance.[13] For example, Patton and Kenney link the positive economic performance of Silicon Valley to the rich links among lawyers, venture capitalists on the board of directors, and other members of the community.[14] They find that the role and impact of such local networks are particular to each specific industry.

Thus, the human network can foster the economic performance of a place by facilitating knowledge spillovers and innovative activity. Those places with a greater propensity for people to interact, exchange ideas, and communicate will tend to do better than if there are few of these interactions.

## SOCIAL CAPITAL

The human dimension manifests itself in a number of ways—networks, linkages, interactions, leadership, identity, and emotional affinity. These are all specific aspects bestowed upon a place by the human dimension. While scholars struggle with measuring what are inherently invisible and immeasurable phenomena, some places clearly enjoy more of this "it" factor. Places with more of this "it" factor are said to have more social capital and these places tend to do better economically. By contrast, other places seem to be perpetually dragged down by a lack of social capital. Such places seem to be mired in a type of performance trap, where, no matter what policies or approaches are implemented to harness key resources and factors, or shape the organization and structure of economic activity in a productive manner, economic growth does not happen. These places may lack social capital.[15]

The concept of social capital[16] can best be understood by imagining a walk through the streets of Burlington, Vermont, then comparing this experience to a walk through Cleveland, Ohio. Burlington residents enjoy a beautiful wooded backdrop for their community on the shores of Lake Champlain. The city also plays host to a variety of other amenities and, as such, people at that place are brought together through a plethora of social events,

> During the spring and summer, the streets come alive with festivals and outdoor concerts. The picnic benches, playground and bike paths of Leddy Park are filled with warm weather revelers, and opportunities to swim, fish or just

> kick back on the beach abound. In the fall, the Burlington Bike Path is bustling with leaf peepers who come to view the vibrant autumn colors. In winter, lace up your ice skates and head to the Paquette Arena or grab your skis and head to any of the nearby resorts. Church Street Marketplace, with its early 1900s architecture, great restaurants, live entertainment, one-of-a-kind shops and well-known stores, is the focal point of the downtown area.[17]

By comparison, Cleveland appears desolate, mired in stagnation. Chicago Bulls Center Joakim Noah observes, "I don't know about this place, I just stayed in my hotel room, man. Every time I look out my window, it's pretty depressing out here man. It's bad. It's bad. . . . No going out in Cleveland. It's all factories."[18] At a subsequent press conference, in response to the question "Do you regret anything you said about Cleveland?", and in lieu of an apology, Noah abstained from offering an apology and instead offered, "You like it? You think Cleveland's cool? I mean, I've never heard anybody say 'I'm going to Cleveland on vacation'. What's so good about Cleveland?"[19] While Noah's comments were probably mostly sour grapes in response to consecutive drubbings in the opening round of the playoffs by a Cavalier's team headed up at the time by nascent superstar Lebron James, he unintentionally provided insights into the economic performance of Cleveland.

While it is commonly agreed upon that social capital matters, there is less of a consensus about what actually constitutes social capital.[20] According to the World Bank,

> Social Capital refers to the norms and networks that enable collective action. It encompasses institutions, relationships, and customs that shape the quality and quantity of a society's social interactions. Increasing evidence shows that social capital is critical for societies to prosper economically and for development to be sustainable. Social capital, when enhanced in a positive manner, can improve project effectiveness and sustainability by building the community's capacity to work together to address their common needs, fostering greater inclusion and cohesion, and increasing transparency and accountability.[21]

This aspect of the human dimension generally focuses on social organizations and other groups that help people act collectively. From this perspective, social capital is akin to a resource or factor for a place as discussed in Chapter 3. While neoclassical economics focuses on investment in *physical capital* as the driving factor of economic performance,[22] the newer endogenous growth theory focuses on the process of the

knowledge accumulation and the creation of *knowledge capital*.[23] *Social capital* can be considered as a further extension because it brings the social component to those factors shaping economic growth and prosperity.[24] In *Bowling Alone*, Robert Putnam, a professor at Harvard University, defines social capital,

> Whereas physical capital refers to physical objects and human capital refers to the properties of individuals, social capital refers to connections among individuals—social networks and the norms of reciprocity and trustworthiness that arise from them. In that sense social capital is closely related to what some have called "civic virtue." The difference is that "social capital" calls attention to the fact that civic virtue is most powerful when embedded in a sense network of reciprocal social relations. A society of many virtues but isolated individuals is not necessarily rich in social capital.[25]

Putnam challenges the standard neoclassical growth model by arguing that social capital is important for generating economic growth, "By analogy with notions of physical capital and human capital—tools and training that enhance individual productivity—social capital refers to features of social organization, such as networks, norms, and trust, that facilitate coordination and cooperation for mutual benefits."[26] Thus, social capital reflects the relationships that individuals have in a social context; that is how people relate to each other.

Scholars have found a strong link between social capital and economic performance.[27] Not only do those organizations with greater access to social capital tend to perform better, but those places with more social capital also tend to exhibit a superior economic performance. For example, compelling systematic empirical evidence suggests that those places with a greater extent of social capital tend to have a greater level of economic growth.[28]

## IDENTITY AND IMAGE

Caitlin Winner, who is from Williamsport, Pennsylvania, and graduated with distinction from Wesleyan University with a dual major in art and economics, could choose to live and work not just anywhere in the United States, but anywhere in the world. The place that she chose to spend at least the second half of her twenties was Berlin, Germany.

Why Berlin? Winner is a co-founder of the Internet firm, Amen. Her start-up is a platform for a social network featuring opinions and discussions,

which is, in a sense, a virtual replication of a Berlin *Kneipe* or bar. She insists that it would not have been possible to start and sustain her company anywhere else in the world other than Berlin. According to Winner, "Berlin is the coolest place in the world. Especially for people in the community of Internet startups."[29]

Not just for Winner, but an entire generation of young, dynamic people working on the Internet and other creative industries, it is all about Berlin's image. This is not to say that the image has nothing to do with Berlin's reality. In fact, the image that attracts Winner and countless other young people to Berlin accurately reflects the reality of the city. As Winner observes, Berlin's image is attractive to young, creative people. In particular, there is a dynamic and vibrant community of young people in the Internet industry, whose presence helps cement the city's cool new image, "Berlin is the best city ever."[30]

Winner and her two co-founders were featured on the cover of *TIP Berlin*, a weekly newsmagazine, featured under the headline, "Revenge of the Nerds: How Berlin is Becoming the next Silicon Valley."[31] *TIP Berlin* reported, "Berlin is known around the world for being cool. But it is an underdog type of cool, not like New York, Paris or London, but rather like Portland or Seattle. In Berlin there are clubs and bars, artists, students, designers, bloggers and musicians."[32]

According to Winner's co-founder, Felix Petersen, who was born and raised in Berlin, "Berlin itself is a type of startup. The entire city is in a constant state of change."[33] While the city may be in a constant state of change, it is only recently that the perception of Berlin being a place conducive to the Internet community and other creative industries has emerged. According to Melanie Fasche,[34] a doctoral student at the University of Hamburg and consultant in Berlin, the key role played by Berlin's image in shaping the economic performance of the city is no coincidence. Rather, it reflects a conscious and determined strategy deployed by the city to become a world-class place for the Internet industry and other creative industries through investments in culture and public infrastructure with policies that are conducive to culture and entertainment.

What seems like a lament, *"Arm aber sexy,"* or "Poor but sexy," a motto made famous by Berlin Mayor Klaus Wowereit, was actually a celebration of the city's emerging identity.[35] Since its near-total destruction at the end of World War II, Berlin's identity was shaped, at first, by the occupying powers of England, France, the Soviet Union, and the United States. With its role as capital of Germany taken away and the Berlin Wall dividing it, Berlin's self-esteem and identity struggled. When in 1962, while visiting Berlin, American President John F. Kennedy

famously proclaimed, *"Ich bin ein Berliner,"* he was declaring not just the military commitment of the United States to defending the city from the threats that literally surrounded it, he was also expressing an emotional affinity—love—for the city.

Most private industry fled the divided Berlin and what little remained was heavily subsidized by the government. West Berlin came to depend upon subsidies from England, France, the United States, and, what was then known as, West Germany. Thus, these forces that Berlin could not directly control came to shape its postwar image.

With the fall of the Berlin Wall in 1989 and the subsequent reunification of Germany, Berlin regained its role as the country's capital. Accordingly, the city's identity evolved, becoming less heroic and exotic as it became a place for politicians and civil servants. In the first years after reunification, Berlin seemed to be trapped in an endless cycle of stagnation, with business and industry remaining relatively sluggish. The city's reputation was that of being anti-business and overly burdened by government and bureaucracy. During the 1990s and early years of this century, Berlin lagged well behind other places in Germany when it came to economic performance.

As Fasche points out, a priority for Mayor Wowereit and the entire Berlin government is to shift Berlin's image toward a new, contemporary image that ignites the dreams and inspirations of the young, creative generation as "the" place to be.[36] Berlin needed a new image for the new century that reflected its dynamic nature and complemented its role as the capital of an economically strong Germany, which is also an important part of the European Union.

The priority placed on investments in culture, public infrastructure, as well as a climate of tolerance and diversity have played a significant role in generating Berlin's new image, according to Fasche.[37] And it is working: a 2012 survey of adults under 30 years old reports that nearly two-thirds of young Germans would prefer to live and work in Berlin.[38] Perhaps most telling, the survey suggests that Berlin is considered to be the best place in Germany to become an entrepreneur and start a new business. As Henrik Berggren, an entrepreneur from Sweden, who came to Berlin to develop his e-book start-up ReadMill exclaims, "I got sucked into Berlin. It became clear that this was the place to be."[39]

The image and identity of Berlin as a place that is conducive to entrepreneurship have triggered what one of the leading news magazines of Germany, *Der Spiegel*, refers to as "crisis migration."[40] As *Der Spiegel* reports, "It is a growing trend in the German capital. With the economy struggling across Southern Europe as a result of the euro crisis, increasing numbers

of young Italians are moving to Berlin to start their own businesses or to work at one of the city's many established start-ups."[41]

In fact, in 2012, the start-up rate in Berlin was ranked as the highest in Germany, with 2.7 percent of all people between 18 and 64 years old having a start-up. This is higher than other cities, including Hamburg, with a start-up rate of 2.5 percent, and Bremen, with a start-up rate of 2 percent. Similarly, there was more money invested in Berlin than anywhere else in Germany, including the state of Bavaria, which had been the former perennial leader in attracting investments in start-up activity.[42]

Caitlin Winner's Internet start-up, Amen, leveraged the image created by its place, Berlin, to help the firm's image. An American movie star, Ashton Kutcher, was so taken by the Berlin scene that he invested one million dollars in Amen;[43] then Sunstone Capital, a venture capital firm, upped the ante with another million dollars.[44] Thus, a virtuous circle between the strategic management of the entrepreneurial start-ups and the strategic management of the place was created through Berlin's new image as a cool place. It would seem that the image of Berlin has evolved from first "heroic but subsidized," to "poor but sexy," and perhaps in the near future to "wealthy and sexy." As the *New York Times* reports, "More than two decades after the fall of the Berlin Wall, the German capital has gone from a cold war relic to one of the fastest-growing start-up communities. Engineers and designers have flooded into Berlin in recent years, attracted by the underground music scene, cutting-edge art galleries, stylish bars and low rent."[45]

Many other places also foster images that contribute to shaping their economic performance. For example, "What happens in Vegas stays in Vegas" created an image that is seared into the minds of many, if not most, Americans. This image is consistent with a strategy based on a legal status that allows for gambling; what most other places would consider to be a vice. Rather than run from this image, it is cultivated and celebrated by Las Vegas. The economic performance of Las Vegas is consistent with, and benefits from, its image.

The image of a place can also have a negative impact on its economic performance. Monterrey, Mexico, was on a thriving trajectory of a dynamically improving economic performance. The strategic management of Monterrey was based on attracting investment in manufacturing to take advantage of considerably lower labor costs. Monterrey, "became a manufacturing mecca thanks, in part, to its inexpensive labor and proximity to the massive U.S. market. But there is a new reality on the ground in that country these days; a surge in violence tied to the war on drug cartels that Mexico's President Felipe Calderón mounted after his election in 2006.

The result has been a wave of kidnappings, extortion and murder that is threatening the country's economic health and causing multinationals to examine closely how they operate and invest in Mexico."[46] The total number of casualties from the drug wars in Mexico from 2006 to 2014 is estimated to be near 106,000. According to Jerry Wind, a professor of marketing at the Wharton School of Business at the University of Pennsylvania, "A failure to attract new capital is a major risk. If [the violence] continues, a lot of talented people might leave the country."[47] Thus, the negative image that resulted from the drug wars is inconsistent with the core strategy of Monterrey, resulting in a deteriorating economic performance.

There is compelling empirical evidence that regions have distinct identities or personalities. In "Divided We Stand: Three Psychological Regions of the United States and their Political, Economic, Social and Health Correlates," a team of leading social psychologists map unique identity profiles of regions in the United States.[48] This study maps out the psychological topography of the United States by five major personality traits—openness, conscientiousness, extroversion, agreeableness, and neuroticism. In particular, the study finds that the Midwest region of the country tends to be friendly and conventional. The west coast and Rocky Mountain region tends to be relaxed and creative. The northeast is characterized as temperamental and uninhibited. The underlying personality characteristics are deeply linked to the identity of that place, and in particular "for understanding the geographic clustering of talent and innovation."[49] A clear link is made between this underlying identity of a place and its economic performance, "Part of the reason why certain regions of the United States are economically vibrant may have to do with the psychological characteristics of residents."[50]

The 2013 cover story of *Time* magazine proclaimed, "The United States of Texas: Why the Lone Star State is America's Future."[51] The economist Tyler Cowen links the strong economic performance of cities in Texas to the identity of the place. "It's not an accident that three of the five fastest growing cities are in Texas. It's more like destiny. . . . There's a bumper sticker sometimes seen around the state that proclaims, 'I Wasn't Born in Texas, but I got Here as Fast as I could.'"[52]

A somewhat different identity and image pervades Detroit. As the *New York Times* reports in an article titled, "The Next Branding of Detroit," "Buying Something made in Detroit. . . . You're buying a small piece of the revival of a great American manufacturing city gone to seed. Or at least, you're buying into the liberal idea of what supporting a distressed economy means."[53]

## LEADERSHIP

We now turn back to North Carolina to see how the synergistic workings of leadership played a key role in the ascendance of Research Triangle Park. In particular, a combination of leadership, image, and affinity for this place in North Carolina played a key role in the ascendance of the region from one of the poorest and most impoverished in the United States to one of the wealthiest in the world.

Albert Link attributes both the formation of the Research Triangle Park in North Carolina and the growth of the entire Research Triangle region, linking Chapel Hill to Raleigh and Durham, to committed and enlightened leadership in a place where the residents had considerable affinity and loyalty.[54]

It is undisputed that North Carolina was one of the poorest places in the United States at one time. In 1950, according to the US Department of Commerce, there were only five states in the nation that had a per capita income level lower than North Carolina's. A mere two years later, North Carolina had fallen further, doing better than only two other states: Arkansas and Mississippi.

There was justifiable concern that the economy needed to diversify in order to grow, As Link describes, "At a luncheon at the Carolina Hotel in Raleigh on September 25, 1956, North Carolina's Governor Luther H. Hodges and Robert M. Hanes, president of Wachovia Bank and Trust Company, announced to forty-five prominent business leaders in the state that the Research Triangle Committee, Inc., had been established. While most in attendance knew about the Triangle, at least in the most general of terms, this luncheon signaled to these men, and in fact, to the citizenry of North Carolina, that it was time for the leadership of the state and universities to step forward and begin to build a foundation for the future economic growth of North Carolina."[55]

With the Research Triangle Development Committee established, a formal statement of the relationship between the park and the three nearby universities was articulated:

> The basic concept of the Research Triangle is that North Carolina possesses a unique combination of educational and research resources and communication facilities eminently suitable to the fostering of industrial research. It is not anticipated that the three universities in the Triangle shall engage directly in the conduct of industrial research, except under carefully designated and administered policies. Rather, the principal functions of the Universities are to stimulate industrial research by the research atmosphere their very

> existence creates, and to supplement industrial-research talents and facilities by providing a wellspring of knowledge and talents for the stimulation and guidance of research by individual firms.[56]

In his book, *A Generosity of Spirit: The Early History of the Research Triangle Park*, Link attributes the recent economic success of North Carolina to a number of factors, but most strikingly a prescient and devoted leadership.

The human element of leadership can also be synergistic with the dimension of human linkages, networks, and interactions, which was discussed earlier in this chapter. While San Diego serves as a primary example of a place rich in the human element of networks and interactions, leadership played a key role in igniting those human interactions and guiding them toward a sustained harvest and resulting in a compelling economic performance.

The capacity for leadership is deeply rooted in the civic fiber of San Diego, which according to Mary Walshok, has enabled the city and region to evolve and adapt different strategies, which were appropriate for each particular era and circumstance. San Diego illustrates how a moderately sized city can deploy an evolving strategy to generate a strong long-term economic performance. In fact, leadership may be an essential substitute for a deficiency of size and scale.

According to Walshok,

> Second tier cities such as San Diego, Seattle and Phoenix often have distinguishing features that allow them to be more nimble and adaptable than first tier cities such as New York, Chicago or Miami. Many metropolitan areas whose citizens decry their lack of Fortune 500 companies, large employers, established multigenerational leadership and family wealth have developed out of necessity, high risk, innovative, entrepreneurial, and frequently collaborative approaches to economic growth, which today are the envy of many first tier cities. New York, Stockholm and Bogota have all launched CONNECT programs, originally created in San Diego. Chicago, Detroit and Atlanta have launched technology venture funds based on a model originally created in Austin, Texas. It could even be argued that in the absence of large scale established companies and powerful centers of civic leadership, second tier cities often, out of necessity, develop experimentation and risk taking that can end up paying off in big way for an innovation economy. That has certainly been the case in San Diego since the turn of the last century.[57]

Walshok highlights how leadership and civic engagement have guided San Diego through critical transformations. Focusing at first on the navy,

Walshok explains how the city took advantage of its history to attract military research contracts. The "military metropolis" era lasted from 1950 through 1990, until it abruptly ended when the military downsized after the end of the Cold War. Once again, leadership, albeit a different generation of civic leaders, by adapting yet a new strategy, what Walshok refers to as "a collection of dynamic globally competitive technology based clusters." As Walshok explains, the military contracts from the Navy and Army did not just happen. Rather, they were the result of vigorous and sustained lobbying efforts from civic leaders in San Diego. All of this effort was finally harvested when the military decided to award a number of key research and development contracts to San Diego.[58] This stage of San Diego's life set the stage for future reinventions of the city.

The role of leadership was also on display in the Basque region of Spain, centered on the cities of Balboa and San Sebastian, which faced a dubious future in the 1990s. For decades, it was the place to go if you wanted a ship built. However, in the 1980s, the Basque region was no longer competitive; Asian counties could build ships bigger, cheaper, and faster. The Basque people faced a bleak future as economic growth stalled and unemployment climbed to double digits, ranking among the highest in Europe.

With a poorly educated workforce oriented toward low-skilled blue-collar occupations, the Basque region faced a struggle. Its low levels of investment in knowledge and human capital only compounded the problem after it lost shipbuilding to Asia. The region seemed condemned to economic free fall. However, the region put the brakes on and prevented economic disaster. By 2011, the GDP per capita of 26,225 Euros in Bilbao was considerably above the Spanish average of 22,152 Euros. Similarly, while unemployment is a problem, as it is throughout Spain and most of Europe, the Basque region's unemployment rate was about one-quarter less than the national average.[59]

What was the key to strategic management of Bilbao and the Basque region in triggering such a dramatic economic turnaround within a relatively short period of time? While the region lacked human capital and knowledge resources, it was blessed with an essential human element—leadership.

While many assumed that the Basque region would suffer a long, slow, perpetual decline, Jon Azua Mendia, who worked in the Ministry of Industry for the Basque region, saw opportunity. The opportunity that he saw lay in the emotional attachment that people in the Basque region have for their place, combined with a rich cultural tradition. The Basque region has remained fiercely independent, with a serious separatist movement, although it is part of Spain.

According to Mendia, the key to revitalizing the Basque region was to reawaken the identity of the place, and, in particular, the cultural identity. In 1991, under Mendia's guidance and leadership, Basque took the initial steps toward rediscovering prosperity with a bold and tenacious campaign to persuade New York's Guggenheim Museum to locate its first Guggenheim outside of the United States in the Basque region in the city of Bilbao. This seemed like a preposterous goal. The idea of pre-empting the perennial cultural capitals of Europe, such as Rome, Paris, and London, as home to the first Guggenheim Museum in Europe was written off as mere fantasy by most leaders in the Basque region. Resistance to the idea came from business leaders, civic leaders, and even the general population. Skepticism reigned; even if, in the unlikely event, they could scrape together the investment needed to actually build and operate a Guggenheim Museum, people doubted that there would be any return on the investment and that the Basque region would continue to flounder.

As Alfonso Martinez Cearra, who serves as the Director General of Bilbao Metropoli-30, a nonprofit organization devoted to the strategic management of Bilbao, recalls, "Originally 95% of Bilbao's politicians were against the Guggenheim Museum arguing that with the money they could build a new factory, but now they have changed their minds. They agree that a new image is needed to revitalize the city, resorting to art and culture. In France the Mitterrand era invested millions of francs in Paris. Paris is thus a key city to learn about image in the world."[60]

With extraordinary tenacity, Jon Azua Mendia prevailed. First he persuaded his business and political colleagues, along with the general population of the Basque region, to buy into his vision and dream. His persuasion occurred through numerous personal meetings where he convinced key people that they and the region would be better off if they committed to this strategy. The final step was to convince the Solomon R. Guggenheim Foundation to locate the first Guggenheim Museum outside of the United States in Bilbao.

According to the agreement reached by the Basque government and the Solomon R. Guggenheim Foundation, the Basque government would pay the estimated $100 million needed to construct the museum. In addition, the Basque government also was required to pay a one-time fee of $20 million to the Guggenheim Foundation, establish a $50 million acquisitions fund, and to pledge to provide $12 million to the museum's budget each year. In return, the Guggenheim Foundation agreed to manage the museum, which would include rotating significant parts from its permanent collection through the new museum; the foundation would also regularly organize special exhibitions.[61]

King Juan Carlos I opened the Guggenheim Museum Bilbao in July 1997. The impact on the region was palpable. The Basque region had not just built a museum; it had invested in architecture, building a facility that was notable in and of itself, never mind the art inside. As the world rushed to view this new building and its contents, visitors to Bilbao also discovered the cultural heritage of the Basque region. Simultaneously, locals changed how they viewed themselves as the Basque people, resulting in a shifting identity and self-image. People came to realize that the Basque region had something unique to offer the world; a rich cultural heritage and the ability to produce high-quality products and services. Basque wine and food could be marketed around the world, alongside products and services that were made and provided by Basque people.

Mendia observed that the visitors to the new Guggenheim Museum enjoyed the region's natural beauty as well as its cultural heritage. In the evening, visitors enjoyed glasses of, the now famous, Rioja wine. One clear impact of the Guggenheim Museum is the explosion of wine exports from the Basque region, a key piece in the transformation of the Basque regional economy.[62]

Most accounts of the impact of attracting the Guggenheim Museum to Bilbao have ranged from the enthusiastically positive to the euphoric. Cearra is effusive in his assessment of what the Basque region has harvested from locating the Guggenheim Museum in Bilbao,

> The effect of the Guggenheim on Bilbao has been amazing in many ways. For example, with the influx of tourists to a small formerly industrial, inward-looking city, children have been exposed to seeing people from all over the world—Asians, blacks etc., people they had never seen before. The Guggenheim is an extraordinary building. You can't tell people how to be a modern city, you have to integrate what is there. Gehry (the architect) did this. The building integrates the city and while it is beautiful from the outside, from the inside it is even more stunning. The Guggenheim has become a symbol for Bilbao. 1.36 million people visited the museum in its first year and it generated 0.47% of the Basque Country's GDP.[63]

In particular, the leadership of the Basque region has altered the region's identity for both residents and nonresidents. As Cearra emphasizes,

> What has been achieved through cultural investments in Bilbao is that the exterior diffusion of Metropolitan Bilbao's image is now associated with leisure and culture—not industry. Cultural infrastructures have an important

> role to play in cities. They contribute to higher levels of competence, creativity and security, not to mention social cohesion. They promote a better understanding between different cultures and different generations of the society. Likewise, they encourage the citizens to participate more actively in collective development, thereby bringing about a greater awareness of identity and benefiting or creating local traditions."[64]

As this example illustrates, the human elements of leadership, image, and affinity for a place are not easily separable. After all, if there is no affinity for, or emotional attachment to, a place, can leadership be effective? A leadership priority would be, in any case, to ignite or awaken the affinity people have for their place, as Jon Anzua Mendia did for the Basque region.

As the Princeton University scholar Albert O. Hirschman points out in his book, *Exit, Voice and Loyalty*, if people are unhappy with the status quo they will exit, especially if they are unable to voice their concerns. Loyalty is what will keep people with the status quo, even in the absence of exercising their voice.[65] Thus, effective leaders, like Jon Anzua Mendia, are able to both facilitate the voice option for people residing at a place and reinforce their loyalty, such that they are willing to invest in their place in order to generate strong economic performance down the road.

Leadership is critical for the success of places, whether in a big city or a rural village, as leaders help shape the strategic management. A critical component enabling the economic success of the Basque region, Research Triangle Park in North Carolina, and San Diego, was this human element; bold leadership that helped create and implement a vision for a strong and sustained economic performance.

## CONCLUSIONS

"You've gotta have heart," so goes the lyric from the famous Broadway musical and movie *Damn Yankees*.[66] Performance comes not just from ability or preparedness but also from heart and soul. The human dimension is at the heart of economic performance. Businesses and organizations that keep the human dimension in focus are more likely to achieve their goals.

This chapter makes clear that the human element also matters in shaping the economic performance of a place. Just as organizational corporate culture matters for the performance of organization, so too does the human dimension matter for the performance of a place. Places with the right "spirit," or what scholars refer to as social capital, tend to do better

economically. Compelling research supports what common sense suggests. Much of the ongoing debate over how to improve a place's economic performance typically focuses on a specific resource, such as a cluster or the creative class. Unfortunately, this debate overlooks the huge potential locked in the human element.

This chapter points to several different key dimensions of the human element in shaping a place's economic performance. One of these dimensions is the propensity of people at a place to interact in meaningful ways. Such interactions are conducive not just to the diffusion or spread of ideas but also to creating new and original ideas that can generate and drive innovative activity. Other elements of the human dimension include leadership, the identity of a place both to its residents and its nonresidents, and the emotional affinity that residents and nonresidents have for a place.

Just as the human dimension can be conducive to a strong economic performance, it also may be the unseen and unconsidered element impeding an economic turnaround and improved performance. The best efforts to enhance the resource or factor base of a place, or shape the organization and structure of economic activity in order to enhance performance may be thwarted and frustrated if the human element is not engaged.

While this chapter makes it clear that the human element matters, it provides little insight as to what a place can do to change its human element. Whether it is in terms of enhancing the linkages, interactions, and network activities, generating leadership and emotional affinity toward that place, or spurring social capital, shaping the human dimension of a place is a crucial component of the strategic management of a place. What exactly a place can do to enhance its human dimension is the topic of the next chapter.

# CHAPTER 6

# Public Policy

## INTRODUCTION

Can public policy make a difference?

A mountain of evidence suggests that it does not help, that, in fact, it may even hurt. For example, in a thorough and influential study of *Building High-Tech Clusters: Silicon Valley and Beyond*, Timothy Bresnahan, an economics professor at Stanford University, and Alfonso Gambardella, a management professor at Duke University, assembled a world-class team of scholars to try to understand how high-tech clusters emerged in contexts as disparate as Israel, India, Ireland, Sweden, and Taiwan.[1] The statistical evidence gathered by these experts found no significant link between policy and the emergence of high-technology clusters. Gordon Moore, founder of Intel, seems to have been right, when he warns against public policy prescriptions, "The potential disaster lies in the fact that these static, descriptive efforts culminate in policy recommendations and analytical tomes that resemble recipes or magic potions, such as: Combine liberal amounts of technology, entrepreneurs, capital, and sunshine. Add one (1) University. Stir vigorously."[2]

In fact, after weighing all the evidence assembled covering high-tech clusters from around the world, Bresnahan and Gambardella conclude, "Our research design took seriously the proposition that government policy leading and directing cluster formation might be an important part of the cluster formation story, although we ultimately reject that proposition."[3]

Such disparaging assessments about the role of public policy, in shaping and implementing the strategic management of places, flies in the face

of a number of startling real world examples. Just ask the people of South Carolina. In 1950, South Carolina was one of the poorest states in the country, ranked just above its neighbor, North Carolina. Both were relatively rural states, and both pursued a strategy based on low wages and unskilled labor for manufacturing in industries such as tobacco, textiles, and shoes. Today South Carolina still ranks among the poorest states in the country. North Carolina does not. Call it a tale of two Carolinas.

North Carolina broke out of the pack to become one of the wealthier places in the United States, in particular, the Research Triangle Park region. In 2011, South Carolina's per capita GDP was $30,620; barely edging out Mississippi and West Virginia. By contrast, North Carolina generated a per capita GDP that was nearly one-third higher at $38,847.[4]

What accounts for this divergence? The people I talk to in South Carolina almost uniformly and unequivocally point to one fundamental difference: public policy. Policymakers in North Carolina designed and focused policy on altering the state from its dependence on unskilled labor in manufacturing to being driven by knowledge and human capital. In the process, North Carolina radically altered the economy's foundation and entered an era of sustained economic growth that has benefited residents across the state.

Al Link documents in his book, *A Generosity of Spirit: A History of the Research Triangle Park*,[5] how leaders in the state engaged in what he terms "collective entrepreneurship," by coming together with a vision and plan to implement a new strategic direction for the state. In 1956, Governor Luther H. Hodges gathered together North Carolina business leaders to kick off a new strategic direction emphasizing knowledge and human capital. At the heart of this new strategic management was creation of the Research Triangle Park, which linked together the three most important universities in the state—University of North Carolina at Chapel Hill, Duke University, and North Carolina State University.[6] It took years for this new strategy to bear fruit. But bear fruit it did, as witnessed by the emergence of the Research Triangle region as a global leader in innovative entrepreneurship.

By contrast, in South Carolina, there was no analogous public policy initiative. Rather, public policy stayed the course, remaining focused on the same old business of low-wage manufacturing and low productivity agriculture. Today, when the business leaders and policymakers leading South Carolina look to their neighbor they are envious. Policy made a difference for North Carolina, and the lack of policy also made a difference for South Carolina. The economic performance gap continues to grow between the two states, and South Carolina is playing a long-delayed game of catch-up.

The key role played by public policy in the tale of two diverging states, North Carolina and South Carolina, is hardly unique. Examples abound of places that are the beneficiaries of strategic management that led to economic development. The city-states of Hong Kong and Singapore come to mind. These two places ranked among the poorest in the world after World War II. For example, the 1945 per capita gross domestic product of Hong Kong is estimated to have been below that of both India and Kenya.[7] By 2011 both places were synonymous with prosperity; Singapore and Hong Kong are both ranked among the five richest countries in the world.[8] As Joseph Stiglitz, Nobel Prize winner and professor of economics at Columbia University, makes clear, both Hong Kong and Singapore benefited from proactive public policy that shaped enlightened strategic management, ultimately delivering sustained and enviable economic performance.[9]

Similarly, the European Union has adapted a policy requiring each region within the European Union to develop a Smart Specialization Strategy (RIS3) as a prerequisite for having access to funds from the European Cohesion.[10] The Smart Specialization Strategy requires each region to prioritize its relative strengths in terms of resources, assets, and knowledge. The identification of priorities is to be achieved through the entrepreneurial process of discovering and articulating the strengths of the region and then leveraging them to enhance competitiveness.

Places can pursue strategies that shape and influence their economic performance. This chapter focuses on the role of public policy in shaping the strategic management of a place. The chapter starts off by considering the mandate for the strategic management of a place. That is, who and what kind of people have an interest in making sure that their place pursues strategies that improve their place's economy. The rationale for policy intervention is considered in the next section. While it may be commonly believed that it is the task of government to undertake the strategic management of a place, the chapter then makes it clear that the reality is considerably more complicated and nuanced, and that it involves a broad spectrum of individuals, parties, and organization from both the public and the private sectors.

The chapter continues with a discussion of various types of policies, including those based on factors and resources, followed by policies that influence the structure and organization of economic activity at a place. Next, the chapter focuses on policy that addresses the human dimension.

Finally, the chapter concludes with the caveat that there is no codified policy formula that can be blindly implemented to improve the economy

of all places. Rather, a broad spectrum of policy approaches and specific instruments can have a positive impact on the economic performance of a place. Each place must individually choose which policy approaches best suit its interests. Thus, each place must develop policies that best take advantage of its unique resources and goals in order to develop a successful approach to strategic management.

## THE MANDATE

What exactly is the mandate for people and organizational entities of a place to engage in the strategic management of that place? That is, who wants it and why?

The most straightforward answer is people and organizations, who have invested in some type of sunk cost or sunk investment that is specific to the particular place, want it. A cost or investment is said to be "sunk" if it cannot be recovered in any way. A similar, but somewhat less stringent, answer involves the degree to which people and organizations have fixed costs and investments in a place that are sticky. Simply put, it is easier and more beneficial and economical to invest in improving that place than it is to move away.

Clearly many of the emotional connections that people have to a place contain a sunk dimension to them. For example, someone cannot change or alter the place where they are born, just as the place hosting the graves of dear relatives cannot normally be moved. The feel or smell of a particular place is often unique and can neither be replaced nor replicated.

For organizations, the ability to replace a place that has access to a crucial scarce resource, such as a specialized type of knowledge, or access to a cluster of firms and network of people may also be difficult to replace and replicate. The sunk nature of such connections to a place will tend to generate a demand for the strategic management of that place because there are no other alternatives for the individuals and organizations needing those connections.

Perhaps the most important driving force underlying what Link characterizes as the *Generosity of Spirit*, which fueled the strategic management of Research Triangle in North Carolina, was the sense by leaders and other residents of the place that they wanted their children, grandchildren, and great-grandchildren to have opportunities at their place.[11] The alternative of relocating their own lives did not seem particularly viable, alluring, or attractive. This sense of place for people in North Carolina had a sunk component to it. While opportunities could be found in other

places, it just would not be the same. In this case, the sunk component involves an emotional connection to a place.

Another aspect involves costs resulting from large and fixed investments as well as human connections. For example, the pharmaceutical corporation, Lilly, headquartered in Indianapolis, found itself spatially isolated in the 1990s. Having access to the ideas, people, and linkages of life science clusters, in places such as San Diego or Research Triangle Park, would have generated a valuable flow of key knowledge to the company. However, Lilly decided rather than to pick up and move to such a cluster, which would have involved disrupting key human relationships and other sticky costs; it would champion the strategic management of Indianapolis to develop a life science cluster. Since then, the Lilly Foundation has invested a considerable amount in order to attract leading scientists and scholars to universities in Indiana, as well as to facilitate knowledge spillovers and start-ups in the life sciences. What is the impact of this championing? There is now a viable cluster of life science and biotechnology start-ups in Indianapolis. Substantial sunk costs may have influenced Lilly's decision to remain in Indianapolis. At the same time, Indy's shifting strategic management toward a focus on the life sciences did not hurt.[12]

## THE RATIONALE

The mandate for the strategic management of places suggests that there is a concern and demand for strategic decisions that improve the economic performance of a place. However, some people might wonder, why can't the market provide the right strategies and, therefore, generate a strong economic performance? Why is strategic management needed for a place to generate a better economic performance? Why not simply leave it to the market?

One answer is market failure. For an economic rationale justifying policy intervention, there must be a reason why the market will not appropriately and fully make the most out of scarce resources. The existence of market failure provides such a rationale as to why markets fail to efficiently allocate scarce resource, thereby justifying external intervention. In the case of places, there are four particular types of market failure that highlight the need for the strategic management of places.

The first type of market failure involves network externalities. Network externalities occur when the value of an activity, either by an individual or organization, is conditional upon the geographic proximity of other firms and/or individuals that are engaged in complementary activities. A person

or organization needs to be located at the same place in order to access and benefit from these complementary activities. By locating at a place where there are such localized complementary activities, the economic value of such an individual or organization is enhanced. Thus, such individuals and organizations will tend to locate or remain in places where such network externalities exist. However, they will tend to avoid places where relevant network opportunities do not exist. For places without any, or perhaps with just a few, networking possibilities, the strategic management could be to provide incentives that induce networking possibilities to flourish. In this scenario, places often offer incentives that encourage such individuals and organizations to move in.

Young people interested in Internet and software companies flock to places like Seattle, San Jose, and Austin in order to benefit from network externalities—to learn from Microsoft, Google, and a multitude of other Internet firms that are not yet household names. Other young people flock to places like Nashville in order to access the externalities emanating from the country music scene.

An analogous source of market failure emanates from knowledge externalities. The Nobel Prize winning economist Kenneth Arrow explained how ideas that are developed by one individual or organization can be used at no cost by other individuals and organizations.[13] That is, knowledge has a public good aspect to it, much like military protection, which cannot be limited to just Boise, but must be provided to the entire country. However, due to its tacit, uncodified nature, knowledge requires face-to-face exchanges for it to be shared; this is stuff that cannot be read in a book, on the Internet, or watched on television.

Not only does knowledge tend to spill over in face-to-face interactions, but this inherent quality also means that it tends to stay close to where it was created or first learned. This means that places rich in knowledge tend to be rich in shared knowledge, which, in turn, attracts organizations and individuals to that place. In contrast, places that lack a lot of knowledge will not generate significant knowledge externalities, and, consequently, tend to be less attractive to organizations and firms. The value of a place's knowledge investments is greater than that of any individual organization or firm. The strategic management of a place can encourage investments in new knowledge by creating favorable incentives.

Externalities associated with entrepreneurial failure represent another source of market externalities. When an entrepreneurial start-up fails, other firms and entrepreneurs can create economic value out of the failed firm's knowledge. Scholars consistently find that the propensity for entrepreneurial start-ups to survive beyond the initial few years is remarkably

low. In particular, the failure rate of start-ups in knowledge-based industries is especially high.[14] The high rates of failure for entrepreneurial start-ups and, in particular, knowledge-based start-ups are attributable to the incredible uncertainty facing entrepreneurial activity. But, like a phoenix rising from the ashes, just because an entrepreneurial effort fails, it does not mean that something cannot be made out of its remains. In fact, many ideas generated by failed entrepreneurial start-ups have become the basis for subsequent, successful entrepreneurial activity. For example, Intel's founders used knowledge that they learned from Fairchild electronics, a firm that ran into trouble. That is, there is a value to the learning generated by the entrepreneurial failure that can be passed on to other firms.

While entrepreneurial failure generates an externality, so too does entrepreneurial success. The fourth source of market failure emanates from the potential learning, or what could be termed as the "demonstration effect," generated by entrepreneurial activity. The demonstration effect consists of entrepreneurs who become role models for others by showing that entrepreneurial activity at that place is, in fact, possible. Such demonstration effects of entrepreneurship are valuable for the strategic management of a place. Thus, having successful entrepreneurs creates a value for the place beyond the value created for the entrepreneur herself. It is consistent with the strategic management of a place to provide incentives that are conducive to entrepreneurship.

The second reason why strategic management is needed to generate a better performance for a place is that a place is not a market. For many industries, including both products and services, markets do not coincide with the geographic boundaries that define a city, a region, a state, or even a country. Globalization has made clear that many, if not most, markets cross national boundaries. For most places and most markets, the place does not coincide with the market. Thus, market outcomes are not necessarily consistent with the desired goals of a particular place. Rather, places that undertake a concerted strategy to influence market outcomes may enjoy benefits extending far beyond these initial investments.

## WHO "DOES" IT?

With the "it" being the strategic management of a place, the knee-jerk reaction is that, of course, the government does it. Such a view, while not entirely wrong, is naïve and overly simplified. In some cases or contexts, it is indeed, the government that does it. However, the parties involved in the strategic management of places are often more complex.

For example, in the context of the European Union, the strategic management of places has been mandated within the framework of the EU Cohesion Policy. European regions are required to develop a smart specialization strategy as a condition to receive funding from the European development programs.[15]

The strategic management of a place within the context of the United States typically involves private firms and even individuals. For example, Ed Walker has single-handedly taken it upon himself to revive and energize the economic performance of Roanoke, Virginia.[16] The strategic management of Roanoke has historically centered on its geographic location, which made it a rail hub. However, as that strategy waned, Roanoke's fortune's also waned. But Walker has strong emotional and family ties to the place. Not only did he grow up in Roanoke, but he is also a third-generation lawyer from a prominent local family. Rather than sit by and watch the slow decline of his place, Walker has instead developed and implemented a new and bold strategy to revitalize Roanoke.

Walker's strategy for his place is to renovate historical buildings, igniting a cultural awakening, and attracting talented people. His strategy is focused on both physical capital, in particular the buildings, along with the place's image. City Manager Chris Morrill is impressed, "People think this is too good to be true. You have this developer who knows the finances, knows the law, knows how to do these historic renovations and is really committed to the community. It's real. When folks from other communities come in here and I show them some of the stuff that's Ed's doing, they're like, 'How can we clone this guy and bring him back to our community?'"[17]

In this case, Roanoke's strategic management is being formulated and implemented by a private individual, a private company, and without the government. According to the city manager, there are indications that this strategy is positively impacting Roanoke's economy in part because Walker has helped citizens improve their own self-image, "Roanoke has this inferiority complex. People would say, 'We could've been Charlotte if we'd had a bigger airport, or Greensboro or Asheville.' And Ed helped them realize Roanoke is a pretty good place."[18]

Similarly, in 2013 the Governor of Washington, Jay Inslee, granted a package of tax breaks for Boeing Co., "in hopes of landing the company's new 777X to be located at Puget Sound in the state of Washington."[19] The incentive package offered to Boeing was valued at $9 billion. This illustrates the use of the instrument of tax incentives to enhance a key resource at a place—in this case the resource being physical capital and the place being the Puget Sound. The potential impact of such a government

policy on economic performance is clear to the president of the local labor union (machinists), Tom Wropbleewski, who proclaimed, "What's at stake here is jobs for the future—jobs to build the 777X for 20 to 25 years."[20]

In contrast, the strong and sustained economic performance of places like Bavaria and Baden-Württemberg might appear to be attributable to policies formulated and implemented by state government. Even as the unemployment rate soared to 23 percent in Spain, 20 percent in Greece, and 10 percent across the entire European Union, it was only 3.8 percent in Baden-Württemberg and 3.5 percent in Bavaria.[21] This strong and exceptional economic performance in the rapidly deteriorating European context contrasted sharply even within Germany, where places such as Bremen had an unemployment rate of 11.2 percent, and Berlin an unemployment rate of 12.2 percent.

In Germany, there is a legal and constitutional mandate for local governments to engage in strategic management, or what is referred to as *Standortpolitik*, in order to generate a strong and positive economy. The underlying feature of this policy is *Ordnungspolitik*, which, according the Minister of Finance in Germany, Wolfgang Schäuble, "is an institution that lays the groundwork for reliable long-term policymaking and that by itself can counteract undesirable fiscal and economic developments."[22] Practically speaking, what *Ordnungspolitik* does is provide the legal mandate for the government to ensure an orderly and prosperous economic performance.

A second feature reinforcing the mandate for the government to be responsible for the strategic management of a place in Germany is *Strukturpolitik*, or policies designed to shape and influence the industrial structure of each place. A third feature is the legal and institutional framework, *Standortpolitik,* which is a mandate for local and state governments to engage in the strategic management of their place to ensure prosperity and a strong economic performance.

However, what is often overlooked, and may be more subtle, is the underlying principle of having *Konsens*, or consensus, in the formulation of policies. Building consensus includes involving the views and interests of the government, firms from the private sector (*Industrie*), and workers in unions (*Gewerkschaft*). Thus, *Standortpolitik* is carried out with the strong input, and support, of both the private sector and workers via the organized unions.

This complexity of determining who creates the policies that improve the economic performance of the place is also common across North America. For example, the private and public sectors combined to create a bold, new, strategic management policy for Louisville, Kentucky. Louisville's

economic performance has, historically, revolved around the factor of physical capital. Since 1916, plentiful and relatively low cost labor, combined with its location on the Ohio River, made Louisville a center of manufacturing. Ford opened its first Louisville automobile assembly plant in 1916. Reflecting more modern technology, Louisville leveraged its physical capital infrastructure to become a transportation hub, with United Parcel Services operating a package sorting and distribution hub at Louisville International Airport.[23]

However, a new approach to the strategic management of Louisville emerged; based on services and care for the elderly. This strategy involves a combination of physical capital, knowledge, and entrepreneurship. Private sector firms, local universities, and the government are championing this new strategy. This approach to the strategic management of Louisville includes a number of distinct interests that come together to work as one. The physical capital component involves a $38 million investment for a high-rise commercial office and laboratory building in the central business district, which "signals the steady expansion of the city's biggest new economic sector—a field local development specialists call 'lifelong wellness and aging care.'"[24] The building is part of the Nucleus Innovation Park, which has the goal of spawning the healthcare industry in Louisville. Policy instruments such as income tax credits are being used to attract tenants. For example, Signature HealthCare moved its headquarters from South Florida to Louisville in 2012 and was granted $4 million of city income tax credits. As of 2012 Signature employs 1,100 people in the Louisville area.[25]

Developing the knowledge capital necessary for Louisville to succeed is the role of the University of Louisville, which is supporting the policy by focusing on relevant research, education, and outreach in order to support this industry. Another aspect of the strategy focusing on the structure and organization of economic activity involves promoting entrepreneurship, includes the provision of support to entrepreneurial start-ups in health technology and services. Finally, Louisville is also addressing its image. According to Ellen Pickett, who serves as the vice president of the economic development agency Greater Louisville Inc., Louisville wants "to help make retirement and aging cool."[26]

This new vision for the strategic management of Louisville is working. While many places in the United States were losing jobs and suffering from higher rates of unemployment, Louisville gained 21,000 jobs between May and June of 2012.[27]

Similarly, public policy designed to implement a strategy for Frankfurt, Germany, has also induced strategies by private companies that are

complementary to and help accentuate those policy goals. Clariant, a chemical company, announced in 2013 that it was investing in a $140 million innovation center, the Clariant Innovation Center. Frankfurt was selected because it "will benefit from the excellent infrastructure as well as industrial and academic links offered by the Rhine-Main region."[28]

Nonprofit organizations can also be engaged in the strategic management of a place. Many public universities, and certainly land grant universities, have an explicit mandate to contribute to the economic performance of their place. For example, Indiana University advises passers-by on a billboard between Bloomington and Indianapolis that Indiana University is "Creating an Innovative Indiana."

Especially in the areas of investments in the resources and factors involving knowledge, human capital, and creative capital, universities can play a key role in the strategic management of a place. There are compelling cases where universities join forces with government policy in the strategic management of a place. For example, Indiana University created the Council for Regional Engagement and Economic Development (CREED) and the Innovate Indiana Network to "enhance connectivity and extend the initiative across functional areas of expertise throughout seven Indiana University campuses, each of which an impact on economic development"[29] in the state of Indiana.

The above examples highlight the rich interplay of both private and public interests in the strategic management of a place. The most compelling examples of places pursuing successful strategies that positively impact their economy are places where lots of individuals and organizations, in both the private and public sector, are actively involved.

## RESOURCES AND FACTORS

Chapter 4 explained why a place with abundant key factors of production and resources tends to generate a better economic performance. This holds true for a broad spectrum of factors and resources, including but not limited to physical capital, knowledge, talent, human capital, infrastructure, skilled labor, amenities from nature, and oil, that can contribute to economic performance. While the chapter makes clear why a place may experience a greater performance if it is endowed with a particular factor, it does not explain what a place can do to increase its factor endowment.

Despite the gloomy conclusions of many scholars and policymakers, whose complaints are outlined earlier in this chapter, there are many compelling examples, case studies, and even systematic empirical evidence

suggesting that places can improve their economic performance through policy designed to enhance, or at least leverage, resources and factors. For example, Richard Florida, in *The Rise of the Creative Class*, makes a compelling link between urban policies to attract and retain what he calls "the creative class" and city performance. According to Florida, "The key to success today lies in developing a world-class people climate. By this I mean a general strategy aimed at attracting and retaining people—especially, but not limited to, creative people. This entails remaining open to diversity and actively working to cultivate it, and investing in lifestyle amenities that people really want and use often, as opposed to using financial incentives to attract companies, build professional sports stadiums or develop retail complexes."[30]

According to Florida, a place can invest in making sure that what he refers to as the three T's—tolerance, technology, and talent—are in abundance, thus attracting the creative class to move to that place. By tolerance, Florida means a type of social capital that is characterized by acceptance of diversity and differences across a broad spectrum of personal characteristics. By technology, he essentially means assuring that new knowledge and ideas are being created and implemented at the place. Creative people are drawn to places spawning new and important ideas, especially in their own and related fields. By talent, he means human capital and skilled labor, broadly considered. Talent seeks talent, such that places with highly skilled human capital will serve as a magnet attracting the creative class.

Cultural amenities can play a huge role in attracting the creative class to move to a place. For example, Florida highlights the example of Austin, Texas, where the key amenities of a rich music scene spurred the relocation of software engineers from Silicon Valley to Austin. Beyond such case studies, there is considerable systematic empirical evidence linking amenities to the economic performance of a place.[31] Places offering superior amenities tend to do better economically. The policies implemented by Austin, Texas, transformed the city from a sleepy town to a technological powerhouse. In addition to the cultural investments, Florida also points to investments in knowledge and, in particular, investments in the University of Texas, which serve as a powerful magnet for attracting talent.

As knowledge has become a crucial resource for competitiveness in global markets, employment creation, and economic growth, universities have emerged as a key source of knowledge that can fuel place performance. As Florida points out in *The Rise of the Creative Class*, "The presence of a major research university is a huge advantage in the Creative Economy." Florida attributes the "Boston high-tech miracle" to MIT and the

other universities around Boston. Similarly, "Silicon Valley is unthinkable without Stanford University, its long-time creative hub."[32] In fact, many of the cities scoring high on Florida's Creativity Index are also home to major universities. Examples of places ranking high on the Creativity Index and also having major research universities include the San Francisco Bay Area, Austin, Boston, San Diego, the North Carolina Research Triangle, Madison, Boulder, and Ann Arbor.

According to Florida, the university serves as an engine of city growth and development in a number of ways that are interrelated and reinforcing. These span his 3 T's of creative cities—technology, talent and tolerance. In terms of technology, universities serve as a focal point for state-of-the art research. Such research is the source of technology that fuels spin-off companies, such as Google. Google was founded by students who left Stanford University, taking with them the knowledge and ideas that fueled the start-up, which has since shaped the Internet.

In terms of talent, universities serve as magnets for human capital and creative people. According to Florida, "By attracting eminent researchers and scientists, universities in turn attract graduate students, universities generate spin-off companies and encourage other companies to locate nearby in a cycle of self-reinforcing growth."[33] For example, Austin Mayor Kirk Watson, who served from 1997 through 2001, "was a driving force behind a powerful and progressive strategy that aims to capitalize on the convergence of technology, talent, and tolerance."[34] According to Watson, "Austin has benefited from a convergence between technology and our laid-back, progressive, creative, lifestyle and music scene. The key is that we continue to preserve the lifestyle and diversity, which enables us to lure companies and people from places like Silicon Valley."[35]

Finally, in terms of tolerance, universities create an atmosphere of accepting diversity and differences among people. As Florida points out, "Universities also help to create a progressive, open and tolerant people climate that helps attract and retain members of the Creative Class. Many college towns from Austin, Texas to Iowa City, Iowa, have always been places where gays and other 'outsiders' in those parts of the country could find a home."[36]

The importance of top research universities in generating innovative activity and economic growth is frequently discussed in the media. A survey carried out by Moran, Stahl & Boyer of nearly one thousand executives located in America's sixty largest metropolitan areas identified Raleigh/Durham as the best metropolitan area for knowledge and innovative activity because "a lot of brainy types who made their way to Raleigh/Durham were drawn by three top research universities. . . . U.S. businesses, especially

those whose success depends on staying at the top of new technologies and processes, increasingly want to be where hot new ideas are percolating. A presence in brainpower centers like Raleigh/Durham pays off in new products and new ways of doing business. Dozens of small biotechnology and software operations are starting up each year and growing like kudzu in the fertile climate."[37]

Places with university research clearly exhibit more innovative activity. This is confirmed by studies showing that innovative activity tends to be greater in cities with a stronger university presence, measured in terms of research dollars, across the US and other developed countries.[38]

Innovative activity is not, of course, the performance goal for policy. Instead the typical performance goal is to increase the standard of living for people living at the place. Policies designed to enhance the availability of skilled labor in order to improve economic performance is an often-used approach. The current economic boom in Baden-Württemberg has resulted in a shortage of skilled labor, which, if unabated, will ultimately serve as a drag on economic performance. According to Norbert Czerwinski, who works in human resource development in Mannheim, "small and mid-sized companies are desperate for new employees and trainees."[39] As *Der Spiegel*, a leading news magazine in Germany reports, "Unless countermeasures are taken, the Rhine-Neckar region of southwestern Germany could see a shortfall of about 35,000 skilled workers by the end of 2013."[40]

The strategy developed by the state of Baden-Württemberg, as well as the individual cities and towns located in that *Bundesland*, is to try to offset the shortage of skilled workers by attracting workers with similar skills level from Southern Europe, a region suffering a plague of unemployment. This strategy, however, poses a number of daunting challenges. As *Der Spiegel* reports, "Workers from Southern Europe are in demand in booming towns like Villingen-Schwenningen and Schwaebisch Hall. Unfortunately, these places have names that mean almost nothing to people in Spain and Portugal."[41] In addition, there is the obvious language barrier, as well as significant cultural differences.

Thus, implementing this strategic policy goal required the development of several new policy instruments. For example, representatives from the region—from the private, nonprofit, and government sectors—have given talks at schools and universities in cities such as Barcelona and Lisbon. Journalists from Southern Europe have been invited to visit the region. As *Der Spiegel* observes, "Advertisements have been taken out in Greek newspapers to tout the benefits of living and working in smaller German cities and rural areas. The Confederation of German Employer

Associations (BDA) even published a guideline for business owners on the subject of creating a 'welcoming culture,' while municipalities have studied ways to integrate the new arrivals from the south."[42]

The point to be emphasized here is that the region of Baden-Württemberg is not simply waiting for the lure of a job at a comparatively high wage rate to induce workers to move away from the high unemployment, they are actively encouraging people to move in.

## ORGANIZATION AND STRUCTURE

Some noted scholars and policy leaders have concluded that it is not possible to shape the organization and structure of economic activity such that it has a positive impact on economic performance. For example, in reflecting upon their meticulous study of policy attempts to "create the next Silicon Valley," Bresnahan and Gambardella conclude that policy to create or even foster the technology-based cluster had nothing to do with the impressive economic performance of Silicon Valley, "Our overall research design took seriously the proposition government policy leading and directing cluster formation might be an important part of the cluster formation story. . . . we ultimately reject that proposition."[43]

Similarly, three leading academic economists, Philippe Martin, Thierry Mayer, and Florian Mayneris, similarly argue that there is no role for policy in creating clusters in an article titled "Natural Clusters: Why Policies Promoting Agglomeration Are Unnecessary." Martin, Mayer, and Mayneris point out that "policymakers love to promote industrial clusters. Since the end of the 1980s, national and local governments in Germany, Brazil, Japan, South Korea, Spanish Basque country, and France, inter alia, have attempted to foster their development. And they haven't done it on the cheap—the French government recently devoted €1.5 billion to 'competitiveness clusters'. Why are politicians so keen on clusters and is the money well spent?"[44] In fact, based on their research and other similar studies, Martin, Mayer, and Mayneris are strongly opposed to policies that promote clusters, "Our results suggest that the starting point of cluster-policy advocates is right—clusters do bring economic benefits—but their conclusion is not. The reason is simple. Firms take into account most of those benefits in their location choice. Costly public interventions aimed at increasing the size of clusters is not a policy that is supported by the French evidence. Whether cluster policies can, for a given size of clusters, improve collaboration, the exchange of information and knowledge externalities between firms remains to be tested."[45]

Two prominent scholars of economic geography, Ron Martin and Peter Sunley, reached a similar conclusion. According to Martin and Sunley, "Seductive though the cluster concept is, there is much about it that is problematic . . . the cluster concept should carry a public policy health warning."[46]

Despite such warnings against undertaking policies to create or promote clusters, there are compelling examples of such policies having impressive results. For example, Link attributes the remarkable turnaround of the Research Triangle region connecting three North Carolina cities—Raleigh, Durham, and Chapel Hill—to the success of policy in creating a high-technology cluster. This policy involved leveraging the three main universities associated with these cities—University of North Carolina, North Carolina State University, and Duke University—in order to attract both large corporations and small start-up companies to locate in the region.

There is compelling empirical evidence that this cluster policy significantly impacted the place.[47] One scholar, Bill Little, identified more than 1,000 technology-based start-up companies in the Research Triangle region that were founded since 1970, many of which are directly traceable to either Triangle Park companies (spin-offs) or the universities.[48] As Link points out, "These start-ups not only provide immediate employment opportunities for North Carolinians but also have demonstrated the potential to influence the state's economic growth in the future as they grow and possibly act as magnets for related organizations to move into the area."[49]

The policy to create a cluster at the Research Triangle Park centered around three goals: attract industrial research laboratories and facilities to North Carolina, increase opportunities of citizens of North Carolina for employment, and increase the per capita income of the citizens of the state.[50]

Link argues and provides evidence that Research Triangle Park has had a major impact on growth, economic development, and incomes in the region. Evidence shows that the policy to create a cluster in Research Triangle Park has fundamentally and effectively changed the region and, in particular, vastly improved the economic performance of the region. Link and John Scott, a professor of Economics at Dartmouth College, document the growth in the number of research companies in the Research Triangle Park, increasing from none in 1958 to fifty in the mid-1980s, to over one hundred in 1997. At the same time, employment soared from zero in 1958 to over 40,000 in 1997.[51]

A different account of the positive impact of policy in changing the structure and organization of economic activity at a different place, Tel

Aviv, is equally compelling. In *Start-up Nation: The Story of Israel's Economic Miracle*, Dan Senor and Saul Singer attribute the transformation of Tel Aviv, and all of Israel, to a set of policies implemented by the Israeli government that were designed to foster both knowledge and entrepreneurship. These policies resulted in the creation of a high-technology cluster in Tel Aviv that is now world class.[52]

A very different set of policies focuses on injecting or enhancing the degree of entrepreneurship in the spatial structure and organization of a place. One example of entrepreneurship policy involves cities and states which have implemented policies to leverage the federal Small Business Innovation Research (SBIR) program. In response to economic problems, such as sluggish growth, persistent high rates of unemployment, and inadequate rates of job creation the Congress enacted the SBIR program in 1982 with an explicit goal of reinvigorating jobs and growth through enhancing the innovative capabilities of the United States. In particular, the explicit mandate created by the Congress was to (1) promote technological innovation; (2) enhance the commercialization of new ideas emanating from scientific research; (3) increase the role of small business in meeting the needs of federal research and development; and (4) expand the involvement of minority and disadvantage persons in innovative activity.[53]

The SBIR program functions through the eleven federal agencies which administer the program and award around $2.5 billion annually for innovative activity by small business. A qualifying small business is eligible to apply for grants from the participating federal agencies ranging from $100,000 ($150,000 at the National Institutes of Health) for a Phase I award, to $750,000 for a typical Phase II award.

States and cities have developed policies designed to leverage the federal SBIR program to enhance entrepreneurship at their particular place and ultimately to generate a stronger economic performance. For example, the state of New York has created the Empire State Development Division of Science, Technology & Innovation (NYSTAR) with the explicit mandate to help make New York a leader in high-technology academic research and economic development. Through a host of innovative programs and initiatives including world-class, state-of-the-art research centers, business outreach centers, technology transfer incentives, and faculty retention initiatives, NYSTAR's programs help support the technology development continuum from cutting-edge research to commercialization of new technologies.[54]

A similar example of such an entrepreneurship policy is the Montana SBIR/STTR Matching Funds Program (MSMFP), which was established

"to foster job creation and economic development in the state by providing matching funds to eligible businesses."[55]

The impact of the SBIR program has been analyzed in considerable detail in a series of meticulous studies undertaken by the Board on Science, Technology and Economic Policy of the National Research Council of the National Academy of Sciences as well as in a number of important studies by university scholars. These studies generally conclude that the SBIR has generated a number of substantial benefits. The SBIR has undoubtedly facilitated entrepreneurship and innovation along with the economic performance of cities, states, and regions. The empirical evidence pointing to a positive impact of the SBIR is remarkably robust. Studies with disparate methodologies, ranging from case studies of recipient SBIR firms, to interviews with program administrators at the funding agencies, to systematic analyses of broad-based surveys of firms, and to sophisticated econometric studies based on objective measures comparing the performance of recipient SBIR firms with control groups consisting of matched pairs that did not receive any SBIR support all point to the same thing—the SBIR has made a key and unequivocal contribution to making cities, states, and regions more entrepreneurial.

In particular, a number of key benefits emanating from the SBIR program can be identified from the literature. The key economic benefits accruing from implementation of the SBIR are most compelling in terms of two of the objectives stated in the Congressional mandate—enhancing innovation and entrepreneurship.

There is strong and compelling evidence that the economic performance of cities, states, and regions is considerably stronger as a result of the SBIR program than it would be without the SBIR program. In particular, empirical evidence suggests that recipient SBIR firms exhibit more innovative activity. Existing small business is more innovative as a result of the SBIR program. A meticulous study undertaken by the National Research Council of the National Academy of Sciences found that around two-thirds of the projects funded by SBIR grants would not have been undertaken in the absence of SBIR funding.[56] The same study also identified a remarkably high rate of innovative activity emanating from the SBIR-funded projects. It showed that slightly less than half of the SBIR-funded projects actually resulted in an innovation in the form of a new product or service that was introduced in the market. Such a high rate of innovative success is striking given the inherently early stage and high-risk nature of the funded projects.

A second important finding in the empirical assessments of the impact of the SBIR program is that the SBIR has generally increased the number

of technology-based start-ups. The SBIR program results in a greater number of technology-based firms. Empirical evidence suggests that over one-fifth of all recipient SBIR companies would not have existed in the absence of having received an SBIR award.

A third important finding from the literature is that recipient SBIR firms exhibit a stronger growth performance. Studies consistently find that firms receiving SBIR grants exhibit higher growth rates than do control groups of matched pair companies.

Fourth, recipient SBIR firms exhibit higher rates of survival. The early phase for technology entrepreneurial ventures has been characterized as "the valley of death." The empirical evidence suggests that the likelihood of survival for young technology-based SBIR recipients is greater than for comparable companies in carefully selected control groups.

The fifth important finding is that the SBIR has resulted in greater commercialization of science and research undertaken at universities. Empirical evidence points to a high involvement of universities in SBIR-funded projects. One or more founders have been employed at a university in two-thirds of the SBIR recipient firms. More than one-quarter of the SBIR-funded projects involved contractors from university faculty.

Finally, the empirical evidence suggests that the SBIR has increased the number of university researchers and scientists who have become entrepreneurs. In particular, studies find that scientists and engineers from universities have become entrepreneurs and started new companies who otherwise might never have been entrepreneurial. Some of these university-based entrepreneurs are involved in firms that have received SBIR grants. Others have been inspired to become entrepreneurs as a result of learning about the efficacy of becoming an entrepreneur from the observed success and experiences by observing their colleagues who have been involved with SBIR-funded companies.[57]

Universities are increasingly serving as a policy instrument to facilitate the development of entrepreneurship in their cities and regions. Not only do most universities now have incubators to generate the start-up by faculty and students of new businesses, increasingly they are developing new and innovative types of programs to enhance entrepreneurship. For example, the mayor of New York City, Michael Bloomberg, created a competition for universities around the world to make proposals for innovative programs to generate more entrepreneurship in New York and help transform the city into an entrepreneurial-driven and high-performance place.[58] As part of what the mayor refers to as Applied Science NYC, the competition for the new program was won by Cornell University and Technion- Israel Institute of Technology, who are collaborating to create

an entrepreneurial-oriented technology campus on Roosevelt Island.[59] According to the mayor at that time, Michael Bloomberg, "The NYCTech Campus is intended to bolster job creation in the city and may generate 600 spinoff companies and $23 billion in economic activity over the next three decades."[60]

Similarly, Columbia University recently created the Columbia Startup Lab, which is not located on the main campus but rather in Soho, as part of the university's push to expand its presence and role in the city's rising entrepreneurial arena.[61]

A different example of a state-level program to facilitate entrepreneurship is the Ben Franklin Technology Partnership. Established in 1982, the program has the explicit mandate to make the state more entrepreneurial. Among other things, the program focuses on providing entrepreneurs with access to finance, knowledge, and networks.[62]

A considerably different approach to make a place entrepreneurial has been advocated, which is to "focus entrepreneurship policy on scale-up, not startup."[63] As the *Harvard Business Review* observes,

> Would you allocate more of a society's resources to giving birth to more babies or to raising children well? Now, think about enterprise creation and the challenge of economic growth. Societies' leaders need to rebalance entrepreneurship policies towards scale, not start. In recent years, we have been witnessing a significant global shift in attitudes towards entrepreneurship in countries around the globe. This is reflected in the dramatic proliferation of start-up programs: Start-up America, Start-up Chile, Start-up Russia, Start-up Britain, Start-up Weekend, and dozens of others. "Start-up" has replaced "Silicon" as the reigning entrepreneurship buzzword; there is hardly a country or city that is lacking a start-up program.[64]

Thus, despite the warnings of scholars and policy thought leaders, there are many striking examples of how policies have helped generate clusters, enhance entrepreneurship, and create diversity along with other dimensions of structure and organization in the economic activity of a place.

## THE HUMAN ELEMENT

Serving as a massive base for the US Navy gave San Diego a boost. This base, and its related facilities, generated a strong and successful economy throughout World War II and the postwar era. Mary Walshok, a professor of sociology at the University of California San Diego, points out that this

strategy was not simply a given, such as the beautiful coastline and other natural attributes of the place. Rather, she carefully documents how civic leaders carefully and meticulously cultivated relationships in Washington, DC, as part of a strategic mission to convince the Pentagon to locate military assets in San Diego. According to Walshok, the rich tradition of civic engagement and leadership is embedded in San Diego and dates back to the origins of the city, where the cultivation of leaders and civic engagement was essential for survival in a hostile environment.[65]

San Diego's strategy paid off. The city and region enjoyed and prospered from a strong and sustained economy throughout the postwar era. But the fall of the Berlin Wall and the subsequent peace dividend caused a massive downsizing of the military. San Diego's future was in jeopardy, as economic growth spiraled and unemployment soared. Perhaps the greatest concern was that the previous strategy, which essentially leveraged the city's unfettered access to the Pacific Ocean, no longer worked. San Diego had to rethink its strategic management.

According to Walshok, that is exactly what San Diego did. The key, according to Walshok, was leadership emanating from the deep and embedded tradition of civic engagement. Just being on the Pacific Ocean would not suffice to generate the kind of sustained economic performance that the community wanted. In sifting through the various alternatives, leaders came together from disparate parts of society, spanning not just business and government but also universities, tourism, and the creative industries. Reviewing San Diego's assets, leaders observed that they had a lot of investments in knowledge creation. The University of California at San Diego, San Diego State University, and the University of San Diego individually were excellent; collectively these three universities conducted an impressive amount of research each year. Additionally, the US Navy's downsizing had left a large number of scientists and engineers open to new career opportunities.

The problem, or rather challenge, seemed to be figuring out how to connect all of institutions and individuals rich in knowledge and creativity? Here the tradition of civic engagement and leadership played a crucial role in turning the dismal economic performance of San Diego in the early 1990s. Civic leaders responded to the problem by creating the San Diego CONNECT program, which provides

> entrepreneurs and start-ups in member regions access to global capital providers and financial markets, research opportunities, corporate partners, and new customer channels. International corporations, universities, and research institutions will have a powerful new resource to link with emerging companies for

> partnership and collaboration. Shared best practices and resources, improved assessment of innovation capacity, and strengthened university/industry interaction will bring the benefits of globalization to the region.[66]

It worked. Through its now world-famous, pioneering program, CONNECT San Diego, public policy succeeded in changing the region's identity as well as its source of competitiveness. San Diego once again took advantage of regional resources—technological readiness, land use, and superb federal relations—to build a new future. It re-engaged the embedded social dynamics that included a willingness to embrace outsiders and new leaders, both necessitated in part by an absence of old companies or families. A business culture of "we can do" and "we'll show you" developed in the region. Throughout the 1980s and 1990s, CONNECT was able to catalyze tremendous growth, building on the successes and relationships established by early science and technology enterprises such as GA, Linkabit, Hybritech, SAIC, SpinPhysics, and Mycogen.

And the rest is history, as they say. "Over the last twenty-five years, the San Diego region has supported the emergence of six distinctive, robust, high-technology clusters, while continuing to incubate new clusters. Where few or no companies existed in the 1980s, by 2010 thousands of companies, representing tens of thousands of jobs now flourish."[67] This is a case where policy clearly made a difference; San Diego's economy is soaring, and the human element was critical to this comeback.

## CONCLUSIONS

It is one thing to conclude that the factors and resources, in combination with the structure and organization of those factors and resources, as well as the human dimension, matter in shaping a place's economic performance. In fact, that was the mission of chapters 3, 4, and 5. It is a very different thing to then suggest that the underlying determinants of economic performance for a place can systematically be harnessed, augmented, and leveraged by policy in a way that systematically enhances the economy in a positive and sustained manner. This is exactly what this chapter proposes—there is a clear mandate and rationale for policies that strategically manage places. And there is a rich history of places where policy has made a substantial contribution toward improving the economy.

Policy can make a difference. However, there are at least three key qualifications accompanying this view, which seemingly contradict the

firm conclusions made by a plethora of leading scholars, business leaders, and policymakers. The first is that no one-size-fits-all policy recipe exists that can be followed or implemented. Each place is unique, with its own configuration of resources, factors, strengths, weaknesses, traditions, history, geography, and national contexts. Thus, blindly following what has worked for one place is no guarantee of success for another place. There is no escaping the investments in learning, expertise, and consensus-building that places must make in order to develop individualized policy approaches.

A second qualification is that, while this chapter highlights positive examples of strategic management, there are many cases where policy has failed. As is true for organizations and firms, merely implementing a strategic management policy does not guarantee that the chosen policy is the correct or optimal one.

A third qualification involves the isolation and separation of the different underlying determinants of economic performance and the policy instruments that can influence them. While these are introduced and discussed as separate, individual phenomena in this book, it should be clear that these are, in fact, highly interrelated. Creating the Research Triangle Park in North Carolina took policy that included enhancing the factors of knowledge, human capital, and talent, facilitating a structure and organization of entrepreneurial start-ups, and emphasizing the human dimensions of leadership, social capital, and networks. Thus, the policy initiative spanned a number of critical dimensions that influence the economic performance of the place.

Thus, while there are compelling examples of places that have benefited profusely from an enlightened, or at least lucky, policy approach to the strategic management of a place, there are no guarantees that the policy will positively affect the place. However, it is still better to try than not to have tried, because failure to act may condemn a place to an inevitable decline; after all, policy can be fine-tuned as it is being implemented. Places are competing against other places, some of which have a coherent and compelling strategy to enhance economic performance. Surely, these places will have better development prospects than places lacking such a strategy.

## CHAPTER 7

# Conclusions

When taking a cruise down the Rhine, one of Germany's most scenic and busy rivers, one is immediately struck by the scenery; seemingly endless forests and splendid villages, all guarded over by romantic castles. But while those castles are romantic to our modern eyes, they were built with an entirely different purpose in mind; to control passage down the river, which, consequently, controlled economic prosperity for that place. Castles are inherently about the strategic management of places. With a well-positioned castle and a well-provisioned military to protect it, control of the river was achieved, along with all the associated spoils. It was a singular strategy that revolved around obtaining and maintaining access to a crucial natural resource—the waterway.

This singular strategy shaping the performance of each place, managed by a castle, is not so different from the singular strategy that has been, more recently, deployed by places. In what is termed the "managed economy," economic performance was generated by access to, and control of, a critical resource: physical capital in the form of factories, machines, and infrastructure.[1] As for the medieval castles, a key component of the singular strategy in the managed economy revolved around not just resources, natural or man-made, but also discouraging competition. As scholars of industrial organization compellingly documented, formidable barriers preempted entry in the key manufacturing industries ranging from automobiles to steel and tires.[2] While this academic literature focuses on the barriers to competition that are prevalent in the manufacturing industries, where performance was generated by scale economies in combination with formidable entry barriers, it has never focused on

the places where such great industries were located. Just as the automobile and steel industries generated a strong and sustained economic performance, so too did the places where they were located, such as Detroit, Pittsburgh, and Cleveland. What was good for General Motors was good for Detroit.

In Europe, each country, regardless of market size, had its own currency. Each country also had its own idiosyncratic regulations and restrictions that could facilitate or restrict market entry and access. Just as Italy manipulated its currency and trade barriers to promote competitiveness and impede foreign competition, Germany afforded breweries protection from foreign competition with the *Reinheitsgebot* beer purity laws, which prohibited the sale of beer that was not brewed exactly as prescribed under German law. In many ways each place was protected from competition to some degree by such barriers to access, just as the villages and cities of yesteryear were protected against invaders by their fortified castles.

If one were to paint a picture depicting the protection of local markets from external competition during the era of the managed economy, it might best be depicted by a sturdy wall that prevents external competition. Competitiveness was a concept, essentially, referring to the most efficient and the best within the boundaries of that protected place.

However, life, cultures, and civilizations are not static; as technological change rendered the fortifications that protected castles and towns moot, globalization has rendered the protections offered by the managed economy irrelevant. With the protections rendered irrelevant and places competing with other places, Thomas Friedman's book, *The World is Flat*, was appropriately titled.[3] Places can no longer control all of the variables affecting their own economic health; what happens in Bismarck can affect Lubbock. Places compete with other places not just down the road but also around the world.

Why has the economic performance of some places been so strong? Why are other places struggling? Is it simply a matter of luck? Or are the successful places able to harness the forces of globalization in a way that their less fortunate counterparts have not? As Lester Thurow, former Dean of the Sloan School of Management at MIT, observed, in the title of his book, *Fortune Favors the Bold*.[4]

Richard Florida posited an answer; it is not at all luck. Challenging Friedman's notion of a flat world, Florida observed that the world is spikey and hidden inside those spikes was a compelling answer. Only a few places have been able to generate spectacular economic performances; which is in strong contrast to the considerably more mundane performance exhibited by the vast majority of places. Florida's answer was that the peaks, the

places with excelling economic performance, had pursued a strategy to attract the creative class.

Michael Porter echoes Florida in rejecting the hypothesis that a strong economic performance is attributable solely to luck. Unlike Florida, he attributes strong performance to the spatial organization and structure of a place into effective clusters.[5]

This sharp debate between the flat world of Friedman and the spikey world of Florida is a red herring in that it confuses cause and effect. In fact, the flattening of the earth by globalization, emphasized by Friedman, is the cause. The effect is that some places have fared better in the globalized economy than others, which results in the spikey world observed by Florida; a spikey world with clusters of successful businesses, as found by Porter.

This book does not aim to choose a winner between Florida's creative class and Porter's clusters. Rather both are right and both might be the right approach for many, if not most, places. What both the cluster approach and the creative class approach have in common is that places can do better through an enlightened, place-specific, strategy. What they also have in common is a focus on a singular strategy, albeit two very different strategies. The Porter strategy focuses on firms and industries. The Florida strategy focuses on the people at a place.

Just as the singular approach evolved from being focused on a natural resource, the Rhine River, to being focused on the man-made resource of physical capital, specifically factories in the industrial era, it may have seemed natural to the policy community to again turn to a singular approach whether the creative class or clusters.

In fact, the main conclusion of this book is that both of these approaches and ideas are important, but only when part of a broader set of approaches that, when taken together, constitute a multifaceted and coherent framework for the strategic management of places. This framework certainly incorporates the important valuable approaches of both the creative class and clusters. The main point is that the policy community, or those mandated with or engaged in trying to improve or maintain the performance of a place, has a much broader range of approaches, policy options, and actual instruments than might be implied by any particular singular approach.

For the strategic management of a firm or nonprofit organization, the choice of location is a crucial strategic variable or instrument. Choosing the right place can bestow upon the firm access to crucial assets that can, in turn, create or enhance the competitiveness of that firm and, ultimately, its economic value. The competitive advantage of a place clearly

translates to the competitive advantage of a firm. Firms whose competitive advantage is derived from a natural resource, such as petroleum, will strategically locate with close geographic proximity to that resource. At the same time, firms whose competitive advantage is derived from a type of knowledge-based resource, such as human capital, skilled labor, talent, or creativity, will deem it strategic to locate close to key resources. Thus, the firm's value is enhanced by being physically close to its key resources, but suffers if it locates itself in a resource desert.

For example, Hermann Simon, a professor of management at the London Business School, attributes the strong economic performance of some places in Germany to what he terms Germany's hidden champions: the *Mittelstand*, or high-performing, innovative, export-oriented small and medium-sized enterprises.[6] According to Simon, these hidden champions consist of 2,734 *mittelstaendische* companies that are the driving force for Germany's strong export performance. He attributes the strong performance of the firms, in part, to very strong local and regional identities, with relatively weaker national and federal identities. This has enabled the hidden champions to build on, and take advantage of, distinct local strengths. According to Simon, "In most countries of the world, human capital and intelligence is concentrated in one place, typically the political capital. Very few countries have such a decentralized political and decision-making structure as Germany. . . . I consider this strong regional influence to be an enormous advantage."[7]

Simon also suggests several other key assets that places in Germany provide for the most successful companies. One of these assets has to do with a cultural orientation toward internationalization and global opportunities. According to Simon, "The best language is the language of the customer." In particular, Simon points out that, in terms of international orientation, "successful places in Germany have become like a small country, such as Switzerland, The Netherlands, and Sweden."[8] Small countries, such as Denmark, have historically developed a culture and orientation looking for opportunities outside of their own country. The place was simply too small geographically to sustain growth and economic development. Rather, access to external markets was required in order to generate growth. Such access required an orientation toward learning about and understanding foreign cultures in order to successfully trade and integrate with them. Simon's point is that in recent years Germany has become more like a small country in that knowledge of foreign languages, and especially English, which is widespread, and an orientation toward understanding and communicating with foreigners is emphasized. It is no coincidence that German trade with, and foreign direct investment in,

China has skyrocketed, while it has remained largely a dream for other European countries, such as France and Italy.

Similarly, Carlos Haertel, Director of General Electric Global Research Europe, shares the strategy of General Electric, "In research based business, the one thing that is crucial for growth is talented people."[9] According to Haertel, General Electric originally only conducted research and development at its headquarters in New York State. Then, in 2000, it realized that, "Inputs to innovation come from outside of the firm—proximity matters. To be able to connect is crucial for innovation. You have to go to where the people are"[10] to access the best talent. Subsequently, General Electric opened research facilities in Bangalore, Shanghai, and Munich. While Bangalore and Shanghai are no doubt low-cost locations, the same can hardly be said for Munich; its cost of living is among the most expensive in the world. More recently, General Electric continued to expand its research facilities, adding a software center in San Ramon, in the heart of Silicon Valley, and in Ann Arbor, which is the location of the computing prowess at the University of Michigan. As Haertel concludes, "If you want to get the best and brightest you have to go where people like to live."[11]

Haertel's observation implies that locational choice is not just a key strategic variable for firms but also for individuals as well, "Especially people who have choices. The environment has to be attractive to them and their families."[12] Inputs to innovation come from outside of firm—proximity matters. "To be able to connect is crucial for innovation."[13] Individuals tend to locate at places that enhance their human capital, skill, or talent, ultimately making them more valuable. Horace Greely's, "Go west young man," to access the frontier and its natural resources, phrased for the modern youth, might be, "Go to the place that accepts you, fosters your talent, and enhances your knowledge," in order to not just survive in contemporary globalized economy, but thrive.

It would not be hard to convince people that firms engage in strategic management. After all, business schools have rapidly emerged to be major selling points for the modern university. Bookstores are lined with shelves of self-help books that help individuals learn to think strategically.

What about places? As this book attempts to make clear, the strong economic performance of many places around the globe, ranging from San Diego to Seoul, Munich, Singapore, Taiwan, São Paulo, Research Triangle Park, Helsinki, and the Basque country, among many others, is attributable at least to some extent to an enlightened, or at least fortuitous, strategic management of that particular place. Thomas Friedman's world may be flat, but it still remains big and the odds are good that there are examples of places doing well despite not having a strategic approach. Similarly

just because a place has defined a well thought out, strong, strategic plan in no way guarantees that place's positive and sustained economic performance any more than having strategic management means that a firm will succeed.

What about places abstaining from a strategic approach? After all, shouldn't the market ensure an efficient use of resources and, therefore, the strongest possible economic performance? This type of thinking mistakenly confuses the market with place. In fact, places rarely correspond to the geographic dimension of an important market. The relevant markets rendering Silicon Valley such a spectacular economic performance, such as information technology, software, computers, semiconductors, and medical devices, are all global in nature. Just as is the case for the other two main economic units of analysis—firms and people—a place is not the market, but it competes in markets, and, perhaps equally important, helps or hinders the competitiveness of those people and firms located at that place.

Those who naively believe that market forces provide the best mechanism for shaping how well their place performs can rest assured that market forces will, in fact, dictate the economic performance of their place. For example, the *Wall Street Journal* recently observed that "since the end of the Cold War, the world's powers have generally agreed on the wisdom of letting market competition—more than government planning—shape economic outcomes. China's national economic strategy is disrupting that consensus. Central to China's approach are policies that champion state-owned firms and other so-called national champions, seek aggressively to obtain advanced technology, and manage its exchange rate to benefit exporters."[14]

What is the policy that is generating the "unfair advantage"? According to the *Wall Street Journal*, "China is pushing companies to invest in research and development," by pumping up R&D expenditures from 180 billion Yuan in 2004 (US$21.7 billion) to well over 500 billion Yuan by 2009 (US$73.2 billion), raising the R&D share of GDP from 0.6 percent to 1.8 percent.[15] Charlene Barshefsky, the US trade representative under President Bill Clinton, worries that "entire new industries will be created by the government. It tilts the playing field against the private sector."[16]

Places that have not prepared strategic plans will suffer when competing against other places, both domestically and globally, which have carefully and thoughtfully engaged in a strategic approach. Those market forces are likely to seem harsh and uncharitable.

This is why policy is included as a key component of the strategic framework shaping the economic performance of a place. Policy is not a simple,

mechanical pulling of policy lever—say a little more of this here and a little less of that there. Rather, writing policy that strategically manages a place needs highly competent, skilled professionals with the required expertise and mastery of topics. Some places clearly benefit from institutions, a professionalization of those engaged in the strategic management of that place, and a clear recognition of priority and significance assigned to the strategic management of that place. Other places are dragged down by a paucity of institutions, amateurism, and lack of professionalism as well as a failure to take seriously the advantages afforded by a strategic approach. In Germany, the people writing policy for places are well educated and well versed in the tools of the trade. This professionalization has evolved to include an expertise in scanning and recognizing the best practices and ideas implemented elsewhere around the world. Such policymakers are active in global networks and regularly participate in conferences and meetings around the world in order to learn and bring home the latest ideas about strategies that different places are implementing. Perhaps equally important, when they return back to their local ministries and agencies, they are listened to and respected. Such policy expertise has been a strong asset in enabling places in Germany, like Bavaria, to soar while other places in Europe are struggling.

What is referred to in the media as a "Euro Crisis" may actually only describe the symptom. Significantly less attention is focused on the underlying cause, which is a competitiveness crisis. While some places, such as Vienna, Stockholm, the Basque Region, and Helsinki are highly competitive, as evidenced by continued low levels of unemployment and positive growth rates, much of Europe, especially in the Mediterranean countries, are not. These places have not made the necessary investments conducive to creating competitiveness and a strong economic performance for their place.

Of course, investing in policy competence and expertise, as well as other instruments for the strategic management of places, is not free. Thus, perhaps it is not surprising that those places that have generated a positive return from the investments in that place to spur economic performance are reluctant to passively accept that the policies of solidarity and social inclusion require redistributing wealth to those places that did not make similar investments in a strategic planning.

A growing tension has emerged in Europe between the competitive and less competitive places. For example, a current move toward autonomy and independence from the rest of Spain is brewing in Barcelona and the province of Catalonia.[17] As Maria Calleon, a professor of Economics at the University of Barcelona carefully documents, Catalonia has developed a

strategic approach to develop knowledge-based entrepreneurial competitiveness. However, the more general crisis in Spain and Europe are increasingly perceived as eroding this carefully formulated and implemented strategy, thus dragging down Catalonia's economic performance.

Catalonia is not alone. Spain's Galicia province is also considering separation and independence. The movement toward more regional and local autonomy is not restricted to Spain. Scotland voted in 2014 on whether they wanted to remain part of the United Kingdom. In Germany, the prosperous regions that have most successfully implemented a strategy generated a strong and superior economic performance, Bavaria and Baden-Württemberg, may not currently be considering autonomy, but they are protesting the federal policy of redistributing the wealth generated by that strong economic performance to those places in Germany that have not followed such a strategic approach.

In response to what appears to be a divergence among the economic performance of places located within the European Union, the Commission of the European Community has developed a policy, within the framework of its Cohesion Policy, to facilitate the strategic management of places in Europe, and in particular those places that have not been particularly successful or downright unsuccessful at generating a positive economic performance. According to Walter Deffaa, Director-General of the DG Regional Policy at the European Commission, the purpose of what the European Commission is calling the Specialization Strategy is to develop and deploy "place-based assets to generate competitiveness through innovation."[18] According to Deffaa, "If you don't have a proper strategy then results won't happen."[19]

Perhaps this book will disappoint readers hoping to find a simple formula or new mantra for achieving a strong performance for their place. However, one of the main points of this book is that the era of the singular strategy, at least in the North American context, has given way to a considerably more nuanced and complex multifaceted strategic approach. Not only does this mean that there is no singular, universal policy approach that can be advocated which will work for every place in one nation, such as the United States, let alone for the entire world, it also means that each place needs to develop its own place-specific strategic approach.

The other main point of this book is to suggest, however, that no place is alone in its quest for appropriate and effective strategic approaches. Rather, the basic framework posited in this book can serve to guide the formulation of the strategic management of most places in the world. What each place has in common is that its economic performance is

influenced and shaped by the underlying forces identified in the previous chapters.

More than anything, the strategic management of a place should seek to harness these underlying forces in order to generate a strong economic performance. At the same time, places must not pursue trendy or superficial approaches based on a singular strategy. As the poet Robert Frost wrote, "So when at times the mob is swayed, to carry praise or blame too far, we may choose something like a star, to stay our mind on, and be staid."[20]

# NOTES

## CHAPTER 1

1. Glaeser & Gottlieb (2009).
2. Kennedy (1963, October 3).
3. Truman (1946, February 20).
4. United States Congress, The Employment Act of 1946. Section 2.
5. Boom vs. Doom (2013, May 5).
6. Katz & Bradley (2013).
7. Source of unemployment data: Variations in German Regional Unemployment (2012, June 1), p. 17.
8. Kennedy (1963, October 3).
9. Ketels (2012, October 17).
10. Ibid.
11. Ibid.
12. Hoskisson, Hitt, & Wan (1999).
13. Porter (1998a, 1998c, 2000).
14. Krugman (1993).
15. TCI Network (2012, November 12).
16. Audretsch & Feldman (1996); Clark, Feldman, & Gertler (2000).
17. Florida (2002).
18. Activists in Hamburg Resist Creative Class Policies (2010).
19. Glaeser & Gottlieb (2009), pp. 983–1028.
20. Kenney (2000).
21. Lamoreaux & Levenstein (2008, September 12).
22. Breznitz (2007).
23. Saxenian (1994).
24. Glaeser & Gottlieb (2009), p. 986.
25. Saxenian (1994).
26. Link (1995, 2002).
27. Florida (2002), p. 294.
28. Jack Hess, President of the Chamber of Commerce of Columbus, Indiana, personal communication.
29. Ketels (2012, October 17).
30. Audretsch (2008).

## CHAPTER 2

1. Gonzalez-Pernia, Guerrero, & Pena-Legazkue (forthcoming).
2. Ibid.

3. Halberstam (1993), p. 118, corrects this conventional wisdom. "What Wilson actually said was, 'We at General Motors have always felt that was good for the country was good for General Motors as well.'"
4. Ibid., p. 116.
5. Cited in Stewart (2006, June), p. 81.
6. Chandler (1977, 1990).
7. For examples, see the careful empirical studies documenting the extent of scale economies and high magnitude of the minimum efficient scale of Pratten (1971) and Scherer (1970).
8. Mueller (1986).
9. Marx, *Capital* (1912), quoted from Rosenberg (1992), p. 197.
10. Mueller (1986); Scherer (1970).
11. Weiss (1966).
12. Halberstam (1993), p. 119.
13. Ibid.
14. Ibid.
15. Data are from the US Department of Commerce, Bureau of the Census, Census of Manufactures and Annual Survey of Manufactures, cited from Testa (2007, July 18). Automotive Wages in Flux. Federal Reserve Bank of Chicago. http://midwest.chicagofedblogs.org/archives/2007/07/wages_in_automo.html.
16. Acs (2012).
17. How the Renaissance Center Changed the Landscape of Detroit Michigan History (2001, September 29).
18. Data from University of Pittsburgh, Office of Institutional Advancement. http://www.giveto.pitt.edu/where/corp/collab/ussteel.asp.
19. A Way with Words (2006, March 21).
20. Winning the Game of "Global Smokestack Chasing" (1992, June 23).
21. Gitlin (1993), p. 13.
22. Halberstam (1993), p. 116.
23. Ibid., p. 487.
24. Skorup (2012, February 14).
25. United States Bureau of Labor and Statistics, http://www.huppi.com/kangaroo/Wages.htm downloaded on October 20, 2014.
26. Solow (1956, 1957).
27. Roback (1982); Rosen (1979).
28. Barro & Sala-i-Martin (1991); Caselli & Wilbur (2001).
29. Audretsch & Claudon (1989); Audretsch, Sleuwaegen, & Yamawaki (1989).
30. Can America Compete? (1987, April 27), p. 41.
31. Friedman (2005).
32. Mankiw & Swagel (2006).
33. Glaeser & Gottlieb (2009).
34. Barney (1986); Wernerfelt (1984).
35. Audretsch, Keilbach, & Lehmann (2006); Audretsch, Boente, & Keilbach (2008); and Audretsch & Keilbach (2008).
36. Malecki (2012).
37. http://espn.go.com/nba/story/_/id/11203027/lebron-james-says-returning-cleveland-cavaliers.
38. Lorenzen (2007).
39. Truman (1946, February 20).

## CHAPTER 3

1. Friedman (1975).
2. Wernerfelt (1984); Penrose (1959); Barney (1986).
3. Porter (1985).
4. Blunt (2000, November 13).
5. Bergen (2012, January 23).
6. Ibid.
7. Spinney (2000).
8. Aschauer (1989, March).
9. Vock (2013, November 8).
10. Ibid.
11. Hwang (2012, April 30).
12. Fletcher (2012, February 29).
13. Duhigg & Kocieniewski (2012, April 29).
14. The Industrial Innovation Potential of the Regions: Stuttgart and Munich Further Ahead (2008, October 20).
15. Romer (1986); Lucas (1988).
16. Audretsch & Feldman (1996).
17. Glaeser, Kallal, Scheinkman, & Shleifer (1992), p. 126.
18. Kays & Phillips-Han (2003).
19. Schalin (2010), p. 5.
20. Florida (2002).
21. Kotkin (2011).
22. What Makes Austin Special (n.d.).
23. Florida (2002).
24. Study: Austin No. 3 among Innovative Cities (2006, August 4).
25. Kenney (2000).
26. Bayh (1978, September 13), p. 5.
27. Bayh (1980, April 13), p. 16.
28. Public Law 98–620 (1984). http://www.sji.gov/PDF/SJI_Authorization.pdf.
29. Innovation's Golden Goose (2002, December 12).
30. Public Law 98–620 (1984). http://www.sji.gov/PDF/SJI_Authorization.pdf.
31. Siegel, Veugelers, & Wright (2007); Phan, Siegel, & Wright (2005).
32. Lockett, Wright, & Franklin (2003).
33. Link & Siegel (2005).
34. Mowery (2005); Mowery, Nelson, Sampat, & Ziedonis (2004).
35. Mowery (2005); Mowery, Nelson, Sampat, & Ziedonis (2004).
36. Cited in Mowery (2005), p. 39.
37. Ibid.
38. Amgen Founder Bill Bowes Gives $5 million to Develop Stem Cell Therapy for Ocular Disease (2012, October 16).
39. Alberta (2014, February 28).
40. Ibid.
41. Sinclair (1907).
42. Taylor (1911).
43. Cited in Stewart (2006, June), p. 81.
44. Whyte (1956).
45. Gitlin (1993), p. 21.
46. Halberstam (1993), p. 488.
47. Whyte (1956), p. 129.

48. Halberstam (1993), p. 295.
49. Baker (2014, February 11).
50. Becker (1964).
51. Rosen (1998).
52. Weiss (1995).
53. Lucas (2008, February 3); Romer (1986); Barro (1999).
54. Simona & Nardinellib (2002).
55. Glaeser & Gottlieb (2009), p. 985.
56. Tavernse (2012, May 30).
57. Ibid.
58. Glaeser, Ponzetto, & Tobio (2014); Cuaresma, Doppelhofer, & Feldkircher (2014).
59. Schneider (2014).
60. Matthews (2012).
61. Ibid.
62. Berube (2012, April 29).
63. Moukheiber (2012, April 20).
64. Moquet (2013, November 21).
65. Florida (2002).
66. Ibid., p. 69.
67. Ibid.
68. Ibid.
69. Bergen (2012, January 23).
70. Ibid.
71. Audretsch & Belitski (2012).
72. Ibid.
73. The Death of Distance (1995, September 30).
74. The Fall of the Midwest Economic Model (2011, August 16).
75. Ibid.
76. Ibid.
77. Beekmans (2009).
78. The "Creative Class" and Comeback Cities: Beyond the Hype (2012).
79. Bergen (2012, January 23).

## CHAPTER 4

1. Berger (1993, December 7).
2. Ibid.
3. Ibid.
4. Cheng (2014).
5. See the 2011 quality of life rankings for cities: http://www.mercer.com/press-releases/quality-of-living-report-2011.
6. Lochbiler (1973).
7. Ibid., p. vii.
8. Scherer & Ross (1970).
9. Ibid.
10. Chandler (1977, 1990).
11. Glaeser, Kallal, Scheinkman, & Shleifer (1992).
12. See Kauffman Foundation (n.d.).
13. See Lilly Foundation (n.d.).
14. Gaudiani (2003).

15. Morgan (1995), p. 319.
16. Bloch (2011), p. 177.
17. Ibid., p. 170.
18. Acs (2012).
19. Ibid., p. 4.
20. Ibid.
21. Jacobs (1969).
22. Halberstam (1993), p. 127.
23. Ibid.
24. Ibid.
25. Ibid.
26. Jacobs (1969).
27. Porter (1990).
28. Glaeser, Kallal, Scheinkman, & Shleifer (1992) found empirical evidence supporting the hypothesis that an increase in competition, as measured by the number of enterprises, in a city increases the growth performance of that city.
29. Peters & Waterman (1984).
30. SAP was founded in June 1972 as *Systemanalyse und Programmentwicklung* (System Analysis and Program Development).
31. See, for example, Acs & Armington (2006); Audretsch, Keilbach, & Lehmann (2006); Dejardin & Fritsch (2011).
32. Dejardin & Fritsch (2011).
33. Cringley (1993), p. 39.
34. Klepper (2009), p. 80.
35. Audretsch, Keilbach, & Lehmann (2006); Audretsch & Keilbach (2007); and Braunerhjelm, Acs, Audretsch, & Carlsson (2010).
36. For a scholarly distinction made between the concepts of uncertainty and risk and how they involve entrepreneurship, see Alvarez, Barney, & Young (2010).
37. Schulte (2013, July 21).
38. Schumpeter (1911).
39. Schumpeter (1942).
40. See, for example, Audretsch, Keilbach, & Lehmann (2006); Audretsch & Keilbach (2007); and Braunerhjelm, Acs, Audretsch, & Carlsson (2010).
41. Romell (2013, April 13).
42. Audretsch, Keilbach, & Lehmann (2006).
43. See Putnam (1993); Coleman (1988); Aldrich & Martinez (2010).
44. Huntsville, Alabama (2008).
45. Badenhausen (2010).
46. 2011: Economic Growth Report, Huntsville and Madison County Reports.
47. Ibid.
48. Ibid.
49. Ibid.
50. See Huntsville Chamber of Commerce. http://www.huntsvillealabamausa.com/
51. Ibid.
52. Ibid.
53. Ibid.
54. See Huntsville Chamber of Commerce, Education (n.d.).
55. Weing (2012, April 3).
56. Ibid.
57. Jacobs (1969).

58. Florida (2002).
59. Nelson & Winter (1982).
60. Glaeser, Kallal, Scheinkman, & Shleifer (1992).
61. Feldman & Audretsch (1999).
62. Alshumaimri, Aldridge, & Audretsch (2010).
63. Simmons (2005).
64. Ministry of Economy and Planning, Kingdom of Saudi Arabia (2010), p. 52.
65. Ibid.
66. Porter (1998b), p. 197. In Boschma & Fornahl (2011), p. 1303.
67. Delgado, Porter, & Stern (2011).
68. Ibid.
69. Bresnahan & Gambardella (2004b), p. 351.
70. Wallsten (2004), p. 229.
71. Moore & Davis (2004).

## CHAPTER 5

1. Saxenian (1994).
2. Ibid.
3. Link (1995).
4. Piore & Sabel (1984).
5. Aster Emilia-Romagna High Technology Network: Technopoles (2011, February).
6. Walshok & Shragge (2013), p. 27.
7. Ibid., p. 29.
8. Saxenian (1994).
9. Ibid.
10. Kenney & Patton (2005), p. 203.
11. Jack Harding, personal communication.
12. Link (2002), p. 43.
13. Castilia, Hwange, Granovetter, & Granovetter (2000); Cohen & Fields (2000).
14. Patton & Kenney (2005); Kenney & Patton (2005).
15. Malecki (2010).
16. Feldman & Zoeller (2012, January).
17. Burlington, Vermont (2014).
18. Noah (2010, April 17).
19. Ibid.
20. Paldam (2000, December 14).
21. World Bank Group (n.d.).
22. Solow (1956).
23. Romer (1986); Lucas (2008, February 3).
24. Putnam (2000); Coleman (1988).
25. Putnam (2000); Coleman (1988).
26. Putnam (2000), p. 19.
27. Durlauf (2002, November); Sobel (2001, March).
28. Rupasingha, Goetz, & Freshwater (2002); Aubuchon, Rubin, & Engbers (2012, November).
29. Caitlin Winner, personal communication.
30. Räth (2012, March 28).
31. Die neue Gründerszene in Berlin (2011, August 11).
32. Ibid.

33. Ibid.
34. Fasche (2012, May 30).
35. The Cost of Cool: To Stay Sexy, Must the German Capital Remain Poor? (2011, September 1).
36. Fasche (2012, May 30).
37. Ibid.
38. Berlin ist für junge Menschen der attraktivste Standort (2012, July 4).
39. Scott (2013, April 30), p. B1.
40. Arts (2013, June 14).
41. Ibid.
42. Berlin ist für junge Menschen der attraktivste Standort (2012, July 4).
43. Ashton Kutcher überzeugt sich von "Amen" in Berlin (2012, December 11).
44. Räth (2012, March 28).
45. Scott (2013, April 30), p. B1.
46. Mexico's Drug War Impacts Business: How Mexico Battles to Remain Safe, Low-Cost and Competitive amidst a Growing Drug War (2010, September 16).
47. Ibid.
48. Rentfrow, Jokela, Gosling, Stillwell, Kosinki, & Potter (2013).
49. Florida (2013, October 21).
50. Rentfrow, Jokela, Gosling, Stillwell, Kosinki & Potter (2013).
51. Cowen (2013, October 28).
52. Ibid.
53. Carmamanica (2013, August 22), p. E4.
54. Link (2002).
55. Link (1995).
56. Ibid., pp. 28–29.
57. Walshok (2013), p. 1.
58. Ibid., pp. 6–7.
59. Basque Institute of Competitiveness (2013).
60. Cearra (2000).
61. Gomez Damorena (1997, October 17).
62. Jon Azua Mendia, personal communication.
63. Cearra (2000).
64. Ibid.
65. Hirschman (1970).
66. From the Broadway musical: *Damn Yankees*.

## CHAPTER 6

1. Bresnahan & Gambardella (2004a).
2. Wallsten (2004).
3. Bresnahan & Gambardella (2004a), p. 9.
4. North Carolina, Chamber of Commerce (2011).
5. Link (1995).
6. Ibid.
7. The Welfare State Made Britain Poor (2005, October 31).
8. International Monetary Fund (2012).
9. Stiglitz & Yusuf (2001).
10. McCann & Ortega-Argiles (2011).
11. Link (1995).

12. Maurizio Guidi, Director of Corporate Affairs, Eli Lilly Italy, personal conversation in November 2010.
13. Arrow (1962).
14. Caves (1998).
15. Thissen, Van Oort, Diodato, & Ruijs (2013).
16. Ryzik (2012, July 25).
17. Ibid.
18. Ibid.
19. Baker (2013, November 12).
20. Ibid.
21. Hubschmid (2012, June 1).
22. Hareshan (2014).
23. Schneider (2012, July 25), p. B8.
24. Ibid.
25. Ibid.
26. Ibid.
27. Ibid.
28. Clarian Opens Innovation Centre in Frankfurt (2013, November 1).
29. Network Created to Expand Reach of IU's Innovative Indiana Initiative (2013, November 1).
30. Florida (2002), p. 293.
31. Glaeser & Gottlieb (2009).
32. Florida (2002), p. 291.
33. Ibid., p. 292.
34. Ibid., p. 299.
35. Ibid.
36. Ibid.
37. Labich (1993).
38. Audretsch & Feldman (1996); Acs, Audretsch, & Feldman (1992); Jaffe (1989); Jaffe, Trajtenberg, & Henderson (1993).
39. Kleinhubbert (2012, August 14).
40. Ibid.
41. Ibid.
42. Ibid.
43. Bresnahan & Gambardella (2004), p. 5.
44. Martin, Mayer, & Mayneris (2008, July 4).
45. Ibid.
46. Martin & Sunley (2003).
47. Feldman & Zoller (2012).
48. See http://maryannfeldman.web.unc.edu/research-on-research-triangle/.
49. Link (2002), p. 37; Link (1995).
50. Link (1995).
51. Link & Scott (2003).
52. Senor & Singer (2009).
53. Audretsch (2011, March 16).
54. Empire State Development (2014).
55. Montana Department of Commerce (2014).
56. Wessner (2008).
57. Audretsch (2011, March 16).
58. Staley & Goldman (2011, December 20).

59. Perez-Pena (2013, April 12).
60. Ibid.
61. Morris (2014, April 7).
62. Wessner (2013).
63. Isenberg (2012, November 30).
64. Ibid.
65. Audretsch, Link, & Walshok (2013).
66. Horowitz (2003, July 18).
67. Walshok & Shragge (2013), p. 20.

## CHAPTER 7

1. Audretsch & Thurik (2001).
2. Scherer (1970).
3. Friedman (2005).
4. Thurow (2002).
5. Porter (1995).
6. Simon (2012, October 14).
7. Ibid.
8. Ibid.
9. Haertel (2012, October 17).
10. Ibid.
11. Ibid.
12. Ibid.
13. Ibid.
14. Dean, Browne, & Oster (2010, November 16).
15. Ibid.
16. Ibid.
17. Joy (2012, September 28).
18. Deffaa (2012, October 17).
19. Ibid.
20. Frost (1947).

# REFERENCES


Acs, Z. J. (2012). *The Philanthropist*: *Completing the Circle of Prosperity*. Princeton, NJ: Princeton University Press.

Acs, Z., & Armington, C. (2006). *Entrepreneurship, Geography and American Economic Growth*. New York: Cambridge University Press.

Acs, Z. J., Audretsch, D. B., & Feldman, M. P. (1992). Real Effects of Academic Research. *American Economic Review*, *82*, 363–367.

Activists in Hamburg Resist Creative Class Policies. (2010). http://creativeclassstruggle.wordpress.com/2010/01/12/.

Alberta, T. (2014, February 28). Can Detroit Rebuild Its Middle Class? *The National Journal*. America 360. http://www.nationaljournal.c m/next-economy/america-360.

Aldrich, H. E., & Martinez, M. A. (2010). Entrepreneurship as Social Construction: A Multilevel Evolutionary Approach. In Z. J. Acs & D. B. Audretsch (Eds.), *The Handbook of Entrepreneurship Research: An Interdisciplinary Survey and Introduction* (pp. 387–430). New York: Springer Publishers.

Alshumaimri, A., Aldridge, T., & Audretsch, D. B. (2010). The University Technology Transfer Revolution in Saudi Arabia. *Journal of Technology Transfer*, *35*(6), 585–596.

Alvarez, S. A., Barney, J. B., &Young, S. L. (2010). Debates in Entrepreneurship: Opportunity Formation and Implications for the Field of Entrepreneurship. In Z. J. Acs & D. B. Audretsch (Eds.), *Handbook of Entrepreneurship Research: An Interdisciplinary Survey and Introduction* (pp. 23–46). New York: Springer Publishing.

Amgen Founder Bill Bowes Gives $5 million to Develop Stem Cell Therapy for Ocular Disease. (2012, October 16). http://investorstemcell.com/forum/act-off-topic/24535.htm.

Arrow, K. (1962). Economic Welfare and the Allocation of Resources for Invention. In R. R. Nelson (Ed.), *The Rate and Direction of Inventive Activity* (pp. 609–626). Princeton: Princeton University Press.

Arts, S. (2013, June 14). Crisis Migration: Italian Start-Ups Flock to Berlin. *Der Spiegel*.

Aschauer, D. (1989, March). Is Public Expenditure Productive? *Journal of Monetary Economics*, *23*, 177–200.

Ashton Kutcher überzeugt sich von "Amen" in Berlin. (2012, December 11). *Berlin Morganpost*. http://www.morgenpost.de/vermischtes/stars-und-promis/article1861212/Ashton-Kutcher-ueberzeugt-sich-von-Amen-in-Berlin.html.

Aster Emilia-Romagna High Technology Network: Technopoles. (2011, February). http://www.diaprem.unife.it/materiale-teknehub/Tecnopoli.pdf.

Aubuchon, C., Rubin, B., & Engbers, T. (2012, November). *Reexamining the Economic Impact of Social Capital*. Paper presented at the Association for Research on Nonprofit Organizations and Voluntary Action Conference, Indianapolis, Indiana.

Audretsch, D. B. (2007). *The Entrepreneurial Society*. New York: Oxford University Press.

Audretsch, D. B. (2011, March 16). Testimony to the House of Representatives Committee on Small Business. http://smallbusiness.house.gov/calendar/eventsingle.aspx?EventID=228546 Downloaded on October 23, 2014.

Audretsch, D. B., & Belitski, M. (2013). The missing pillar: The creativity Theory of Knowledge Spillover Entrepreneurship. *Small Business Economics, 41*(4), 819–836.

Audretsch, D. B., Boente, W., & Keilbach, M. (2008). Entrepreneurship Capital and its Impact on Knowledge Diffusion and Economic Performance. *Journal of Business Venturing*, *23*(6), 687–698.

Audretsch, D. B., & Claudon, M. P. (Eds.). (1989). *The Internationalization of U.S. Markets*. New York: New York University Press.

Audretsch, D. B., & Feldman, M. P. (1996). R&D Spillovers and the Geography of Innovation and Production. *American Economic Review*, *86*(3), 630–640.

Audretsch, D. B., & Keilbach, M. C. (2007). The Theory of Knowledge Spillover Entrepreneurship. *Journal of Management Studies*, *4*, 1242–1254.

Audretsch, D. B., & Keilbach, M. (2008). Resolving the Knowledge Paradox: Knowledge-Spillover Entrepreneurship and Economic Growth. *Research Policy*, *37*(10), 1697–1705.

Audretsch, D. B., Keilbach, M. C., & Lehmann, E. E. (2006). *Entrepreneurship and Economic Growth*. New York: Oxford University Press.

Audretsch, D. B., Link, A., & Walshok, M. (Eds.). (2013). *Creating Competitiveness: Entrepreneurship and Innovation Policies for Growth*. Cheltenham Spa, UK: Edward Elgar Publishing.

Audretsch, D. B., Sleuwaegen, L., & Yamawaki, H. (Eds.). (1989). *The Convergence of International and Domestic Markets*. Amsterdam: North-Holland.

Audretsch, D., & Thurik, R. (2001). What's New about the New Economy? Sources of Growth in the Managed and Entrepreneurial Economies. *Industrial and Corporate Change*, *19*, 795–821.

Badenhausen, K. (2010). The Best Places for Business and Careers. *Forbes*. http://www.forbes.com/2010/04/13/best-places-for-business-beltway-business-places-10_lander.html.

Baker, B. (2014, February 11). Which States Have the Most Solar Jobs? http://ecowatch.com/2014/02/11/states-solar-jobs/.

Baker, M. (2013, November 12). Boeing Contract in Spotlight after Washington Governor Signs Incentive Bill. *The Christian Science Monitor*.

Barney, J. (1986). Strategic Factor Markets: Expectations, Luck and Business Strategy. *Management Science*, *32*(10), 1231–1244.

Barro, R. (1999). Economic Growth and Convergence across the United States. *Brookings Papers on Economic Activity*, *1*, 107–182.

Barro, R. J., & Sala-i-Martin, X. (1991). Convergence across States and Regions. *Brookings Papers on Economic Activity*, *1*, 107–158.

Basque Institute of Competitiveness. (2013). *The Basque Country Competitiveness Report 2013*. Bilbao, Spain: Deusto University Press.

Bayh, B. (1978, September 13). Statement to Association of University Technology Managers. In *Recollections: Celebrating the History of AUTM and the Legacy of Bayh-Dole* (2004). Northbrook, Ill.: Association of University Technology Managers.

Bayh, B. (1980, April 13). Statement on the Approval of S.414 (Bayh-Dole) by the U.S. Senate on a 91–94 Vote, quoted in Association of University Technology Managers. *Reflections*.

Becker, G. S. (1964). *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. Chicago: University of Chicago Press.

Beekmans, J. (2009). Hamburg's Manifest against the Creative Class. http://popupcity.net/hamburgs-manifest-against-the-creative-class/.

Bergen, M. (2012, January 23). Thunder in Oklahoma City: Creative Class or Oil and Gas? *Forbes*. http://www.forbes.com/sites/markbergen/2012/01/23/thunder-in-oklahoma-city-creative-class-or-oil-and-gas/.

Berger, J. (1993, December 7). The Pain of Layoffs for Ex-Senior IBM Workers. *New York Times*, pp. B1 and B5. http://www.nytimes.com/1993/12/22/nyregion/pain-layoffs-for-ex-senior-ibm-workers-dutchess-county-disorienting-time-for.html?pagewanted=all&src=pm.

Berlin ist für junge Menschen der attraktivste Standort. (2012, July 4). *Berlin Morganpost*. http://www.morgenpost.de/lifestyle/article107787948/Berlin-ist-fuer-junge-Menschen-der-attraktivste-Standort.html.

Berube, A. (2012, April 29). Educational Attainment. The Brookings Institution, Metropolitan Development Program. http://www.brookings.edu/metro/MetroAmericaChapters/education.aspx.

Bloch, T. M. (2011). *Many Happy Returns: The Story of Henry Bloch, America's Tax Man*. Hoboken, NJ: John Wiley & Sons, Inc.

Blunt, E. (2000, November 13). Exploiting Wind Power in Holland. *BBC*.

Boom vs. Doom (Can Washington Fix This Economy?). (2013, May 5). *New York Times Magazine*. Single Issue.

Braunerhjelm, P., Acs, Z. J., Audretsch, D. B., & Carlsson, B. (2010). The Missing Link: Knowledge Diffusion and Entrepreneurship in Endogenous Growth. *Small Business Economics: An Entrepreneurship Journal*, *34*, 105–125.

Bresnahan, T., & Gambardella, A. (Eds.). (2004a). *Building High-Tech Clusters: Silicon Valley and Beyond*. Cambridge: Cambridge University Press.

Bresnahan, T., & Gambardella, A. (2004b). Old-Economy Inputs for New-Economy Outcomes: What Have We learned? In T. Bresnahan & A. Gambardella (Eds.), *Building High-Tech Clusters: Silicon Valley and Beyond* (pp. 351–358). New York: Cambridge University Press.

Breznitz, Dan. (2007). *Innovation and the State: Political Choice and Strategies for Growth in Israel, Taiwan, and Ireland*. New Haven, CT: Yale University Press.

Brookings Metropolitan Policy Program (2013). Cited in Cities with most College Educated Residents. (2012, May 30). *New York Times*. http://www.nytimes.com/interactive/2012/05/31/us/education-in-metro-areas.html?_r=0.

Burlington, Vermont. (2014). *Tripadvisor.com*.

Can America Compete? (1987, April 27). *Business Week*, 41–43.

Carmamanica, J. (2013, August 22). The Next Branding of Detroit. *New York Times*.

Caselli, C., & Wilbur, J. C. (2001). Cross-Country Technology Diffusion: The Case of Computers. *American Economic Review*, *91*(2), 328–335.

Castilia, E. J., Hwange, H., Granovetter, E., & Granovetter, M. (2000). Social Networks in Silicon Valley. In C. M. Lee, W. F. Miller, M. G. Hancock, &

H. S. Rowen (Eds.), *The Silicon Valley Edge: A Habitat for Innovation and Entrepreneurship* (pp. 218–247). Stanford, CA: Stanford University Press.

Caves, R. (1998). Industrial Organization and the New Findings on the Turnover and Mobility of Firms. *Journal of Economic Literature*, *36*, 1947–1982.

Cearra, A. M. (2000). Bilbao: Revitalisation through Culture. http://www.rudi.net/books/10603.

Chandler, A. (1977). *The Visible Hand: The Managerial Revolution in American Business*. Cambridge, MA: Belknap Press.

Chandler, A. (1990). *Scale and Scope: The Dynamics of Industrial Capitalism*. Cambridge, MA: Harvard University Press.

Cheng, R. (2014). Farewell Nokia: The Rise and Fall of a Mobile Pioneer. http://www.cnet.com/news/farewell-nokia-the-rise-and-fall-of-a-mobile-pioneer/.

Clarian Opens Innovation Centre in Frankfurt (2013, November 1). *Sportswear International*. http://www.sportswearnet.com/fashionnews/pages/protected/Clariant-opens-innovation-centre-in-Frankfurt_7510.html.

Clark, G. L., Feldman, M. P., & Gertler, M. (Eds.)(2000). *The Oxford Handbook of Economic Geography*. Oxford: Oxford University Press.

Cohen, S. S., & Fields, G. (2000). Social Capital and Capital Gains: An Examination of Social Capital in Silicon Valley. In M. Kenney (Ed.), *Understanding Silicon Valley: Anatomy of an Innovative Region* (pp. 190–217). Stanford, CA: Stanford University Press.

Coleman, J. (1988). Social Capital in the Creation of Human Capital. *American Journal of Sociology*, *94*, 95–121.

The Cost of Cool: To Stay Sexy, Must the German Capital Remain Poor? (2011, September 1). *The Economist*. http://www.economist.com/node/21529075.

Cowen, T. (2013, October 28). The United States of Texas: Why the Lone Star State is Our Future. *Time*.

The "Creative Class" and Comeback Cities: Beyond the Hype. (2012). http://www.democraticunderground.com/101624367.

Cringley, R. X. (1993). *Accidental Empires: How the Boys of Silicon Valley Make Their Millions, Battle Foreign Competition, and Still Can't Get a Date*. New York: Harper Business.

Cuaresma, J. C., Doppelhofer, G., & Feldkircher, M. (2014). The Determinants of Economic Growth in European Regions. *Regional Studies*, *48*(1), 44–67.

Dean, J., Browne, A., & Oster, S. (2010, November 16). China's "State Capitalism" Sparks a Global Backlash. http://online.wsj.com/article/SB10001424052748703514904575602731006315198.html.

The Death of Distance. (1995, September 30). *The Economist*.

Deffaa, W. (2012, October 17). *Clusters as a Key Resource for Economic Transformation through Smart Specialisation: Place-Based Strategies for a Global Economy*. Keynote Presentation at the 15th TCI Annual Global Conference, Bilbao, Spain.

Dejardin, M., & Fritsch, M. (2011). Entrepreneurial Dynamics and Regional Growth. *Small Business Economics: An Entrepreneurship Journal*, *37*, 377–382.

Delgado, M., Porter, M. E., & Stern, S. (2011). *Clusters, Convergence, and Economic Performance*. Working paper series, Harvard University. http://www.isc.hbs.edu/pdf/DPS_Clusters_Performance_2011-0311.pdf.

Die neue Gründerszene in Berlin. (2011, August 11). http://www.tip-berlin.de/kultur-und-freizeit-stadtleben-und-leute/die-neue-grunderszene-berlin.

DIW Berlin (2008). Employment statistics; calculations by DIW Berlin.

Duhigg, C., & Kocieniewski, D. (2012, April 29). How Apple Sidesteps Billions in Taxes. *New York Times*.

Durlauf, S. N. (2002, November). On the Empirics of Social Capital. *Economic Journal*, *112*, 59–479.

Economic Policy Institute (n.d.). *The State of Working America*. http://stateofworkingamerica.org/articles/view/9.

Empire State Development. (2014). The Small Business Innovation Research/Small Business Technology Transfer Program (SBIR/STTR). http://www.esd.ny.gov/nystar/sbir_sttr.asp.

ESPN (2014). LeBron: I'm going back to the Cavs. http://espn.go.com/nba/story/_/id/11203027/lebron-james-says-returning-cleveland-cavaliers.

The Fall of the Midwest Economic Model. (2011, August 16). *Wall Street Journal, A13,* 1.

Fasche, M. (2012, May 30). *The Challenges of Turning Potential into Growth*. Presentation at Hertie School of Governance, Berlin, Germany.

Feldman, M. P., & Audretsch, D. B. (1999). Innovation in Cities: Science-based Diversity, Specialization and Localized Competition. *European Economic Review*, *43*(2), 409–429.

Feldman, M., & Zoeller, T. D. (2012, January). Dealmakers in Place: Social Capital Connections in Regional Entrepreneurial Economies. *Regional Studies*, *46*(1), 23–37.

Fletcher, N. (2012, February 29). Apple's Stock Has Never Been Higher. *The Guardian*. http://www.theguardian.com/business/blog/2012/feb/29/apple-stock-higher-500bn-ipad3.

Florida, R. L. (2002). *The Rise of the Creative Class: And How It's Transforming Work, Leisure, Community and Everyday Life*. New York: Basic Books.

Florida, R. (2008). The Creative Class Map. http://www.creativeclass.com/_v3/whos_your_city/maps/#The_Creative_Class_Map.

Florida, R. (2013, October 21). The Myers Briggs States of America. *The Atlantic*.

Friedman, M. (1975). *There's no Such Thing as a Free Lunch*. New York: Open Court.

Friedman, T. L. (2005). *The World is Flat*. London: Lane.

Frost, R. (1947). *Choose Something Like a Star*. http://surprisinglysunny.blogspot.com/2009/08/choose-something-like-star-robert-frost.html

Gaudiani, C. (2003). *The Greater Good: How Philanthropy Drives the American Economy and Can Save Capitalism*. New York: Henry Holt & Co.

Gelles, K. (2014, August 24). National Venture Capital Association. Cited in J. Graham, Top Cities for Tech Startups, *USA Today*.

Gitlin, T. (1993). *The Sixties: Years of Hope, Days of Rage*. New York: Bantam Books.

Glaeser E. L., & Gottlieb, J. D. (2009). The Wealth of Cities: Agglomeration Economies and Spatial Equilibrium in the United States. *Journal of Economic Literature*, *47*(4), 983–1028.

Glaeser, E. L., Kallal, H. D., Scheinkman, J. A., & Shleifer, A. (1992). Growth in Cities. *Journal of Political Economy*, *100*(6), 1126–1152.

Glaeser, E. L., Ponzetto, G. A. M., & Tobio, K. (2014). Cities, Skills and Regional Change. *Regional Studies*, *48*(1), 7–43.

Gomez Damorena, P. Deputy Minister for the Press Office, Planning & Strategy, Department of Industry, Innovation, Trade & Tourism, Basque Government. (1997, October 17). *Perspectives on Basque Competitiveness*. Presentation at the 15th TCI Annual Global Conference, Bilbao, Spain.

Gonzalez-Pernia, J. L., Guerrero, M., & Pena-Legazkue, I. (Forthcoming). Entrepreneurship and Local Competitiveness: The Case of the Basque Region.

In D. B. Audretsch, A. Link, and M. Walshok (Eds.), *The Oxford Handbook of Local Competitiveness*. New York: Oxford University Press.
Haertel, C. (2012, October 17). *Global R&D Strategies*. Keynote presentation at the 15th TCI Annual Global Conference, Bilbao, Spain.
Halberstam, D. (1993). *The Fifties*. New York: Villard Books.
Hareshan, M. (2014). Europe's Economic Suicide? Editorial. http://www.nineoclock.ro/europe%E2%80%99s-economic-suicide/.
Hirschman, A. O. (1970). *Exit, Voice and Loyalty: Response to Decline in Firms, Organizations and States*. Cambridge, MA: Harvard University Press.
Horowitz, G. (2003, July 18). UC San Diego Launches Global Connect to Promote Technology Enterprises and Regional Innovation Worldwide. http://ucsdnews.ucsd.edu/newsrel/general/Global%20Connect.htm.
Hoskisson, R. E., Hitt, M. A., & Wan, W. P. (1999). Theory and Research in Strategic Management: Swings of a Pendulum. *Journal of Management*, *25*(3), 417–456.
How the Renaissance Center Changed the Landscape of Detroit Michigan History. (2001, September 29). *The Detroit News*.
Hubschmid, M. (2012, June 1). Das Ende der Dynamik. *Der Tagesspiegel*. http://www.tagesspiegel.de/wirtschaft/arbeitsmarkt-das-ende-der-dynamik/6696496.html.
Huntsville, Alabama. (2008). The Rocket City. 2008 Rankings. http://www.huntsvilleal.gov/ecodev/2008_Map_with_Rankings.pdf.
Huntsville Chamber of Commerce. http://www.huntsvillealabamausa.com/2014; http://www.huntsvillealabamausa.com/new_exp/new_indsec_toc.html.
Huntsville Chamber of Commerce, Education (n.d.). http://www.huntsvillealabamausa.com/newcomers/education.html.
Huntsville/ and Madison County Reports. 2011: *Economic Growth Report*. http://www.huntsvillealabamausa.com/index.php?option=com_content&view=article&id=76&Itemid=247. http://www.huntsvillealabamausa.com/new_exp/community_data/reports/2011_eco_growth.pdf.
Hwang, I. (2012, April 30). Analysts See Record S&P 500 as Advance Over for Barclays. *Bloomberg News*. http://www.bloomberg.com/news/2012-2004-29/analysts-see-record-s-p-500-as-2012-advance-over-for-barclays.html.
The Industrial Innovation Potential of the Regions: Stuttgart and Munich Further Ahead. (2008, October 20). *DIW Berlin Weekly Report*, *4*(8).
Innovation's Golden Goose. (2002, December 12). *The Economist*. http://www.economist.com/node/1476653.
International Monetary Fund. (2012). *World Outlook Database*. http://www.imf.org/external/pubs/ft/weo/2012/01/weodata/weorept.aspx.
Isenberg, D. (2012, November 30). Focus Entrepreneurship Policy on Scale-Up, Not Start-up. *Harvard Business Review* Blog, http://blogs.hbr.org/2012/11/focus-entrepreneurship-policy/
Jacobs, J. (1969). *The Economy of Cities*. New York: Vintage Books.
Jaffe, A. (1989). The Real Effects of Academic Research. *American Economic Review*, *79*, 957–970.
Jaffe, A., Trajtenberg, M., & Henderson, R. (1993). Geographic Localization of Knowledge Spillovers as Evidenced by Patent Citations. *Quarterly Journal of Economics*, *63*, 577–598.
Joy, O. (2012, September 28). Spain's Next Crisis: Regional Splits? *CNN*. http://edition.cnn.com/2012/09/27/business/spain-politics-catalonia/index.html.

Katz, B., & Bradley, J. (2013). *The Metropolitan Revolution: How Cities and Metros Are Fixing Our Broken Politics and Fragile Economy*. Washington, DC: Brookings Institution Press.

Kauffman Foundation (n.d.). Our Approach. http://www.kauffman.org/about-foundation/vision-mission-and-approach.aspx.

Kays, J., & Phillips-Han, A. (2003). "*Gatorade: The Idea That Launched an Industry*" http://www.research.ufl.edu/publications/explore/v08n1/gatorade.html

Kennedy, J. F. (1963, October 3). Remarks in Heber Springs, Arkansas, at the Dedication of Greers Ferry Dam. G. Peters & J. Woolley (Eds.), The American Presidency Project. http://www.presidency.uscb.edu/ws/index.php?pid=9455.

Kenney, M. (Ed.). (2000). *Understanding Silicon Valley: The Anatomy of an Entrepreneurial Region*. Stanford, CA: Stanford University Press.

Kenney, M., & Patton, D. (2005). Entrepreneurial Geographies: Support Networks in Three High-Tech Industries. *Economic Geography*, *81*(2), 201–228.

Ketels, C. (2012, October 17). *Competitiveness in Context in 2012: Introduction and Positioning*. Speech at the 15th TCI Annual Global Conference, Bilbao, Spain.

Kleinhubbert, G. (2012, August 14). Headhunting in the Euro Crisis: German Provinces Struggle to Lure Skilled Workers. *Spiegelonline*. http://www.spiegel.de/international/germany/german-provinces-struggle-to-lure-southern-european-workers-a-849778.html.

Klepper, S. (2009). Silicon Valley, a Chip off the Old Detroit Bloc. In Z. J. Acs, D. B. Audretsch, & R. Strom (Eds.), *Entrepreneurship, Growth, and Public Policy* (pp. 79–118). Cambridge: Cambridge University Press.

Kotkin, J. (2011). The U.S .' Biggest Brain Magnets. *Forbes*. http://www.forbes.com/2011/02/10/smart-cities-new-orleans-austin-contributors-joel-kotkin.html.

Krugman, P. R. (1993). *Geography and Trade*. Leuven, Belgium: Leuven University Press; Cambridge, MA: MIT Press.

Labich, K. (1993). THE BEST CITIES FOR KNOWLEDGE WORKERS A Few Fast-Growing Sunbelt Centers and—Surprise!—Several Older Cities of the North Are Rich in the brainpower That Employers Increasingly Need. http://money.cnn.com/magazines/fortune/fortune_archive/1993/11/15/78612/index.htm.

Lamoreaux, N., & Levenstein, M. (2008, September 12). *The Decline of an Innovative Region: Cleveland, Ohio in the Twentieth Century*. Prepared for the 2008 Annual Meeting of the Economic History Association.

Lilly Foundation (n.d.). Lilly Foundation Mission. http://www.lilly.com/responsibility/foundation/Pages/what-we-support.aspx.

Link, A. N. (1995). *A Generosity of Spirit: The Early History of the Research Triangle Park*. Research Triangle Park: Research Triangle Foundation of North Carolina.

Link, A. N. (2002). *From Seed to Harvest: The Growth of the Research Triangle Park*. Research Triangle Park: Research Triangle Foundation of North Carolina.

Link, A. N., & Scott, J. (2003). The Growth of Research Triangle Park. *Small Business Economics*, *20*, 167–175.

Link, A., & Siegel, D. (2005). University-Based Technology Initiatives: Quantitative and Qualitative Evidence. *Research Policy*, *34*(3), 641–655.

Lochbiler, D. (1973). *Coming of Age in Detroit, 1873–1973*. Detroit: Wayne State University Press.

Lockett, A., Wright, M., & Franklin, S. (2003). Technology Transfer and Universities' Spin-Out Strategies. *Small Business Economics*, *20*(2), 185–201.

Lorenzen, M. (2007). Social Capital and Localised Learning: Proximity and Place in Technological and Institutional Dynamics. *Urban Studies*, *44*, 799–817.

Lucas, R. (2008, February 3). Making a Miracle. *Econometrica*, *61*, 251–271.

Lucas, R. E., Jr. (1988). On the Mechanics of Economic Development. *Journal of Monetary Economics*, *22*(1), 3–42.

Malecki, E. J. (2012). Regional Social Capital: Why it Matters. *Regional Studies*, *48*(8), 1023–1039.

Mankiw, N. G., & Swagel, P. (2006). The Politics and Economics of Offshore Outsourcing. *Journal of Monetary Economics*, *53*, 1027–1056.

Martin, P., Mayer, T., & Mayneris, F. (2008, July 4). Natural Clusters: Why Policies Promoting Agglomeration Are Unnecessary. *VOX Research-based Policy Analysis and Commentary from Leading Economists*. http://www.voxeu.org/article/natural-clusters-policies-promoting-agglomeration-are-unnecessary.

Martin, R., & Sunley, P. (2003). Deconstructing Clusters: Chaotic Concept or Policy Panacea? *Journal of Economic Geography*, *3*(1), 5–35.

Martin Prosperity Institute. (2011). Creativity and Prosperity: The Global Creativity Index. http://martinprosperity.org/media/GCI%20Report%20Sep%202011.pdf.

Matthews, D. (2012). Study: D.C. is the Best-Educated Big City in America. *Washington Post*. http://www.washingtonpost.com/blogs/wonkblog/wp/2012/10/10/study-d-c-is-the-best-educated-big-city-in-america/.

McCann, P., & Ortega-Argiles, R. (2011). *Smart Specialisation, Regional Growth and Applications of EU Cohesion Policy*. Economic Working Paper 2011. Groningen, The Netherlands: Faculty of Spatial Sciences, University of Groningen.

Mercer (2011). Quality of Life Rankings for Cities. http://www.mercer.com/press-releases/quality-of-living-report-2011.

Mexico's Drug War Impacts Business: How Mexico Battles to Remain Safe, Low-Cost and Competitive amidst a Growing Drug War. (2010, September 16). *Latin Business Chronicle*. http://www.latinbusinesschronicle.com/app/article.aspx?id=4526.

Ministry of Economy and Planning, Kingdom of Saudi Arabia (2010). The Ninth Development Plan.

Montana Department of Commerce (2014). Montana SBIR/STTR Matching Funds Program. http://businessresources.mt.gov/msmfp/default.mcpx.

Moore, G., & Davis, D. (2004). Learning the Silicon Valley Way. In T. Bresnahan & A. Gambardella (Eds.), *Building High-Tech Clusters: Silicon Valley and Beyond* (pp. 7–39). New York: Cambridge University Press.

Moquet, K. (2013, November 21). Madison Ranked One of Top Ten Places to Live in US. *The Badger-Herald*.

Morgan, A. (1995). *Prescription for Success: The Life and Values of Ewing Marion Kauffman*. Kansas City, MO: Andrews McMeel Publishing.

Morris, K. (2014, April 7). In SoHo, Columbia Seeks to Jump-Start Entrepreneurs. *The Wall Street Journal*. http://online.wsj.com/news/articles/SB10001424052702304640104579487980209241914.

Moukheiber, Z. (2012, April 20). Epic Systems Tough Billionaire. *Forbes*. http://www.forbes.com/sites/zinamoukheiber/2012/04/18/epic-systems-tough-billionaire/.

Mowery, D. (2005). The Bayh-Dole Act and High-Technology Entrepreneurship in U.S. Universities: Chicken, Egg, or Something Else? In G. Liebcap (Ed.), *University Entrepreneurship and Technology Transfers* (pp. 38–68). Amsterdam: Elsevier.

Mowery, D., Nelson, R., Sampat, B., & Ziedonis, A. (2004). *Ivory Tower and Industrial Innovation: University-Industry Technology Transfer before and after the Bayh-Dole Act*. Stanford, CA: Stanford University Press.

Mueller, D. P. (1986). *Profits in the Long Run*. Cambridge: Cambridge University Press.

Nelson, R., & Winter, S. G. (1982). *An Evolutionary Theory of Economic Change*. Cambridge, MA: Belknap Press.

Network Created to Expand Reach of IU's Innovative Indiana Initiative. (2013, November 1). *Indiana University Newsroom*.

Noah, J. (2010, April 17). Post-game Interview. *TNT*.

North Carolina, Chamber of Commerce. (2011). *2011 North Carolina Economic Index*. http://www.nccommerce.com/LinkClick.aspx?fileticket=fDdSEfUsxTE%3D&tabid=41&mid=5338.

Paldam, M. (2000, December 14). Social Capital: One or Many? Definition and Measurement. *Journal of Economic Surveys*, *14*, 629–653.

Patton, D., & Kenney, M. (2005). The Spatial Configuration of the Entrepreneurial Support Network for the Semiconductor Industry. *R&D Management*, *35*(1), 1–18.

Penrose, E. (1959). *The Theory of the Growth of the Firm*. New York: Wiley.

Perez-Pena, R. (2013, April 12). Building a Better Tech School. *New York Times*. http://www.nytimes.com/2013/04/14/education/edlife/cornell-nyc-tech-planned-for-roosevelt-island-starts-up-in-chelsea.html?pagewanted=all&_r=0.

Peters, T., & Waterman, R. (1984). *In Search of Excellence*. New York: Harper and Row.

Phan, P., Siegel, D., & Wright, M. (2005). Science Parks and Incubators: Observations, Synthesis and Future Research. *Journal of Business Venturing*, *20*(2), 165–182.

Piore, M., & Sabel, C. (1984). *The Second Industrial Divide: Possibilities for Prosperity*. New York: Basic Books.

Porter, M. E. (1985). *Competitive Advantage: Creating and Sustaining Superior Performance*. New York: Free Press.

Porter, M. (1995). *Two Decades of Research on Competitiveness and Clusters—A Conversation with Michael Porter*. Session on Constructing Place-Based Competitiveness, 13th TCI Annual Global Conference, October 16–19, San Sebastian, Spain.

Porter, M. E. (1998a). Clusters and the New Economics of Competition. *Harvard Business Review*, *76*(6), 77–91.

Porter, M. (1998b). *On Competition*. Boston: Harvard University Press, p. 197. In R. Boschma & D. Fornahl (2011). Conceptualizing Cluster Evolution: Beyond the Life Cycle Model? *Regional Studies*, *45*(1), 1299–1318.

Porter, M. E. (1998c). *The Competitive Advantage of Nations: With a New Introduction*. New York: Free Press.

Porter, M. E. (2000). Location, Competition, and Economic Development: Local Clusters in a Global Economy. *Economic Development Quarterly*, *14*(1), 15–34.

Pratten, C. (1971). *Economies of Scale in Manufacturing Industry*. Cambridge: Cambridge University Press.
Putnam, R. (1993). *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton, NJ: Princeton University Press.
Putnam, R. (2000). *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon and Schuster.
Räth, M. (2012, March 28). Amen streicht weitere Million ein und startet neu. http://www.gruenderszene.de/news/amen-sunstone-capital.
Rentfrow, P. J., Jokela, M., Gosling, S. D., Stilllwell, D. J., Kosinki, M., & Potter, J. (2013). Divided We Stand: Three Psychological Regions of the United States and Their Political, Economic, Social, and Health Correlates. *Journal of Personality and Social Psychology*, *105*(6), 996–1012.
Roback, J. (1982). Wages, Rents, and the Quality of Life. *Journal of Political Economy*, *90*(6), 1257–1278.
Romell, R. (2013, April 13). Why Entrepreneurs Are Key to Jump-Starting the Milwaukee Area's Economic Rebirth. *Milwaukee Journal Sentinel Special Report*. http://m.jsonline.com/more/news/198625161.htm.
Romer, P. M. (1986). Increasing Returns and Long-Run Growth. *Journal of Political Economy*, *94*(5), 1002–1037.
Rosen, S. (1979). Wage-Based Indexes of Urban Quality of Life. In P. Mierzkowski & M. Straszheim (Eds.), *Current Issues in Urban Economics* (pp. 74–104). Baltimore: Johns Hopkins University Press.
Rosen, S. (1998). Human Capital. In J. Eatwel (Ed.), *The New Palgrave*: *A Dictionary of Economics* (Vol. 2, pp. 681–690). London: Macmillan.
Rosenberg, N. (1992). Economic Experiments. *Industrial and Corporate Change*, *1*(1), 181–204.
Rupasingha, A., Goetz, S. J., & Freshwater, D. (2002). Social and Institutional Factors as Determinants of Economic Growth: Evidence from the United States Counties. *Papers in Regional Science*, *81*, 139–115.
Ryzik, M. (2012, July 25). Virginia Developer Is on a Mission to Revive His Town. *New York Times*. http://www.nytimes.com/2012/07/25/us/in-virginia-developer-is-on-a-mission-to-revive-his-town.html?pagewanted=all.
Saxenian, A. (1994). *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*. Cambridge, MA: Harvard University Press.
Schalin, J. (2010). State Investment in Universities: Rethinking the Impact on Economic Growth. *Pope Center Series on Higher Education*. http://www.popecenter.org/acrobat/pope_articles/edreport.pdf.
Scherer, F. M. (1970). *Industrial Market Structure and Economic Performance*. Chicago: Rand McNally.
Scherer, F. M., & Ross, A. (1970). *Industrial Market Structure and Economic Performance*. Chicago: Rand McNally.
Schneider, K. (2012, July 25). Louisville, KY: Stakes Future on Care for Elderly. *New York Times*. http://www.nytimes.com/2012/07/25/realestate/commercial/louisville-ky-stakes-future-on-care-for-elderly.html?pagewanted=all.
Schneider, L. (2014). Blog: Google—Overview, Company Culture and History. http://jobsearchtech.about.com/od/companyprofiles/a/google.htm.
Schulte, B. (2013, July 21). Down in the Delta, Outsiders Who Arrive to Teach Now Find a Home. *New York Times*.
Schumpeter, J. (1911). *Theorie der wirtschaftlichen Entwicklung: Eine Untersuchung ueber Unternehmergewinn, Kapital, Kredit, Zins und den Konjunkturzyklus*.

Berlin: Duncker und Humblot. English translation, 1934, *The Theory of Economic Development*, trans. Redvers Opie, Cambridge, MA: Harvard University Press.
Schumpeter, J. (1942). *Capitalism, Socialism and Democracy*. New York: Harper and Brothers.
Scott, M. (2013, April 30). Start-Ups Take Root in Berlin. *New York Times*.
Senor, D., & Singer, S. (2009). *Start-up Nation: The Story of Israel's Economic Miracle*. New York: Council on Foreign Relations.
Siegel, D. S., Veugelers, R., & Wright, M. (2007). Technology Transfer Offices and Commercialization of University Intellectual Property: Performance and Policy Implications. *Oxford Review of Economic Policy*, *23*(4), 640–660.
Simmons, M. (2005). *Twilight in the Desert: The Coming Saudi Oil Shock and the World Economy*. New York: Wiley.
Simon, H. (2012, October 14). Unternehmerische Erfolgsgeheimnisse: Deutschlands Saerke hat 13 Gruende. *Frankfurter Allgemeine Wirtschaft*.
Simona, C. J., & Nardinellib, C. (2002). Human Capital and the Rise of American Cities, 1900–1990. *Regional Science and Urban Economics*, *32*, 59–96.
Sinclair, U. (1907). *The Jungle*. New York: New American Library.
Skorup, J. (2012, February 14). Detroit, the Triumph of Progressive Policy. *CAPCON: Michigan Capital Confidential*. http://www.mackinac.org/12832.
Sobel, J. (2001, March). Can We Trust Social Capital? *Journal of Economic Literature*, *40*, 139–154.
Solow, R. (1956). A Contribution to Theory of Economic Growth. *Quarterly Journal of Economics*, *70*(1), 65–94.
Solow, R. (1957). Technical Change and the Aggregate Production Function. *Review of Economics and Statistics*, (*39*)3, 312–320.
Spinney, R. G. (2000). *City of Big Shoulders: A History of Chicago*. Dekalb, IL: Northern Illinois University Press.
Staley, O., & and Goldman, H. (2011, December 20). Cornell and Technion Chosen by NYC for Engineering Campus. *Business Week*. http://www.businessweek.com/news/2011-2012-20/cornell-and-technion-chosen-by-nyc-for-engineering-campus.html.
Stewart, M. (2006, June). The Management Myth. *Atlantic Monthly*, 80–86.
Stiglitz, J., & Yusuf, S. (2001). *Rethinking the East Asian Miracle*. New York: Oxford University Press.
Study: Austin No. 3 among Innovative Cities. (2006, August, 4). *Austin Business Journal*.
Tavernse, S. (2012, May 30). A Gap in College Graduates Leaves Some Cities Behind. *New York Times*.
Taylor, F. W. (1911). *Principles of Scientific Management*. New York: Harper.
TCI Network. (2012, November 12). http://www.tci-network.org/tci/about.
Testa, B. (2007, July 18). Automotive Wages in Flux. *Federal Reserve Bank of Chicago*. http://midwest.chicagofedblogs.org/archives/2007/07/wages_in_automo.html.
Thissen, M., Van Oort, F. Diodato, D., & Ruijs, A. (2013). *Regional Competitiveness and Smart Specialization in Europe*. London: Edward Elgar.
Thurow, L. (2002). *Fortune Favors the Bold*. Cambridge, MA: MIT Press.
Truman, H. S. (1946, February 20). Statement by the President upon Signing the Employment Act. The American Presidency Project. http://www.presidency.ucsb.edu/ws/index.php?pid=12584.

United States Census Bureau (2010). *Current Population Report*. http://www.census.gov/2010census/.
United States Congress (1946). Employment Act of 1946.
University of Pittsburgh (2014), Office of Institutional Advancement. http://www.giveto.pitt.edu/where/corp/collab/ussteel.asp.
Variations in German Regional Unemployment (2012, June 1). *Der Tagesspielgel*, 17.
Vock, D. C. (2013, November 8). Cities Turn to Streetcars to Spur Economic Development. *USA Today*.
Wallsten, S. (2004). The Role of Government. In T. Bresnahan & A. Gambardella (Eds.), *Building High-Tech Clusters: Silicon Valley and Beyond* (pp. 229–279). New York: Cambridge University Press.
Walshok, M. & Shragge, A.J. (2013). The Invention of San Diego's Innovation Economy. In D. B. Audretsch & M. Walshok (Eds.), *Creating Competitiveness: Entrepreneurship and Innovation Policies for Growth* (pp. 186–209). London: Edward Elgar.
Walshok, M., & Shragge, A. J. (2013). *Invention and Reinvention: The Evolution of San Diego's Entrepreneurial Economy*. Stanford, CA: Stanford University Press.
A Way with Words (2006, March 21). http://www.waywordradio.org/smokestack_chasing_1/.
Weing, J. (2012, April 3). The Future of Opel, Already Downsized, Weighs Heavily on a German City. *New York Times*.
Weiss, A. (1995). Human Capital vs. Signaling: Explanations of Wages. *Journal of Economic Perspectives*, *9*(4), 133–154.
Weiss, L. W. (1966). Concentration and Labor Earnings. *American Economic Review*, *56*, 105–116.
The Welfare State Made Britain Poor. (2005, October 31). *Money Week*. http://www.moneyweek.com/article/593//the-welfare-state-made-britain-poor.html.
Wernerfelt, B. (1984). The Resource-Based View of the Firm. *Strategic Management Journal*, *5*(2), 171–180.
Wessner, C. (Ed.). (2008). *National Research Council: An Assessment of the SBIR Program*. Washington, DC: National Academies Press.
Wessner, C. W. (Ed.). (2013). *Best Practice in State and Regional Innovation Initiatives*. National Research Council (US) Committee on Competing in the 21st Century. Washington, DC: National Academies Press.
What Makes Austin Special. (n.d.). http://www.vertive.com/austin/.
Whyte, W. H. (1956). *The Organization Man*. New York: Simon and Schuster.
Winning the Game of "Global Smokestack Chasing" (1992, June 23). *New York Times*. http://www.nytimes.com/1992/06/23/business/winning-the-game-of-global-smokestack-chasing.html.
World Bank Group. (n.d.). Overview: Social capital. http://go.worldbank.org/C0QTRW4QF0.

# INDEX


Acs, Zoltan, 18, 65
Anzua Mendia, Jon, 99–102
Apple, 32, 33, 35, 36, 41, 72
Arrow, Kenneth, 63, 109
assembly line, 16, 17, 32, 41–43, 51, 52, 55
Association of University Technology Managers (AUTM), 39, 40
Austin, Texas, 25, 33, 36, 37, 40, 41, 53, 73, 75, 83, 98, 109, 115, 116

Batali, Mario, 64
Bayh, Senator Birch, 38
Bayh-Dole Act, 38–40
Becker, Gary, 45
Ben Franklin Technology Partnership, 123
Berlin Wall, 60, 87, 93–95, 124
Bilbao, Spain, 13, 14, 99–101
Bloch, Henry, 64
Bloomberg, Michael, 64, 122, 123
Board on Science, Technology and Economic Policy of the National Research Council of the National Academy of Sciences, 121
Bowes, Bill, 40
Bradley, Jennifer, 3
Bresnahan, Timothy, 82, 104, 118
Breznitz, Dan, 8
Brin, Sergey, 36, 65
Buffet, Warren, 64
business cycle, 1, 14

capital, 16, 19, 30, 40, 42, 44, 55, 81–83, 87, 89, 93, 94, 96, 99, 103
  human, 24, 29, 35, 41, 45–47, 50–53, 55, 56, 72, 74, 80, 84, 86, 88, 92, 99, 105, 114–116, 126, 130, 131
  physical, 20–24, 27, 30–35, 41, 43–46, 50, 51, 54, 86, 92, 105, 111, 113, 114, 127, 129
  social, 11, 26, 50–56, 75, 85, 90, 92, 102, 103, 111, 115, 124, 126, 129
Carnegie, Andrew, 64
Chandler, Alfred, 16
civic engagement, 63, 65, 98, 124
Clariant Innovation Center, 114
cluster, 9, 11, 46, 60, 81, 88, 96, 99, 103, 107, 108, 123
  approach, 7, 8, 74, 129
  business, 6, 81
  policy, 7, 12, 118, 119
  technology, 25, 82, 83, 104, 119, 120, 125
collective entrepreneurship, 105
Columbia Startup Lab, 123
commercialization activities, 24, 39, 120, 122
competition, 16, 17, 19, 25, 56, 63, 83, 86, 122, 132
  international, 3, 7, 13, 21, 22, 128
  local, 66–68, 79, 127
competitive advantage, 28, 29, 31, 35, 37, 42, 45, 47, 67, 81, 129, 130
conduit, 25, 30, 39, 71–73
CONNECT, 87, 88, 98, 124, 125, 131
Cowen, Tyler, 96
creative class, 7–9, 12, 29, 52–54, 56, 86, 103, 115, 116, 129
creative destruction, 73
creative workers, 23
creativity Index, 116

crisis, 1–4, 56, 73, 86, 94
Cummings Research Park, 77

Deffaa, Walter, 134
Dejardin, Marcus, 70
Delgado, Mercedes, 82
demonstration effect, 110
Detroit, 14, 15, 17, 18, 20, 31, 41, 43, 44, 49, 62, 66, 67, 96, 98, 128
Detroit Renaissance, 18
dimensions, 10, 25, 60, 68, 74, 83, 103, 123, 126
diversification, 25, 59, 80
diversity, 25, 60, 77–81, 83, 94, 115, 116, 123
Dole, Bob, 38

East Germany, 34
economy, 13, 14, 19, 27, 40, 55, 73, 77, 79, 86, 96–98, 105, 106, 111, 114, 123–125, 127, 128
  benefits, 118, 121
  development, 6–10, 12, 18, 21, 23, 27, 35, 36, 42, 73, 106, 112, 113, 119–121, 130
  economies of scale, 16
  global, 9, 15, 80, 94, 101, 112, 129, 131
  knowledge-based, 80, 81
education, 6, 37, 43, 45–47, 50–53, 65, 68, 81, 86, 89, 97, 113
Eli Lilly (Pharmaceuticals)/ Lilly Foundation, 63, 108
Emilia-Romagna (Italy), 86, 87, 89
Empire State Development Division of Science, Technology and Innovation, 120
employment, 14, 30, 34, 44, 51, 55, 59–61, 65, 69, 70, 76–82, 86, 87, 115, 119, 124
  unemployment, 1, 2, 4, 7, 13, 14, 19, 30, 34, 58, 60, 61, 78, 99, 112, 113, 117–120, 133
Employment Act, 2, 3, 27
Entrepreneurship, 8, 10–12, 23, 25, 26, 68, 72–75, 82, 83, 85, 105, 113, 120–124
  entrepreneurs, 38, 47, 63, 64, 70, 87, 94, 104, 109, 110
entrepreneurship capital, 75
entrepreneurship policy, 120, 123
entry and exit barriers, 16, 17, 29, 67, 88, 127, 128
equilibrium, 11, 79
eSilicon, 89
EU Cohesion Policy, 111, 134
Euro crisis, 4, 94, 133
Euskalduna, 13
Ewing Marion Kauffman Foundation, 30, 63, 64
externalities, 35, 67, 79, 108–110, 118

factories, 15, 16, 18–20, 27, 29, 32, 33, 41, 42, 51, 55, 91, 100, 127, 129
factors of production, 15, 23, 24, 28, 114
fairchild, 25, 70, 71, 110
Fasche, Melanie, 93, 94
firms, 3, 12, 32, 35, 39–42, 45–47, 50, 53, 55, 58–63, 75, 78, 79, 88, 98, 118, 130–132
  cluster, 7, 8, 81–83, 107–113
  consulting, 10, 23, 24, 92
  development, 5, 25, 51, 65–70, 72, 73
  private, 4, 36
  Small Business Innovation Research, 121, 122
  strategy, 15–18, 28, 29, 129
Florida, Richard, 7, 8, 11, 36, 52, 53, 56, 79, 86, 115, 116, 128, 129
Ford, Henry, 15, 17, 18, 41, 62, 113
framework, 4–6, 9, 11–12, 14, 15, 23, 24, 27–29, 111, 112, 129, 132, 134
Friedman, Milton, 22, 28, 128, 129, 131
Friedman, Thomas, 22, 28, 128, 129, 131
Fritsch, Michael, 70

Gambardella, Alfonso, 82, 104, 118
Gates, Bill, 64
GDP, 10, 23, 86, 99, 101, 105, 132
General Motors, 15, 17, 18, 20, 31, 33, 35, 41–43, 45, 46, 62, 67, 78, 128
*Generosity of Spirit,* 85, 98, 105, 107
Gitlin, Todd, 43
Glaeser, Edward, 1, 10, 23, 35, 47

global recession, 1
globalization, 3, 22, 27, 35, 46, 54, 110, 125, 128, 129
Google, 25, 33, 36, 41, 47, 50, 51, 65, 109, 116
Gottlieb, Joshua, 1, 10, 23, 47
great depression, 1, 2, 19
growth policy, 21
growth rates, 2, 10, 23, 79, 122, 133
Guggenheim, 64, 100, 101

Halberstam, David, 15, 17, 44, 66, 67
Harding, Jack, 89
Hector, Hans-Werner, 68
Hess, Jack, 11
hidden champions, 130
Hirschman, Albert O., 102
Hopp, Dietmar, 68
Howard, S. Hunter Jr., 18
human dimension, 15, 23, 24, 26, 27, 85, 87, 89–91, 102, 103, 106, 125, 126
human element, 84, 85, 89, 98, 99, 102, 103, 123, 125

IBM
  Mark Lorenzen, 25, 26
  organizational structure, 26, 59, 66, 67
identity, 59, 90, 92–94, 96, 100–103, 125
incubator, 24, 39, 63, 73, 122
industrial organization, 17, 62, 67, 127
industry, 2, 21, 29, 39, 43, 69, 70, 77, 79, 88–90, 101, 125
  aerospace, 75, 76
  automotive, 13–17, 62, 67, 78
  cluster, 81–83
  healthcare, 113
  meat-packing, 42
  pharmaceutical, 52, 63
  private, 94
  solar power, 44
  technology, 50, 52, 58, 82, 83, 93
  textile, 86
information, 25, 35, 81, 82, 88, 118, 132
infrastructure, 23, 24, 29, 31, 32, 44, 66, 89, 93, 94, 101, 113, 114, 127
innovation, 10, 11, 23, 26, 33, 36, 37, 67, 81, 82, 85–87, 89, 96, 98, 114, 122, 125, 131, 134
  innovative activity, 8, 38, 39, 68, 70–73, 79, 80, 90, 103, 116, 117, 120, 121
inputs, 26, 28, 29, 32, 42, 66, 67, 112, 131
Intel, 25, 33, 65, 70–72, 82, 104, 110
intellectual property, 35, 38, 39
intellectual void, 14, 22, 23
interactions (as described in chapter 5), 47
internationalization, 21, 22, 130

Jacobs, Jane, 66, 67, 78, 79
job creation, 74, 120, 121, 123
Jobs, Steve, 72

Katz, Bruce, 3
Kennedy, John F., 1, 2, 93
Kenney, Martin, 8, 88–90
Ketels, Christian, 4, 12
Keynesian Economic policy, 56
Klepper, Steven, 71
knowledge capital, 23, 35, 92, 113
knowledge externalities, 67, 79, 109, 118
knowledge filter, 39, 69–72
Kotkin, Joel, 36
Krugman, Paul, 6

Lamoreaux, Naomi, 8
large-scale production, 17, 18, 20, 32
leadership, 10, 11, 23, 26, 27, 55, 77, 85, 89, 90, 97–103, 124, 126
Link, Albert, 85, 97, 98, 105, 107, 119,
linkages, 9, 11, 26, 83, 85–90, 98, 103, 108
localization, 35
Lucas, Robert, 35

macroeconomic policy, 1, 3
managed economy, 127, 128
manufacturing (large-scale), 15, 19, 44
market entry and access, 128
market power, 16, 19, 25, 59–63, 65, 66
Marshall Plan, 21
Marshall, Alfred, 6, 63

Marshall-Arrow-Romer, 63
Martin, Philippe, 118, 119
Martin, Ron, 119
Marx, Karl, 16, 20
Matching Funds Program (MSMFP), 120
Mayer, Thierry, 118
Mayneris, Florian, 118
Mittelstand, 130
Moore, Gordon, 71, 82, 104

NASA, 77
National Space Science and Technology Center (NSSTC), 77
network, 7, 9, 11, 26, 65, 83, 85–92, 98, 103, 107, 109, 123, 126, 133
network externalities, 108, 109
Noyce, Robert, 70, 71
Nucleus Innovation Park, 113

offices of technology transfer, 24, 39
ordnungspolitik, 112
output, 28, 42, 79

Pacific Union Express Company, 64
Page, Larry, 36, 65
patents, 39, 40, 82
Patton, Donald, 89, 90
philanthropy, 18, 40, 63–65
Piore, Michael, 86
Plattner, Hasso, 68
Porter, Michael, 6, 8, 28, 66, 67, 81, 82, 129, 132
productivity, 7, 21, 31, 43, 47, 74, 92, 105
public policy, 6, 8, 11, 15, 23, 82, 104–107, 109, 111, 113, 115, 117, 119, 125
Putnam, Robert, 92

Research and Development (R&D), 29, 32–37, 41, 71, 84, 88, 99, 120, 131, 132
research institute, 24, 33
Research Triangle Park, 25, 89, 97, 98, 102, 105, 108, 119, 126, 131
resource based view (RBV), 24, 28
resources, 2, 4, 5, 13, 18, 51, 58–60, 72, 80, 83, 86, 90, 97, 99, 115, 123, 125–127, 130–132
  factors of production, 22–33, 56, 114
  scarce resource, 20, 107, 108
risk, 55, 64, 72, 89, 96, 98, 121
Rockefeller, John D. III, 63, 64
Romer, Paul, 35, 63
route, 9, 83–85, 88, 128

Sabel, Charles, 86
San Diego, 48, 52, 75, 81, 87, 88, 98, 99, 102, 108, 116, 123–125, 131
San Francisco, 1, 3, 48, 51, 52, 65, 75, 78, 116
SAP Software, 25, 69, 70, 72
Saxenian, Anna Lee, 9, 84, 85, 88
scale economies, 16, 17, 60, 62, 127
Scheinkman, Kallal, 35
Schumpeter, Joseph, 73, 74
science parks, 24, 39
Scott, John, 119
Shleifer, Andrei, 35
Silicon Valley, 3, 8, 9, 25, 32, 37, 40, 51, 65, 66, 70, 71, 73, 74, 81, 82, 84, 85, 88–90, 93, 104, 115, 116, 118, 131, 132
Simmons, Matthew, 80
Simon, Hermann, 130
skilled labor, 23, 29, 45, 86, 88, 114, 115, 117, 130
small business, 25, 120, 121
Small Business Innovation Research (SBIR) program, 120
Smart Specialization Strategy (RIS3), 106, 111
smoke stack chasing, 18, 19
Solomon R. Guggenheim Foundation, 100
Solow Model, 45, 82
Solow, Robert, 20, 21, 31, 32, 45, 82
South Carolina, 18, 19, 105, 106
spatial concentration, 6, 11
spatial structure, 15, 57, 68, 120
specialization, 16, 25, 60, 75–81, 83, 106, 111, 134
spillover of knowledge, 25, 35, 39, 67, 72, 73, 80, 83, 90, 108
spinoffs, 71, 123
standard of living, 20, 22, 34, 43, 47, 63, 86, 117
standortpolitik, 9, 10, 112

Stanford University, 25, 36, 47, 64, 65, 88, 104, 116
Stanford, Leland, 64, 65
start-ups, 11, 26, 71, 74, 75, 89, 94, 108, 116, 119, 120, 122–124
  entrepreneurial, 25, 60, 70, 73, 95, 109, 110, 113, 126
Steinhaus, William R., 59
Stern, Scott, 82
Stiglitz, Joseph, 106
strukturpolitik, 112
sunk cost, 107, 108
sunk investment, 107

talent, 38, 45, 52, 53, 84, 96, 98, 111, 114–116, 126, 130, 131
Taylor, Winslow, 16, 42
Taylorism, 42–44
technology, 20, 33, 36, 37, 39, 41, 44, 47, 50–52, 71, 76, 77, 88, 89, 98, 108, 113, 115–123, 132
  cluster, 25, 82, 83, 104, 119, 120, 125
  transfer, 24, 35, 39, 40, 80, 83, 120
Thompson, Derek, 53
Thurow, Lester, 128
Truman, Harry S., 27
Tschira, Klaus, 68

unions, 17, 18, 55, 63, 112
unskilled labor, 29, 41, 42, 44, 45, 51, 52, 55, 105
urban planning, 6, 10, 11, 20, 23, 34, 37, 115
US Patent Office, 37, 40

venture capital, 24, 40, 83, 87, 88, 90, 95

Walker, Ron, 55
Wallsten, Scott, 82
Walshok, Mary, 87, 88, 98, 99, 123, 124
Wellenreuther, Claus, 68
Whyte, William, 43
Wilson, Charlie "Engine", 15
Wind, Jerry, 96
Winner, Caitlin, 92, 93, 95
wirtschaftswunder, 4, 9
World War II, 1, 9, 14–16, 19, 21, 27, 55, 76, 87, 93, 106, 123
Wowereit, Klaus, 93, 94

Xerox Corporation/Xerox PARC, 71, 72

Zuckerberg, Mark, 64, 72