



MAKE IT IN AMERICA

THE CASE FOR
RE-INVENTING THE ECONOMY

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THE DOW CHEMICAL COMPANY



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Preface

I'm Andrew Liveris. I've been an employee of The Dow Chemical Company for more than 30 years. For the past six, I've been its Chairman and CEO. I was born in Australia, in the small town of Darwin, in 1954.

Throughout my childhood, I always loved school. Chemistry, in particular. There was something fascinating to me about manipulating elements to produce vastly different compounds. The idea of working at the molecular level was at once exciting and mystifying. When I got to University of Queensland, I knew right away that I would study chemical engineering.

PREFACE

Upon graduation, I came to The Dow Chemical Company as a chemical engineer. I didn't join Dow because it was a chemical company. I joined it because it was an American company. I joined it because I believe deeply in the American model of enterprise, in its ability to improve lives around the world, in its capacity to be a beacon of energy and creativity.

And Dow is about as quintessentially American as you can get. It was founded in 1897 by an immigrant—an entrepreneur—just as the industrial revolution was getting underway.

Herbert Henry Dow, a Canadian chemical engineer, came to the small town of Midland, Michigan to collect samples from the Tittabawassee River. He found that he could extract bromine, an element used in products from flame retardants to gasoline, from the brine lakes in the area. After securing patents, he, along with 57 investors and \$200,000, started The Dow Chemical Company.

Dow grew over the twentieth century to become one of the largest and most global corporations in the world. Today Dow employs more than 52,000 workers in 37 countries. We have 41 major research facilities, more than 5,000 products being manufactured at 214 sites, and sales in more than 160 countries. We are a Fortune 50 company.

I am deeply indebted to the country that allowed me to pursue my dreams. I worked for Dow in Australia, then for many years in Asia, and now, as CEO, I work out of Dow's headquarters, which have remained in Midland to this day.

As the head of one of the largest chemical companies in the world, I interact with manufacturers of countless kinds every day. They are my peers, my partners and, at times, my customers. Our conversations, I believe, give me a keen sense of the pressures and challenges they're facing, the changes they're making in response, and the opportunities they're seeing—and seizing. So I speak from

Preface

personal and professional experience (and with no shortage of pride in my industry) when I say this:

The world is entering a golden age of manufacturing.

Now, that statement might surprise many in America. We've become painfully accustomed to the loss of jobs, the closing of plants, the shuttering of main streets in small towns and even some big cities. To many Americans, the word "manufacturing" feels associated with the past—with another era, a brighter and easier and more prosperous time.

So when I say manufacturing is about to enter a golden age, it might seem impossible to reconcile with the reality to which we've become accustomed. But if we lift our eyes from what's happening within our own borders and begin to look around the world, we can see that, globally, this is an incredibly exciting time in manufacturing—perhaps the most exciting in history.

Countries are investing extraordinary amounts of money and talent into expanding their capacity to create—and to build. In China, for example, cities with populations larger than New York's have sprouted up out of nowhere in order to meet the country's growing manufacturing sector. Of course, China is not alone in its mission to become the global leader in manufacturing. Developed and developing nations alike, from India and Germany to Brazil and Taiwan, are creating comprehensive national strategies to better compete in the global market. They are creating new industries that will be central to solving some of the world's most serious challenges. Indeed, countries all over the world see manufacturing as the key to their economic futures.

America's most successful global competitors are building substantial wealth by investing in highly advanced, highly specialized, high value-added manufacturing—building the semiconductors and microprocessors for our electronics; the wind turbines

PREFACE

and solar cells for our energy needs; the advanced batteries and state-of-the-art medical devices that will remake our future. They are transforming what manufacturing means, and using its engines to transform their economies. It is truly stunning to watch this unfold.

There is no doubt that, for generations to come, economic success will be a direct product of the things we build. The question is, who will build them? Who will reap the rewards? Who will emerge as the economic leader of the twenty-first century?

In that race, the United States is falling rapidly behind.

Other nations have refocused and ramped up, but the United States has not. In the World Economic Forum's 2010–2011 Global Competitiveness rankings, the United States slid another two slots—from second to fourth. We have allowed our manufacturing base to deteriorate, and we haven't done nearly enough to revive it. To reinvent it.

We mourn the loss of manufacturing jobs in America. We recognize the pain it causes to workers and their families and their hometowns. We lament it. But we don't do much about it. Just as inaction led us to this point, inaction is keeping us here. We treat further losses as inevitable, even acceptable, and ignore their effect on our long-term success. We are talking *around* the problem, but very few people are actually talking *about* the problem.

This is where we are today. And we arrived at this moment without ever asking the most important question of all.

Does manufacturing matter to our future?

Yes, it does. It absolutely does.

If you picked up this book thinking it would be another conventional business book, I urge you to keep reading—I'm confident you'll conclude otherwise. If you picked it up thinking this was another long complaint by another CEO who wants nothing more

Preface

than for government to back off, recede from the picture, do nothing, and let the markets rule, then I'm afraid you'll be disappointed.

That approach had its day. There was a time when companies could thrive, when entire enterprises could be built from the ground up on our shores, without much government intervention or assistance. We saw a vast prosperity arise, we saw innovation flourish, and many Americans concluded that government and business should keep their distance from one another. It's part of our national DNA.

If everything had remained static, it might have worked out just fine. But it didn't. And we ignore those changes at our peril.

This book is a call to action. It's based not just on my experience, but on the opinions of some of the leading experts in the field. Over the next several chapters I'll give you a better sense of where the United States is falling behind and why. I will talk about some of the lessons we can learn—the lessons I have learned—from our major competitors around the world. And, in the final chapters, I will lay out an agenda that, if adopted, could revive the sector and put the United States back on track toward economic growth and global dominance.

That agenda will include everything from rebuilding the country's crumbling infrastructure to reorienting our education system with a greater focus on science, math, and engineering. It will include leveraging our manufacturing heft to combat global climate change and build a vibrant clean energy industry. And it will include making our tax code more competitive, and our regulations more streamlined, so that doing business in the United States can be both cheaper and more efficient.

Each item on the agenda will help boost American manufacturing. But no single piece will sufficiently do it all. The U.S. economy requires a comprehensive set of solutions, and so it deserves a truly

PREFACE

comprehensive plan. We cannot allow ourselves to be satisfied by the argument that our political system is too broken to make the kind of big changes we need. The U.S. political system has always been partisan. Passing major legislation has always been an uphill climb. But American history is full of moments, critically important moments, where leaders have overcome the obstacles and delivered on essential reforms. This should be one of those moments.

The United States is at a strategic inflection point. Our options are simple—and starkly different. Are we going to fight to compete, as we have throughout our history? Or are we going to stick to assumptions and practices that no longer make sense?

We are still emerging from the wakeup call of the financial collapse. We are still recalibrating, still recovering. Our success will depend on our ability to recognize the problem we face, and our willingness to face it down.

When we had a vibrant, booming manufacturing sector, we enjoyed new wealth and growth unmatched in the world. If we can revive, rebuild, and reinvent that sector, if we can bring back the model that served as the world's greatest force for economic growth, we will enjoy that prosperity once again.

That, I believe, is what we must do. This book is about getting it done.

ANDREW LIVERIS

Acknowledgments

The ideas in this book, as I've tried to make clear, are the product of practical experience. I am lucky to have a job that has taken me around the world, and wherever I go—wherever Dow operates—I am fortunate to work with some of the most brilliant, creative, and hardworking people you could possibly find. Their ideas and actions have an important influence on my opinions and outlooks, so I am pleased to have a chance to thank them publicly.

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And most importantly, to my loving and devoted wife, Paula, and our three talented children—Nicholas, Alexandra, and Anthony—thank you for your abiding support during every stage of my Dow career and our ongoing journey through life together. You make what I do worth doing.

A. L.

Contents

Preface	xiii
Acknowledgments	xix
Introduction	1
Chapter 1 The Rise and Fall	11
How We Fell Out of Love with	
Manufacturing	14
The Multiplier Effect	19
Manufacturing Tomorrow	22
Surviving the Crisis	25
A Tale of Two Nations	27

CONTENTS

Chapter 2	Separating What Can't Be Separated	31
	The Truth about the Manufacturing Crisis	36
	Adding Value the Only Way We Can	40
	Trying to Survive on Ideas Alone	44
	Where Manufacturing Goes, the Ideas Follow	49
Chapter 3	Fighting Offshoring	53
	Should I Stay or Should I Go?	56
	It Isn't What You Think	59
	Taxing Problems	63
	Funding the Future	67
	Regulating Our Way into a Muddle	69
	Trading Our Way to Prosperity	73
Chapter 4	Energy Drives the World	81
	A Big Energy Bill, and Not Just for Power	82
	The New New	87
	Germany's Green Miracle	91
	China's Green Revolution	94
	America Can't Compete	98
Chapter 5	Building Tomorrow	103
	Education: "A Permanent National Recession"	105
	Developing the Right Skills for the New Workplace	109
	Preventing a Worker Shortage	111
	What America Doesn't Understand That Other Nations Do	114
	The Tortoise and the Hare	117
	A New Foundation of Infrastructure	118
	Funding the Future	124

Contents

Chapter 6	Built to Compete	129
	An Ambitious Agenda	132
	Changing the Way We Tax	134
	National Incentive Strategy	136
	Regulatory Policy	137
	Everyone Needs Good Trading Partners	141
Chapter 7	The Long Game	145
	The Human Element: Education and Immigration	147
	Innovation and Competitiveness	154
Chapter 8	The Fork in the Road	163
	Bibliography	175
	About the Author	197
	About The Dow Chemical Company	199
	Index	201

Introduction

This isn't just an uncertain world. It's a volatile one. For years, the United States has been in transition from a manufacturing-based economy to a service-based economy. For years, we entrusted our growth to borrowing and consumerism. For years, we fueled our growth with debt, and with the idea that everything would be just fine.

As we now know, it wasn't.

Too many of us in business and government didn't see it coming. Even if we had concerns—as I did and sometimes

MAKE IT IN AMERICA

shared—none of us imagined just how far, and how fast, we were about to fall.

The financial crisis, the housing market collapse, the ensuing recession and credit crunch—all these have caused no end of pain for individuals and businesses alike. But they aren't the fundamental problem. They're symptoms. The troubles of recent years have unmasked a reality that spent years lying dormant, hidden from public view: the United States no longer has an economic model that's sustainable.

How can this be? Are things really that serious? After all, we are still the largest economy in the world. We still have a larger gross domestic product (GDP) than any country, and higher productivity than any country. And yet, as we reflect on these first decades of globalization, on what they have meant for the United States, we are left with the uneasy notion that we are losing ground we can't gain back.

Our old sense of confidence, of certainty, is at low ebb. That's because we now understand that the free flow of capital in financial markets may create certain benefits, but also produces extraordinary volatility—in raw materials, in final products—requiring American businesses operating globally to contend with challenges on a scale unheard of before, and mostly unacknowledged in America's national conversation.

This volatility has driven entire industries to relocate to the opposite side of the world. It is preventing companies from investing in the United States right when our economy most needs that investment. Recent policy decisions have eased some of the pain, mitigated some of the damage, but it seems no one's talking about a fundamental fix.

Globalization has changed just about everything. In many places it has been a force for progress, but by its very nature, it

Introduction

is also a force of destabilization. It creates opportunities and, at the same time, considerable risk. It gives nations—both developed countries and emerging economies—the ability to prosper in ways we never could have imagined, but also creates new obstacles to growth. Here and elsewhere, globalization has upended old economic models, creating imbalance where order once reigned.

That isn't surprising. Globalization, left to its own devices, favors efficiency. Countries with the capacity for complex financial transactions—like the United States and the United Kingdom—will naturally see the expansion of their financial services sectors. Likewise, countries that manufacture goods cheaply and efficiently are likely to see growth in that sector.

The corollary, which also holds true, is that less efficient sectors tend to erode. This, in turn, tends to exacerbate their inefficiency and hasten their erosion. When manufacturing can be done for less abroad, market forces send it abroad.

That leads to an imbalance within some economies that might seem, at first glance, either inevitable or even desirable. Countries could specialize, the argument might go, and could thereby increase the efficiency of the global economy as a whole. This idea has a certain logical appeal. But it overlooks something fundamentally important about the health of developed and developing economies alike: not all sectors are created equal.

The manufacturing sector, for example, can create jobs and value and growth to a degree that the service sector cannot. As America's service sector expands, and its manufacturing sector contracts, the result isn't a new post-manufacturing economy in which everyone wins. The result, instead, is that certain people win, but the country as a whole experiences massive unemployment. The service sector is certainly capable of generating wealth—as we have seen—but it cannot create the sheer volume of jobs the economy

needs in order to sustain a workforce of more than 150 million people.

The places that have been able to succeed (for a time) with highly specialized economies have had, in almost every instance, tiny populations. Dubai, for example, was able to thrive as a service-only economy—at least until the financial collapse—in part because it has a population of just more than 2 million, and therefore needs to create relatively few jobs. The United States does not have that option. There aren't enough high-end service industry jobs in the world to employ the American workforce.

The U.S. economy needs balance across sectors. The nation needs to strengthen its advantages in providing services and intellectual capital for the rest of the world; but we also need to grow things and build things. Only through balance will we find economic strength, stability, and growth over the long term.

Otherwise, if U.S. policymakers allow the economy to drift further in the direction of imbalance, the nation will find itself with a highly specialized service sector that supports the few, and a weakened manufacturing sector that can no longer sustain the many. I don't mean to suggest that manufacturing can sustain an entire economy on its own. It can't. But no economy as large as America's—no population as large as America's—can sustain itself without manufacturing. No society can thrive with persistently high unemployment.

There are some who insist that as long as the United States continues to generate the world's greatest innovations, the collapse of manufacturing doesn't matter. Yes, America has been—and should be—the world's greatest innovator. But that alone is not enough. I hope Americans won't buy the notion that they've outgrown manufacturing. Accepting such a future would mean accepting a level of joblessness that would make recent years look like a warm-up.