One Million Jobs at Risk: The Future of Manufacturing In California

Bay Area Economic Forum

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THE BAY AREA ECONOMIC FORUM

The Bay Area Economic Forum, a public-private partnership of leaders representing business, government, higher education and labor, develops and implements programs to strengthen the region's economy and quality of life. Its research reports analyze the dynamics of the Bay Area's economy and key issues affecting its growth and development, while its initiatives mobilize community leaders around joint action. Sponsored by the Bay Area Council and the Association of Bay Area Governments (ABAG), the Bay Area Economic Forum serves as a vehicle for the region to address the issues of economic competitiveness, governance, and quality-of-life that are vital to its future.

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INTRODUCTION

California's manufacturing economy is at a crossroads. It is mature and diverse, yet in many ways it is a poster child for manufacturing in high-cost countries. California leads the nation in manufacturing jobs, and its base ranges from metals to beverage production to high tech. However, manufacturers face extreme cost-related pressures, with high wage and benefits rates, as well as high input costs such as electricity. They must also deal with regulatory challenges that are greater than in other states and are absent from many developing, low-cost countries. Hence many California manufacturers find the prospect of offshoring or moving production to other states attractive.

Many commentators believe that in the future most global production will be clustered in Asia because of its low labor costs. This report takes a contrarian view—that in the future, most global production will be located close to final demand (i.e., the point of sale). Production in low-cost countries, such as China, will increase, and a good portion of current production in high-cost countries will migrate toward locations where labor and tax rates are lower. Growing capabilities abroad for sophisticated manufacturing with good quality control will accelerate this process.

However, to date a sizable portion of this increased Asian production capacity has been installed to sell products into Asian markets (not just to produce goods that will be exported back into high-cost countries). As global manufacturers continue to meet customer demands for not only lower prices but also more customized and rapidly delivered products, a substantial amount of global production will remain in high-cost countries, so long as the benefits to customers of rapid delivery and customization outweigh the benefits of lower cost. Fundamentally, the authors of this report believe that the proportion of products for which the benefits of local production outweigh the savings from offshore production is far higher than might appear at first glance.

Furthermore, most early-stage, low-volume and high-end production is likely to remain in advanced economies, so long as their research and innovation capabilities are differentiated and superior. Similarly, production of goods that involves sensitive intellectual property, or that requires a high level of adaptability to respond to fast-changing demand and customer service needs, will be located close to local markets, often in higher-cost locations such as California. Thus, the global manufacturing footprint of the future, even for a single company, likely will involve a mix of locations, with "basic," high-volume production offshore and "customized" production maintained domestically.

If this forecast is correct, California can remain a major manufacturing center—producing an evolving mix of both traditional and innovative products, but only if it can develop a clear-cut strategy to meet growing competitive challenges, both at home and overseas.

The stakes are high. Today, manufacturers employ over 1.5 million Californians, while another 3 million jobs have direct links to manufacturing. Decisions by companies to leave California eliminate not only front-line production workers, but also put at risk related jobs in product design and applied research, as well as large number of jobs in the state that are indirectly supported by manufacturing activity. They may also lower the standard of living for many, as good-paying manufacturing jobs are often replaced by lower-paying, lower value-added service jobs.

Competition from overseas and from other states is intense. While not all jobs are at risk of moving (some, in food processing or defense, for example, are either linked to specific geography or can't move offshore), approximately 1 million California manufacturing jobs are "up for grabs." Here, manufacturers' decisions to stay or leave are not clear-cut, and action by both companies and government can help to keep them here and secure the future of California manufacturing. For many companies, the cost pressures to move production offshore are compelling, but for many others manufacturing in California can and should be a viable option.

Therefore, we propose a pact between manufacturers and California's state government. We ask manufacturers to thoroughly assess the full costs and benefits of offshoring, recognizing that it is not a panacea, and to strive for world-class productivity levels. We ask government to relieve excessive burdens on California manufacturers, help build the vocational skills needed to ensure they are competitive, and promote the state as a competitive site for manufacturing. We ask both to join in a vision with short-, medium-, and long-term goals and monitor them with a scorecard.

RECOMMENDATIONS FOR BOTH COMPANIES AND GOVERNMENT

WHAT COMPANIES CAN DO TO ENHANCE COMPETITIVENESS

1. Focus on delivering more customer value (for instance, through more rapid delivery and product customization) rather than just lowering costs.
2. Accurately measure landed costs—to better understand the drawbacks as well as the advantages of offshoring.
3. Deploy world-class manufacturing techniques to shorten supply chains, lower costs, and increase timely delivery.

WHAT STATE GOVERNMENT CAN DO TO ENHANCE COMPETITIVENESS

1. Convene public and private leaders to forge a shared strategy for maintaining a viable manufacturing base in California, with goals and benchmarks for periodic assessment.
2. Make manufacturing a priority, and assign a senior adviser to the Governor to lead, monitor, and directly report on manufacturing issues.
3. Lower the gap between manufacturing costs in California and other U.S. states by addressing issues such as energy, workers compensation, labor market flexibility, and corporate taxes that make California less competitive.
4. Support state universities, community colleges, and vocational institutions in providing more and better-coordinated workforce training programs, to ensure that California companies have access to a labor force with the skills needed to compete with other states and other countries.
5. Support university research, at the University of California and elsewhere, on which technological innovation and advanced manufacturing depend.
6. Identify industries whose fundamentals are well suited to California (for instance, those with high capital intensity, low labor cost intensity, and high customer service requirements).
7. Actively promote California as a manufacturing site for targeted companies and industries, emphasizing the state’s natural strengths (such as its large market, highly productive workforce, and significant technology resources).

PART I. MANUFACTURING IN CALIFORNIA TODAY

A. CALIFORNIA IS A MAJOR MANUFACTURING LOCATION

California is renowned for its manufacturing. Every day countless products—shirts, medical devices, furniture, fasteners—leave its factories for destinations across California, the U.S., and the globe. And with a population in California and border states that exceeds 47 million people, and an overall economy larger than China's (in U.S. $ terms), California manufacturers have access to a local market that is unmatched in respect to the combination of population size and wealth (Exhibit 1).

Exhibit 1
CALIFORNIA'S LOCAL AND REGIONAL DEMAND MARKET IS MASSIVE
Gross domestic product, 2003

	Percent of global GDP
1. U.S. (excluding California)	26.8
2. Japan	11.8
3. Germany	6.6
4. United Kingdom	5.0
5. France	4.8
6. California	**4.1**
7. Canada and Mexico (combined)	4.1
8. China	3.9

Source: Economy.com; Global Insight

Manufacturing is thus central to California's economy. In 2003, manufacturing supported 1.5 million jobs, nearly 10% of state employment. Those figures translate into nearly $150 billion of value added[1].

But to truly understand the importance of manufacturing to the state, one must also consider the multiplier effect—a measure of the additional, related services jobs that exist to support manufacturing. Based on a direct multiplier effect of 3.0 (Milken Report, August 2002), manufacturing supports as many as 4.5 million jobs in California—30% of its total.

California also has more manufacturing jobs than any other state in the U.S. by a wide margin. It has over 70% more jobs than runner-up Texas. Indeed, in 2003 11% of all U.S. manufacturing workers were in California (Exhibit 2).

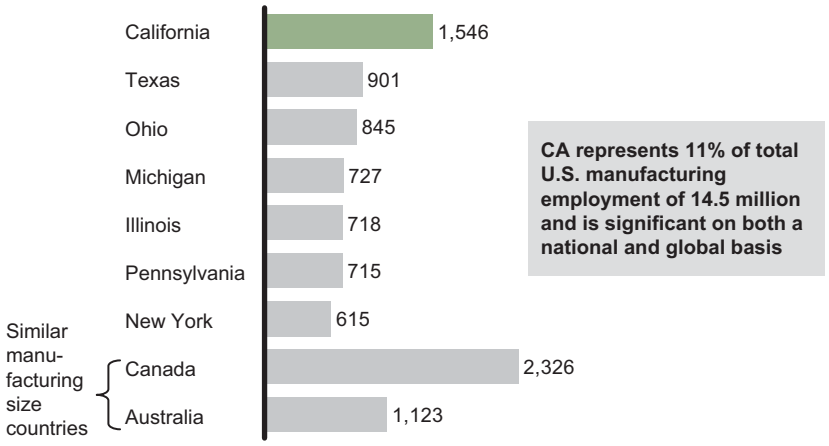
California is a manufacturing powerhouse, and not just because it employs so many people. It also boasts one of the most sophisticated and diverse manufacturing bases anywhere in the world. Of course, high tech goods—computer and electronics, semiconductors, medical devices and communications gear—account for a large proportion of manufacturing employment (22%). However, a full third of jobs (33%) are in so-called "heavy manufacturing"—automobiles, fabricated and primary metals, and aerospace and defense equipment. Consumer perishable goods—food, apparel, and beverage and tobacco—make up another 18% of jobs (Exhibit 3).

1. Measured as value of final sales less value of intermediate goods and services purchased to facilitate production.

Exhibit 2

MANUFACTURING EMPLOYMENT, MAJOR U.S. STATES

Annual average employment in thousands, 2003



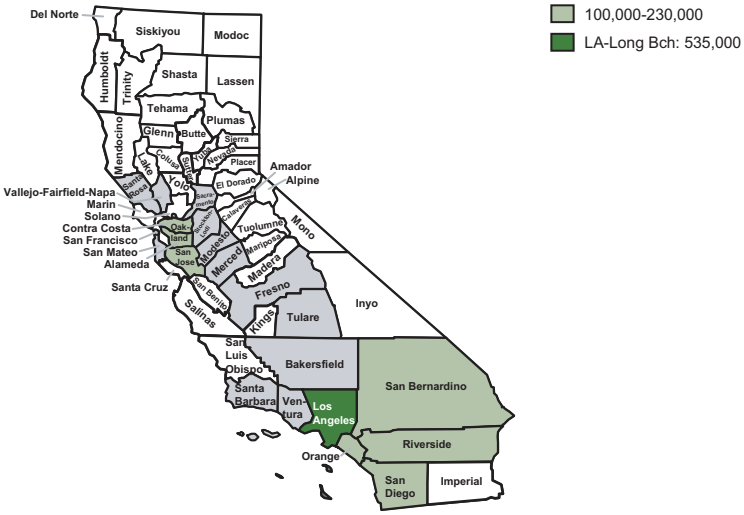
* 3x multiplier estimated from weighted average multipliers across all manufacturing sectors in CA. This estimates number of additional jobs impacted/created by the manufacturing sector in CA

Source: Bureau of Labor Statistics; Bureau of Economic analysis; RIMS II

Exhibit 3

CALIFORNIA MANUFACTURING JOBS, BY COUNTY

Number of manufacturing jobs (2002)



* 2002 data used due to incomplete reporting for counties in 2003

Source: California State Employment Development Department Web site (http://www.calmis.ca.gov)

Household names abound among California-based companies that manufacture in the state. They include: QualComm, Intel, Solectron, AMD, Sun, and Flextronics, in high technology; Amgen, Medtronic, and Johnson & Johnson, in health care; Boeing, Lockheed Martin, and Northrop Grumman, in aerospace; and Guess?, Patagonia, Del Monte, Clorox, and Dreyers, in apparel and consumer packaged goods.

Even so, 95% of manufacturing firms in California are small- or medium-sized, and they account for 62% of total manufacturing employment. In addition, manufacturing has large pockets of strength, especially in the LA-Long Beach area (home to nearly a third of manufacturing jobs), but also in Alameda, Santa Clara, Riverside, and San Diego counties. Thus, California maintains a broad range of manufacturing

Exhibit 4

CALIFORNIA WAGES BY CATEGORY

Average annual pay in California

$ Thousands

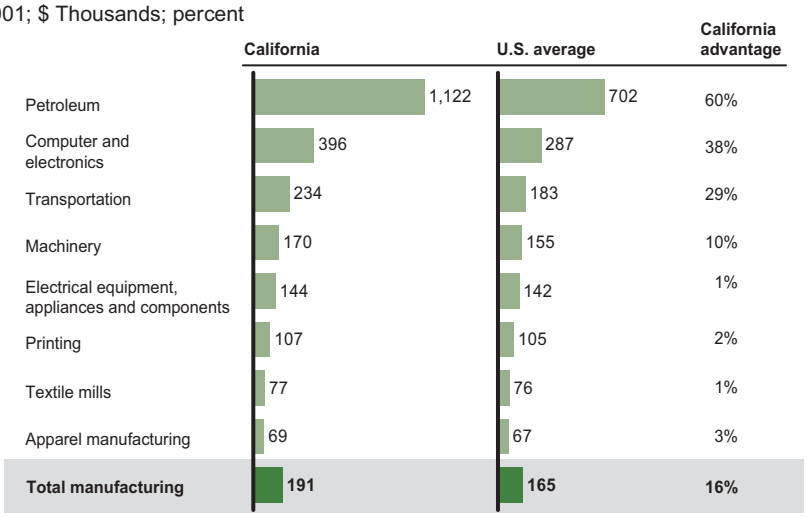
		2001	2002	2003
	Government	43.5	44.8	46.4
Privately owned	Service providing	39.8	39.7	40.8
	Manufacturing	51.2	50.9	53.7

Source: Bureau of Labor Statistics; Quarterly Census of Employment and Wages

Exhibit 5

VALUE-ADD PER PRODUCTION WORKER, CALIFORNIA VS. U.S. AVERAGE

2001; $ Thousands; percent



Source: Annual Survey of Manufacturers

companies, some huge, multi-national corporations, but also many smaller, family-owned and entrepreneurial companies.

Importantly, these manufacturing jobs are not low-end. In California, the average manufacturing job paid $53,700 in 2003, a full 33% more than the average service sector job salary of $40,700 according to the U.S. Bureau of Labor Statistics (Exhibit 4). In addition, California manufacturers create 16% more value-added per employee than the U.S. average (Exhibit 5).

With so many jobs in a spectrum of industries, spread across nearly 50,000 establishments both large and small, and adorned by a roster of world-famous brand names, manufacturing is critical to California's economy. Any slide can jolt the state and its working population.

B. HOWEVER, THE BUSINESS CLIMATE IS DIFFICULT

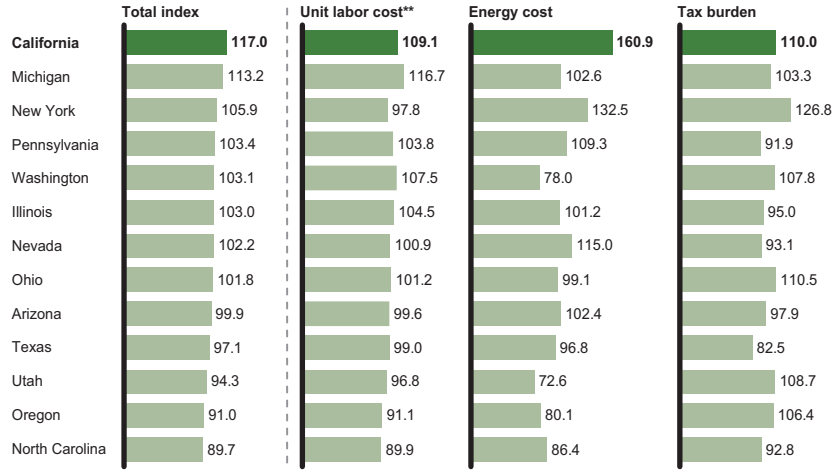
California manufacturers face major competitive challenges. Many of them are universal for companies in high-cost locations. However, several are unique to the state and burden manufacturers that produce here.

Manufacturers pay significantly more to conduct business in California than in most neighboring states and overseas locations. On the cost-of-doing-business scale (made up of 75% labor wages per unit output, 15% of energy cost, and 10% of tax burden), California ranks highest among the major manufacturing states, and second-highest in the country (Exhibit 6).

Exhibit 6

"COST OF DOING BUSINESS" INDEX*

Index 100 = U.S. average (2002)



* Top 8 manufacturing states and 5 neighboring states

** Measured as labor wages per unit output

Source: Economy.com

California's state policies, in aggregate, are a burden on small businesses. The Small Business & Entrepreneurship Council ranked California last out of 50 states as the "least friendly policy environment for entrepreneurship" (Small Business Survival Index 2004 report; October, 2004).

California's unit labor costs are 9.1% higher than the national average, in spite of direct wage rates that are *below the national average* (Exhibit 7). According to the Bureau of Labor Statistics, the mean hourly wage for production workers in California in 2002 was $12.97, compared to $13.55 for the United States and $16.73 for Michigan, the highest. Yet compensation costs—including not just pay for time worked, but holiday and vacation pay, bonuses, other direct payments, legally mandated insurance, benefit plans, and labor taxes—are higher in California than in the U.S. overall. They are also higher than in Japan and Canada, and far higher than in Hong Kong, Taiwan, Mexico, and Shanghai (Exhibit 8).

California worker's compensation premiums are the highest in the United States. According to a report by the Oregon Department of Consumer and Business Services, California businesses paid $6.08 per $100 of payroll in workers compensation premiums, compared to a U.S. state average of $2.70. As one boat manufacturer said, "Workers comp costs create a huge incentive for us not to hire additional labor." Reforms now in progress should save $15 billion in workers compensation costs by 2006 and drop California's premium to $3.80, lowering it to second highest in the U.S. (barring changes in other states).

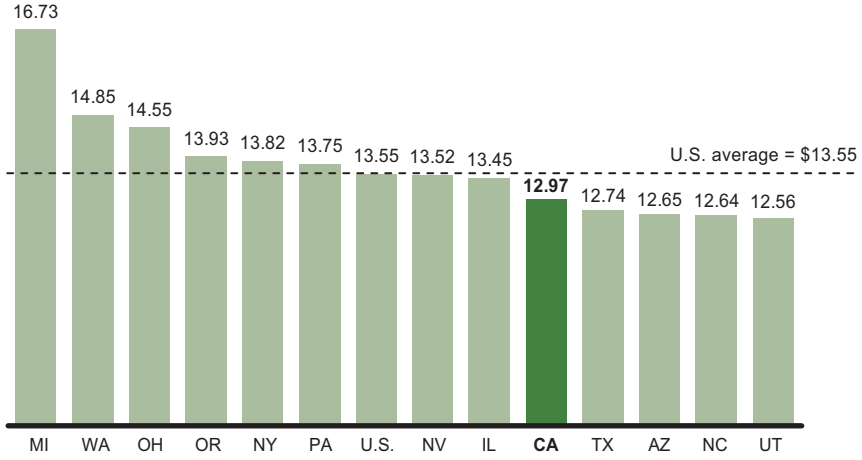
Overall energy costs are a dramatic 60.9% higher than the national average. Electricity rates in California are the highest of any state at 8.6 cents per kWh, compared to the national average of 5.3 cents per kWh, placing a burden on companies with high electricity utilization (Exhibit 9).

Exhibit 7

DIRECT LABOR RATES, SELECT U.S. STATES

Production worker mean hourly wage, 2002

Dollars per hour



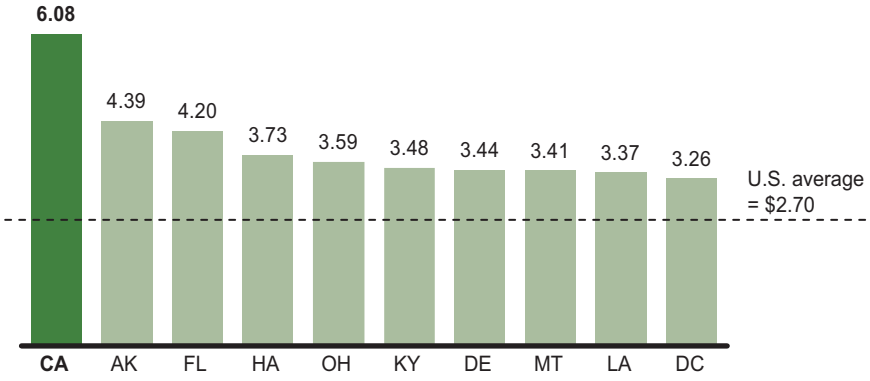
Source: Bureau of Labor Statistics Occupational Employment Survey

Exhibit 8

WORKERS COMPENSATION PREMIUMS, SELECT U.S. STATES

Workers compensation premium per $100 of payroll, 2004

Dollars



Source: Oregon Department of Consumer and Business Services (http://www.cbs.state.or.us); interviews

California's corporate tax rates are high: at 8.8% they top all states except Pennsylvania. Factor in high federal tax rates, and California manufacturers pay taxes some 15% higher than those in Mexico and China. These taxes are one more significant cost of doing business in California (Exhibit 10).

In addition, California imposes far more regulations than other states. For instance, it determines overtime by an eight-hour workday standard, so employers cannot use 40 hour weeks with 10 or 12 hour shifts, as other states do. California also requires corporations to pay property tax on inventory held.

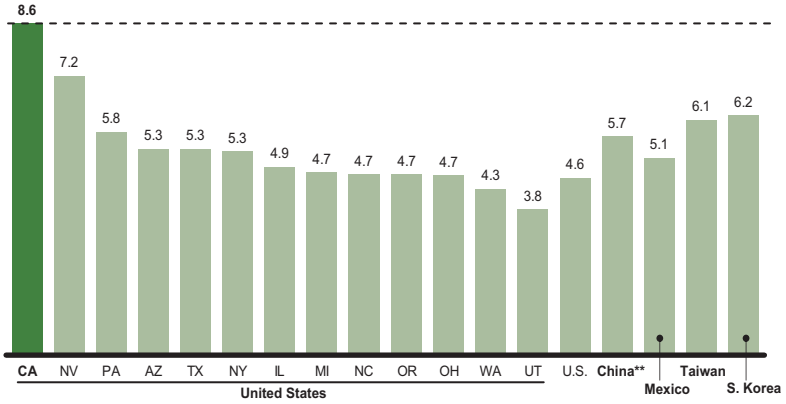
Particularly detrimental to manufacturing is the fact that, since the elimination of the Manufacturers' Investment Credit, California is one of only three U.S. states to tax the purchase of manufacturing capital equipment.

Exhibit 9

ELECTRICITY COSTS, SELECT U.S. STATES AND COUNTRIES

Electricity price* (2003)

Cents per kWh



* State prices based on revenue/KWH for industry consumers (2003)

** China price from 2004 for residential use

Note: National prices are quoted including taxes (2000)

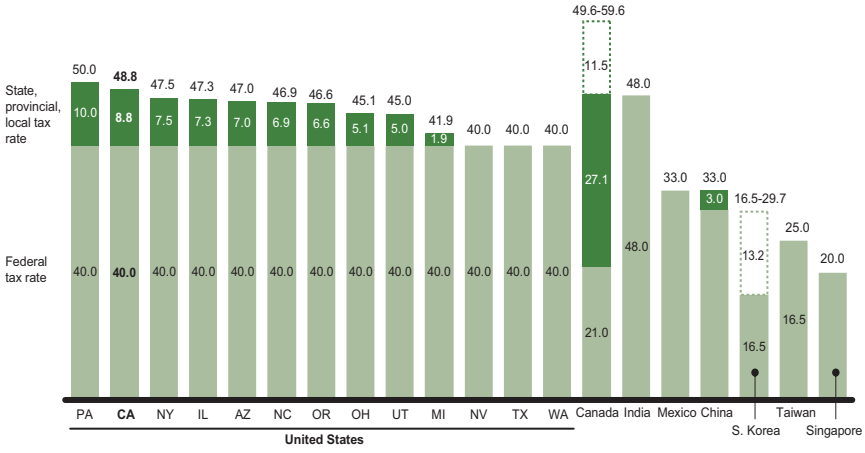
Source: U.S. Department of Energy, Energy Information Administration (http://www.eia.doe.gov); EIU Viewswire

Exhibit 10

TAX RATES, SELECT U.S. STATES AND COUNTRIES

Corporate tax rates

Percent



Note: Canada provincial tax range 27.1-38.6%; Korean national tax rate 15-27% + 10% residence surtax

Source: Economist.com; www.taxfoundation.org; KPMG Corporate Tax Rate Survey

In addition, complying with current, often overlapping regulatory agencies proves very difficult for manufacturers, large and small. This report proposes faster, simpler processes for businesses to comply with California regulations, and a removal of overlapping jurisdictions to prevent unnecessary complexity.

We have attempted to estimate the current "cost penalties" associated with manufacturing in California, in terms of higher workers compensation rates, electricity rates, corporate tax rates, and overall administrative burdens (Exhibit 11). The calculations below are estimates based on assumptions that California's rates for workers compensation premiums, electricity, and taxes could be reduced to U.S. averages.

Exhibit 11
CALIFORNIA COST "PENALTIES" RELATIVE TO OTHER U.S. STATES
Percent of sales

		Cost penalty due to…				
Sector	**Current margins***	**Workers comp.**	**Electricity rates**	**Corporate tax rates**	**Admin. burden**	**Total CA "penalty"**
Plastics	**5.7**	0.5	0.8	0.3	1.0	**2.6**
Defense	**3.9**	0.2	0.1	0.1	0.9	**1.3**
Automotive	**1.5**	0.5	0.1	0.1	0.2	**0.9**
Boat manufacturing	**6.0**	0.5	0.3	0.3	0.9	**2.0**
Fashion and apparel	**7.1**	0.3	0.4	0.2	2.1	**3.0**
Medical devices	**13.6**	0.3	0.2	0.5	2.7	**3.7**
Computers and peripherals	**4.2**	0.1	0.1	0.2	1.7	**2.1**
Semiconductors	**7.8**	0.3	0.4	0.4	2.1	**3.3**

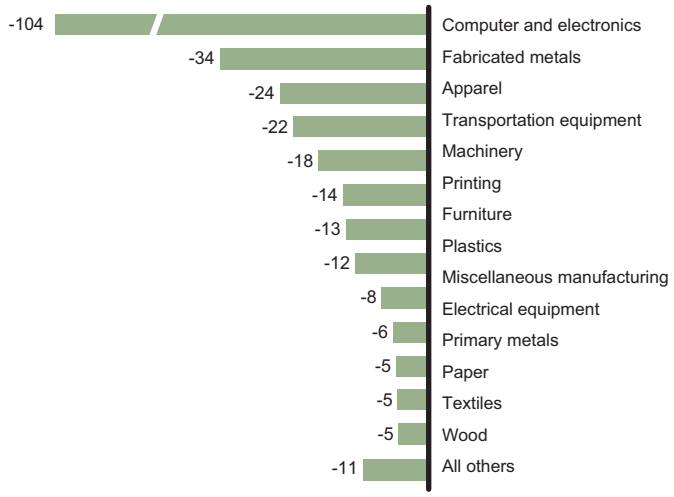
* Data are U.S. average net income margins as % of sales, from 2003 (sourced by Compustat)
Source: Compustat; BLS; Oregon Department of Consumer and Business Services; team analysis

For administrative burdens, we estimate that California manufacturers, because of excess overhead to deal with multiple, overlapping jurisdictions and time lost due to delays, could incur selling, general, and administrative costs (SG&A) that are 5-10% higher than comparable companies in other states.

C. RECENT DECLINES HAVE PUT THE MANUFACTURING BASE UNDER SIEGE

Against the backdrop of a highly diverse manufacturing base, and a demanding business climate, California has lost a large number of jobs in recent years. From 2000-2003, 312,600 manufacturing jobs disappeared, roughly 17% of its base (Exhibit 12). California did fare better than other top manufacturing

Exhibit 12
CALIFORNIA MANUFACTURING JOBS LOST, 2000-2003
Thousands



Source: Bureau of Labor Statistics

states like Ohio (-22%) and Michigan (-19%), but most neighboring states saw smaller declines. The U.S. as a whole lost 16% of its manufacturing jobs in that same period.

With the high-technology bust of early years of this decade, a third of these lost jobs came from the computer and electronic sector. California jobs fell 24% there, matching the overall U.S. decline in this sector. Other significant losses came in fabricated metals (-20%), apparel (-27%), and transportation equipment (-16%).

What led to this dropoff in jobs? There are several culprits, including declines in demand, moves by manufacturers to close down in California and reopen either offshore or in other states, and a loss of "market share" to manufacturers in other states or other countries. Many commentators have speculated that the primary explanation is manufacturing jobs moving to overseas locations. However, analysis for this report shows that the majority of jobs were lost because of a decline in demand, both in the U.S. and globally, and increased production efficiency. This report estimates that nearly two-thirds of jobs lost from 2000 to 2003 resulted from weaker economic conditions in California and the U.S., coupled with productivity gains. Domestic demand for California manufactured goods fell 7% from 2000 to 2003. Meanwhile, California's manufacturing productivity grew by 5% over the same period. This combination led to the disappearance of roughly 200,000 jobs.

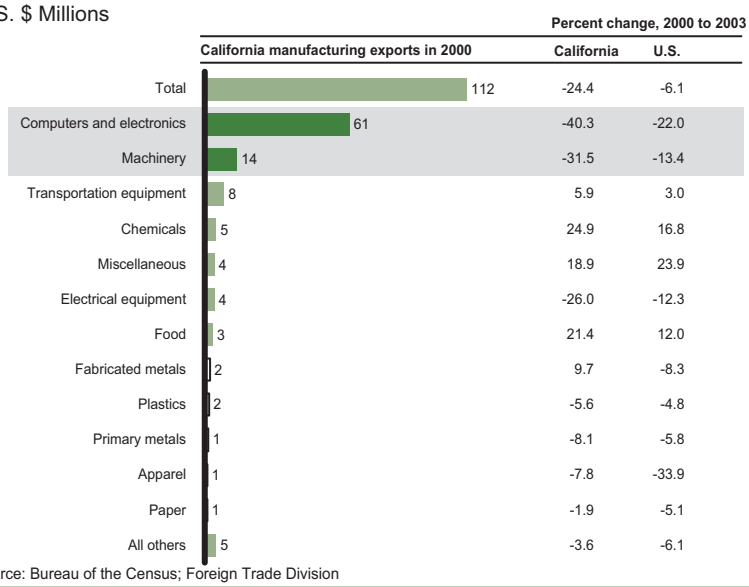
It is worth noting that while local demand for manufactured goods in California declined from 2000 to 2003, so too did demand for imports. Port data for Los Angeles, San Diego, and San Francisco show a *3.6% drop in imports of manufactured goods from 2000 to 2003*. Far from imports flooding in and displacing workers, imports fell off during this period and were not a major cause of worker displacement.

A sharp drop in California's manufacturing exports did, however, lead to a decline in California output, and jobs. As the chart below shows, exports from California fell 24% in U.S. dollar terms (not inflation adjusted) from 2000 to 2003. This resulted from a sharp decline in global demand for products exported by California, especially computer and electronic equipment, which accounted for 55% of California exports in 2000, and machinery, which accounted for 12% of exported goods in 2000. California exports fell faster than exports from the U.S. as a whole, both overall and in key sectors. Total U.S. exports fell 6%, far less than California's 24% plunge. In the computer and electronics sector, California exports fell 40%, while those from the U.S. fell only 22% (Exhibit 13). This report estimates that approximately 90,000 California jobs were lost due to these declines.

Exhibit 13

CHANGE IN CALIFORNIA EXPORTS, RELATIVE TO U.S., 2000 TO 2003

U.S. $ Millions



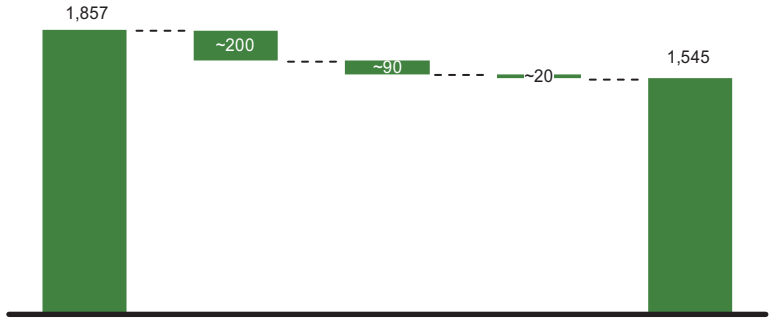
Source: Bureau of the Census; Foreign Trade Division

Exhibit 14

CAUSE OF MANUFACTURING JOB LOSSES – 2000 TO 2003

Number of manufacturing employees

Thousands



Total manufacturing jobs, 2000	Drop in local demand for manufactured goods* / efficiency gains	Drop in California exports	California manufacturers moving to other states	Total manufacturing jobs, 2003
Percent of jobs lost	**~65%**	**~30%**	**~5%**	**100%**

* Regardless of whether produced in U.S. or imported

Source: BEA, BLS, Economy.com; Keystone report; team analysis

Others have estimated that only a small number of jobs lost in California (approximately 20,000), are the result of California companies moving production from California to other U.S. states[2] (Exhibit 14).

D. WILL MANUFACTURING JOBS CONTINUE TO LEAVE CALIFORNIA?

Some jobs that moved elsewhere may be permanently lost. Their removal did not stem from the recent recession in global and domestic demand, and they are not likely to return as that demand improves. These are primarily jobs that have shifted overseas, as manufacturing has moved to be closer to growing markets. The numbers here are significant—roughly 6% of the 2000 manufacturing base (90,000 jobs lost due to decline in exports and 20,000 jobs lost due to direct moves from California to other U.S. states). *However, this should not be interpreted as indicating that all or most manufacturing jobs will inexorably flow to offshore locations or other states.*

How California chooses to address the challenges to its manufacturing base is critical to its economic future. Despite the key role that manufacturing plays in California's economy, supporting well-paying jobs with substantial benefits, it is at serious risk of further erosion. While the image of manufacturing is often one of low-tech "smokestack" industries, it can also be very sophisticated, utilizing advanced technologies that require much workforce skill and training. The quantity and quality of jobs created through manufacturing should therefore be a major concern of California labor and workforce policy.

Major plants also serve as the anchor for ecosystems of suppliers. For example, 25 California companies with 3,900 employees provide parts for the New United Motors Manufacturing, Incorporated (NUMMI) automobile plant in Fremont. Manufacturing facilities also anchor other business functions commonly identified with "knowledge economies." The bleeding off of California's manufacturing base may put those functions and jobs at risk. For example, once a company moves part of its manufacturing outside the state, the likelihood grows that its next expansion will be elsewhere as well, eventually leaving California with older, less competitive facilities. Moreover, as manufacturing leaves the state, the chance also increases that R&D, engineering, and product design will eventually follow, as business functions cluster around the new facilities.

While this migration of business functions abroad or to other parts of the U.S. won't happen all at once, if sustained over a number of years, it can have far-reaching impacts on the state's workforce and its competitive base.

2. Manufacturing in California, The Keystone Group, February 2004.

There is an important place in California for both traditional and advanced manufacturing. While policymakers often focus on the commanding heights of the knowledge economy, they cannot ignore the broader base of manufacturing jobs. This need is particularly compelling as older workers retire and their skills need to be replaced. Policymakers should therefore focus on preserving a critical mass of both traditional and advanced manufacturing in the state, sufficient to support the ecosystem of workers, suppliers, and business functions that depend on a substantial manufacturing presence. California's leaders must not allow the state to reach a "tipping point" at which that critical mass erodes more rapidly and permanently.

Risk from manufacturing jobs moving offshore

Given the high cost of doing business in California, it is no surprise that many manufacturers have begun discussing whether to migrate to offshore locations, or to other states. Agilent, Ericsson, Hewlett-Packard, and Medtronic are among the firms that have moved facilities offshore in the last few years.

Hence, offshoring has become an increasingly political topic. It has elicited charges of "Benedict Arnold CEOs" from presidential candidates, and cover stories in several national and global business publications have predicted the demise of U.S. manufacturing to the gain of China. Most have focused on the difference in worker wages between high-cost locations like California and developing countries such as China or India.

In many cases, production is being set up in Asia to serve local markets in Asia. That is, rather than California manufacturers employing California workers to export goods overseas, manufacturers recognize supply chain benefits from producing close to customer demand. This is consistent with the 24% drop in California manufacturing exports experienced from 2000 to 2003.

In some cases, however, California manufacturers are moving to offshore to ship finished or intermediate goods back to California. The distinction between moving offshore to sell into Asia and moving offshore to manufacture and ship back to California is significant. The former makes sound business sense by taking advantage of lower factor costs (e.g., labor, electricity), removing shipping and logistics costs (e.g., not transporting goods from California across the Pacific), and allowing manufacturers to respond quickly to local customer needs. The latter makes sense for only some manufacturers. This is because businesses often overestimate the cost savings from moving overseas, and underestimate the risks to the company's business model and the value it delivers to its customers. Section II of this report analyzes this calculation in more detail.

Risk from manufacturing jobs moving to other states

In addition to offshoring, much has been made of jobs migrating from California to other states. While only about 20,000 jobs can be traced directly to decisions of California manufacturers to move to other locations, this matter is of growing concern. This figure for jobs lost does not include the lost opportunity of manufacturers in other states who choose not to build new facilities in California.

As indicated, California has higher costs of doing business than many neighboring states: higher labor compensation (including higher workers compensation premiums), higher electricity costs, higher taxes, and more restrictive regulations. As a result, other states have launched increasingly aggressive campaigns to lure California manufacturers away.

For example, both Washington and Oregon have Economic Development offices that openly court California manufacturers with promises of lower energy costs, real estate prices, and taxes. In Spokane, the Spokane Area Economic Development Council has local CEOs send unsolicited letters to California manufacturers touting their better business climate. If interested, California manufacturers can then use proprietary cost-analysis tools to calculate just how much they can save by moving to Spokane compared to California, in terms of lower energy, taxes, and other costs[3].

Several states have also invested aggressively to gain manufacturing jobs. This is particularly true in the semiconductor and automotive sectors. For instance, Alabama has invested over $500 million since

3. Spokane Spokesman Review, August 24, 2004.

1993 to lure Toyota, Mercedes Benz, and Hyundai to open facilities there. This translates into roughly $120,000 paid for each manufacturing job created. While this report does not advocate such subsidies, it is important that California's government be aware of, and able to respond to, programs offered by other states.

California can fight back. In 2004, after a nationwide search, Virgin Airways decided to locate the operational headquarters of its new discount carrier, Virgin America, in the Bay Area. This decision was the result of concerted action by state and local governments and community organizations, and demonstrated that despite its high costs, California can compete and win in the national competition to attract and locate new businesses.

While the authors of this report believe that California remains a highly attractive place to do business, and that the remaining manufacturing base will not necessarily "go offshore" or move to other states, we must not become complacent. The recent economic downturn makes it even more vital for both manufacturers and state government to work together to ensure that conditions in California are ripe for companies to expand their employment here as economic conditions improve.

Avoiding the further erosion of the manufacturing base requires specific actions by state government to reduce the significant disadvantages that California manufacturers face vis-à-vis other states. These measures are addressed in more detail in the third section of this report.

E. SOME 1 MILLION JOBS ARE "UP FOR GRABS"

Given the recent "permanent" (i.e., not cyclical) loss of 6% of California's manufacturing base, how much of the remaining manufacturing base is at risk?

This report addresses this question by assessing the attractiveness of manufacturing in California. It uses a framework to gauge the appeal of producing locally versus remotely, and applies this framework to California's industries. These industries fall into five segments:

1. **Locally-based raw material industries,** like wood products, cement and food production, are either tied to a natural resource or have high barriers for long distance transportation. Thus the offshore potential is low. In some cases such as forest products, however, these industries are susceptible to moving to other states.
2. **National defense industries** also have a very low offshore potential, but the potential for moving to other states could be high.
3. **Labor-intensive industries** in which customer service is less important, such as textiles and fasteners have a high, offshore potential.
4. **Capital intensive industries**, such as metals and plastics, have a mixed offshore potential.
5. **Customer service-intensive industrie**s, such as electronics, select fashion/apparel, and medical devices, also have a mixed offshore potential.

Using this framework, this report estimates that as many as 1 million manufacturing jobs are in the battleground zone. That is, they are potentially at risk from moving offshore, but future actions can determine whether those jobs actually will or will not move.

Even more jobs are potentially at risk to migrate to other states. For instance, manufacturing products for national defense (e.g., electronics, aerospace equipment), while not a strong candidate for offshore movement, could clearly migrate elsewhere in the U.S. Including this factor brings the total number of direct manufacturing jobs that are "up for grabs" to 1.3 million (Exhibit 15).

Exhibit 15

MANUFACTURING JOBS "UP FOR GRABS" IN CALIFORNIA

Jobs as of 2003, thousands

Type of industry	Industry sector	Jobs currently in sector*	Jobs at risk of moving… Offshore locations	Jobs at risk of moving… Offshore and other states**
Raw materials	• *Food*	156		
	• Petroleum and coal	15		
	• Nonmetallic mineral	44		
	• *Wood product*	40		
	• *Paper*	30		
National defense	• *National defense*	61		
Capital intensive	• *Beverage and tobacco*	36		
	• *Printing and supplies*	64		
	• *Plastics and rubber*	60		
	• *Chemical*	78		
	• *Primary metal*	24		
	• *Fabricated metal*	136		
	• *Machinery*	85		
	• *Transportation equipment*	103		
Customer service-intensive	• *Apparel*	89		
	• *Electrical equipment*	36		
	• *Computer and electronic*	299		
Labor-intensive	• *Textile mills*	13		
	• *Textile product mills*	17		
	• *Leather and allied*	5		
	• *Furniture*	63		
	• *Miscellaneous*	92		
		1,545	750-1,000	1,000-1,300

* Estimates of "defense-related" jobs made for each sub-sector, giving a "national defense" figure and civilian jobs figures for each sub-sector

** Assume roughly 30% of food production, 50% of wood products and paper are at risk of moving to other states

Source: Bureau of Labor Statistics; team analysis

PART II. HOW SHOULD MANUFACTURERS THINK ABOUT MANUFACTURING IN HIGH-COST AREAS?

OFFSHORING: LOWER FACTOR COSTS, BUT GREATER SUPPLY CHAIN COMPLEXITY

How should companies begin the comparative analysis of whether to produce in high-cost locations like California? It helps to frame the issue simply: What do firms gain from offshore production for domestic sale, and what do they lose?

Clearly, offshoring can provide tremendous cost savings. There are large labor savings (Chinese wages are as low as 1/12 those in California). In addition, companies often can benefit from lower taxes (frequently waived by local governments), as well as reduced energy costs and less restrictive business regulations. Many of these offshore advantages are difficult if not impossible to match.

What benefits do manufacturers lose by moving offshore, then? They create a longer supply chain—that is, a longer physical distance between the point of production and the point of sale. This drawn-out supply chain reduces the value companies can deliver to their customers. Oft-cited problems include disrupted supply flows, unforeseen shipping delays, slower market responsiveness, and quality concerns. These difficulties can offset the benefits of moving offshore, although they affect some industries more than others.

To balance these two concerns, a firm must first ask, "What is our value proposition to customers?" Low cost is rarely the sole answer. Most customers also desire other benefits, including a short order lead time, on-time delivery, reliable quality assurance and response time, swift introduction of new products, rapid complaint resolution, and a quick response to changes in demand. Unfortunately, as firms go offshore in search of lower costs, their ability to compete on these fronts decays.

A FRAMEWORK FOR DECISIONS ON PRODUCTION LOCATION

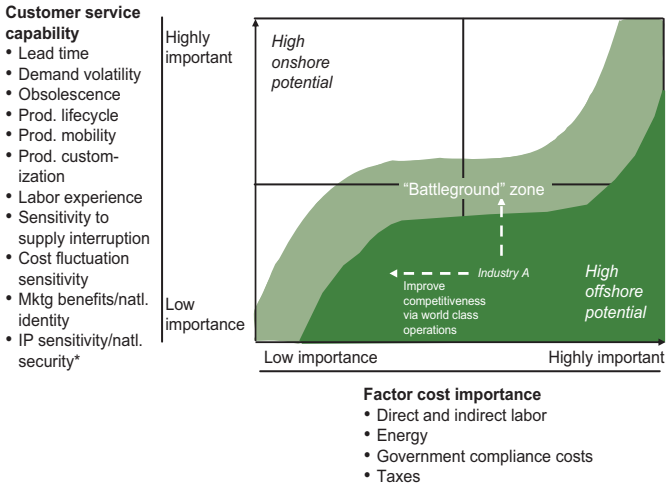
A simple matrix can illustrate the tradeoff between lower costs and longer supply chains (Exhibit 16).

Factor costs such as labor costs, energy, regulatory compliance, and tax rates are plotted on the horizontal axis. The vertical axis measures the customer service capability required to deliver the business model.

Exhibit 16

TRADE-OFFS COMPANIES FACE IN MAKING OFFSHORE DECISIONS

ILLUSTRATIVE



The potential for offshoring is reduced/eliminated in these industries where: IP sensitivity is critical, maintenance of national security is required (e.g., defense), or raw materials are locally-based and too difficult to transport

It includes lead time (how rapidly do customers want the product?), product customization (how many flavors can I offer?), and speed to market.

Despite significant pressures for California manufacturers to relocate offshore, evidence suggests that many manufacturers would actually do well to consider staying in California.

Research reveals that, indeed, the numbers don't always add up when it comes to offshoring. For this report, McKinsey & Company worked with several California companies to help calculate the real costs and benefits from offshoring, and estimated the effects of deploying world-class manufacturing techniques in both California and Asian locations. The findings indicate that true benefits from offshoring are often miscalculated and overestimated. For instance:

1. A high tech hardware contract manufacturer found offshore cost savings of only 0.8%—on a product where significant revenue losses might arise if supply chain disruptions occurred. The reason is that labor costs, as a proportion of total costs, were small. Despite far lower average wages, these benefits accrued on a small piece of overall costs, and thus were almost completely offset by increased transportation and logistics costs.
2. A plastics manufacturer realized it could gain offshore savings of no more than 3%, a small reward to offset a significantly impaired ability to meet customer needs.
3. An apparel manufacturer decided to remain in California despite costs savings of 13% in Asia, because it could not effectively deliver its business model from offshore (a model based on rapid response to changing consumer preferences).

1. BENEFITS OF A SHORT, OPTIMIZED SUPPLY CHAIN

Many companies choose to forgo offshore cost savings for a short, local supply chain. It allows them to better deliver what customers want—customized products, rapid delivery times. Customers' needs are always changing. Companies do well when they enhance their responsiveness to requests for customization and new product introduction, as a main competitive weapon.

Some companies have business models tying customer-specified customization with rapid delivery times. One is Dell, which recently announced a major site opening in North Carolina[4]. It chose to locate near customers to speed delivery and reduce logistics costs, rather than try to capture costs savings offshore.

And, of course, Toyota Motors Corporation has expanded manufacturing operations extensively in the U.S. Toyota today operates eight U.S. manufacturing facilities (with two more on the way), and employs 190,000 people[5]. Their NUMMI plant operates in Fremont, California.

A garment bag manufacturer maintains production in San Francisco specifically to meet buyer demands for customized gear. It actually maintains a mixed production footprint—with offshore locations handling non-customized orders, and in-state production for customized orders. Another manufacturer of products for the electronics industry does its high volume, commodity production in China, but keeps its customized, quick turnaround work in the Bay Area.

Customer service can suffer if the manufacturing footprint is far from the source of demand. This is particularly true in high tech companies. For instance, when finished goods are available, the minimum delivery time from Asia is three days, compared to one day in California. The service time on returns is 25 days for Asia and 16 days for California. Responding to defects entails six days of product transit from Asia, but only one to two days in California. Moreover, Asia is 15-18 hours ahead of Pacific Standard Time, which can slow communication. Distance impedes customer relations in other ways. To visit an Asian site can require a 20-hour flight, a $5,000 ticket, and a one-week trip; to visit a California site may take just an hour of driving and a day trip.

Shorter chains also reduce product obsolescence, a key benefit in an industry with brief product cycles. With a fast, reactive supply chain, retailers can jettison slow-moving merchandise with limited harm. For

4. *Wall Street Journal*, November 11, 2004.
5. Toyota advertisement, *Newsweek*, December 6, 2004; Toyota.com/usa.

instance, if a product shows poor results early in the season, a retailer with a responsive supply chain may need to absorb only an additional week or two of the product, rather than a whole season.

Intellectual property protection can also matter. Copying is a risk to products with high IP or fashion content in countries where IP protection is low or where manufacture of items from several countries occurs in one place. As one men's accessory maker said, "I don't want to manufacture offshore because I don't want my designs out there for everyone to see for six extra months." IP protection varies in significance by industry, but its importance will remain high for many key industries.

2. ACCURATE MEASUREMENTS OF TRUE LANDED COSTS COMPARISONS

In addition to assessing the tradeoffs between a short supply chain and lower factor costs, a firm must ensure that it is accurately calculating the true cost savings from moving production offshore, and therefore making the best decision on where to produce. Many times, they do not (Exhibit 17).

Exhibit 17

INDUSTRY-WIDE COST STRUCTURES

Percentage points as percent of sales

	COGS	Labor	Energy	SG&A	Net income
Plastics	71	13	2	13	7.2
Defense	80	6	0	11	3.5
Automotive	83	12	0	3	2.1
Boat manufacturing	87	14	1	12	7.5
Fashion and apparel	59	10	1	27	5.5
Medical devices	37	8	1	37	11.2
Computers and peripherals	64	2	0	23	5.7
Semiconductors	39	9	1	30	8.8

Source: Compustat; Census Bureau Annual Survey of Manufacturers

First, companies must assess labor savings opportunities within the context of their overall cost and revenue structures. For many, labor is simply not a huge portion of overall costs. Therefore, moving offshore for cheaper labor does not always have as large an impact as one might think. Companies will then need to assess the savings from lower labor against increases in logistics and transport cost, and against any supply chain risks that might disrupt customer delivery, risking sales and corresponding profit margins in the process.

Many costs associated with offshoring are obvious—such as shipping, additional inventory, and logistics—while others are more difficult to quantify, and are "hidden."

An initial obstacle is perspective. Few people think about offshore manufacturing from a total landed-cost point of view. As one California-based contract electronics manufacturer said, "Most of our customers only do a very basic landed-cost analysis comparing labor versus logistics costs….They don't account for the cost of 'other stuff.'"

A California-based plastics extruder said, "It is very clear to us that procurement officers in large retail companies don't think about total landed cost." This individual cited the example of a retailer that went with a cheaper imported plastic bag. "Now it takes 1.5 bags to get the same capacity they used to get in one bag and they double-bag it. This increases the total cost for the company but they don't care because the per-unit cost is down by 40%."

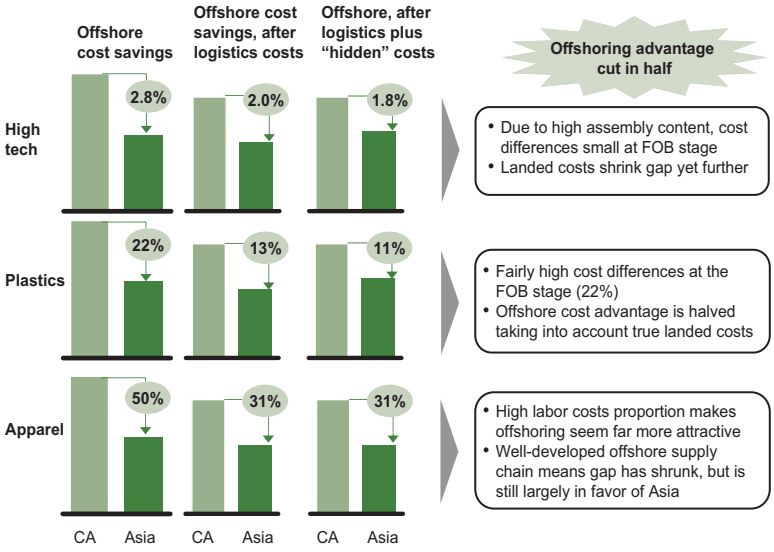
Another involves risks in the country one offshores to. For instance, the currency can abruptly jump in value. Oil prices can rise, as the recent climb from $40 to $55 per barrel showed, and fuel comprises about half of total shipping costs. Wage rates are growing at a faster pace overseas, as much as 10% per year compared to 1% in California. Shipping delays can materialize, such as those from the 2002 California port shutdown. The threat of terrorism is increasing security requirements, resulting in a doubling of the security surcharge, and it may lead to increased compliance cost and longer lead times from international origins. Foreign exchange movements can also work to erode offshoring savings if the home currency (in this case the dollar) slides relative to the offshore location's currency.

To capture all of the above related costs, firms should use a structured landed-cost analysis starting with freight-on-board costs. Add to that the cost of logistics (such as inventory carrying cost, returned items, freight and shipping), country-specific risk (currency risk, tax risk, IP risk), and supply chain breakdowns or delays (product obsolescence, delays in new product introduction, and shipping delays).

Factoring in these costs can dispel mirages. Among companies analyzed for this report, it reduced the estimated offshore/onshore cost differential—across all costs, not just labor—from 2.8% to 2.0% for a high tech contract manufacturer, from 22% to 11% for a plastics company, and from 50% to 31% for an apparel company (Exhibit 18).

Exhibit 18

CASE STUDIES– COST COMPARISONS WITH TRUE LANDED COSTS



Source: Company interviews; McKinsey analysis

3. POTENTIAL OF WORLD CLASS MANUFACTURING

What if manufacturing companies could gain the benefits of offshoring while staying at home? Often they can. The secret is transforming operations to the highest capability levels. World class manufacturing techniques (often called "lean") work in any operational environment, and companies have tried, tested, and proven them in settings that include oil platforms, aerospace ducting, metal roll forming, kitchen units, aircraft components, pharmaceuticals, shock absorbers, military headsets, commercial lighting, life insurance, and furniture (Exhibit 19).

The value of lean manufacturing springs from many sources, but especially from reductions in cost and lead time. For instance, at a plastics manufacturer, lean can lower costs by improving overall utilization of equipment and reducing energy waste, product scrap, and labor content. It can also shorten idle time through better production planning processes. The cost reductions lower total cost by 8-10%, but the

shorter lead time cuts it by 40%. In apparel, lean can reduce labor costs in the sewing process and in textile production. It can also cut lead time by improving production methods and co-locating key processes (such as yarn, fabric to match finishing, and lamination). The impact of cost reduction tactics is 10%, while the impact of lead time reduction on total cost is 50%.

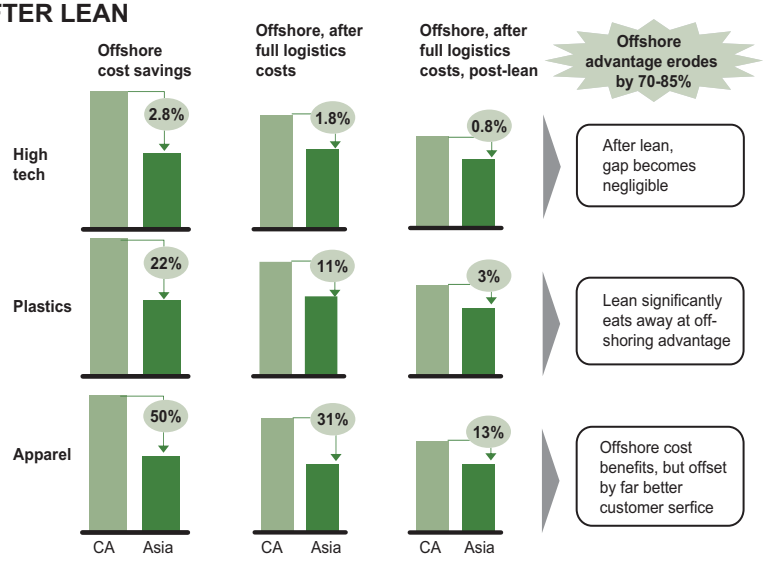
Lean techniques make labor wage differences less relevant, especially in those industries where labor is a small proportion of the cost of goods sold. Simply put, chasing lower labor costs does not have much effect when labor is a small proportion of total costs.

In addition to deploying these techniques "within the four walls," companies can find significant additional opportunities from deploying lean manufacturing across their supply chain.

By implementing these practices, companies have found that the benefits from moving offshore are sometimes not as great as they might appear. Several interviewed for this report have decided to maintain production in California, rather than migrate their operations offshore for shipment back to the U.S.

Exhibit 19

CASE STUDIES–COST COMPARISON FOR ONSHORE VS. OFFSHORE AFTER LEAN



Source: Company interviews; McKinsey analysis

PART III. HOW CAN GOVERNMENT SUPPORT COMPETITIVENESS AND SAVE JOBS?

While companies can enhance competitiveness in their management and production processes, government also plays a key role. Research shows that state and local incentives, labor costs, the availability of skilled labor, and tax exemptions are 4 of the top 6 factors that companies consider when determining where to produce. State policy impacts each of these (Exhibit 20).

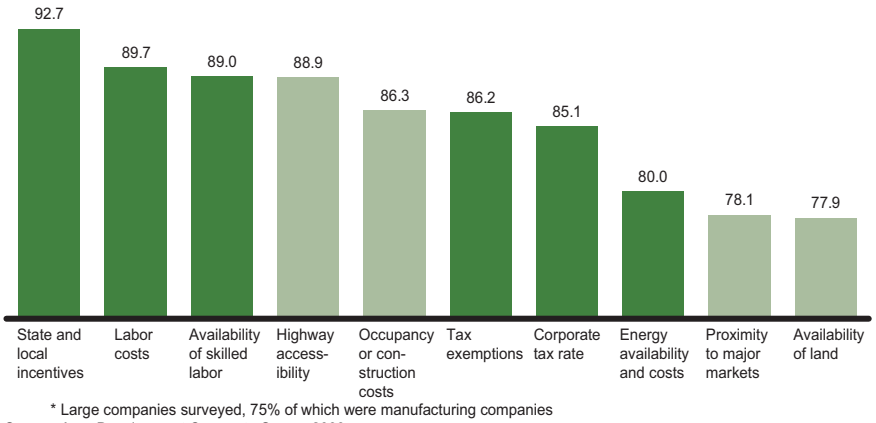
Exhibit 20

CREATE A MANUFACTURING-FRIENDLY BUSINESS CLIMATE IN CALIFORNIA

Top ten factors in site selection for manufacturing companies

Combined total of "very important" and "important" ratings, 2003
Percent

Number of companies* = 114



* Large companies surveyed, 75% of which were manufacturing companies

Source: Area Development Corporate Survey 2003

California's government should pursue three major goals to enhance manufacturing competitiveness and preserve the manufacturing base:

A. **Level the playing field.** It should improve regulations and laws to make California manufacturers more competitive.

B. **Build technical and vocational skills.** It should create a coordinated strategy to develop the workforce capabilities that manufacturers need to compete successfully.

C. **Launch a coherent promotion strategy.** It should support existing manufacturing and promote and nurture manufacturing where California has natural advantages over other states or countries.

A. LEVELING THE PLAYING FIELD

Discussions with many California manufacturers confirm they believe they could be more profitable elsewhere. Many believe that state policy is hostile to business.

Semiconductor manufacturing offers one example. It is highly capital-intensive and technology-dependent, and labor is a small proportion of its costs, on the order of 5% to 9%. The labor cost savings are so small that they are not a prime reason for companies to move overseas. However, federal taxes impose a major burden on semiconductor manufacturing in the U.S., and state taxation is also high. This puts manufacturing in California at a competitive disadvantage, particularly with regard to foreign locations, where the difference in cost can be as much as a billion dollars over ten years for a new fabrication facility.

California's unusual tax on the purchase of capital equipment (since the expiration of the Manufacturer's Investment Credit in 2004) is a further barrier, imposing costs of 6% on all capital equipment purchased by manufacturers.

To level the playing field, state government should address the following critical areas:

Taxes. California's corporate tax rates are among the highest in the nation. As just noted, California is also one of only three states that imposes sales and use tax on the purchase of capital equipment. To encourage new manufacturing investment in California, policymakers should consider a sales tax exemption and review and reform other tax policies that discourage hiring and investment in the state.

Energy. Electricity rates are higher in California than in any other state, and are particularly high for industrial users. In the rate adjustment following California's energy crisis of 2000-2001, industrial users saw a disproportionate increase in their rates relative to residential users. Other issues important to manufacturers include the ability to buy electricity from competitive energy suppliers ("direct access"), self-generation, and the development of long-term ("forward") markets.

Labor rules. California's restrictive labor regulations penalize companies when employees work longer than 8 hours per day, even if weekly hours are less than 40. According to many manufacturers, this policy and others, such as the mandate for paid family leave, put California at a competitive disadvantage and add further incentives to leave the state.

Workers' compensation. Workers' compensation rates in California remain high. Though the Legislature has passed reforms, they face challenges and their effects must still work their way through the system before premiums appreciably drop.

Tort reform. High liability insurance costs, often driven by excessive and unwarranted litigation, is another issue raised by manufacturers, particularly in small business.

Advanced research. A strong base for technology research, anchored by the University of California, is important to the manufacturing ecosystem, particularly in high technology. There is a strong two-way linkage between manufacturing and leading edge research, with academic research being supported by industry, by federal, state, and local government, and by the institutions themselves. California cannot expect to prosper in high tech research, however, if all the production takes place elsewhere.

In the semiconductor sector, for example, the proximity of fabrication plants contributes to problem solving and the transfer of technology from the laboratory to a manufacturing environment. TI recently chose Richardson, Texas as the site for its newest wafer fabrication plant, based not just on public and private incentives, but on access to advanced research and to the engineering school at the University of Texas at Dallas. In New York state, $1.4 billion has been committed by the state and industrial partners to establish five Centers of Excellence in nanoelectronics, photonics, bioinformatics, information technology, and environmental systems. In January of this year IBM, AMD, and Sony pledged $1.9 billion for a new semiconductor fabrication plant in Fishkill, New York, supported by $150 million in State of New York funds for both the project and nanotechnology research, linked to the Albany Center of Excellence.

B. BUILDING TECHNICAL AND VOCATIONAL SKILLS

Many California companies cannot find enough skilled workers to compete successfully. Positions in biotech, for example, can remain open for as long as 12 months, because companies can't find the trained people to fill them. This adds to the pressure for companies to expand or relocate elsewhere. While California offers a number of employee training and worker education programs, several steps could improve them:

- **Ensure adequate funding.** Funding is crucial, yet most, if not all, training programs struggle with insufficient revenues.
- **Coordinate training organizations.** Greater coordination among programs would eliminate inefficiencies and improve outcomes.

- **Match school curricula with marketplace needs.** Have schools work with manufacturers to ensure that curricula meet local needs.

Ensure adequate funding. Many leaders interviewed for this report—from businesses, trade organizations, community colleges, Workforce Investment Boards, and labor unions—considered lack of funding a major obstacle for worker education and training programs. In addition, state government has diverted Employment Training Panel (ETP) funds, which are employer-generated monies, to non-training purposes. Given state budgetary constraints, policymakers should fully restore Employment Training Panel (ETP) funds, explore new funding sources, and prioritize funding for training programs that yield the highest return on investment.

Better coordinate training organizations. Each region in California has multiple training programs, many of which have similar goals and compete with one another for the same resources. Interviewees agreed these programs could work together to better eliminate waste and create scale efficiencies. For example, a member of one local Workforce Investment Board (WIB) explained:

> "We have three Workforce Investment Boards in the San Mateo and Santa Clara Counties. The boards serve the greater Silicon Valley economy and have similar goals, but they do not work together. In fact, they compete for federal funding and separately lobby the Governor for discretionary funds from the state….The Workforce Investments Boards also compete with other programs sponsored by community colleges and local governments.
>
> "We could do things much more efficiently. Ideally, partners from industry, education and Workforce Investment Boards would work together to create a common strategy, and common programs, for the region. Then, together, they could approach the state and federal governments for funding."

As the California economy is a mix of several different regional economies, centralizing training organizations or implementing a collaboration strategy statewide would not likely succeed. However, most interviewees agreed that a strategy to streamline and coordinate programs on a regional basis would increase both efficiency and effectiveness of local training programs.

Other states have successfully dealt with similar problems. The State of Kentucky provides a good model of efficient administration and coordination of worker training programs. Texas and North Carolina have also developed useful models.

Match school curricula with marketplace needs. The quality of K-12 education in California is critical to manufacturing and to the state's knowledge-based economy. Skills developed at this level, particularly in math and science, are bedrock for California's long-term ability to innovate and compete. At present, there is a mismatch and the school system's continuing underperformance is a source of major concern.

At post secondary levels, there is a need for both curriculum development and on-the-ground programs that are flexible and focus not on just engineering but on the manufacturing process. Local organizations (e.g., chambers of commerce, WIBs) and industry should help community colleges and universities train workers to meet the specific needs of local manufacturers. Courses on advanced manufacturing and lean production, in particular, can enrich California schools and develop talented manufacturing employees.

Kentucky's program provides an excellent example of a mutually beneficial business-education partnership. In the late 1980's the University of Kentucky and Toyota jointly created a program to teach lean production principles and develop skilled manufacturing managers. The program has since expanded to include other manufacturing companies as partners—Ford, GE Aircraft Engines, and Lexmark. Both the partners and the University benefit from this program. The University of Kentucky provides respected academic programs, including graduate degrees and executive education, classroom facilities, hiring pipelines for partner companies, and a clear career path for students. In return, manufacturing partners provide guest lecturers, field education, tours of their facilities, and internships or full-time positions for qualified students and graduates.

By leveraging insights from other states' programs, California could create an unrivaled manufacturing education program, in partnership with local manufacturers. California's world-class educational system (e.g., the University of California and California State University systems, and the Community College system) would make strong partners for manufacturing companies a broad range of industries.

A successful program might include a common core curriculum across the state, with some educational facilities offering courses that meet key needs of local manufacturers. The educational partners could also offer executive education and worker training programs, with preferred admission or discounted tuition given to manufacturing partners' employees. In return, the manufacturers would provide guest lectures and real-world expertise, case studies, access to facilities, and work-study opportunities.

C. PROMOTING CALIFORNIA MANUFACTURING

Finally, government can increase the state's appeal for manufacturers by better promoting California as an environment for doing business. The state should clearly communicate, to audiences both within and outside the state, that manufacturing is important to California, that the state offers a large market and important assets, and that companies succeed here.

This promotion is important not just for manufacturers, but also for the workers they need to employ, and the educational institutions that must train them. Students will pursue fields where they expect there will be good career opportunities. If they believe that manufacturing is leaving the state, they will specialize in other areas. University engineering departments will, over time, have to decrease faculty resources in those areas, in response to falling student demand. If such a downtrend occurs, if will be difficult for California and the U.S. to remain leaders in the university research and technological development on which their future competitiveness depends.

To meet these challenges, the State of California should establish a clear strategy to attract and retain industries whose manufacturing is most likely to be competitive in California—industries with low factor costs (i.e., low percentage of energy and labor in total costs) and high innovation or customer responsiveness requirements. The state offers potentially valuable benefits to these industries, such as:

- Proximity to the largest market in the nation, and the sixth largest economy in the world
- A highly skilled labor pool in key industries
- An unparalleled technological base
- High worker productivity
- Leading-edge research universities.

These industries will also likely have high jobs multipliers, so California will receive maximum "return on investment" in terms of net jobs created from manufacturing promotion.

The state should explicitly include in its focus new or emerging fields such as nanotechnology, where there is a strong California research base, California companies have established an early lead, and advanced innovation-driven manufacturing can be competitive (Exhibit 21).

Efforts to attract and retain manufacturers—whether through tax relief or other incentive measures—should be based on sound analysis of economic costs and benefits, and should yield a positive return on investment. Outcomes should be measured by both job creation and job retention, and other measures of comparative competitiveness.

California must also understand its competition. It must be aware of the incentives other states and countries offer to lure and keep manufacturers. For semiconductors, tax incentives and government grants are the most important determinant for manufacturing site location. Some incentives do not yield a positive return on investment. While subsidies should be treated with caution, the state should be aware of the landscape of other states' programs, and consider measures on its own part that yield positive returns.

While the state can play a role, local government also offers locational incentives to manufacturers and other businesses. California therefore needs a strong partnership between the state, local governments, and local and regional economic development agencies to facilitate new manufacturing investment and siting. Many cities have traditionally used their redevelopment agencies to fund local incentives, but recently the state has drawn away those funds to balance its own budget. One possible focus for a new statewide partnership to support manufacturing would be the restoration of local redevelopment funding, if those funds are used to support new manufacturing that pays quality wages and benefits.

Finally, the state should assemble a dedicated team to implement this strategy, in partnership with leaders in the private sector, labor, and the educational community. The team should enhance and coordinate and make more consistent the actions of key commissions and state agencies (e.g., the California Commission for Jobs and Economic Growth, the Public Utilities Commission, State Department of Education, the UC, CSU, and Community College systems, Workforce Investment Boards, the Department of Business, Transportation and Housing, and the Department of Labor and Workforce Development). This approach will better define the suite of targeted promotion activities the state should undertake, and help ensure consistent responses to ever-increasing ad hoc requests for special relief (e.g., energy, tax rates) from individual manufacturers, which may or may not be in the state's best interest.

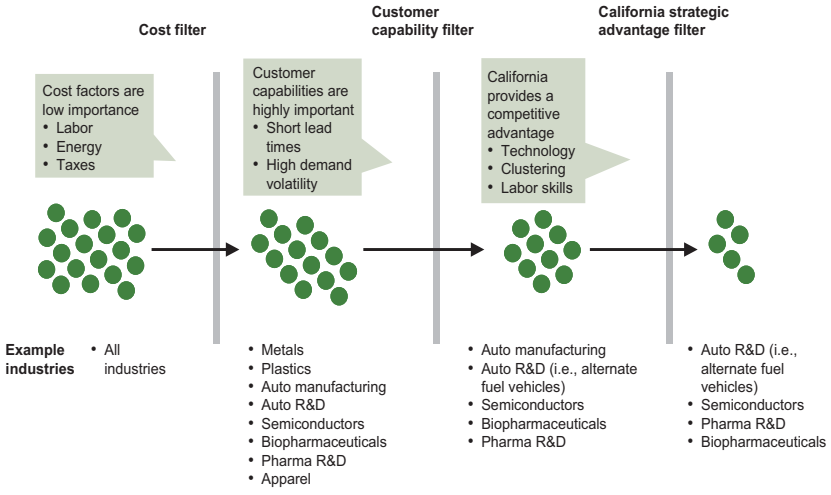
This team could also help foster public-private partnerships, where government and companies work together to identify ways to ensure the success of the manufacturing sector into the future.

Exhibit 21

PROMOTE CALIFORNIA MANUFACTURING

STRAWMAN

Set a clear strategy – California should focus on attracting and retaining industries and companies that meet key criteria



Source: McKinsey analysis

PART IV. SUMMARY AND RECOMMENDATIONS: WORKING TOGETHER TO CREATE A VISION AND A PLAN

QUANTIFYING THE IMPACT OF JOINT COMPANY AND STATE GOVERNMENT EFFORTS

Manufacturing is vital to the state and national economies. With the right steps, in the next generation California manufacturing can be as resilient and productive as any in the world. State and federal policy makers can shape a supportive business environment to keep California manufacturers competitive on a global scale. And firms can maximize the benefits of locating close to demand, as they better understand their customers and the costs and benefits of offshoring, and as they pursue lean operations.

The authors of this report have quantified the impact of bringing state-controlled regulatory and other factor costs in line with the average of other U.S. states. They have also calculated the benefits from deploying lean manufacturing techniques in various industry segments. The results, shown below, demonstrate the dramatic opportunity to increase the competitiveness of California manufacturers. This increased competitiveness will ensure not only the retention of California jobs in battleground industries, but can also make California a destination of choice for new manufacturing investment (Exhibit 22).

Exhibit 22

IMPACT OF STATE GOVERNMENT AND COMPANY ACTION

Percent of sales

		Savings from actions by…						
		State government		Company action		"Joint" action		
Sector	Current margins*	Lower	Upper	Lower	Upper	Lower	Upper	Potential as % of current margins
• Plastics	7.2	1.25	2.50	1.50	3.00	3.00	6.00	40-80%
• Defense	3.5	0.75	1.50	3.50	6.00	4.00	8.00	110-230%
• Automotive	2.1	0.50	1.00	2.50	5.00	3.00	6.00	140-280%
• Boat manufacturing	7.5	1.00	2.00	2.25	4.50	3.25	6.50	40-80%
• Fashion & apparel	5.5	1.50	3.00	1.50	3.00	3.00	6.00	50-100%
• Medical devices	11.2	1.75	3.50	1.00	2.00	2.75	5.50	20-40%
• Semiconductors	5.7	1.75	3.50	0.75	1.50	2.50	5.00	30-60%
• Computers / peripherals	8.8	1.00	2.00	0.75	1.50	1.75	3.50	30-60%

* Data are 1998-2003 U.S. average net income margins as % of sales (from Compustat)

Source: Compustat; BLS; Oregon Department of Consumer and Business Services; team analysis

WORKING TOGETHER—A "COMPACT" BETWEEN GOVERNMENT AND COMPANIES

A flexible, working compact between manufacturers and government can create an inspiring vision of what we can achieve in the future, while focusing on pragmatic, near-term tactics to capture quick wins and level the playing field. Education and labor should be part of this process. This report proposes, therefore, a series of actions:

- **Near-term (0-12 months):** Agree on the long-term vision and the plan for getting there. We propose that manufacturers and government meet early in 2005 to identify key manufacturing industries, discuss how best to cooperate and problem-solve on the vision and modus operandi in the coming years, and the government policy support that can help this vision succeed.
- **Medium-term (12-36 months):** Capture quick wins. We propose that the state act quickly to reduce or eliminate handicaps on manufacturing, for example, by restoring the Manufacturers' Investment

Credit. Such moves would create real incentives for companies to stay in California, and show the commitment of the state to manufacturing.

We also suggest that manufacturers carefully examine their business models, and ascertain how they can deliver the most value to their customers. They should determine how much stems from costs and how much from other factors like timely delivery, market responsiveness, and customization. Finally, manufacturers should assess the cost savings available from lean manufacturing, and compare them to those available offshore. The state could help manufacturers analyze this question by providing a standardized total cost model.

- **Long-term (1-10 years):** Achieve the vision. We suggest creating a scorecard to monitor manufacturing success over time. Key metrics could include not just manufacturing jobs and value-added, but the number of new firms created, number of firms disbanded or leaving the state, the number of new manufacturing facilities and jobs created by California companies that decide to expand in the state (and those lost from expansions elsewhere), rates of manufacturing skill-development, and ongoing success rates of manufacturers over time (e.g., in terms of profitability and size of employment).

This scorecard would help state leaders (both government and business) identify shortcomings in their implementation of the vision, and take new or corrective action as necessary.

The findings of this report suggest that the successful development and implementation of this compact will yield strong dividends for California employers, employees, and taxpayers. It is also clear that the challenges for manufacturers in the state are so significant that a commitment to address them by both companies and government is needed. It is vital that business and government work together, and with other community leaders, to achieve a common vision to sustain California's leadership as the most advanced manufacturing location in the world.

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