

Careers in Manufacturing Workshop

Dr. Mark Martin

Centers for Applied Competitive Technologies (CACT)
CA Career Pathways Director (based at CCSF)

mvmartin@ccsf.edu

May 12

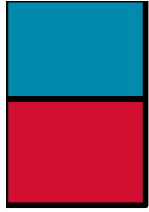
@ General Foundry





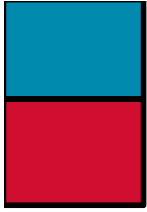
Agenda

- **8:15 – 8:30 am** **Check-in & networking (coffee & pastries)**
- **8:30 – 9:00** **Welcome and Introductions (Mark Martin)**
- **9:00 – 9:30** **Manufacturing in the Bay Area (Mark Martin)**
- **9:30 – 9:45** **Community college programs**
- **9:45 – 10:15** **“Why Manufacturing?”**
 - (Dick Herman, President, 101MFG)
- **10:15 – 10:30** **BREAK**
- **10:30 – 11:30** **Industry Panel Discussion**
 - (GF, Life Technologies, Shell, Tesla)
- **11:30 – 12:15** **General Foundry Overview & Tour**
- **12:15 – 12:45** **Box Lunch: Talk with industry reps**



Welcome & Introductions

What would you like to
learn
today?



Intro

- My background
 - Mechanical engineer
 - Manufacturing & design of products
 - Always interested in educating others about manufacturing & engineering, especially kids

- CACT Career Pathways Director
 - CACT = Center for Advanced Competitive Technologies



What is the goal of the CACT CP Director?

Getting students excited about careers in manufacturing (industrial tech) & technology!

- Machining
- Welding
- Drafting
- Robotics
- Technicians
- Engineering
- Etc.



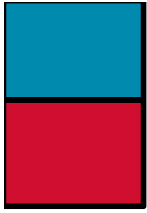
My biggest challenge...

- Who wants to guess the biggest challenge in my job as CP Director for manufacturing / technology?
 - **CACT (Manufacturing & Engineering)**
 - Advanced Transportation
 - Multimedia
 - Biotech
 - Workplace Learning
 - Centers of Excellence (labor market research)
 - Health
 - Environmental Training

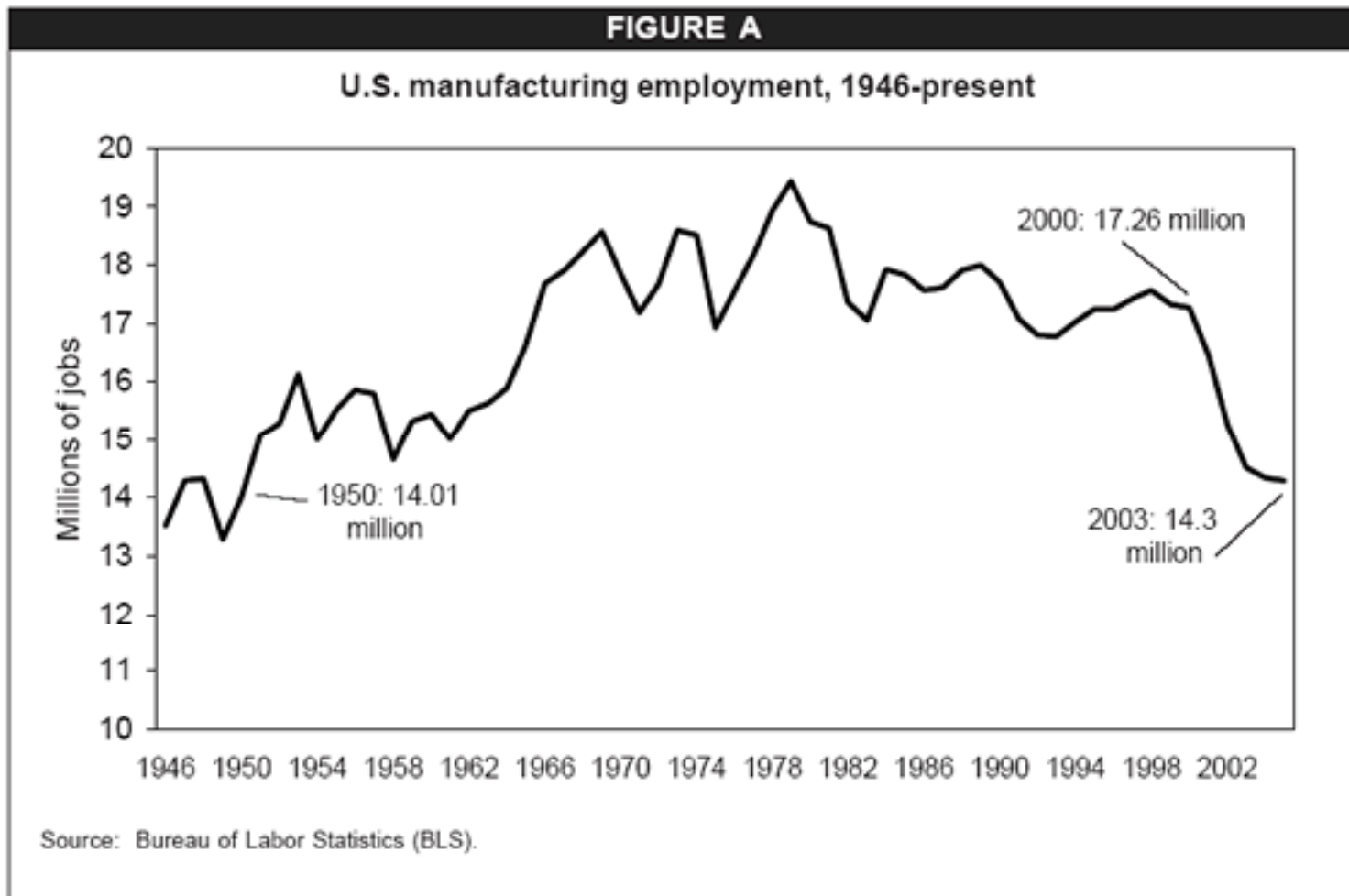


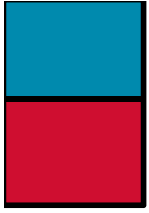
Challenge

- What do you think of when you hear the word “**manufacturing**” in the U.S.?
- What about “**manufacturing jobs**”?



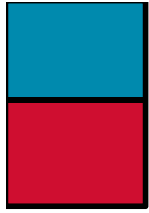
U.S. Manufacturing Employment





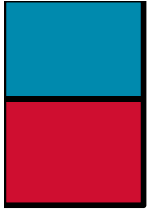
Agenda

- Intro
 - Who am I?
 - What is the goal of a Career Pathways Director?
- **Why focus on manufacturing?**
- Strategies for getting more kids interested in manufacturing & technology careers
- Tools that you might be able to use
 - No matter what Career Pathway you're focused on



What does the previous graph tell us?

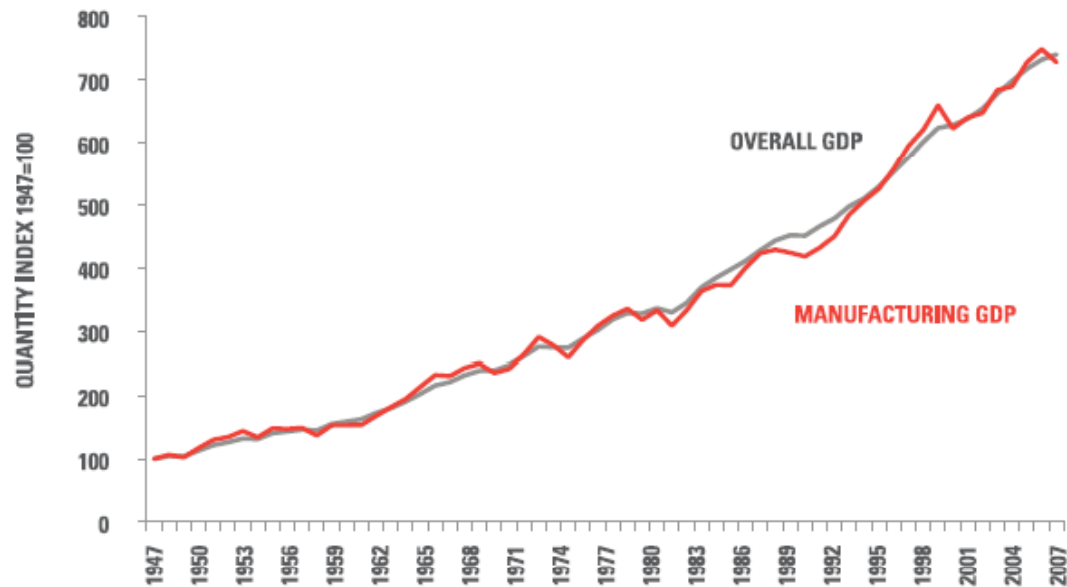
- We're getting our butts kicked in manufacturing!
- Manufacturing is dead in the U.S.!



Manufacturing is still very strong

Manufacturing Keeps Up with Overall Economy

FIGURE 2.



Source: U.S. Bureau of Economic Analysis

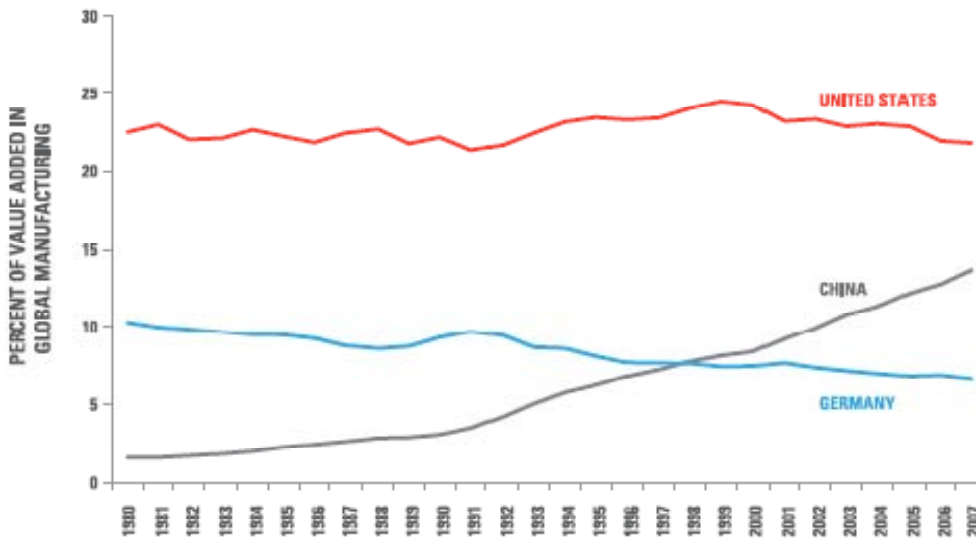
NAM Manufacturing Institute, "Facts About Modern Manufacturing", 8th Edition



U.S. Leads in Manufacturing

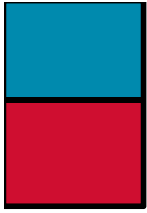
U.S. Share of Global Manufacturing Holds Steady

FIGURE 13.



U.S. manufacturing share of global manufacturing value added has barely budged from its 1980 level of 22 percent.

Sources: United Nations, Statistics Division, and MAPI Calculations

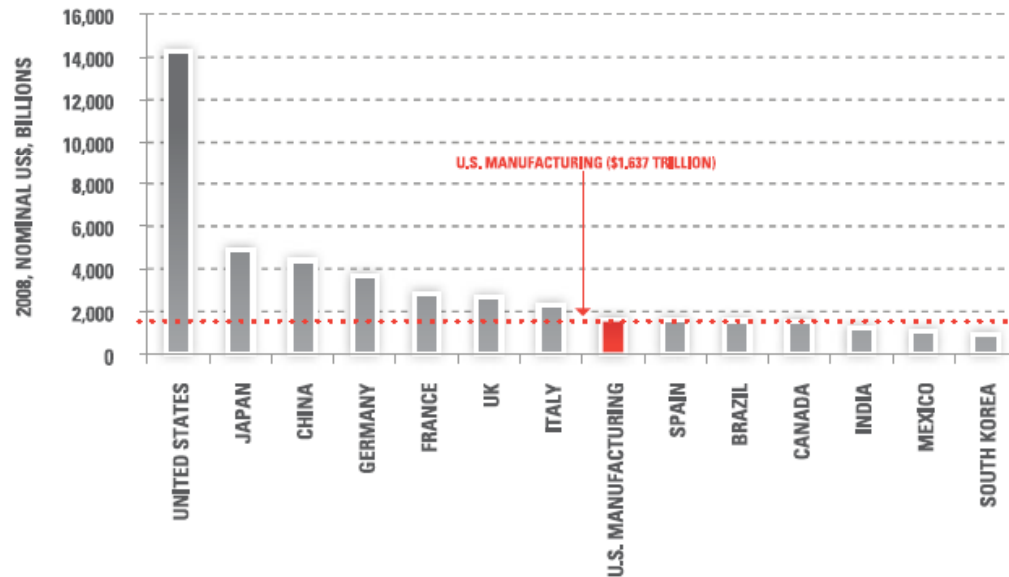


U.S. Manufacturing alone is 8th largest economy in world

U.S. Manufacturing Sector Is the Eighth Largest Economy

If U.S. manufacturing were a country by itself, it would be the eighth largest economy in the world.

FIGURE 1.

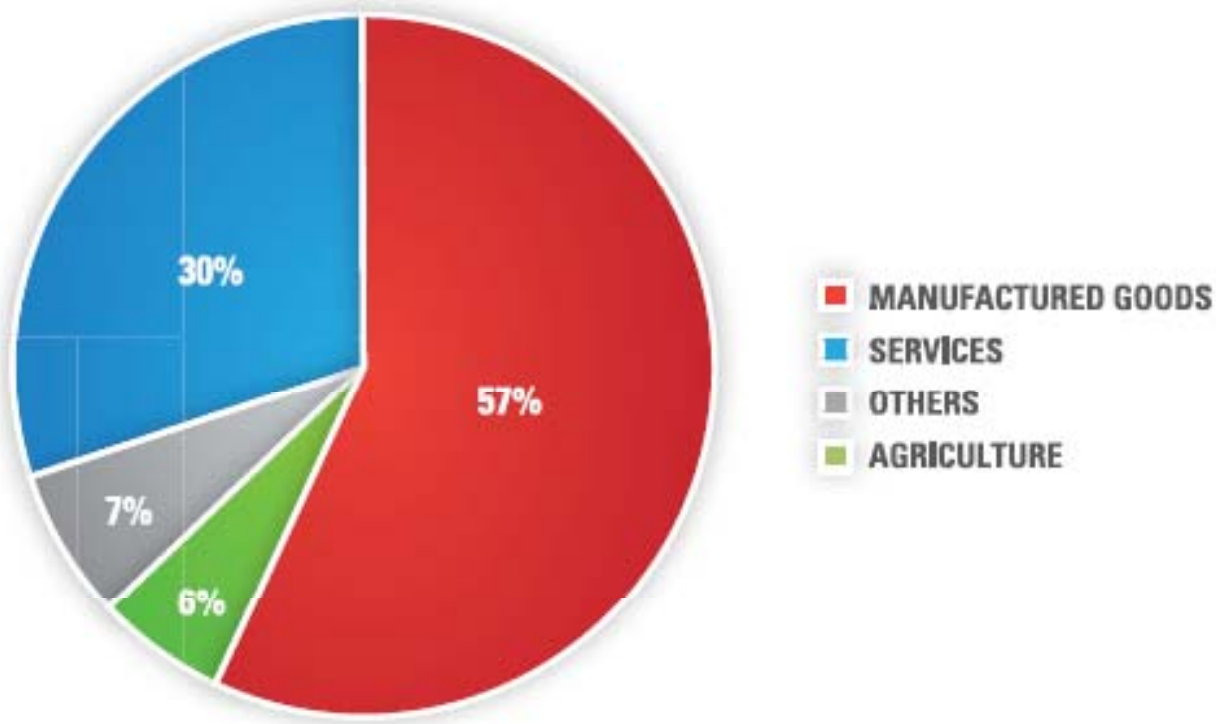


Sources: International Monetary Fund and U.S. Bureau of Economic Analysis

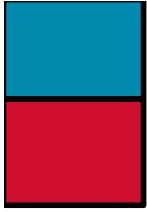


Manufacturing makes up majority of U.S. exports

FIGURE 14.



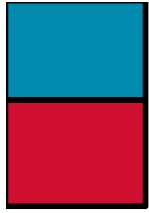
Source: U.S. Bureau of the Census, 2008



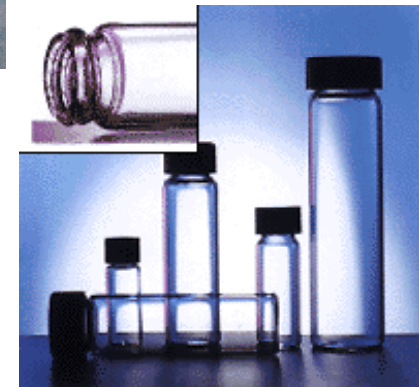
And California manufacturing leads the way in the U.S.

- 26,870 manufacturers
- 1.6 million employed
- Largest manufacturing state in the nation

- 8.7% of the nation's manufacturing employment
- 7% of its manufacturers



CA Manufacturing - Examples

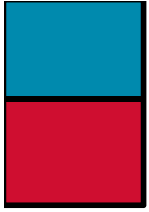




Manufacturing strong, but fewer jobs ...

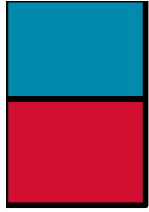
- What's happening?

U.S. manufacturing is innovating and becoming more productive



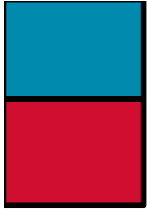
Example

- “Let’er roll!”
- More Adept



Less of this in the U.S. ...





More of this...





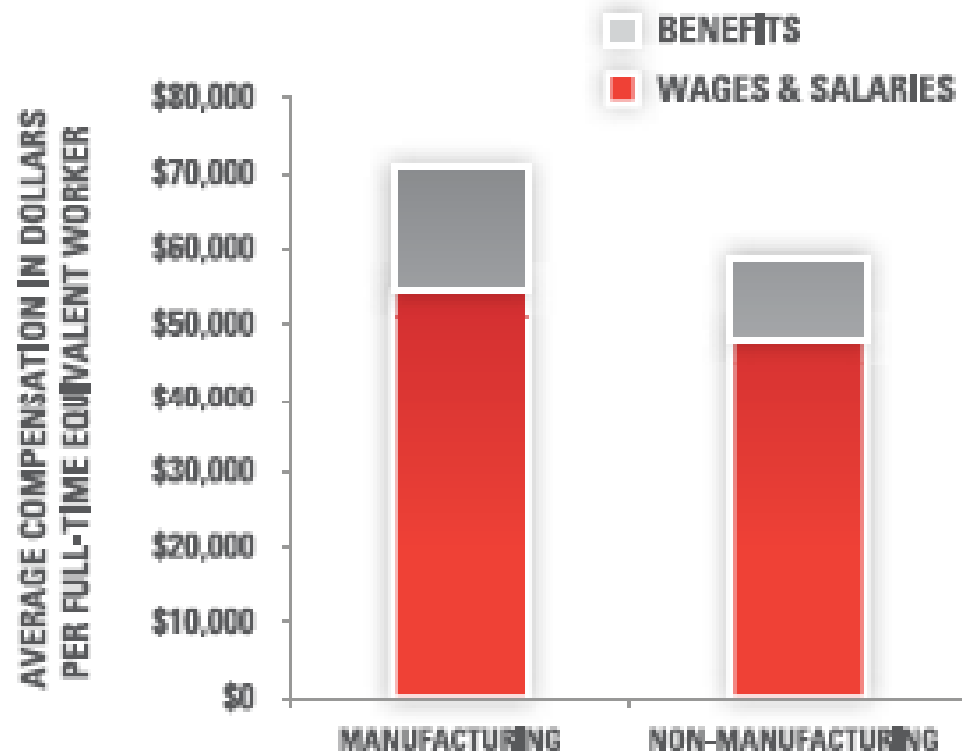
Manufacturing Jobs

- Mechatronics
- Quality Control Technician
- Sheet Metal Mfg. Manager (\$65k - \$90k)
 - H.S. with 5 years of experience
- Tig Welder (\$22/hour)
- BioTech Packaging Operator (\$17)
 - 0-10 years of experience
- Machine Operator (\$13/hour)
 - H.S. Education
- Underwater welding





Well-paying jobs



Source: U.S. Bureau of Economic Analysis, 2007



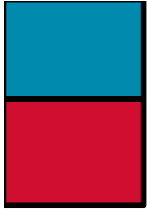
But who cares, if there aren't any jobs?



Jobs in California (projected to 2016)

	Current Jobs	ANNUAL New Jobs
Engr/Architecture	343,000	11,000
Manufacturing Occupations	1,020,000	24,000
Installation/Maint/Repair	560,000	15,000
Healthcare Occupations	650,000	27,000
Healthcare Support	341,000	13,000
Education	1,041,000	44,000
Sales	1,800,000	78,000
Computer & Math	414,000	21,000
Office/Admin	2,800,000	86,000

Source: CA EDD - <http://www.labormarketinfo.edd.ca.gov/?PageID=145>



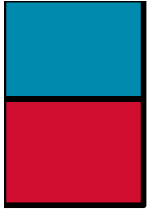
Manpower, Inc.

10 Hardest Jobs to Fill

1. **Engineers**
2. **Machinists/Machine Operators (10)***
3. **Skilled Trades**
4. **Technicians (4)**
5. **Sales Representatives (1)**
6. **Accounting & Finance Staff (8)**
7. **Mechanics (3)**
8. **Laborers (9)**
9. **IT Staff**
10. **Production Operators**

As reported by U.S. employers

** Rank in 2007 Top 10 Hardest Jobs to Fill*



iDesign-Manufacturing for 2011

- Partnering with Laney College (Oakland)
- Focus on industrial arts
 - Machining
 - Students build their own projects
 - Introduction to welding, CNC, CAD
- Tours of local manufacturers
 - Foundry
 - Machining center
 - Etc.