



# **Reshoring Initiative**

*Bringing Manufacturing Back Home*

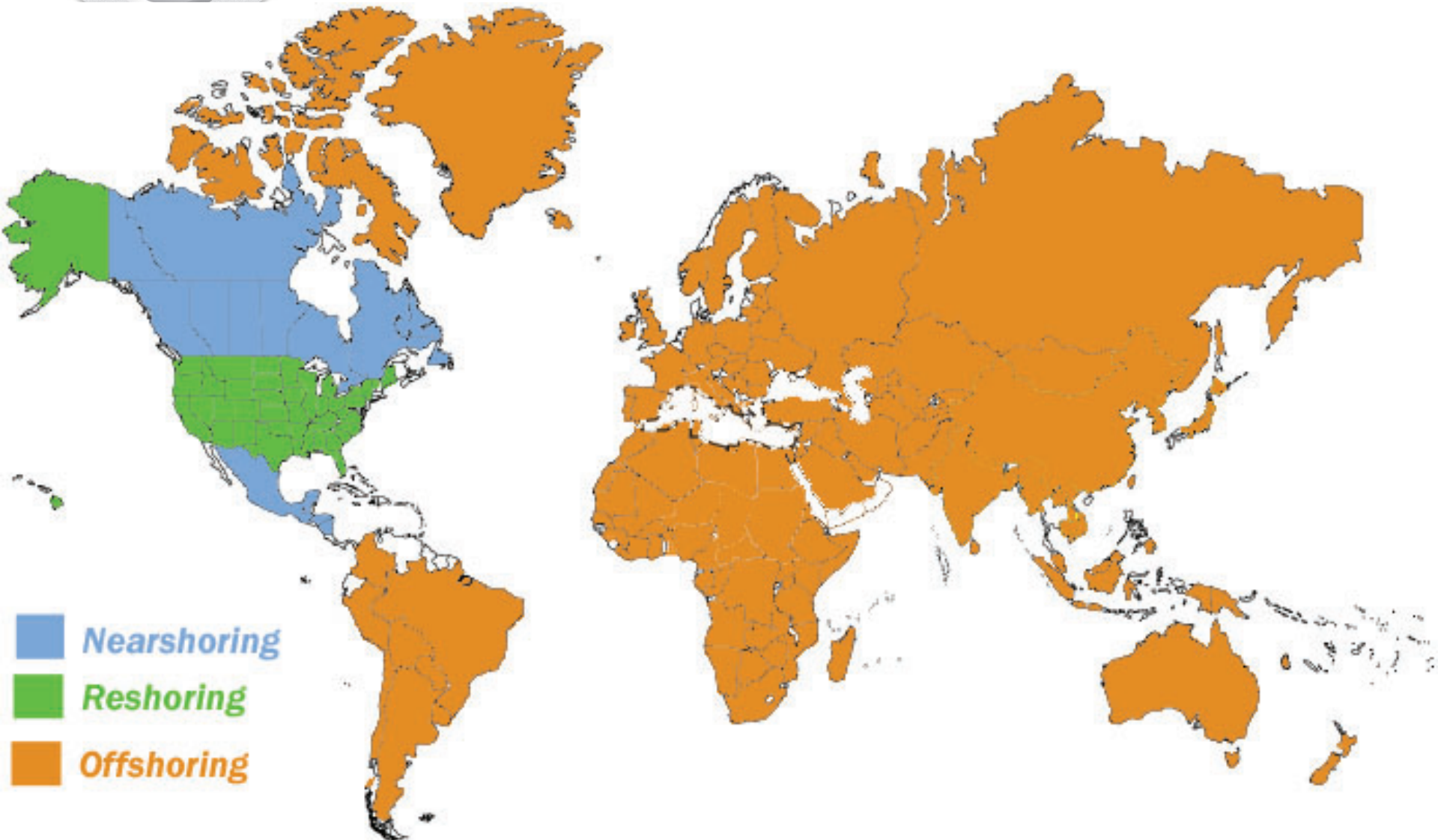
## **To Reshore or Offshore: How to Objectively Decide**

Posted January 2015

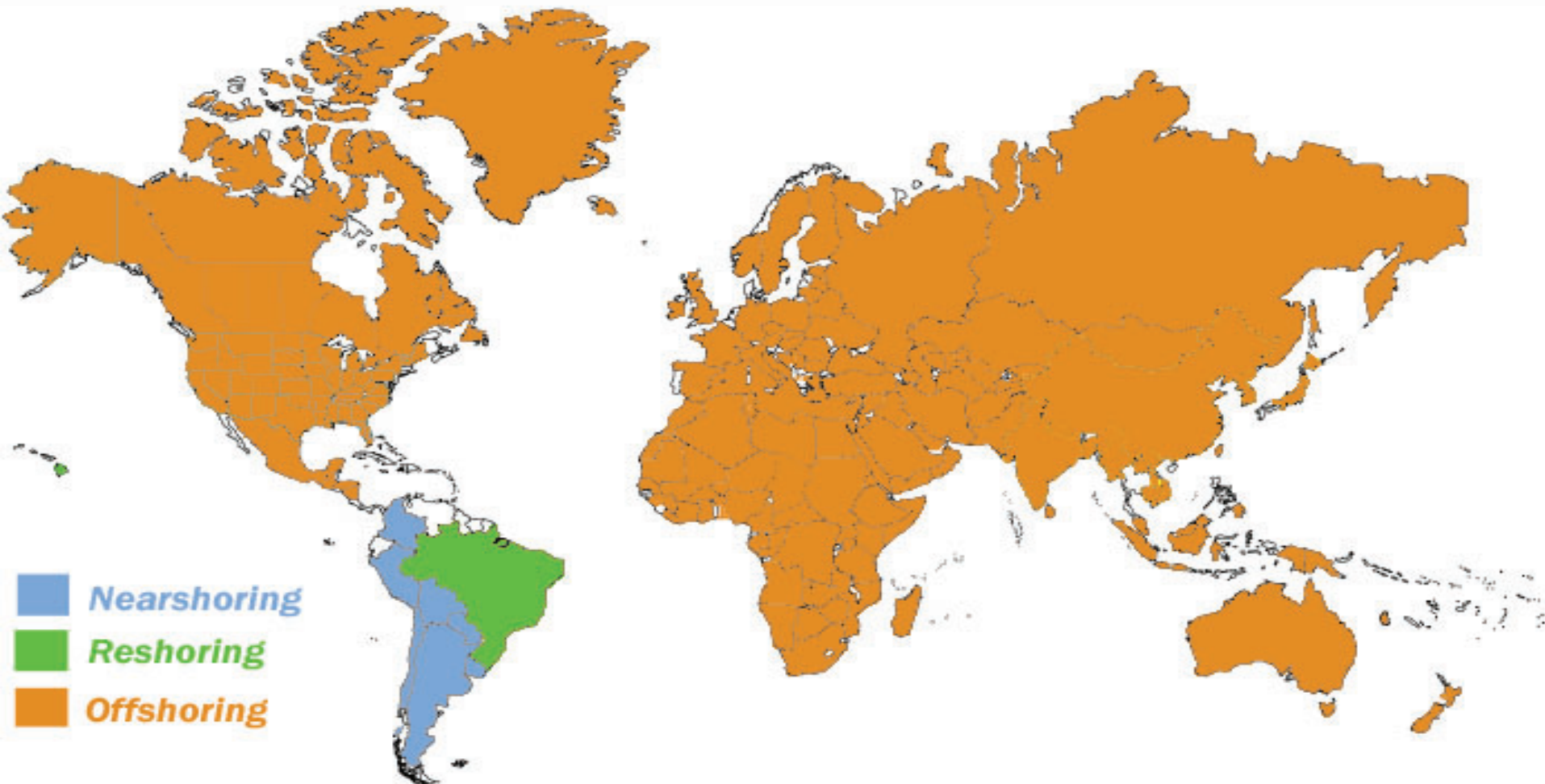
Harry Moser  
President  
Reshoring Initiative

- Reshoring/Backshoring/Onshoring/Insourcing: Bringing back manufacture of products that will be sold or assembled here.
- Transplants/FDI: Similar logic
- Producing near the consumer!
- Localization

# Geographic sourcing alternatives



## ***Reshoring: a Brazilian perspective***





# Other Countries Pursuing Reshoring

- Canada
- France
- EU
- Italy
- Switzerland: Prof. de Treville
- Korea
- Netherlands
- UK





# Offshoring: Partially Herd Behavior

- A 'herd' mentality to participate in the 'Chinese miracle' developed among global giant corporations --{Peter Nolan; University of Cambridge; - 9/03
- "There is a herd mentality with OEMs in China —sometimes it makes sense, sometimes it doesn't—not always rational decision...  
People tell their bosses what they want to hear—(going to China) gives a boost to the stock valuation, but you really have to do the analysis on a case by case basis." {Technology Forecasters 10/03

Source: Stone & Associates



# Flawed company economic model

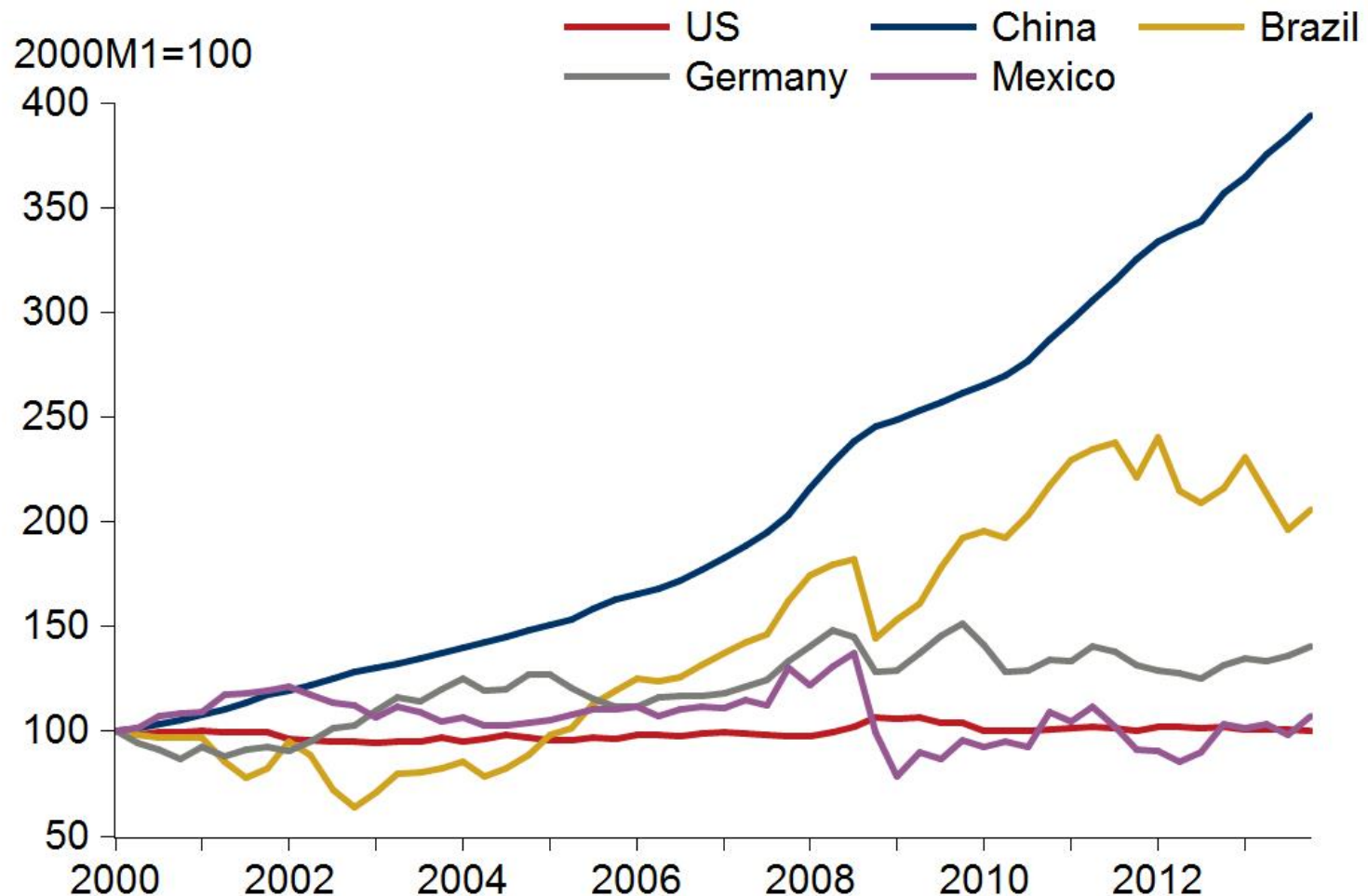
60% of manufacturers:

- Apply “rudimentary” total cost models
  - Wage Arbitrage
  - PPV (Purchase Price Variance)
  - Landed Cost
- Ignore 20% or more of the total cost of offshored products

Source: Archstone Consulting survey, American Machinist Mag., 7/16/09

# Indexed Unit Labor Costs in the Manufacturing Sector of Selected Countries

## US: Unit labor costs in manufacturing in US\$



Source: Oxford Economics/Haver Analytics



# “Manufacturing Is Expected to Return to America” “Renaissance in Manufacturing”

- “We expect net labor costs for manufacturing in China and the U.S. to converge by around 2015”
- “take a hard look at the total costs”

Source: Boston Consulting Group press release 5/11 & 4/12

Chinese no longer “just thankful not to go hungry.”

Source: Michelle D. Loyalka, 2/17/12 NYT



# The Industry-Led Reshoring Initiative Provides

- Free Total Cost of Ownership (TCO) software for:
  - Companies for sourcing
  - Suppliers of parts and equipment for selling
- Online Library of 1,800+ reshoring articles
- Statistics from TCO and Library databases
- Case Study template for posting cases.
- Solutions to major supply chain problems
- Motivation for skilled manufacturing careers

- Provides a single TCO for each source
- Flexible: values are 100% user selected.
- Broad:
  - 29 cost factors.
  - Via pull down menus you automatically insert:
    - Freight rates for 17 countries
    - Duty rates for parts or tools, e.g. molds
  - Current value and 5 year forecast of TCO.
- Explanations and references to help select values.
- Instructions

# TCO Example: a Part

Chinese unit price	\$70
U.S. unit price	\$100
# units/year	12,000
unit weight, lbs	2
Shipments/year	6
product life, yrs	5
Packaging*	1%
Payment on shipment	Yes
Quality*	2%

Product liability risk*	0.5%
IP risk*	1.9%
Innovation*	0.5%
Trips/yr	2
Carrying cost, rate	22%
Emergency air freight %*	5%
Wage inflation, annual*	8%
Currency appreciation, annual*	5%

\* Chinese differential vs. U.S.

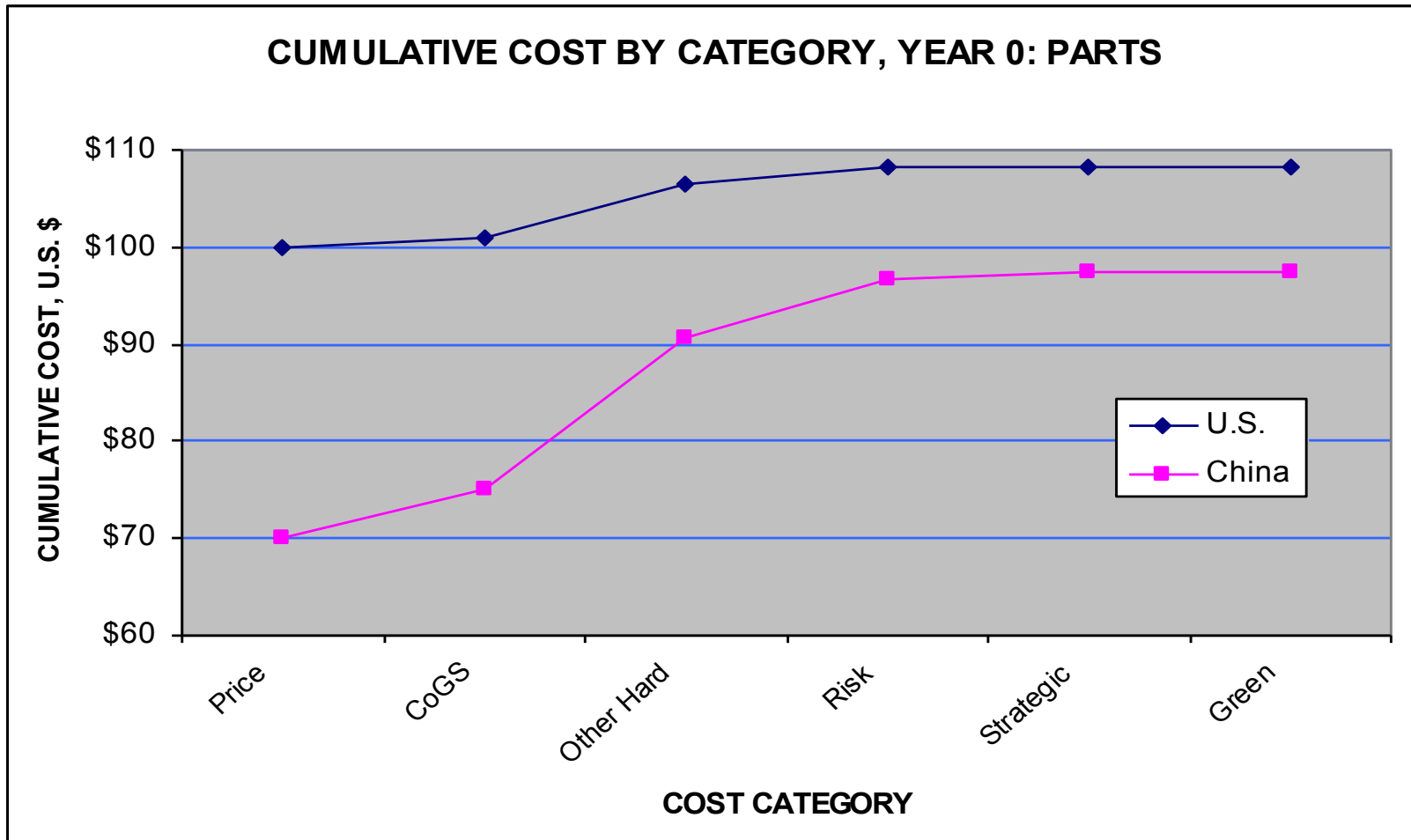
# TCO Comparison Example

Present and Forecast US and China Price and TCO (US\$)

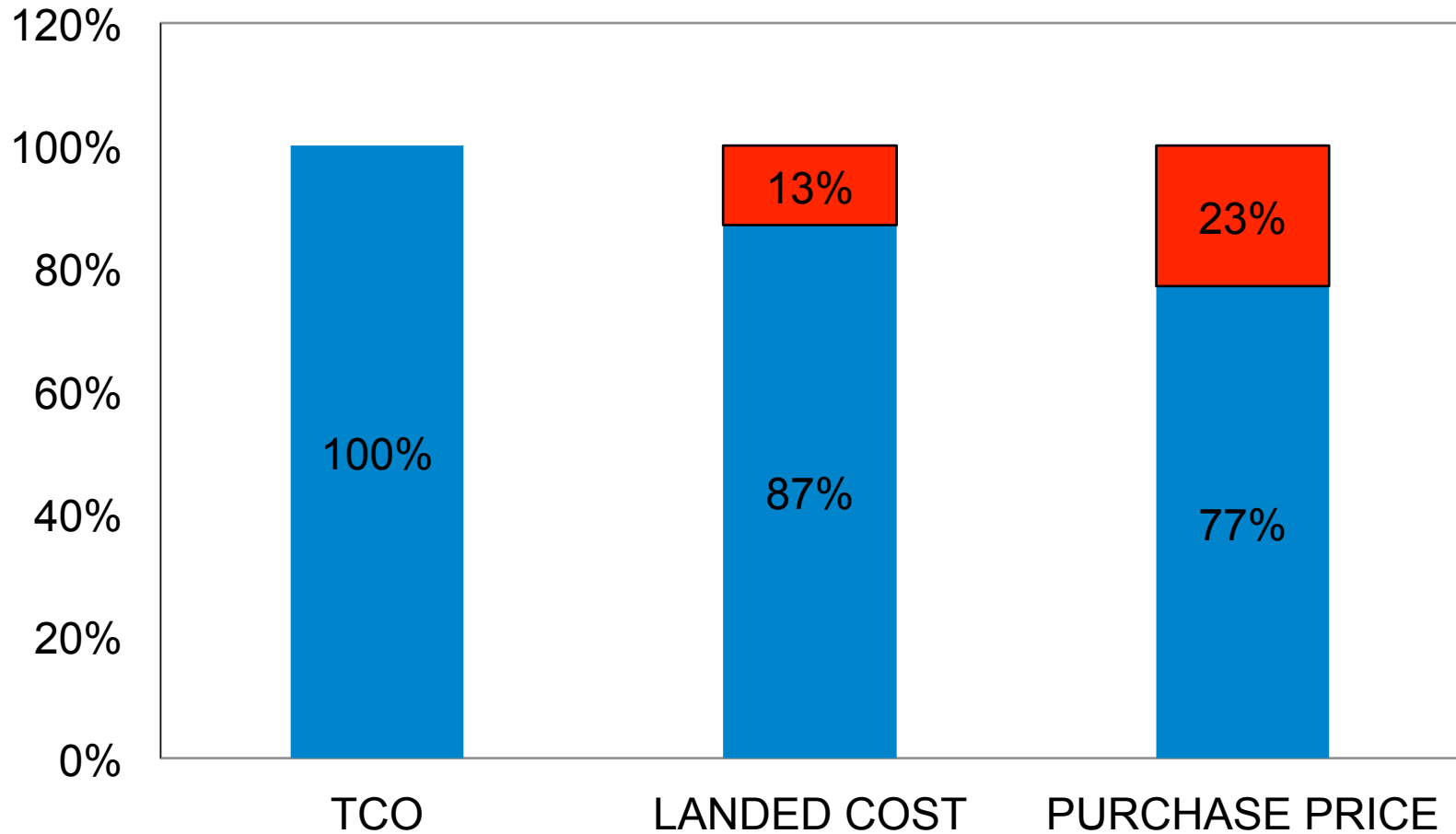




# Cumulative Cost by Category



# PPV and Landed Cost Miss a lot of TCO





# 19 “real” 2012 TCO cases, China vs. U.S.

Comparison Basis	% of cases where U.S. has the advantage
Price	5%
TCO	53%
Difference	48%*

\*Conservatively 25% might return if companies shifted to TCO

Source: TCO user database

- “End the practice of awarding business on the basis of price tag. Instead, minimize total cost.”

Source: “4<sup>th</sup> Key Principle for Management,” *Out of the Crisis*, W. Edwards Deming

# Offshoring Multiplies Waste

<u><b>Toyota Wastes</b></u>	<u><b>Offshoring Contributes</b></u>
Overproduction	Large batch shipments, filling containers
Waiting	Uncertain delivery/Inconsistent quality, port, customs, shared “awake time” window for discussions
Transport	12,000 mi. inbound, 6,000 return (boat ½ full)
Overprocessing	More packing and unpacking, customs paperwork
Inventory	In transit, cycle, safety stock, uncertain delivery and quality, less ability to check and count
Motion	Increased cost over time – repetitive motion injuries or additional labor to compensate
Defects	Much higher than local sources, extra inspection of materials and tolerances, customers unhappy longer





# Offshoring impacts innovation

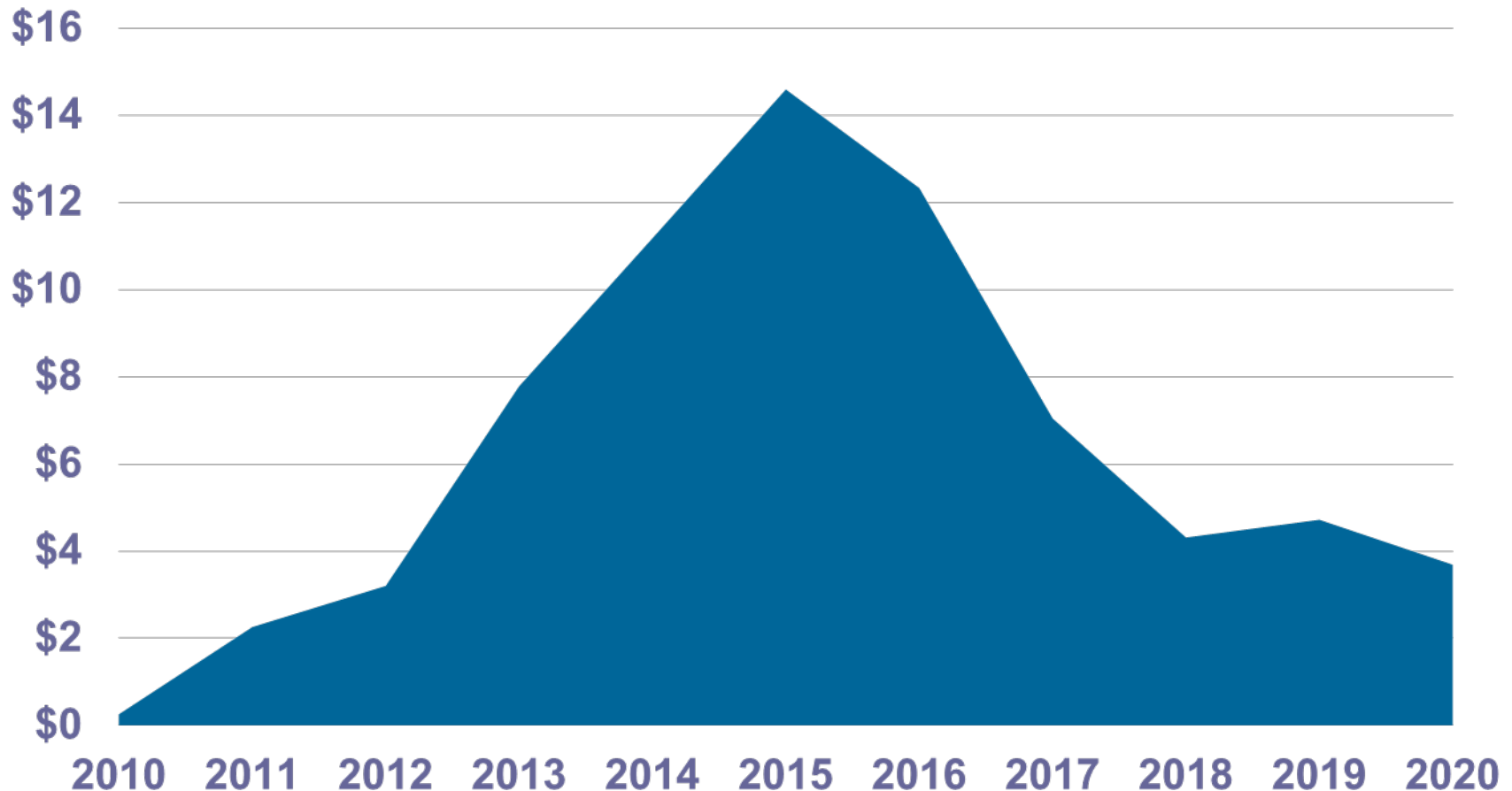
“exporting manufacturing has a negative impact on the country's industrial commons, which represents the collective capability to sustain innovation.”

Professors **Gary Pisano** and **Willy Shih**  
Harvard Business School



# US Chemical Industry Capital Investment: Incremental Due to Shale Gas

Billions of 2012 Dollars



Source: American Chemistry Council



# A Counter-Argument

- Skilled labor shortage
- Experienced management shortage
- Currency manipulation
- Insufficient ecosystem
- Cost of transition
- Lack of scale
- Lack of political commitment

Source: *Is re-shoring electronics manufacturing all hype?*  
Steven Linahan, Venture Outsource

# Some Reshorners



Karen Kane





## Bringing Production back from China:

- Water-heaters, fridges, and washing machines
- Unionized facility in Louisville, KY
- 1300 jobs, renovated facility, \$800 million invested
- Reasons:
  - Tax incentives
  - High-tech new model
  - Ease of design collaboration with workers: retail price -20%
  - 2 tier contract
  - U.S. cost: Higher ex-works but lower considering inventory and delivery issues
- Will move a “significant piece” of appliance production back



## **TRUCK BODY MANUFACTURING**

- Brought manufacturing of truck parts back to Reading, PA, from China
- Reasons:
  - Disorganized shipments impacted local assembly
  - Lead time/time to market
  - Customer responsiveness
  - Travel cost
  - “more control of our destiny”



# Plastic Connecting Building Toy



- China to Hatfield, PA, during recession (2008 and on)
- “Repatriated” \$100 million in foreign investment
- Increased local workforce 25%, about 40 jobs
- Sales increased 10% over 2010-2011, 22% over 2011-2012
- Reasons:
  - Re-design
  - Delivery and lead time
  - Quality and materials control
  - Rising labor and transportation costs
  - Communications
  - IP risk
  - Synergies

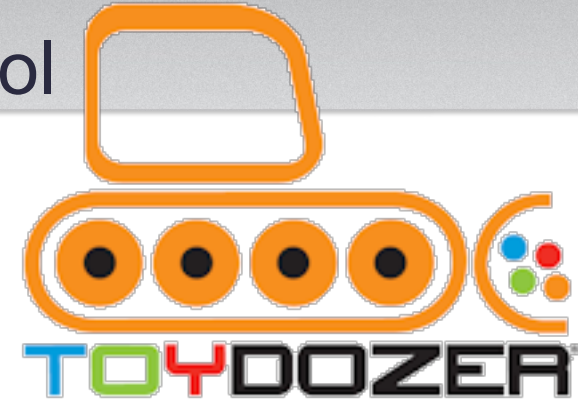
Sources: Jane M. Von Bergen, Philadelphia Inquirer. “Leadership Agenda: Obama visits K’nex, Michael Araten.” September 10, 2013.

Howard N. Aronson, toybook.com/The Rodon Group. “Reshoring Toys.” May 14, 2013.

Mike Armstrong, Philly.com. “Made in America makes sense again, K’nex Brands CEO says.” May 24, 2012.



# Plastic Toy Clean-Up Tool



- Reshored production from Mexico to Pendell, PA
- Reasons:
  - Quality
  - Automation
  - Total cost

Source: James R. Hagerty, "Wal-Mart entertains a pitch: 'Made in U.S.A.'". The Wall Street Journal. October 6, 2013. <http://online.wsj.com/news/articles/SB10001424052702303492504579115783923496354>



# Gear Boxes for Agricultural Machinery



- Reshored production from China to Earl Township, PA
- Additionally, brought contract work to PA foundry and IL machine shop
- Reasons:
  - Quality
  - Equivalent price
  - Total cost

Source: Jim T. Ryan, Central Penn Business Journal. "Pequea Machine Joins the Reshoring Movement: Reshores Part Production for Better Quality." March 15, 2013. <http://www.themadeinamericamovement.com/2/post/2013/03/pequea-machine-joins-the-reshoring-movement-reshores-part-production-for-better-quality.html>



# Contract Plastics Manufacturing



- Medical devices, injection molding
- 12,000 sq. ft. expansion, Tucson, AZ
  - One project expanded from China: Advanced injection molding, automation
  - Second project relocated from Mexico: automation





- Customers reshoring to Zentech, Baltimore, MD, from suppliers in Asia:
  - NovaSom
  - Offsite Networks
- Reasons:
  - Automation/Technology
  - Rework, Warranty, Quality
  - Travel Cost/Time or Local Onsite Audit
  - Wages up overseas
  - Total cost = cheaper in the U.S.
  - Lead time



# Contract Aluminum & Zinc Die Casting



- Convinces customers to reshore or stay onshore: Dazor Manufacturing Corp.
- Dazor reshored 90% of parts
- Reasons:
  - “First-batch syndrome”
  - Travel cost; Communication; Freight cost; Lead time; IP risks; Automation

Source: Rebecca Carnes, Design2Part Magazine. “A Case Study in Re-shoring: One St. Louis OEM Decides to Leave China and Look in His Own Backyard.” 2013. <http://www.jobshoptechnology.com/Article.aspx?ArticleID=217>



- Asia to Allentown, PA
- Reasons:
  - Communications
  - Delivery
  - Freight cost
  - Lead time
  - Total cost
  - Automation/technology
  - Government incentives
  - Skilled workforce
  - Buy American Act



# Walmart's U.S. Manufacturing program

- Walmart's increase in U.S. manufactured purchases:
  - \$250 Billion over 10 years
  - \$50 Billion in the 10<sup>th</sup> year
  - In the 10<sup>th</sup> year:
    - Approx. 300,000 manufacturing jobs\*
    - Approx. 1 million total jobs\*\*
- Walmart Actions:
  - “Increase what we already buy of U.S. manufactured goods
  - Source “new to Walmart” U.S. manufactured goods
  - Reshore the manufacturing of goods we currently buy by facilitating and accelerating efforts of our suppliers”

\*Reshoring Initiative \*\*Boston Consulting Group

- **1888 Mills** in Griffin, Georgia –Long term deal to make better quality towels. Capital investment required due to volume. “We made a commitment that was longer term than we would normally do.” Walmart



# Some Contact Points



- U.S. Manufacturing Program
- Online Product Submission
- U.S. Mfg. Supplier Initial Questionnaire
- Jobs in U.S. Manufacturing Program (JUMP)
- \$10M U.S. Manufacturing Innovation Fund w/ U.S. Conf. of Mayors

- Woodridge, IL
- Supplies heavy equipment companies
- Had quality issue with a Chinese component
- Found local IL source
- Result:
  - Quality problem fixed
  - Inventory cut by 94%





- Had 100,000 ft<sup>2</sup> in Chennai, India
- Reshored to Westknoxville, TN
- 60,000 sq. ft.
- Reasons:
  - Fast delivery vs. 5 wks on the water
  - Fewer supply chain problems
  - If a quality problem, no more bad units en-route

Source: Knoxvillebiz.com Ed Marcum 8/7/10



# Reshoring is happening!

- 21% of large companies are actively engaged in reshoring, 2X the rate in 2012 (BCG survey. Press release 9/24/13)
- 40% of contract manufacturers have done reshoring work this year (MFG.com 4/12)
- % of U.S. consumers who view products Made in America very favorably: 78% (2012) up from 58% (2010) (AAM June 28-July 2, 2012)
- More likely to buy U.S. product 76%  
Less likely to buy Chinese product 57%  
(Perception Research Services Intl. survey 7/12, 1400 consumers)

# The Bleeding has Stopped!

	<b>Manufacturing Jobs/Year</b>		
	2003	2013	% Change
New Offshoring	~150,000*	30,000-50,000*	-70%
New Reshoring	2,000*	30-40,000* *	1,500%
New FDI (Foreign Direct Investment)	10,000*	20,000**	100%
Net Jobs Gained from Offshore	~-140,000	~+10,000	N/A

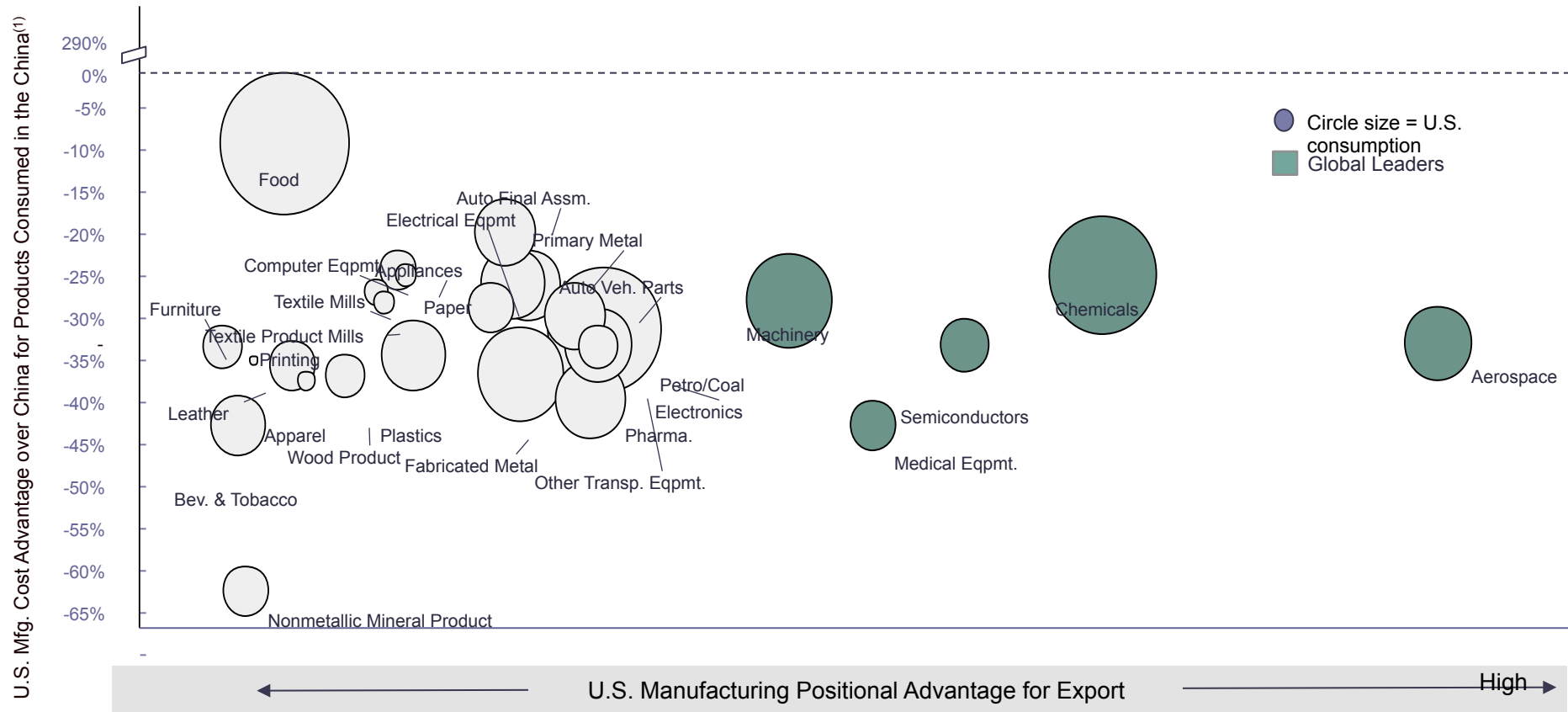
\* Estimated \*\* Calculated



# BCG's Tipping Point Industries

- Computers and electronics
- Appliances/electrical equipment
- Machinery
- Furniture
- Plastics and rubber
- Fabricated metals
- Transportation goods

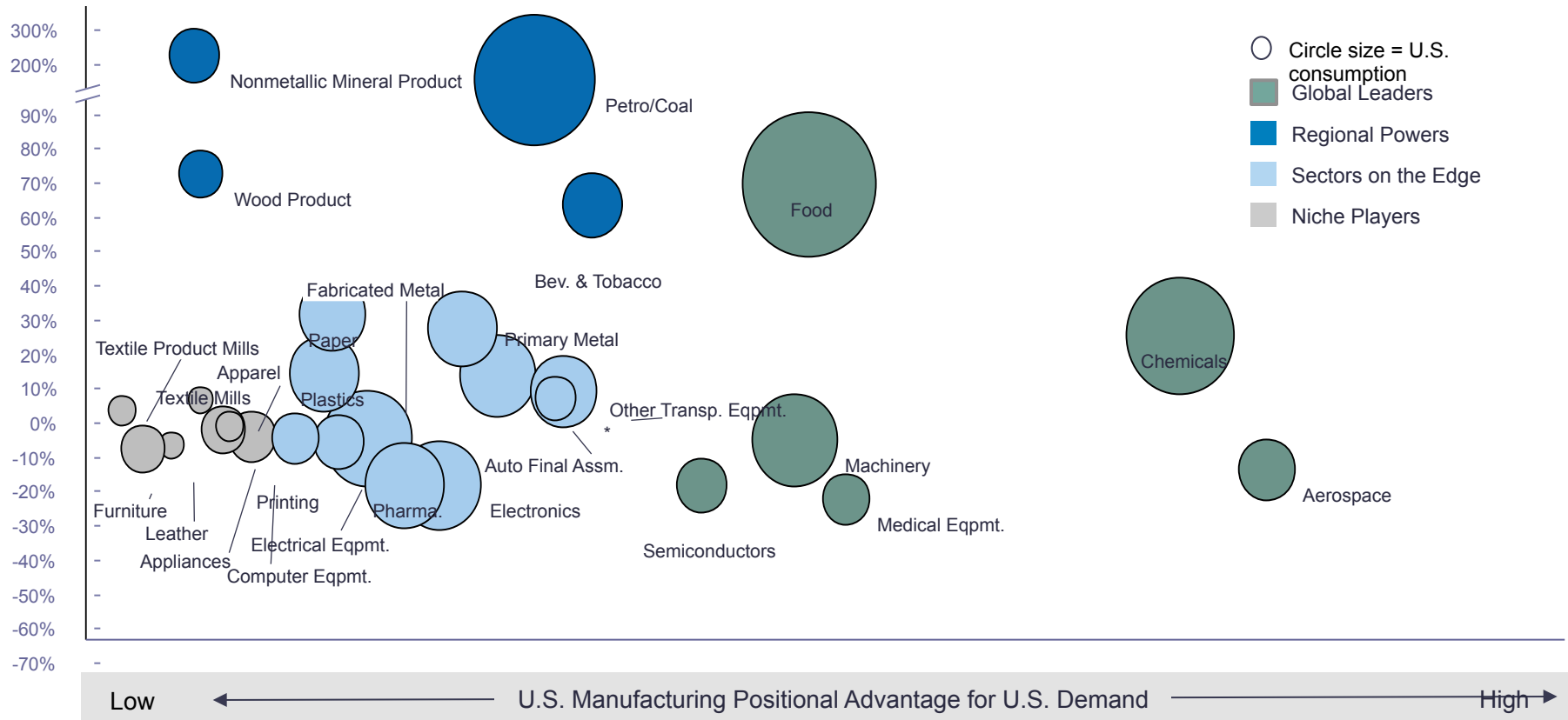
# U.S. Manufacturing Competitiveness for Exports



<sup>1)</sup> The U.S. cost advantage represents the labor and logistics costs compared with those of Chinese manufacturers, for products consumed by people in China.

**Source:** U.S. Census Bureau, Bureau of Labor Statistics, UBS Research, CapitalIQ, Energy Information Administration, World Bank, Eurostat, World Trade Organization, IRS Statistics, Tauber Institute for Global Operations, Booz & Company

# U.S. Manufacturing Competitiveness in Domestic Markets



1) The U.S. cost advantage represents the labor and logistics costs compared with those of Chinese manufacturers, for products consumed by people in the United States.

**Source:** U.S. Census Bureau, Bureau of Labor Statistics, UBS Research, CapitalIQ, Energy Information Administration, World Bank, Eurostat, World Trade Organization, IRS Statistics, Tauber Institute for Global Operations, Booz & Company

# Reshored Industries

Industry	Jobs	Companies	% of Companies Reporting Jobs
Transportation Equipment	19046	30	43%
Electrical Equipment, Appliances, Components	12120	47	62%
Computer/Electronic Products	6783	24	42%
Food	2938	9	56%
Machinery	2795	16	56%
Apparel/Textiles	1954	37	41%
Fabricated Metal Products	1749	25	40%
Wood Products	1028	17	35%
Office	810	3	67%
Medical Equipment	628	13	38%
Hobbies	581	22	32%
Construction	577	4	100%
Chemicals	300	2	50%
Plastic/Rubber Products	298	11	36%
Home and Kitchen	204	14	29%
Castings	0	3	0
Primary Metal Products	0	3	0
Research and Services	0	2	0
Energy	0	1	0
Agriculture	0	1	0
Environmental	0	1	0
Tools	0	1	0

Sources:  
Reshoring  
Initiative Library,  
August 31, 2014.

Cases 2007  
through 8/31/14.



# Negative Issues Offshore

Negative Issues	# Cases
Lead time	111
Quality/rework/warranty	109
Rising wages and Currency Variation	88
Freight cost	82
Total cost	49
Inventory	37
IP risk/ Supply chain interruption risk	29 each
Delivery	28
Communications	18
Green considerations/Loss of control	15 each
Travel cost/time	14
Price	5
Difficulty of innovation/product differentiation/Regulatory compliance	4 each
Burden on Staff, Emergency air freight, Political instability	2 each
Employee turnover, Strained offshore relationships, Natural disaster risk	1 each



# Positive Reasons to Reshore

Positive Reasons to Reshore	# Cases
Skilled workforce	87
Image/brand	80
Government incentives	79
Automation/Technology/3D printing	57
U.S. energy prices	49
Re-design	41
Higher productivity	36
R&D	35
Lean	27
Eco-system synergies	22
Infrastructure	20
Customer responsiveness	14
Lower real-estate/construction	8
Labor concessions	7

# Countries From Which Reshored

<b>Country</b>	<b>Reshored Cases</b>	<b>Global Regions</b>	<b>Reshored Cases</b>
China	135	Asia	165
Mexico	20	North America	26
India	11	Western Europe	6
Canada	6	Eastern Europe	2
Japan	5	South America	1
Taiwan	5	Africa	1
Korea	3		
Hungary	2		
Vietnam	2		
Germany, France, Brazil, Spain, Netherlands, Italy, Egypt, Indonesia, UK, Singapore, Malaysia, Sri Lanka, Australia	1 each		



# Jobs Reshored by State

State	Jobs	Companies	Avg. Jobs/ Facility
SC	7780	7	1111
MI	6721	13	517
CA	6014	28	215
KY	4612	5	922
TX	3712	12	309
OH	3611	18	201
GA	3005	7	429
TN	2490	11	226
NY	1089	17	64
NC	1020	14	73
ID	1000	2	500
KS	1000	2	500
CO	738	6	123

State	Jobs	Companies	Jobs/ Facility
AZ	700	2	350
FL	611	12	51
MA	598	10	60
MS	540	5	108
UT	464	6	77
AL	397	4	99
WI	342	11	31
NJ	335	3	112
IN	320	5	64
PA	279	11	25
AR	210	4	53
IL	205	9	23
NH	200	1	200

State	Jobs	Companies	Avg. Jobs/ Facility
RI	200	2	100
IA	193	2	97
WA	150	3	50
MO	150	6	25
MD	90	6	15
MN	64	9	7
MT	25	1	25
DE	0	2	0
VA	0	1	0
CT	0	2	0
ME	0	1	0
VT	0	2	0
ND	0	1	0

Sources: Reshoring Initiative Library, August 31, 2014.

Cases 2007 through 8/31/14.



# The fastest and most efficient way to strengthen the U.S. economy

- Reshoring breaks out of:
  - The economic zero-sum-game of tax/borrow and spend.
  - The increases in consumer prices of relying solely on currency changes.
  - The waiting-for-policy-decisions problem.
- Assures that the pie grows, to the advantage of all Americans.
- Grows the pie by taking back what we earlier lost.
- Focuses on the manufacturing sector which has suffered so many job losses for decades.
- More efficient than exporting, stimulus programs or tax reductions.



# Reshoring More Effective than Exporting: U.S. is Much More Competitive at Home!

		Where Sold	
		U.S.	China
Where Made	U.S.	\$100	\$115
	China	\$100	\$85
Difference		0	30%

Based on TCO being 15% higher for exports

- Commerce Dept:
  - 2012 budget specifies TCO.
  - Links:
    - <http://nist.gov/mep/reshoring.cfm>
    - <http://business.usa.gov/program/reshoring-initiative>
    - [http://www.manufacturing.gov/other\\_orgs.html](http://www.manufacturing.gov/other_orgs.html)
    - Major new site: <http://acetool.commerce.gov/>
  - 6 rounds of free MEP webinars
  - Testified at Congressional hearing on 3/28/12
  - Working actively with SelectUSA
- Calls from:
  - United States-China Economic and Security Review Commission
  - White House National Economic Council







## Employment Projections

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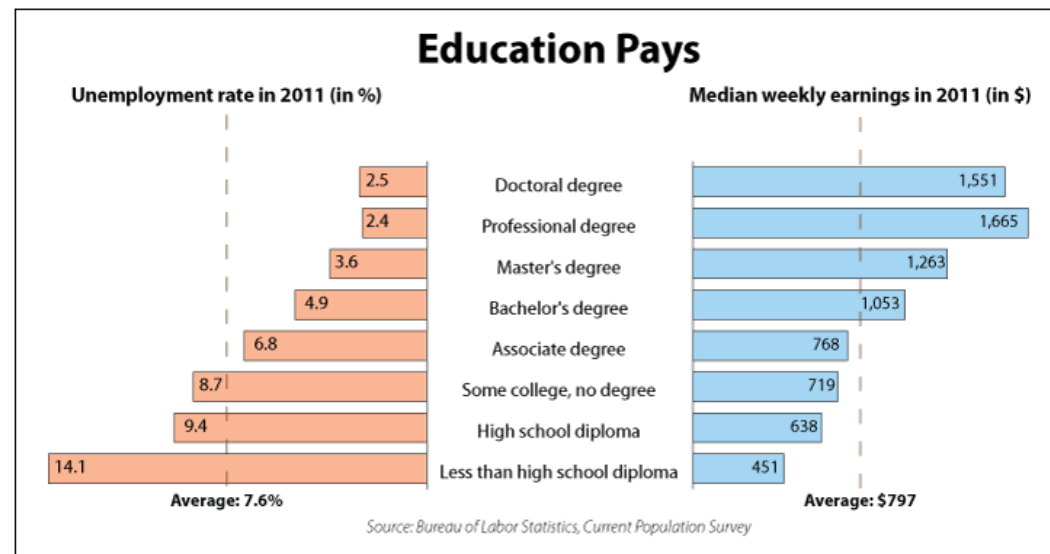
DETAILED DATA FOR  
RESEARCHERS ▸

CAREER INFORMATION  
RESOURCES ▸

TECHNICAL  
DOCUMENTATION ▸

## Education pays...

Education pays in higher earnings and lower unemployment rates



[Chart data \[TXT\]](#)

Note: Data are for persons age 25 and over. Earnings are for full-time wage and salary workers.

Source: Bureau of Labor Statistics, Current Population Survey.

BLS has some data on the [employment status](#) of the civilian noninstitutional population 25 years and over by educational attainment, sex, race, and Hispanic origin online.

The Census Bureau also has some data on [educational attainment](#) online.

**WE NEED  
YOUR  
HELP!**

Issue	Solution
“Trades” and “vocations” image	Call them “Professions”
Manufacturing career image due to offshoring	Industry collect and media report the local reshoring case of the month. Use our Case Studies feature.



# Economic Development Program Starting in PA, MS, Central NY

Action	Source/Responsibility
Identify local imports by U.S. or foreign companies	Datamyne
Suggest to companies they source locally	EDO/MEP/ etc.
Train companies on TCO to overcome issue of higher local price	Reshoring Initiative
Needed further cost reductions	MEP/ Comm. College/ Technology Suppliers/EDO





# Selling using TCO

- Focus on profit impact, risk management, strategic benefits
- Overcome mandates
- Many Supply Chain Managers believe
- Work with natural allies:
  - Lean, Green, compliance, quality, line management
- Maximize the advantages of proximity
- Match “Chinese” price or .....?

# Capital Investment using TCO

- By understanding:
  - the advantage of producing near the consumer, and
  - the small TCO gap instead of the large price gap
- U.S. companies can:
  - justify domestic investment, process improvement, automation, training, etc.
- And do not have to sacrifice quality, delivery, time-to-market, or employees to be competitive and profitable.





# How you can help reshoring

- Use the tools for sourcing and selling.  
Free at [www.reshorenow.org](http://www.reshorenow.org)
- Use our archived webinars to inform staff and customers
- Post a link.
- Call on us to speak at: open houses, webinars, customer industry conferences
- Submit cases of reshoring.
- Sponsor



# How the Initiative can help companies

- Data on reshoring by others
- Consumer preference data
- Training on TCO
- Help with the analysis
- Ideas for managing the transition
- Promotion of your success

- ACETool
  - Cost Differential Frontier
- TCO Estimator
- Using the TCO Estimator: A How-To Guide
- Library
- Submit a Case Study
- Economic Development Program

# CDF (Cost Differential Frontier)

- Based on lead time and variability in order rates
- Quantifies the cost of excess inventory, obsolescence and lost orders
- Developed by Prof. Suzanne de Treville, Univ. of Lausanne
- Can add 15% to 20% to the offshoring costs identified by the TCO Estimator



# A non-profit with 38 sponsors, including

Platinum



Gold



Silver



# A non-profit with 38 sponsors

## Bronze

**FESTO**



**ROYAL**  
PRODUCTS

**AWPA**  
AMERICAN  
WIRE  
PRODUCERS  
ASSOCIATION  
\*Steel Wire and Wire Products  
for Manufacturing Industries



**DOOSAN**

**usbank**

**FMA**

**spi** the plastics industry  
trade association

## Steel

**Swiss Machine  
Tool Society**

**BIG KAISER**  
PRECISION TOOLING INC.

**manex**  
The Corporation for Manufacturing Excellence

**PARLEC**

**ETA**

30 years  
**NAHAD**

Association Connecting Electronic Industries  
**IPC**

## Iron

**USCTI**  
UNITED STATES CUTTING TOOL INSTITUTE  
LEADING THE FUTURE OF THE CUTTING TOOL INDUSTRY

**CANADIAN  
TOOLING &  
MACHINING  
ASSOCIATION**

**EROWA**  
system solutions

**starrag**

**MSSC**

CALIFORNIA  
CORLITON  
METALS

**Nutec**  
GROUP

**IDEAL**  
FASTENER CORPORATION





# Help reverse the offshoring flood now!

Contact:

Harry Moser

Founder and President

847-726-2975

[harry.moser@reshorennow.org](mailto:harry.moser@reshorennow.org)

[www.reshorennow.org](http://www.reshorennow.org)



Recruiting trainees for the skilled manufacturing workforce:

<http://tinyurl.com/33vpz9k>