



Reshoring Initiative

Bringing Manufacturing Back Home

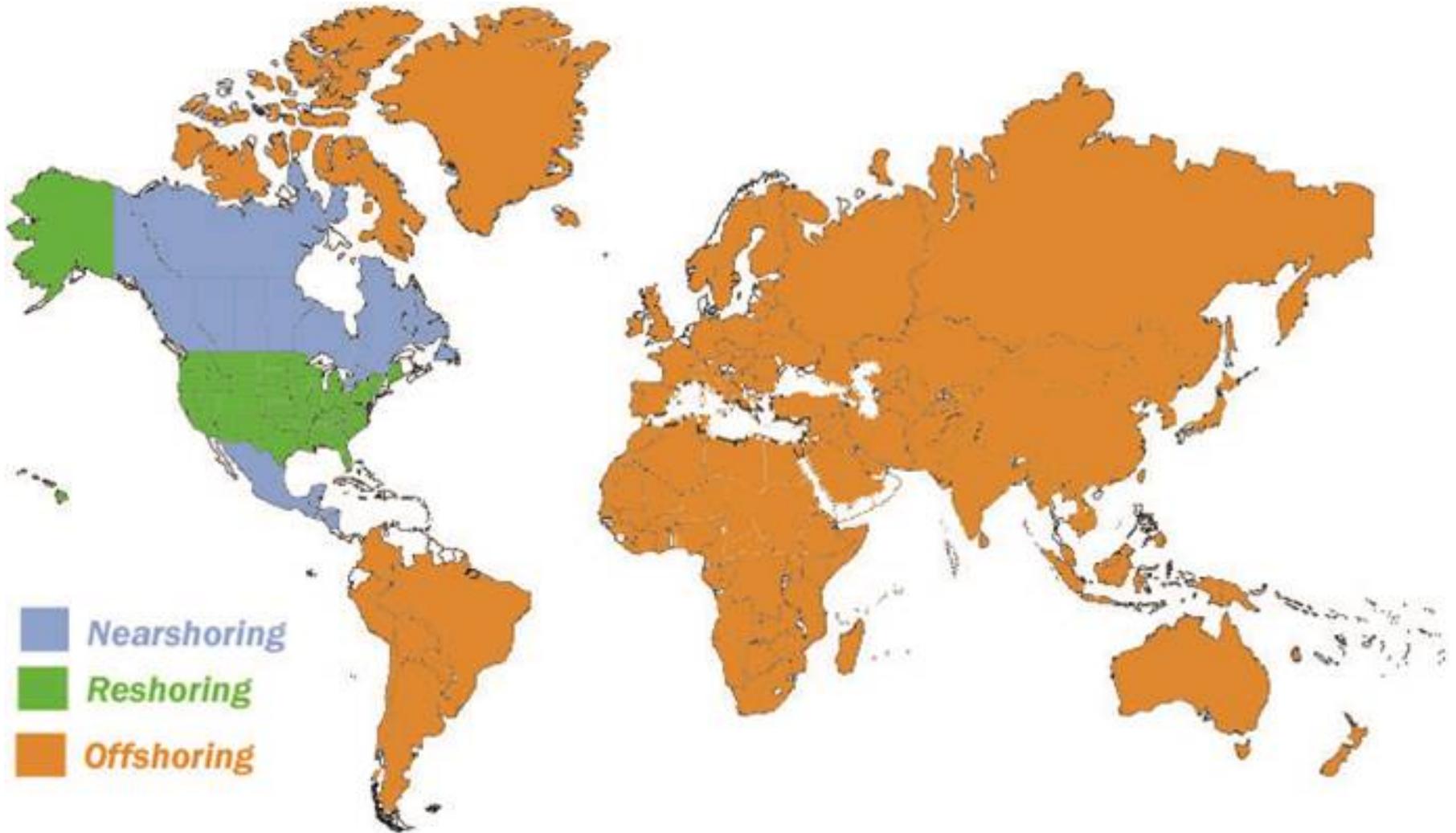
Overview of Reshoring Benefits, Costs, Opportunities, and Risk Considerations

Talking Freight
webinar

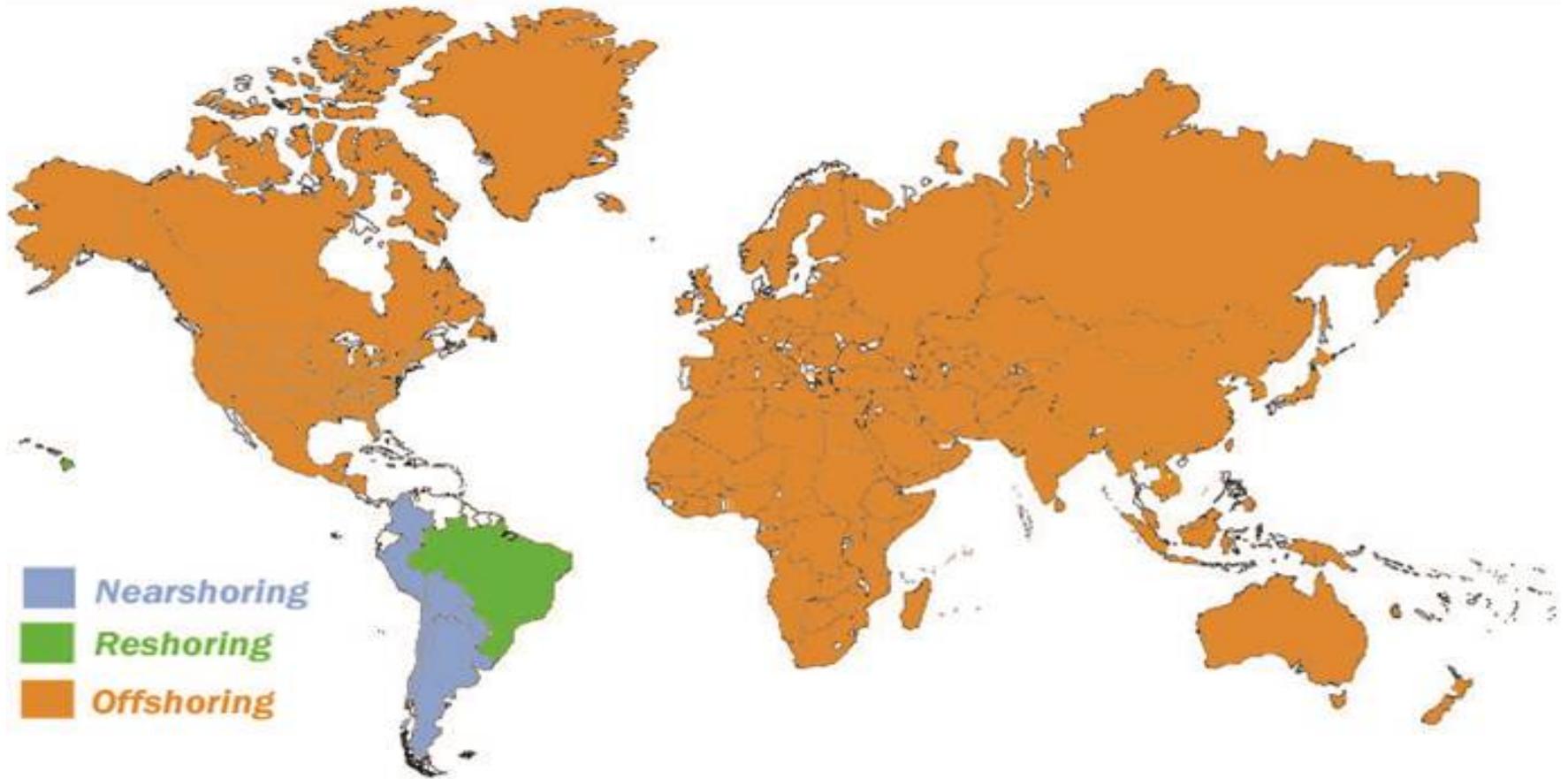
Harry Moser
President
Reshoring Initiative

- 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



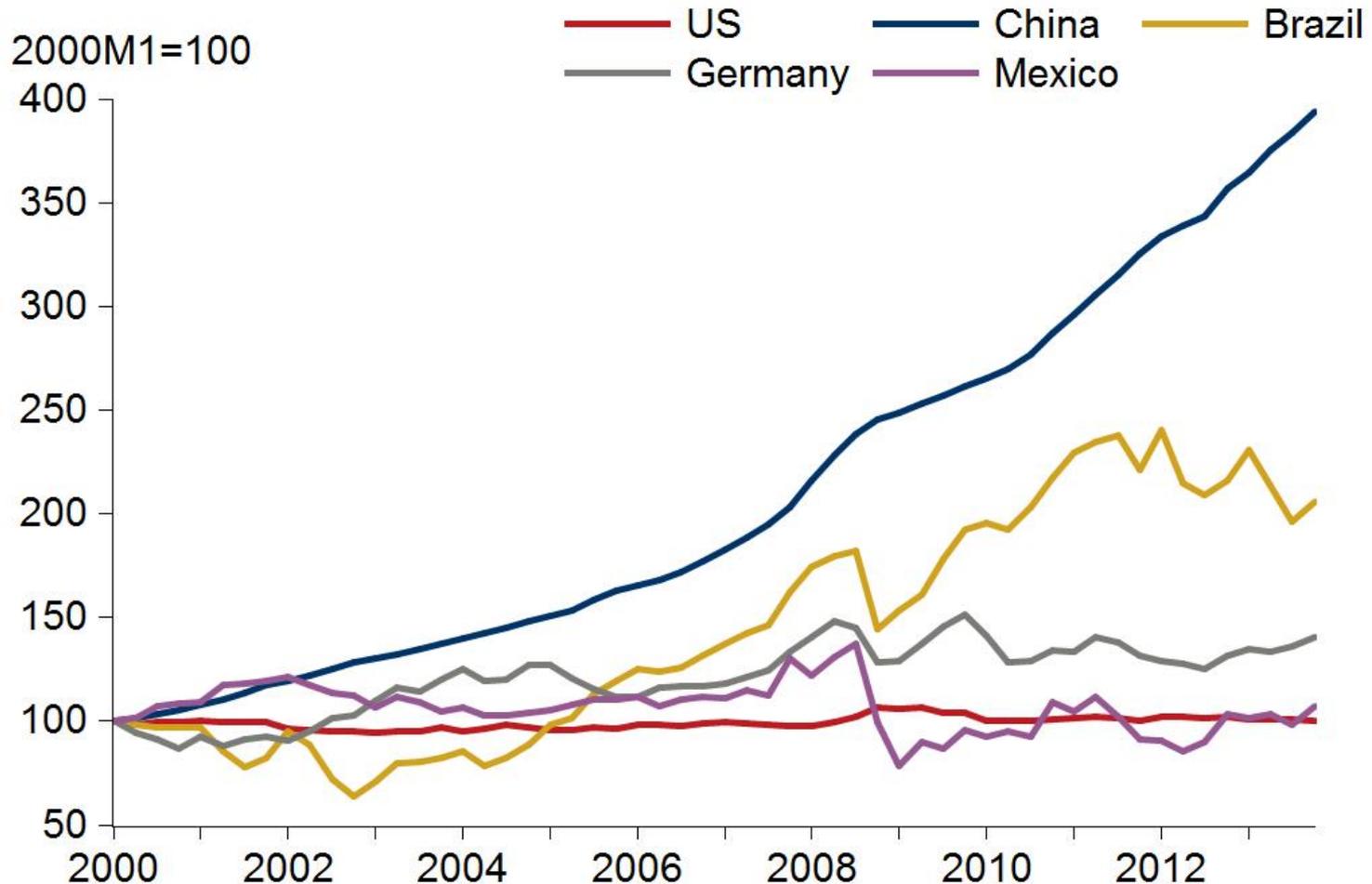
60% of manufacturers:

- 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

- “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 2,400+ 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

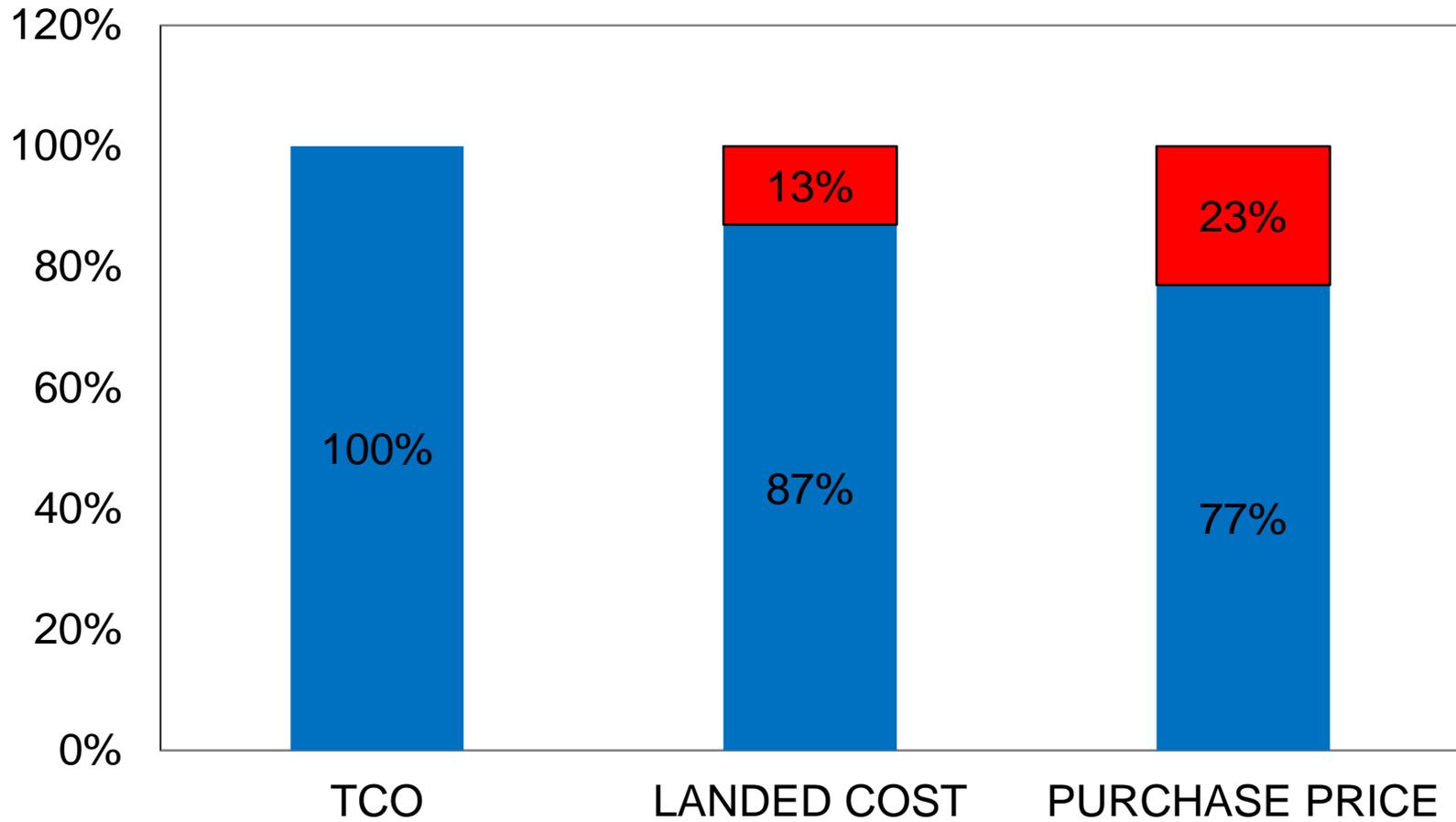


TCO Comparison Example

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



PPV and Landed Cost Miss a lot of TCO





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

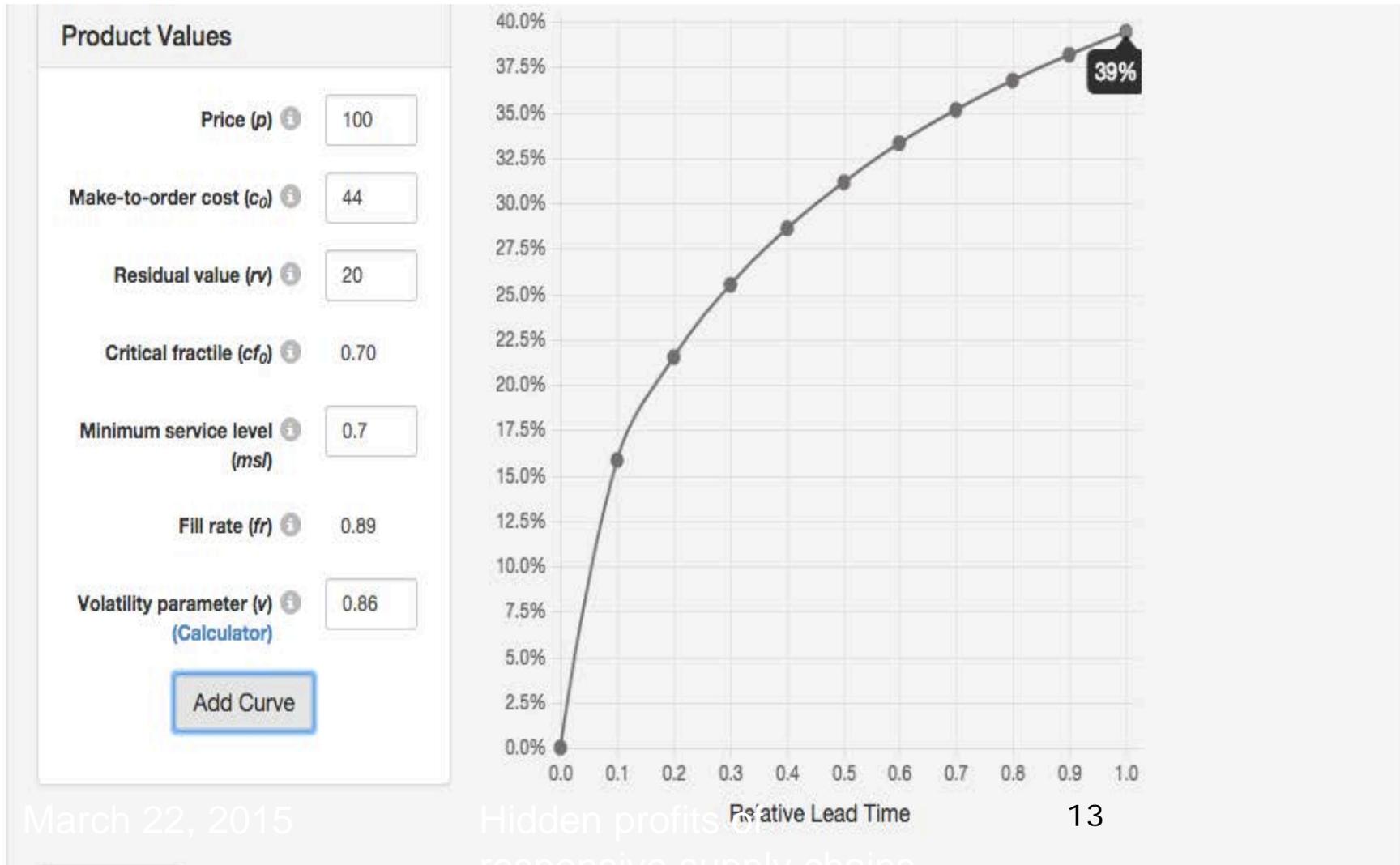
Source: TCO user database



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

Local production dominates



Product Values

Price (p)

Make-to-order cost (c_0)

Residual value (rv)

Critical fractile (cf_0)

Minimum service level (msl)

Fill rate (fr)

Volatility parameter (v)
(Calculator)

Add Curve

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

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

Offshoring Multiplies Waste

| <u>Toyota Wastes</u> | <u>Offshoring Contributes</u> |
|----------------------|--|
| Overproduction | Large batch shipments, filling containers |
| Waiting | Uncertain delivery/Inconsistent quality, port, customs, shared “awake time” window for discussions |
| Transport | 8,000 mi. inbound (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 |



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
 - Chinese cost: -30% becomes +6% considering inventory and delivery problems

- Walmart's increase in U.S. manufactured purchases:
 - \$250 Billion over 10 years
 - \$50 Billion in the 10th year
 - In the 10th year:
 - Approx. 300,000 manufacturing jobs*
 - Approx. 1 million total jobs**
 - <http://engage.walmart-jump.com/>
- *Reshoring Initiative **Boston Consulting Group

- 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 ft² 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

The Bleeding has Stopped

| Manufacturing Jobs/Year | | | |
|-------------------------|-----------|----------------|----------|
| | 2003 | 2014 | % Change |
| New Offshoring | ~150,000* | 30,000-50,000* | -70% |
| New Reshoring & FDI | 12,000* | 60,000** | + 400% |
| Net Jobs Gained | ~-140,000 | ~+10,000 | N/A |

* Estimated ** Calculated

Reshored Industries: Top 10

| Industry | Jobs | Cases |
|--|-------------|--------------|
| Transportation Equipment | 13823 | 33 |
| Electrical Equipment, Appliances, Components | 9240 | 58 |
| Computer/Electronic Products | 3483 | 25 |
| Machinery | 2860 | 20 |
| Apparel/Textiles | 2154 | 46 |
| Fabricated Metal Products | 1721 | 39 |
| Food | 1628 | 9 |
| Wood Products | 1028 | 18 |
| Medical Equipment | 738 | 17 |
| Hobbies | 723 | 29 |

Sources:
Reshoring
Initiative Library.

Cases 2007
through 12/31/14.



Negative Issues Offshore: Top 10

| Negative Reasons not to Offshore | Companies |
|--|----------------|
| Quality/rework/warranty | 116 |
| Freight cost ; Lead time/time to market | 90 each |
| Rising wages | 63 |
| Total cost, TCO | 62 |
| Delivery | 45 |
| Inventory | 42 |
| Communications | 26 |
| Intellectual property risk | 23 |
| Loss of control | 22 |
| Supply chain interruption risk, Travel cost | 21 each |

Positive Reasons to Reshore: Top 10

| Positive Reasons to Reshore | Cases |
|--|--------------|
| Image/brand | 58 |
| Automation/technology | 53 |
| Re-design of the part | 40 |
| Government Incentives; Walmart | 35 each |
| Skilled workforce availability/training | 34 |
| Higher productivity; Lean or other business process improvements; Manufacturing/Engineering joint innovation | 27 each |
| U.S. price of natural gas, chemicals, electricity | 18 |
| Contracted/Customers Reshoring | 16 |

Top Countries From Which Reshored

| Global Region | Cases |
|----------------------|--------------|
| Asia | 241 |
| North America | 37 |
| Western Europe | 12 |
| Eastern Europe | 5 |

| Country | Cases |
|--------------------------|--------------|
| China | 194 |
| Mexico | 27 |
| Canada | 10 |
| Taiwan | 9 |
| Japan | 8 |
| India | 7 |
| Italy | 6 |
| Korea, Malaysia, Hungary | 3 each |

Jobs Reshored by State: Top 10

| State | Jobs | Cases | Jobs/ Facility |
|--------------|-------------|--------------|-----------------------|
| SC | 7530 | 8 | 941 |
| TX | 3792 | 13 | 292 |
| KY | 3412 | 4 | 853 |
| GA | 3145 | 8 | 393 |
| TN | 3137 | 15 | 209 |
| OH | 2739 | 24 | 114 |
| MI | 1742 | 16 | 109 |
| NY | 1165 | 19 | 61 |
| NC | 1020 | 15 | 68 |
| KS | 1000 | 2 | 500 |



Benefits of Reshoring

- Balance the \$500 billion trade deficit:
 - 3 million manufacturing jobs
 - Cut U.S. budget deficit by about 50%
 - Reduce unemployment about 4 percentage points
 - 25% increase in manufacturing
 - If spread over 20 years: 25% extra annual capital equipment investment

- Commerce Dept:
 - 2012 budget specifies TCO.
 - Links:
 - <http://nist.gov/mep/reshoring.cfm>
 - <http://business.usa.gov/program/reshoring-initiative>
 - Major new site: <http://acetool.commerce.gov/>
 - Testified at Congressional hearing on 3/28/12
 - Working actively with SelectUSA
- Calls from:
 - US-China Economic and Security Review Commission
 - White House National Economic Council





Employment Projections

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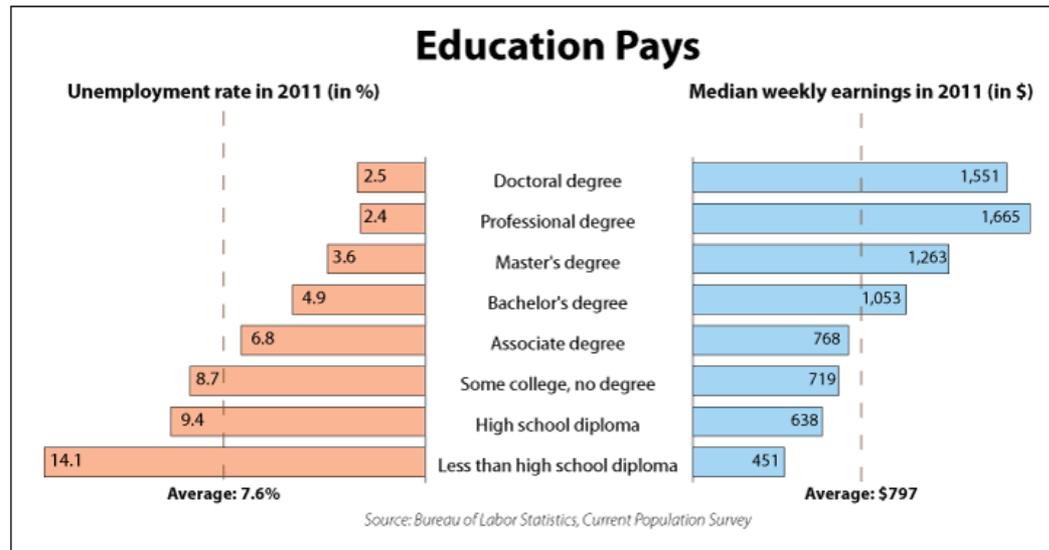
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Education pays...

Education pays in higher earnings and lower unemployment rates



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.





Local Skilled Workforce Recruitment

| Issue | Solution |
|--|--|
| “Trades” and “vocations” image | Call them “Professions” |
| “Middle skills” | “Technical Skills” |
| 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 |



More Boots on the Ground

- Suppliers suggest companies where they lost to offshoring
- Visit the companies
- Educate on TCO
- Encourage reshoring and use of local suppliers
- Underway in MS and PA

- Use the tools for sourcing. Free at 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.**

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

Relatively:

- Less:

- Incoming border freight
- DCs close to border
- Train freight

- More:

- Production, esp. in SE, TX, MW and Mexico.
- DCs closer to production
- Truck traffic, esp. local and regional component delivery
- Exports

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

A non-profit with 38 sponsors, including:

Platinum



Gold



Silver



A non-profit with 38 sponsors

Bronze



Steel



Iron



Help reverse the offshoring flood now!

Contact:

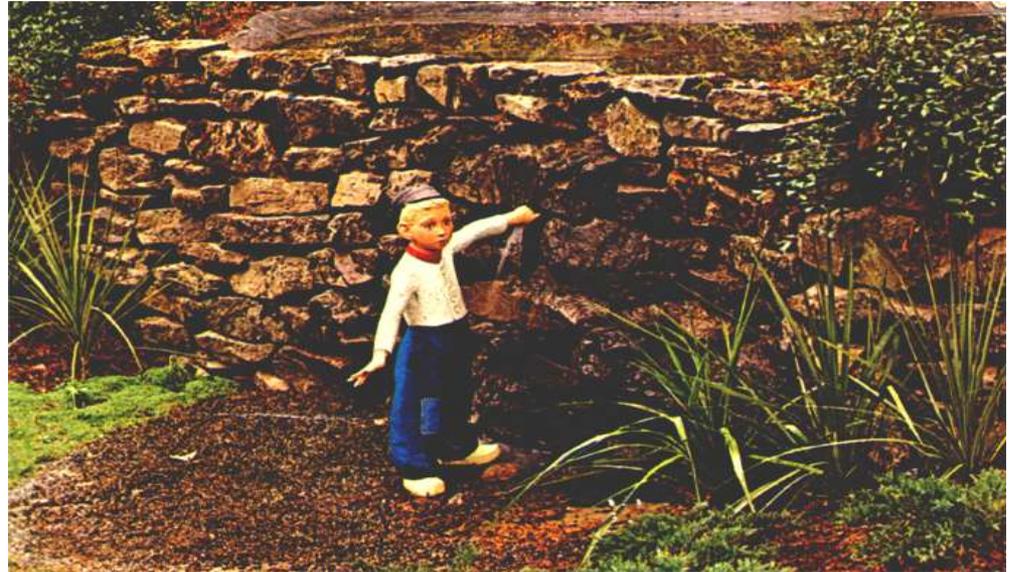
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Recruiting trainees for the skilled manufacturing workforce:

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