



Use of Predictive Scenario Analytics to Support Economic Development

Glen Weisbrod
Economic Development Research Group, Inc.
www.edrgroup.com
gweisbrod@edrgroup.com

Future Risk?

COMPLACENCY in the face of economic change is the surest path to loss.



Proactive economic development is intervention to enable new paths.

Scenarios Analysis: optimize future return

and allow for uncertainty
and disruptive effects



Missed Opportunity

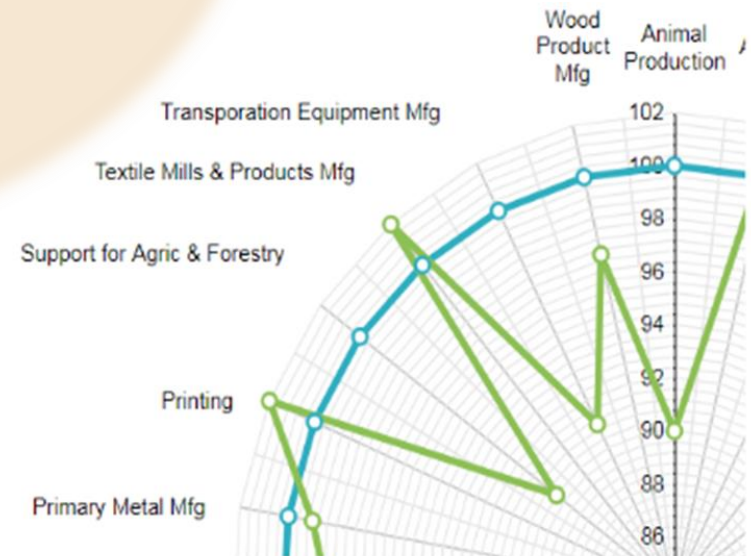
Stranded Investment

Payoff from Investment

Robust Economic Development

External Factors affecting Local Risks + Opportunities

- Energy, Labor + Transport Prices
- Currency Exchange Rates
- Foreign Trade and Tariffs
- Global Economy
- Technology
- Air, Sea Ports, Access Routes
- Weather, seismic + fire events



Types + Implications of External Factors

Organic Change from LR Trends:

- Evolving Economic Growth/Pattern
- Evolving Technology Performance
- Evolving Population Growth/Pattern

Hard-to-Anticipate LR Change:

- Resources (energy price, availability)
- Economy (exchange rates, trade regs)
- Disruptive Events (weather, seismic)
- Technology Innovation

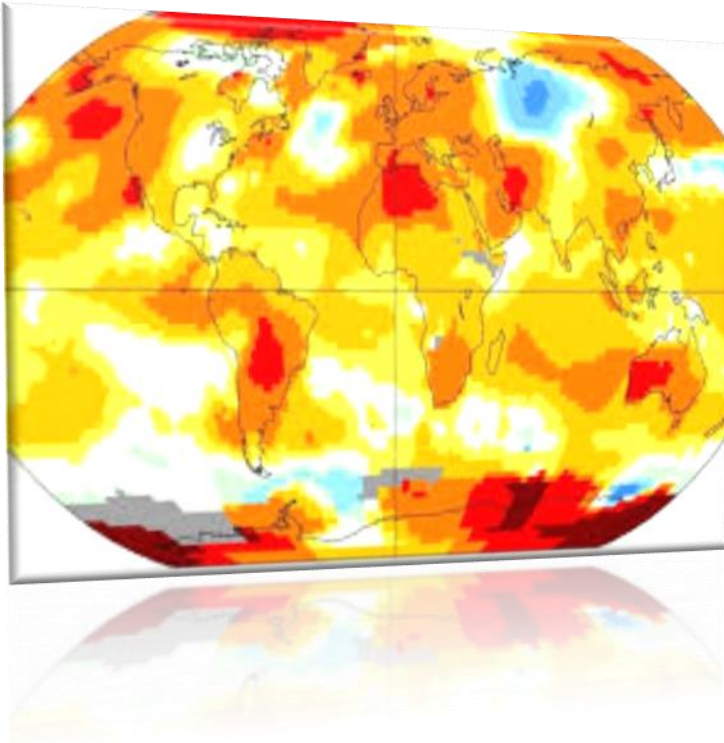
Possible Futures

- Δ Future demand for workers, places
- Δ Needs for investment in training + facilities

Predictive future analytics courtesy of

TREDPLAN

Example 1: Changing Weather Conditions



Long-term trending towards

- Less cold winters
→ *reduction in \$ costs for heating*
- Hotter summers
→ *increase in \$ costs for cooling*
- Greater frequency and \$ cost of flood & storm disruptions

Why it matters

Building operating cost/employee - **up** in some areas, **down** in others

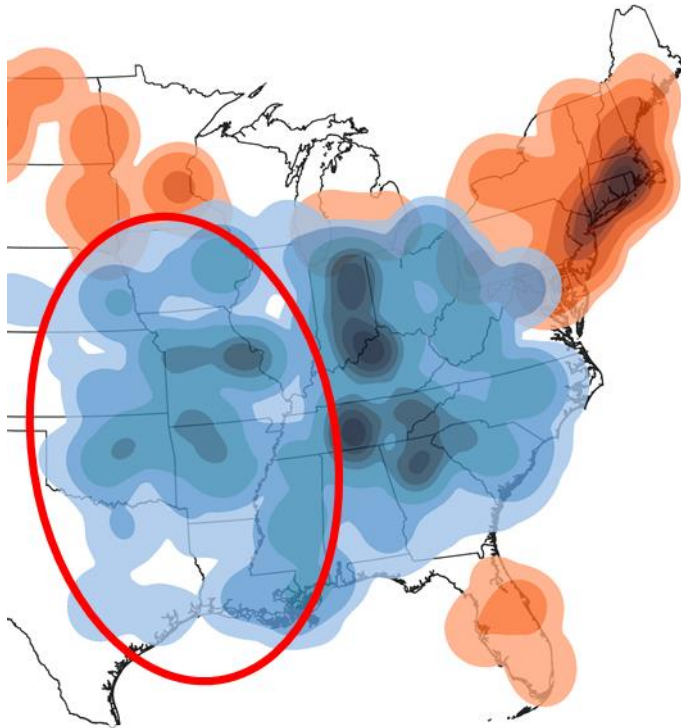
Highly affected industries: warehousing, chemicals, metals, electronics

Vulnerability with Changing Weather

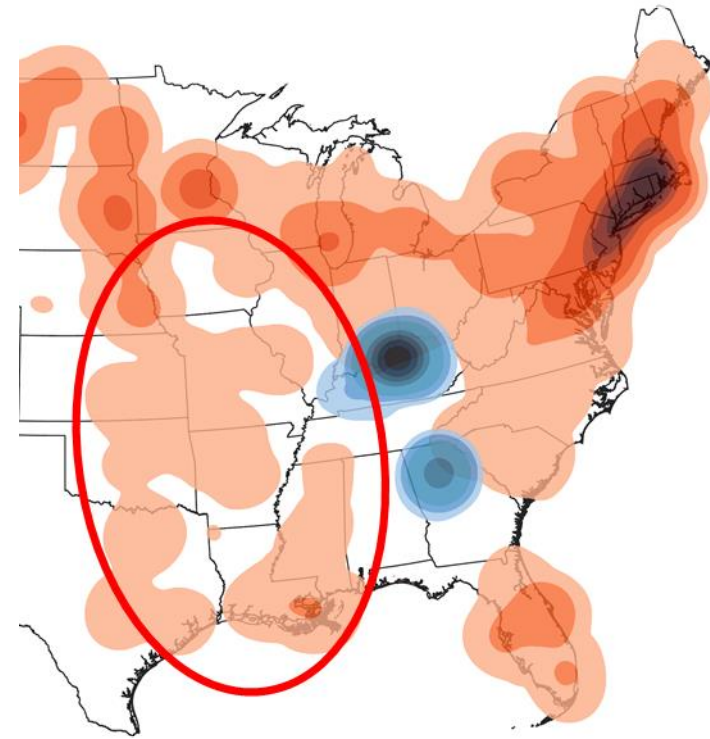
Future Change in Energy cost per worker

Red = Higher \$ Cost *Blue* = Lower \$ Cost

(with *stable* future energy prices)



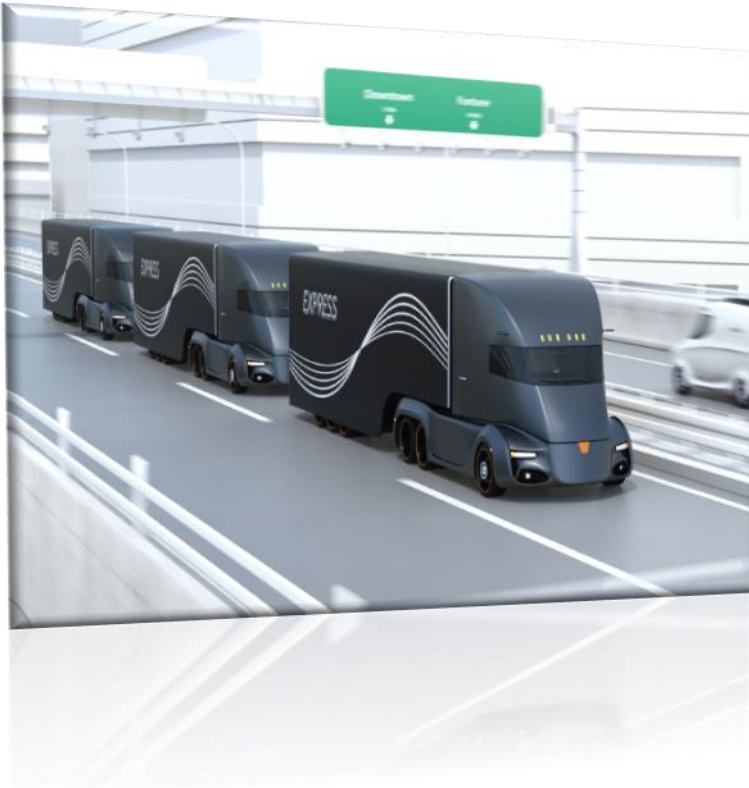
(with *higher* future energy prices)



Most affected industries: Warehousing, chemicals, metals, electronics

TREDPLAN

Example 2: Autonomous Vehicle Technology



Anticipated changes

- Driverless trucks eliminate
 - driver cost
 - driver/operator time limits
 - driver breaks
- Connected 3-truck platoons enable
 - operating cost savings
 - safety + emissions improvement

Why it matters

“Same-day” deliveries - longer distance + lower cost

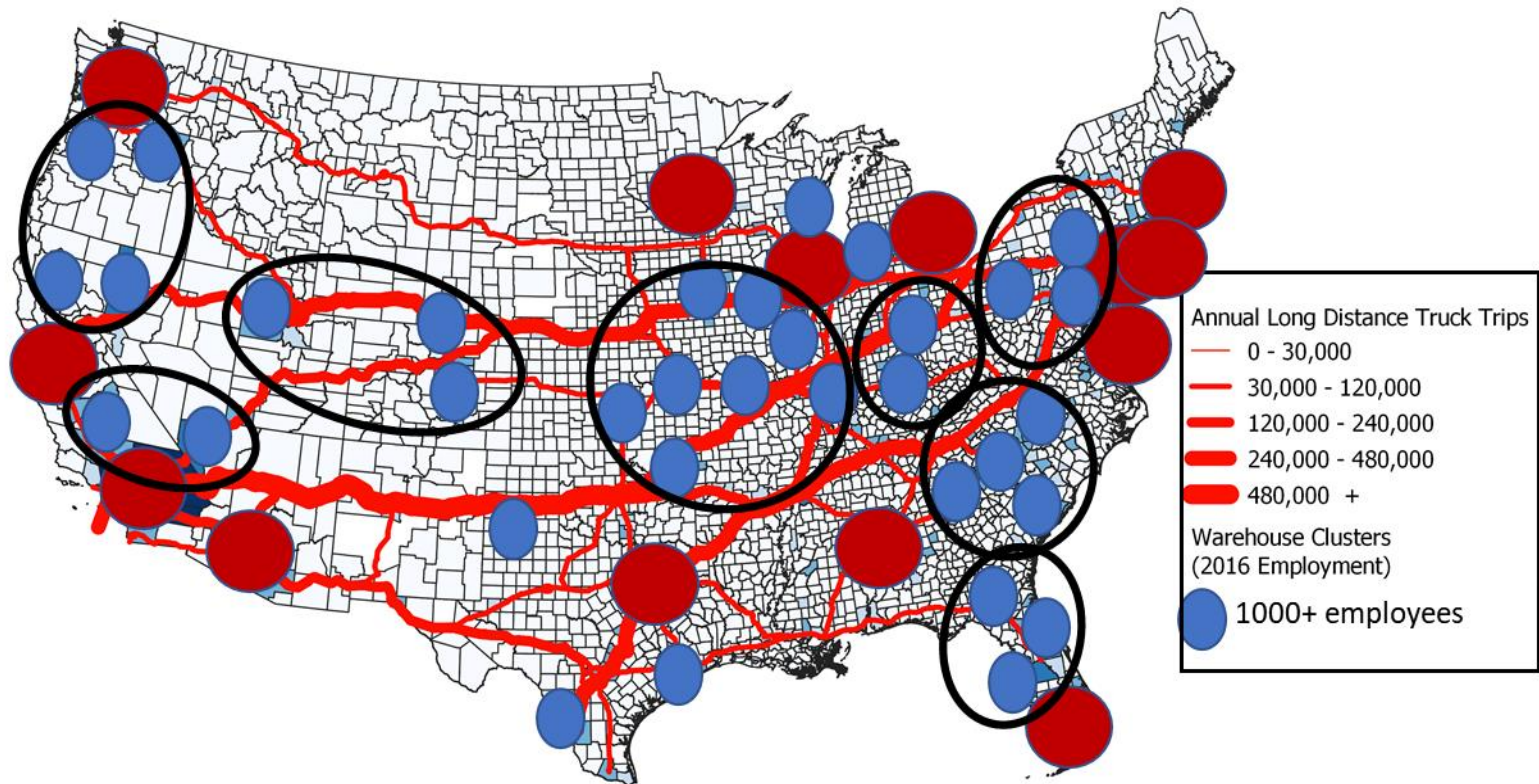
Shift locations for warehouses + truck facilities

Vulnerability with Longer Distance Deliveries

Warehousing Centers along long distance truck routes

Red = Largest Metro Areas

Blue = Regional Distribution Centers



Most affected industries: electronics, pharmaceuticals, instruments, machinery

TREDPLAN

Example 3: Changing Occupational Growth



Anticipated changes

- Consolidation of Pharma + Chemical industries
- Dispersion of Software and Electronic industries
- Emerging shifts in job training needs

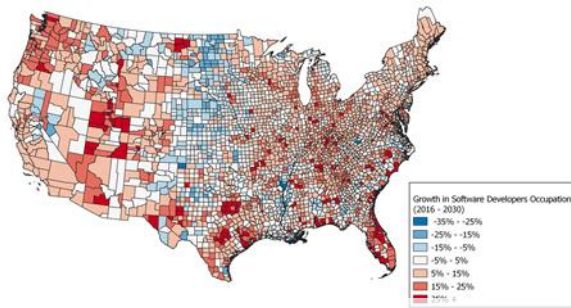
Why it matters

Job training needs - anticipate spatial shifts, not just industry trends

Vulnerability: Occupational Demand Shifts

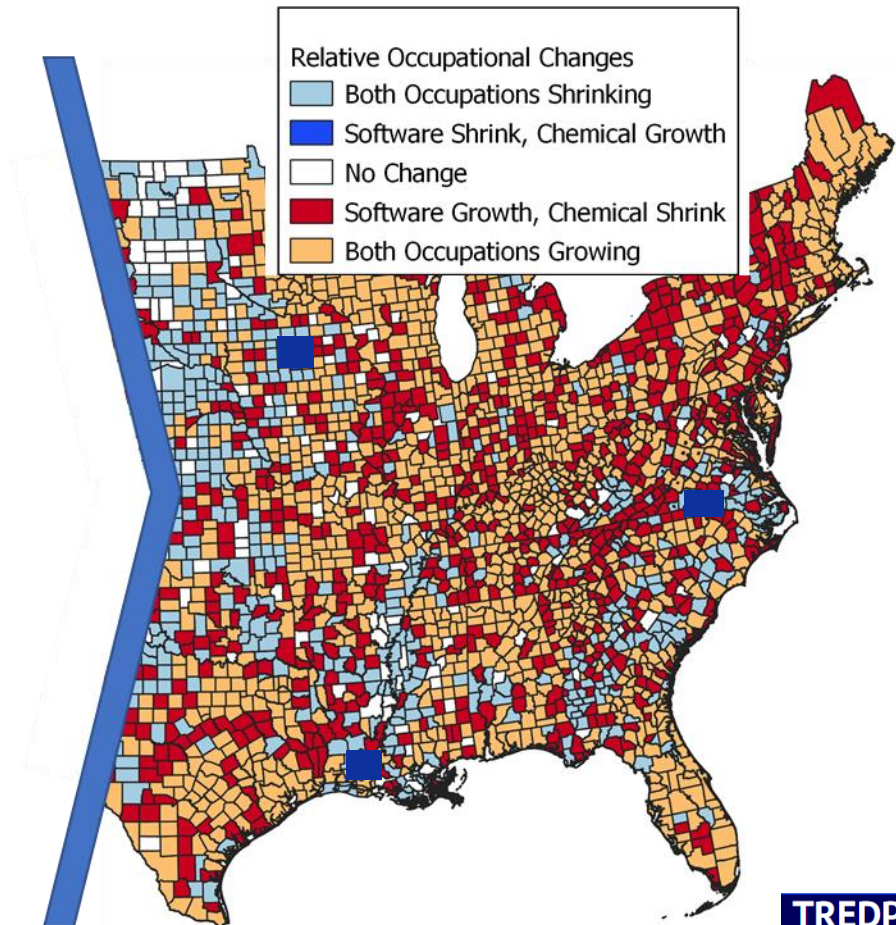
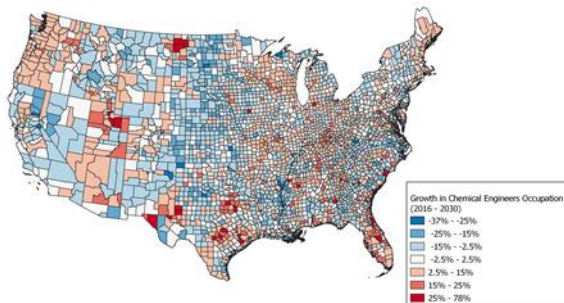
Expected Change in Occupational Demand

Computer software occupations



Red = more relative demand
Blue = less relative demand

Chemical engineering occupations



TREDPLAN

Example 4: Changing Trade Tariffs



Hard-to-predict duration + levels

- Places: Asia? Mexico? Europe?
- Commodities + goods: grains? Metals? manufactured products?
- Self-applied on US imports, or applied by others on US exports

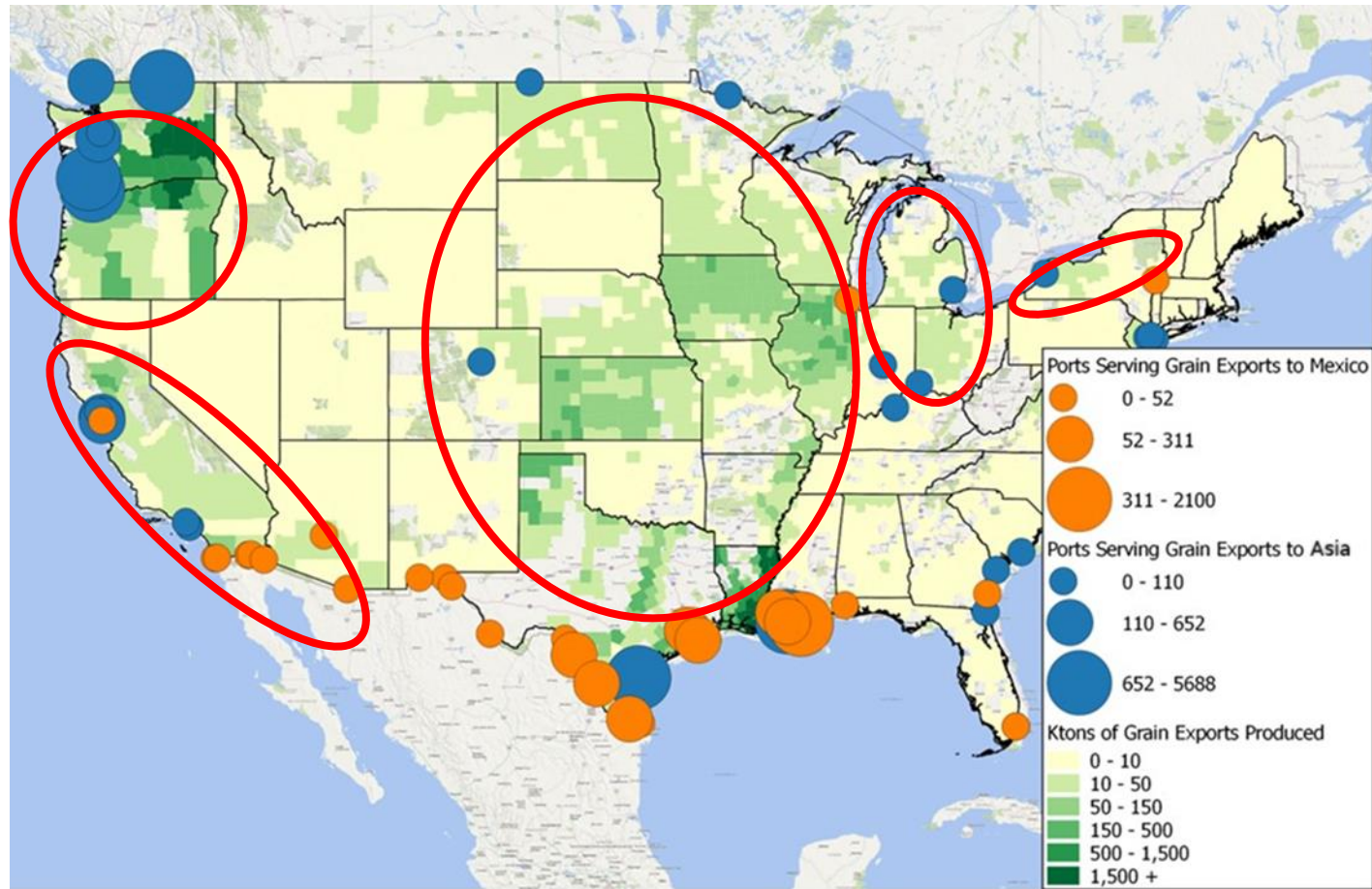
Why it matters

Vulnerability - location clusters with high export or import dependence

Need - alternative export customers or alternative domestic suppliers

Vulnerability to new export tariffs

Shift between exports to Mexico and exports to China



Most affected industries: grains, metals, manufactured products

TREDPLAN

Paradigm Shift

- **Every industry + every area** can gain or lose - *depending on scenario*
- **Understand risks + opportunities** - *to hedge bets, target investment*
- **The pace of change is accelerating** *for economic developers*
- **Predictive analytics + risk portfolio concepts** *can inform decisions*

