

# Permanent Magnets?

We don't make them here anymore.  
Lessons for the new paradigm

S. R. Trout

SMMA

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# Outline

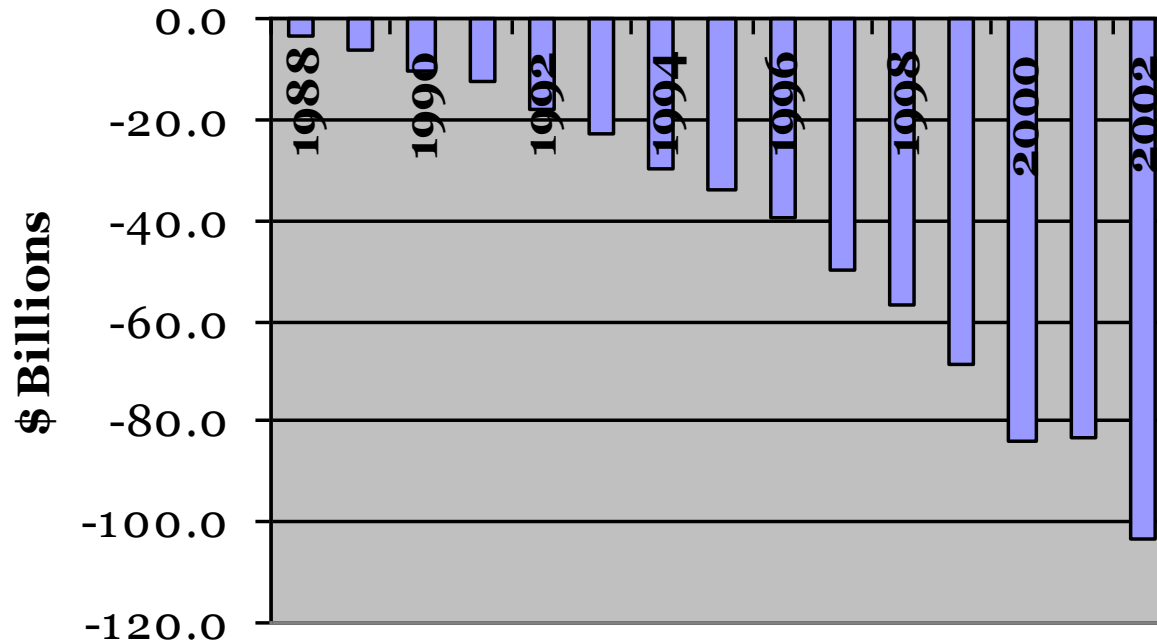
- Drivers
  - Global
  - Industry specific
- Consequences
  - Sourcing
  - Technical Support
- Predictions
- Conclusions

# Drivers: The race to the bottom



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# Balance of Trade with China



Source: U.S. Census Bureau

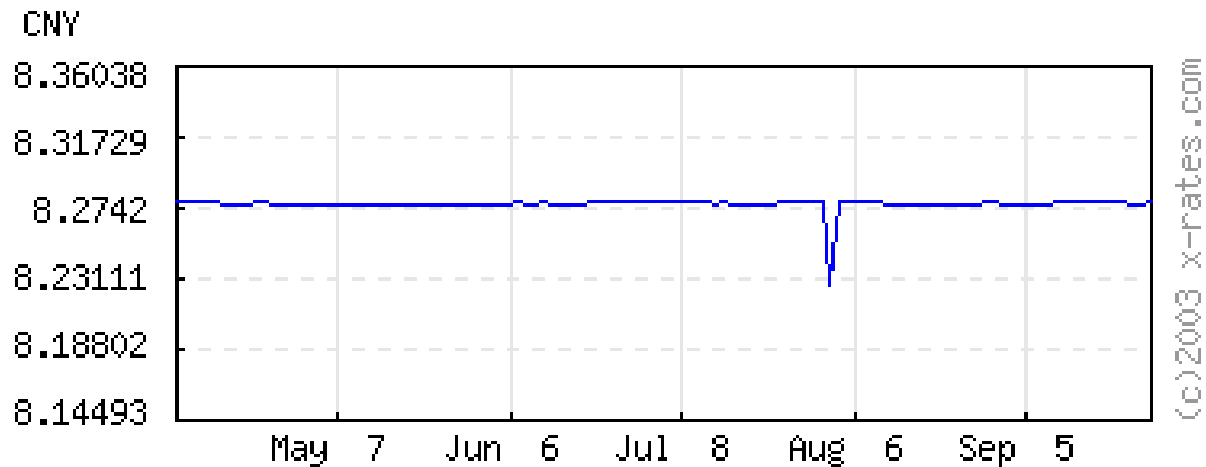


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# Yen and Euro vs. \$ for 2003



# Yuan vs. \$ for 2003



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# Industry Specific Drivers: Raw materials & Magnets



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There is oil in the Middle East. There are rare earths in China. We must take full advantage of this resource.

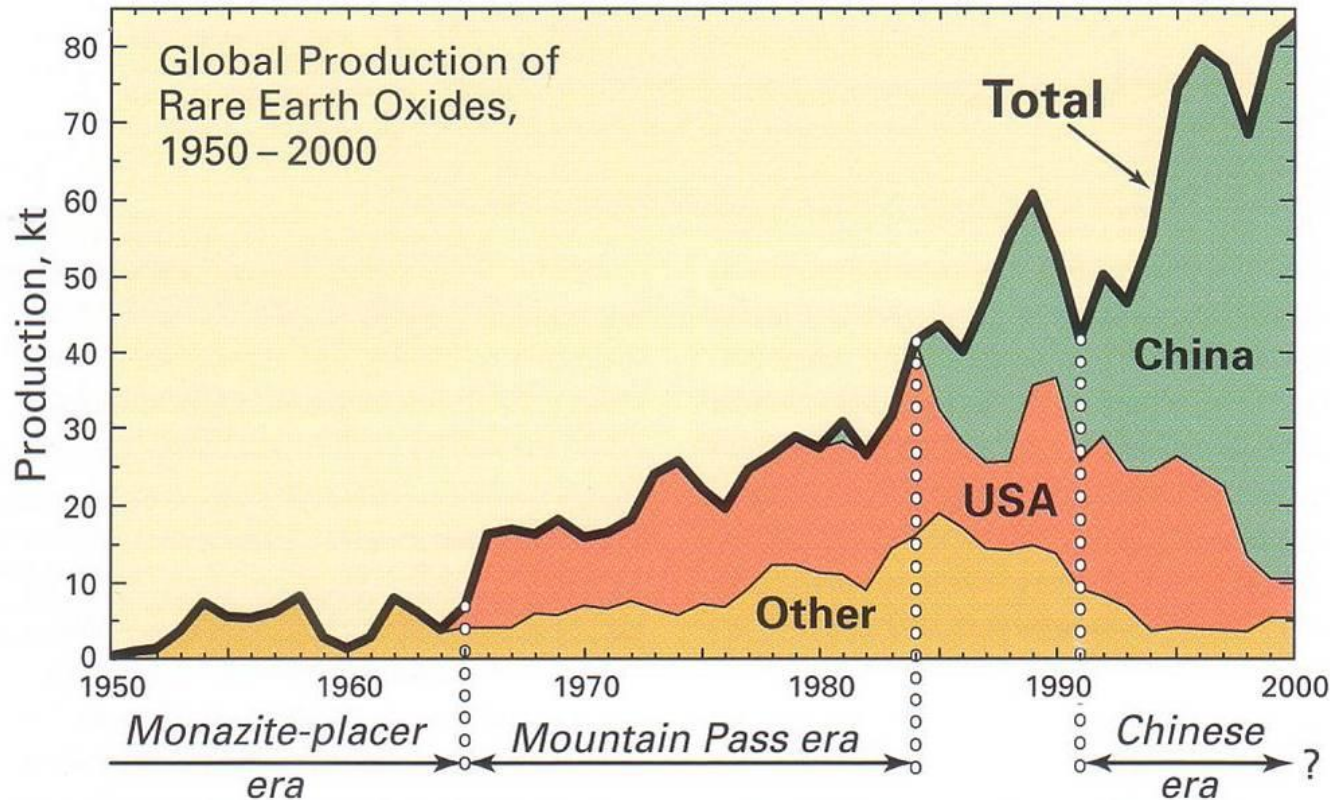
Deng Xiaoping, 1992



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# Shift in the source of raw materials

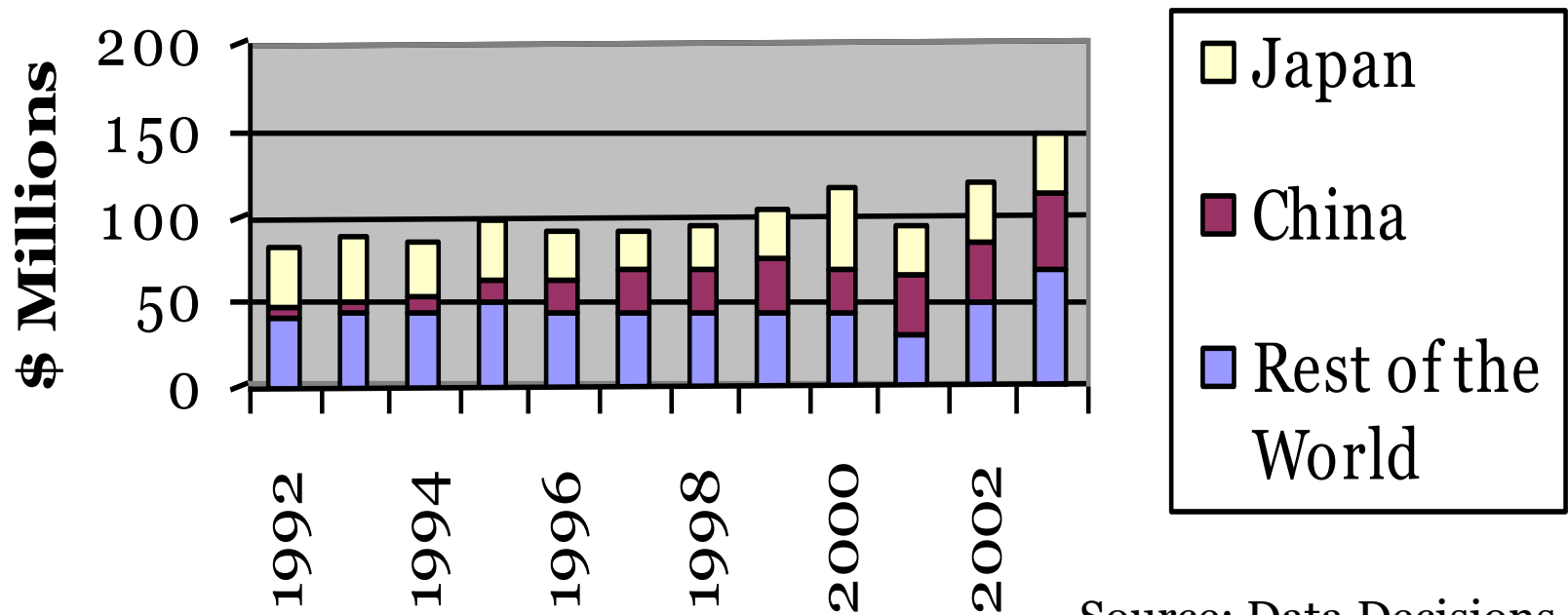


Source: U.S. Geological Survey



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# Metallic Magnet Imports



Source: Data Decisions

# Consequences

- Sourcing
  - Domestic
  - Global
- Technical Support
  - Traditional
  - New Sources
  - How well do they work?

# Technical Support Survey

- Question: What is the density of either NdFeB or Ceramic 8?
  - Traditional: 5/5
  - Non-traditional
    - Distributors: 1/5 first try, 2/4 second try
    - Traders: 2/5 first try, 0/3 second try
    - Consultants: 3/3
- Nearly all who answered, replied within 24 hours



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The future, it ain't what it used to be.

Yogi Berra



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# Predictions

- There is no end in sight for the move to China
- Large projects will be sourced from China
- Niche and specialty manufacturers will probably survive
- New sources of technical support and information will emerge

# Conclusions

- The globalization trend continues
  - Downward spiral on prices
  - Manufacturing moves offshore
  - The trend is irreversible
- There are industry specific overtones
  - Rare earths and magnets are targeted industries
- We will operate differently
  - Communications
  - Logistics
  - Technical support
  - Product development