

# Sustainable Supply Chains: The Regulator's Perspective



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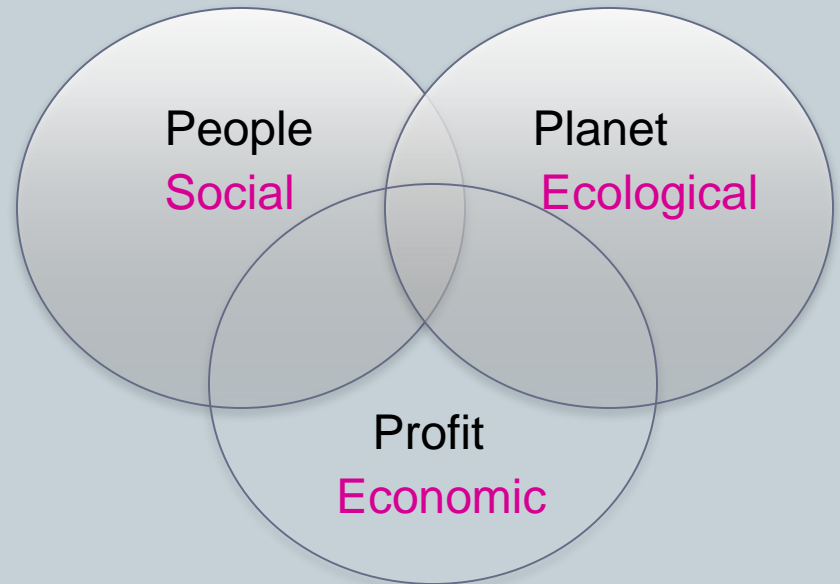
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# Why Circular Economy?



- **Maximize Profit**
- **Improve the Triple Bottom-line**
- **Legislation**



# Early Industry Examples - XEROX



- **Document Center 265 in 2006**
  - 84% re-manufacturable & 97% recyclable
  - 265 replacement parts rather than 2,000



- **Fuji Xerox – zero landfill product**

# Early Industry Examples - Auto

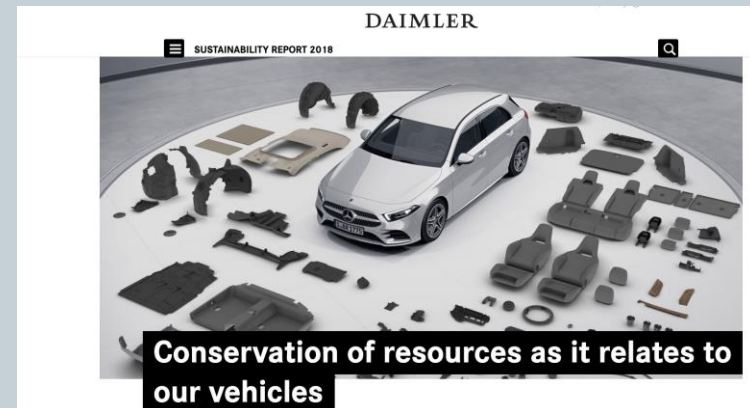
## NISSAN March vehicle:

- designed to reduce dismantling time by 40%
- high reusability rate



## DAIMLER

- 15% of large components are produced from reusable materials



# Is There a Need for Legislation?



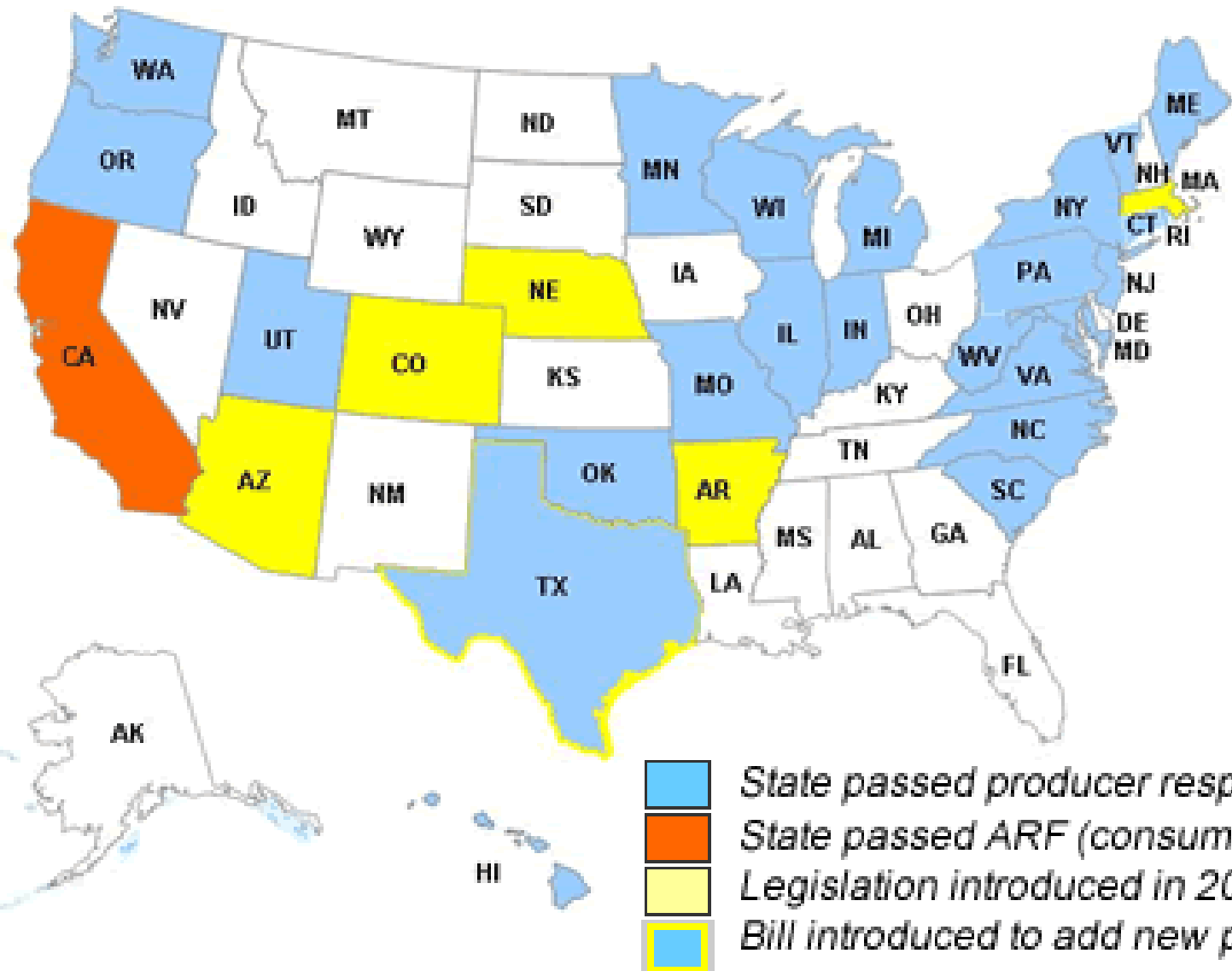
- **Rationalize the Consumption of Virgin Materials**
- **Design of Environmentally Friendly Products**
- **Landfill Diversion**

# Main Policy Options for the Regulator



- **Mandatory Requirements (Europe)**
- **Price-based Incentives (U.S.)**
- **Hybrid policies (Canada)**

# Policy Differences in the U.S.



# Michigan – Lot of work to do



## 2008 EPR Legislation & Electronic Waste Takeback Program; currently





# Mandatory Requirements in EU



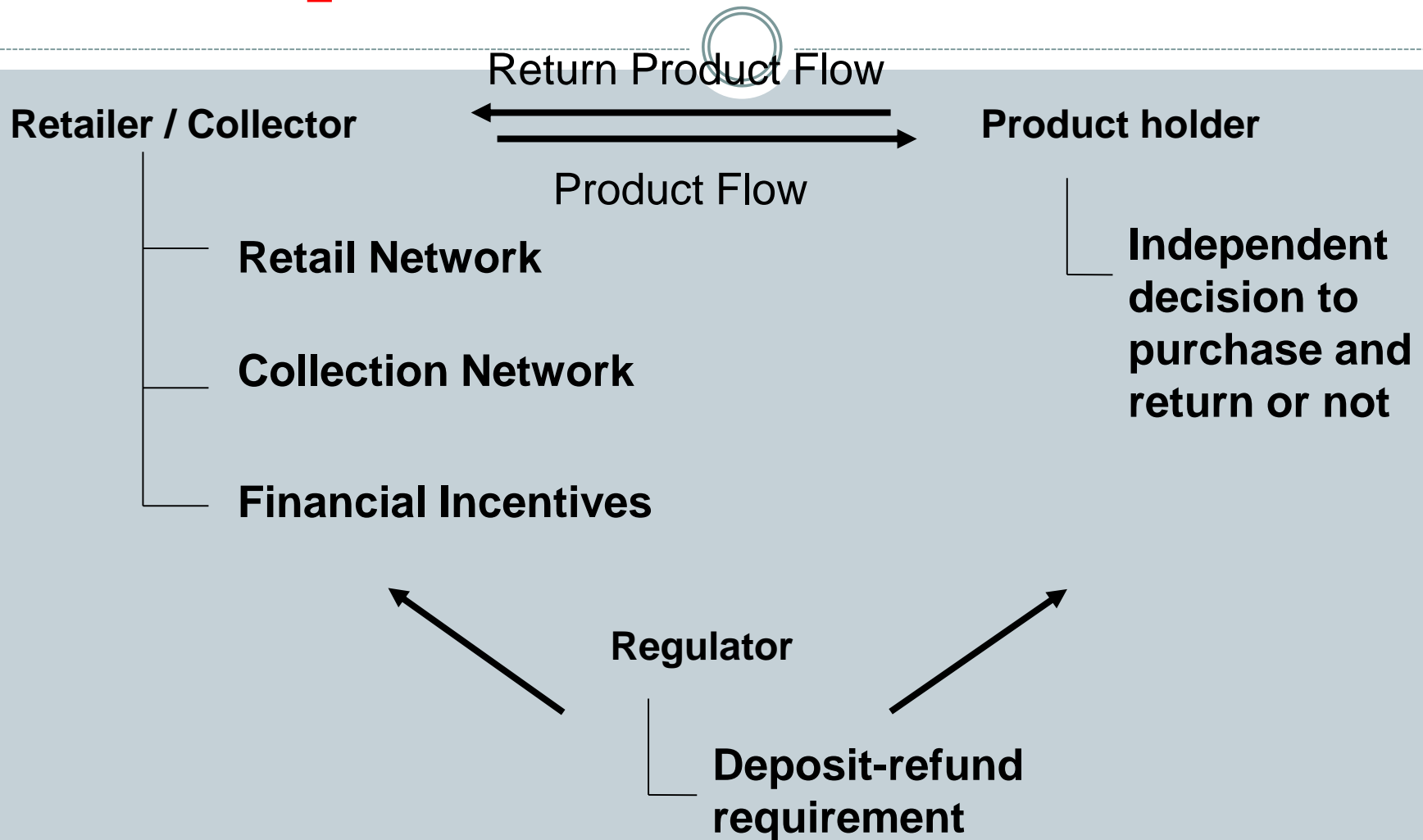
- **Collection/Reuse/Recycling Targets**
- **Take-Back Legislation**
  - **Packaging Directive**
  - **RoHS Directive**
  - **EoL Vehicles Directive**
  - **WEEE Directive & WEEE Recast (2012)**

# Price-based Incentives

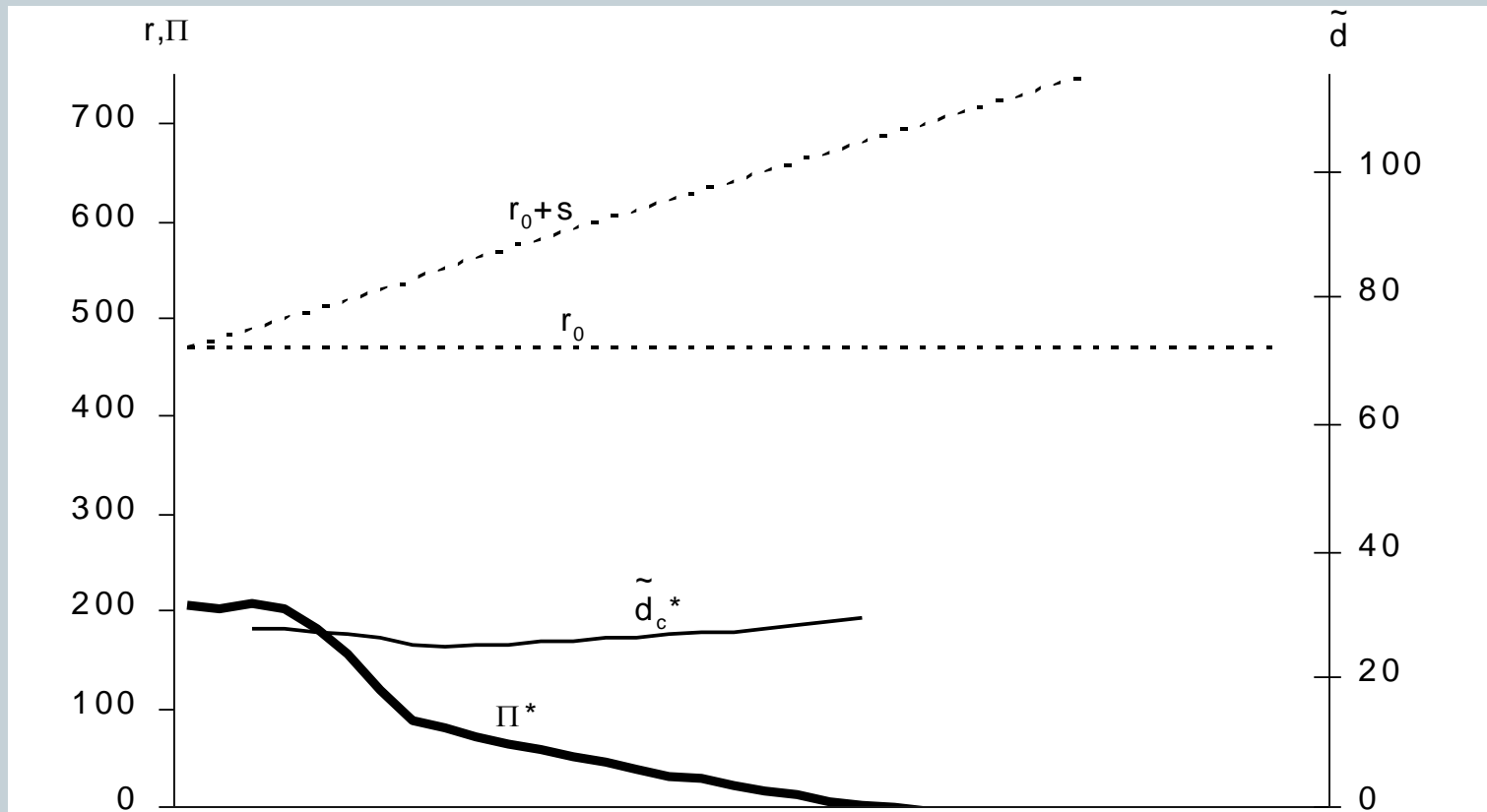


- **Taxes on the use of virgin materials**
- **Recycling subsidies**
- **Advanced disposal fees**
- **Deposit-refund requirements**

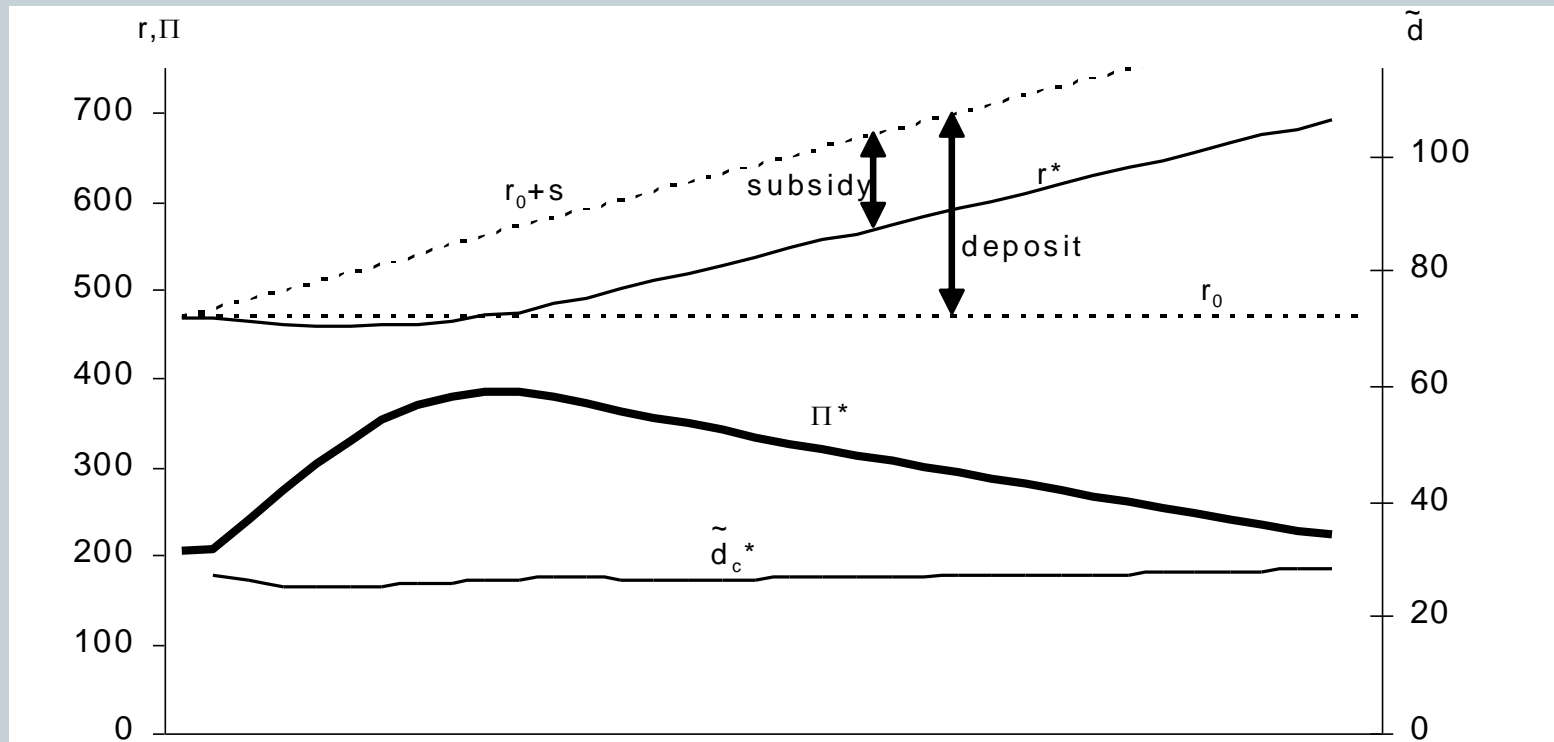
# Example: Our Research on Collection



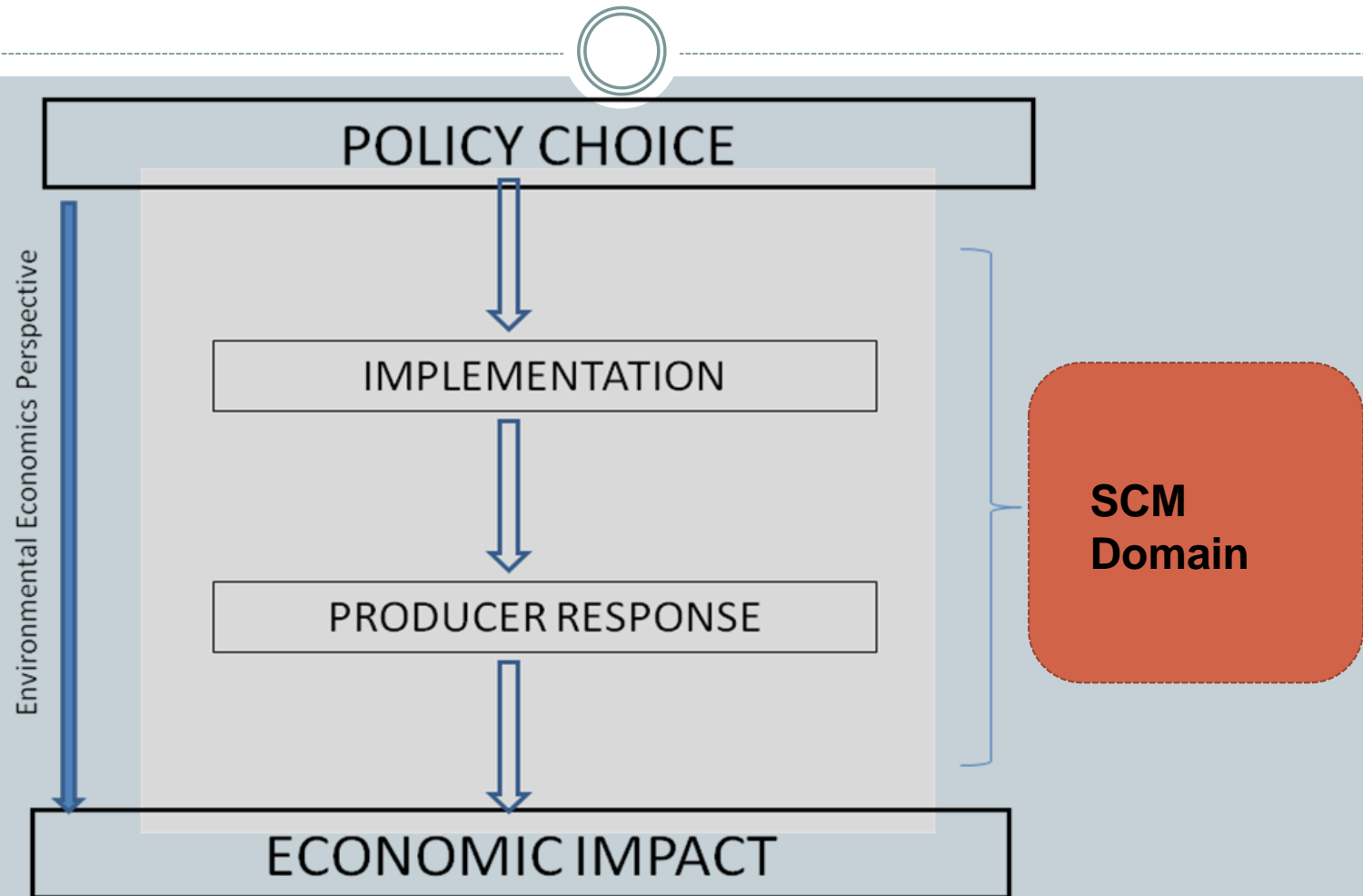
# Current Practice: Adding the Deposit on the Price



# Optimal Policy: Partially Subsidizing the Deposit



# The Role of Supply Chain Management



# Outlook on Sustainable Supply Chains



## **Fruitful Avenues:**

- **Product Design**
- **Environmental Impact**
- **Legislation**

# Thank you!



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