

PRINCIPLED PREVENTION

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Translating Emerging Science
into Public Policy

Dueling Paradigms

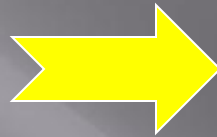
- ▣ Conventional Risk Management
 - Single Chemical/Process Focus
 - Establish Acceptable Exposure Limit
 - Attainment through Control Measures

- ▣ Prevention-Based Regulation
 - Comparative Approach
 - Seeking Adoption of Safer Alternatives

The Existing Framework

▣ Gatekeeper Programs

- Pesticide Registration
- Pre-Market Review

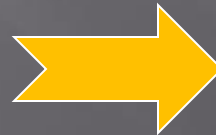


● Unreasonable Risk

- Risk/Benefit balancing
- Health-based standard in practice

▣ Oversight Programs

- OSHA Health Standards
- EPA MACT Standards



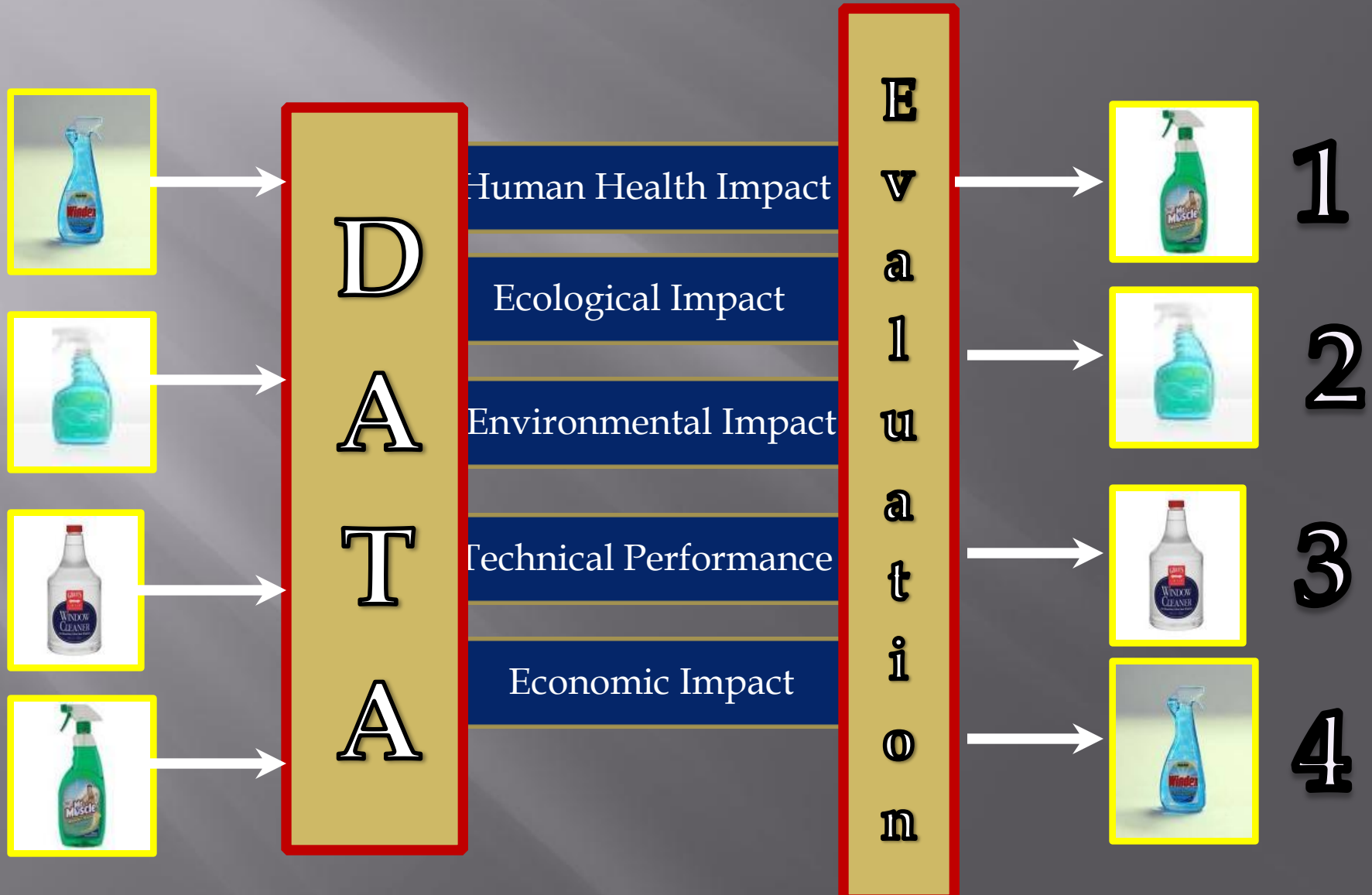
● Acceptable Exposure

- Technology-based
- Health-based

Operationalizing Prevention

- ▣ Methodologies Required
 - Alternatives Analysis
 - The “New” Toxicology
- ▣ Regulatory Mechanisms Needed

Alternatives Analysis Decision Framework



AA Design Principles

▣ Transparent

▣ Flexible

▣ Pragmatic

▣ Consistent

▣ Rigorous

PROTECTIVENESS



Regulatory Mechanism: Design Principles

- ▣ Effectiveness
- ▣ Protectiveness
- ▣ Cross-Generational Equity
- ▣ Cost Effectiveness/Efficiency
- ▣ Dynamic Efficiency
- ▣ Capacity of Government
- ▣ Market Autonomy
- ▣ Individual Autonomy

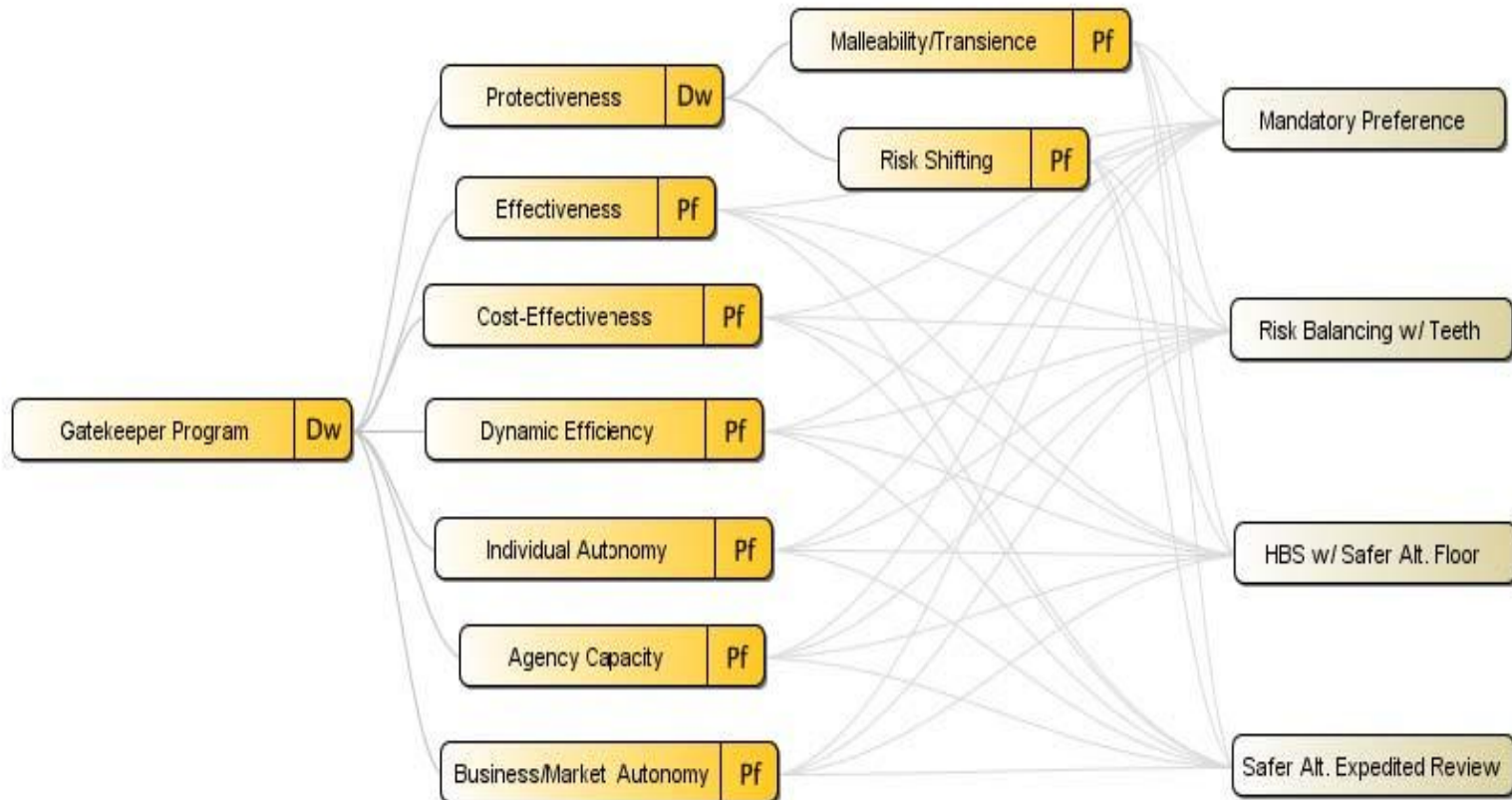
Prevention-Based Approaches: Gatekeeper Programs

- ▣ Mandatory Preference for Viable, Safer Alternative
- ▣ Risk/Benefit Balancing with Teeth
- ▣ Health-Based Standard with Safer Alternative Floor
- ▣ Expedited Review of Safer Alternatives

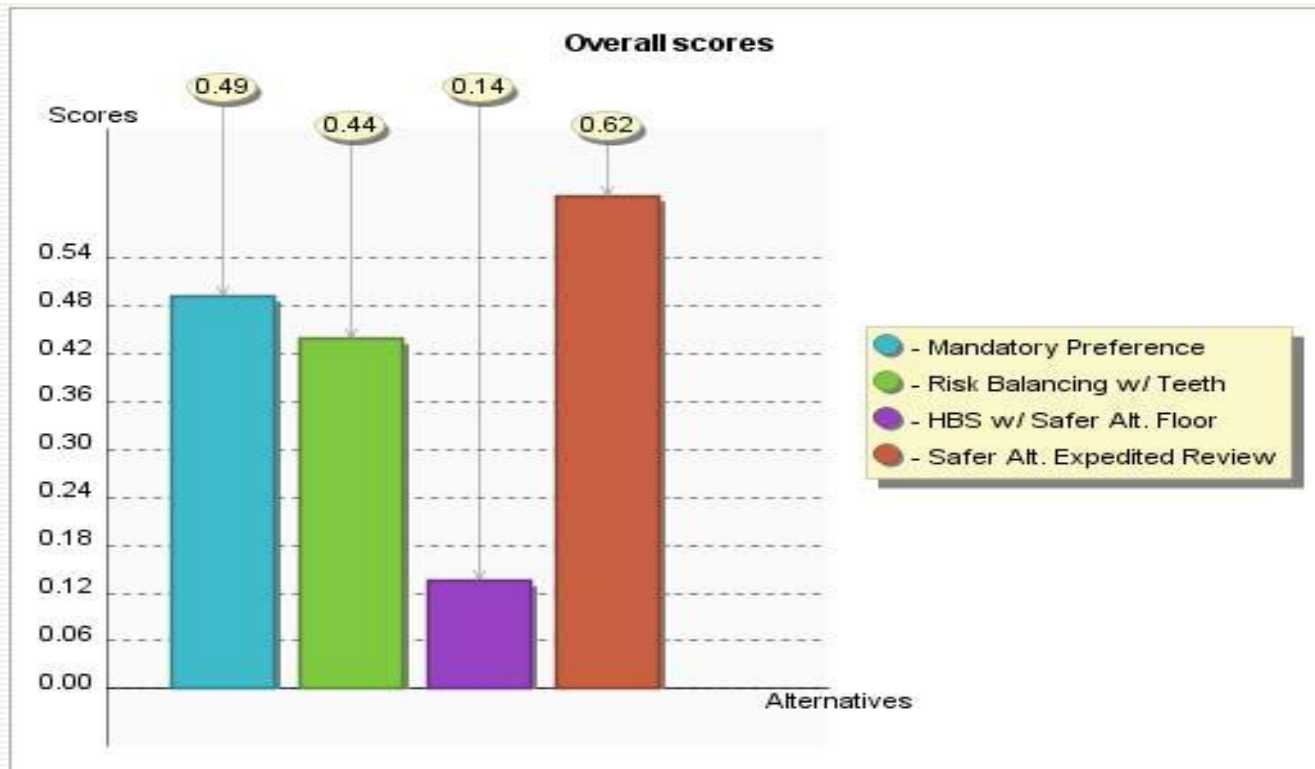
Prevention-Based Approaches: Oversight Programs

- ▣ Mandatory Use of Viable, Safer Alternative
- ▣ Adoption of Alternative-Based Emission Limit
- ▣ Compliance Preferences for Safer Alternatives
 - Soft
 - Hard
- ▣ Prevention-Based Planning
 - Soft
 - Hard
- ▣ Information Disclosure

Gatekeeper Choices



Gatekeeper Output



Resulting values of alternatives

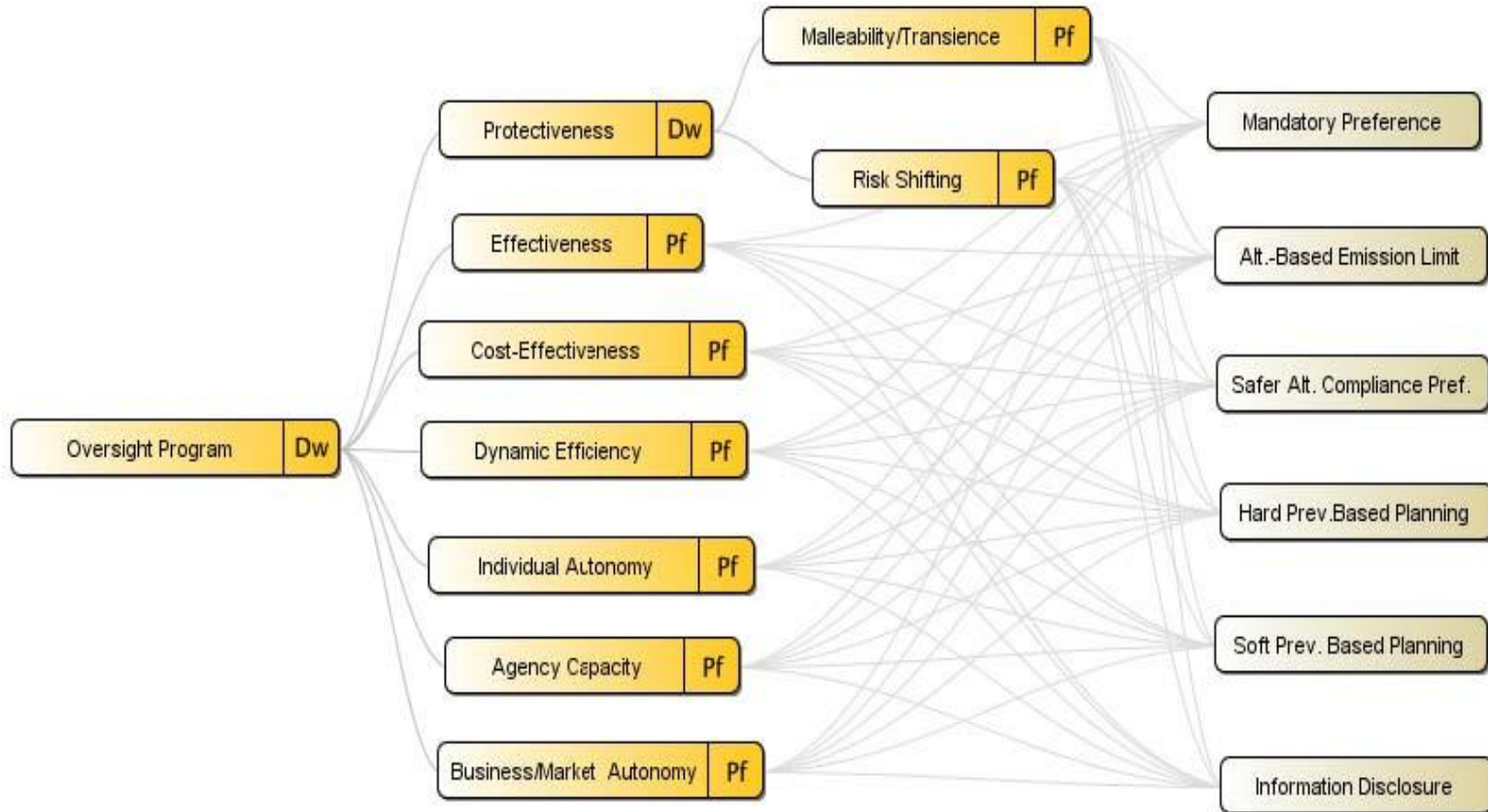
Mandatory Preference score = 0.493

Risk Balancing w/ Teeth score = 0.440

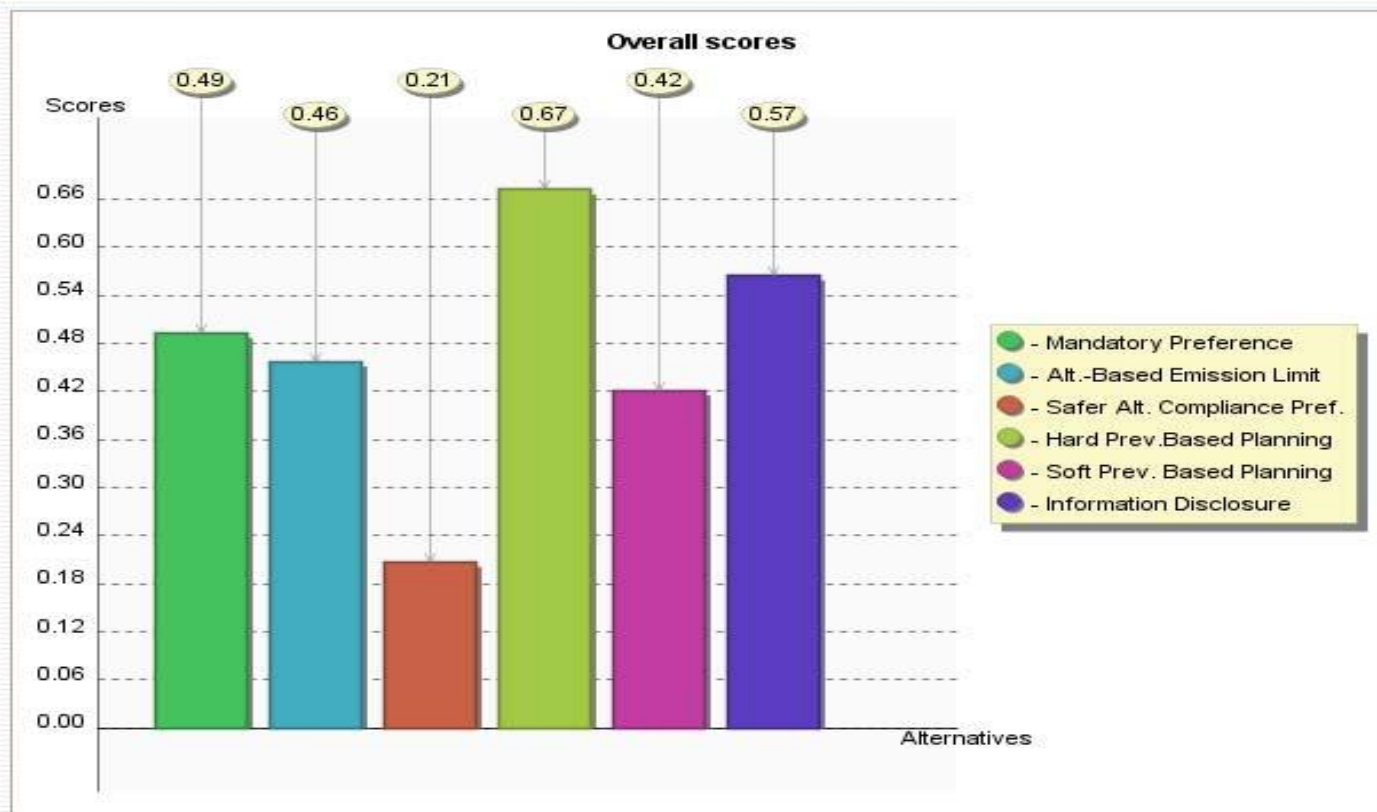
HBS w/ Safer Alt. Floor score = 0.136

Safer Alt. Expedited Review score = 0.619

Oversight Choices



Oversight Output



Resulting values of alternatives

Mandatory Preference score = 0.493
Alt.-Based Emission Limit score = 0.458
Safer Alt. Compliance Pref. score = 0.207
Hard Prev. Based Planning score = 0.672
Soft Prev. Based Planning score = 0.421

