



Promoting Eco- innovation for Green Economy

An overview of the OECD
Project on Sustainable
Manufacturing & Eco-innovation

1 December 2008

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Rationale for eco-innovation

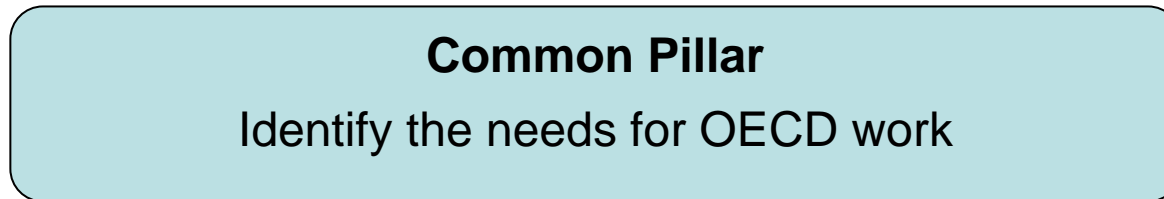
- Growing environmental concerns; expected post-Kyoto target
- Industry is taking initiatives but efficiency has been offset by increasing consumption and outsourcing
- Lacking linkage between macro-level targets and micro-level actions & indicators ... *Systemic improvement* is key

What can governments help?

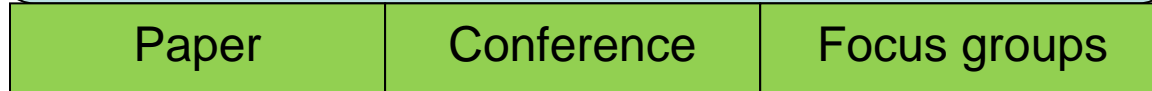
- **A new vision** for business opportunities based on innovation is needed
- Understanding and spreading **best practices** for making innovative solutions
- **Means to benchmark** to accelerate corporate efforts
- **Policy co-ordination** for enabling industry to take positive actions

Overview of the SM&EI project

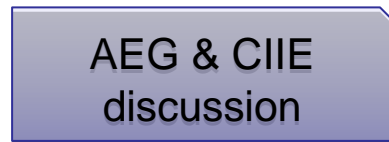
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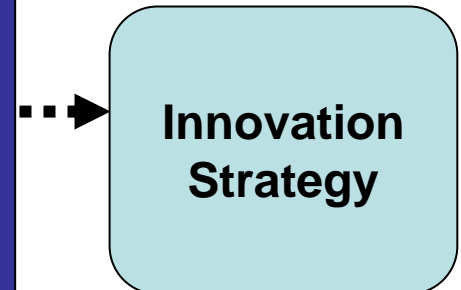
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2009
|
2010
&
beyond

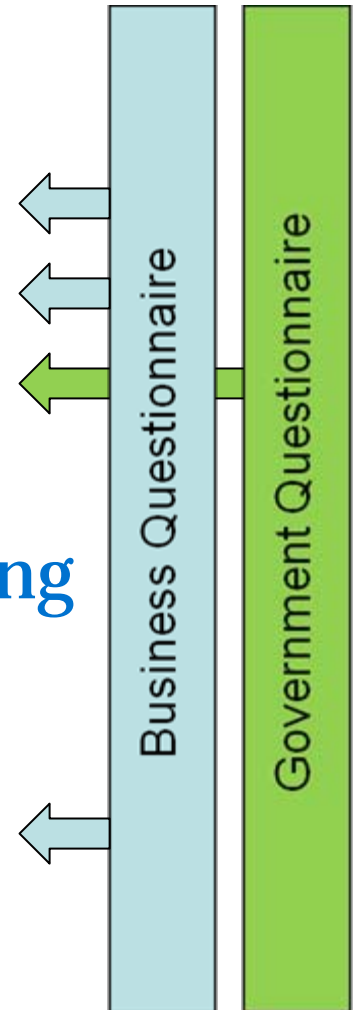


May
2010



Contents of the 2008 project

- **Review & framework paper (5-part)**
 1. A common analytical framework
 2. Examples of eco-innovation
 3. Review of indicator sets
 4. Review of governmental policies
 5. Measuring eco-innovation
- **Conference on Sustainable Manufacturing**
 - 23-24 September, Rochester, NY
- **Focus group meetings**
 - US (Rochester) & Europe (Brussels)
- **AEG: 2 meetings + web-forum**



What is eco-innovation ?

- **it is related to**
conventional understandings of “*innovation*”
- **but can be distinguished by**
its *specific direction*; and
its emphasis on *social* and *institutional* innovation
- **and is determined by**
its *improvement in environmental performance*
relative to alternatives

How can we characterise eco-innovation ?

Where does the change occur?

TARGET

Products

Processes

Marketing

Organisations

Institutions

How does the change occur?

MECHANISM

Modifications

Re-design

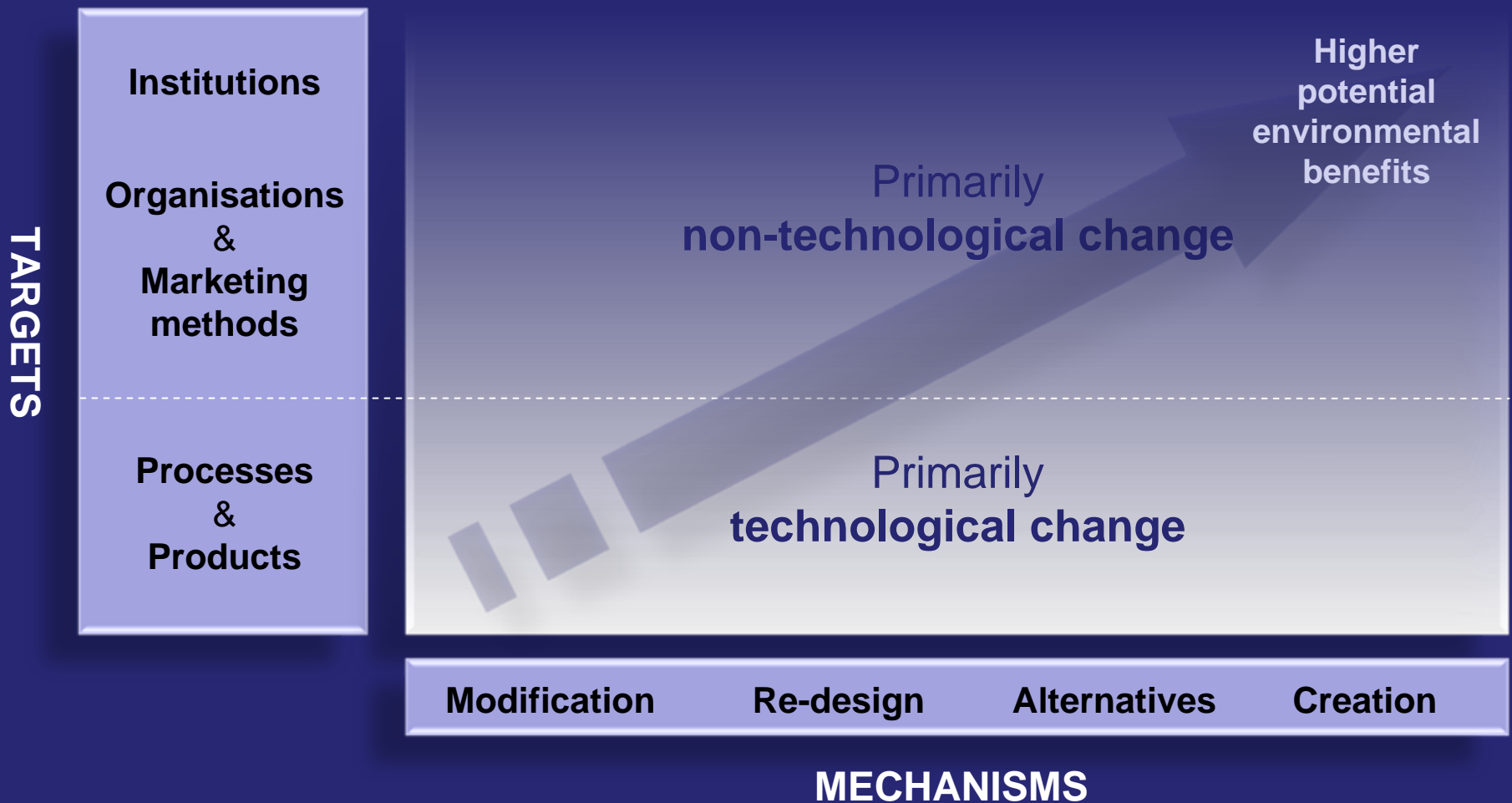
Alternatives

Creations

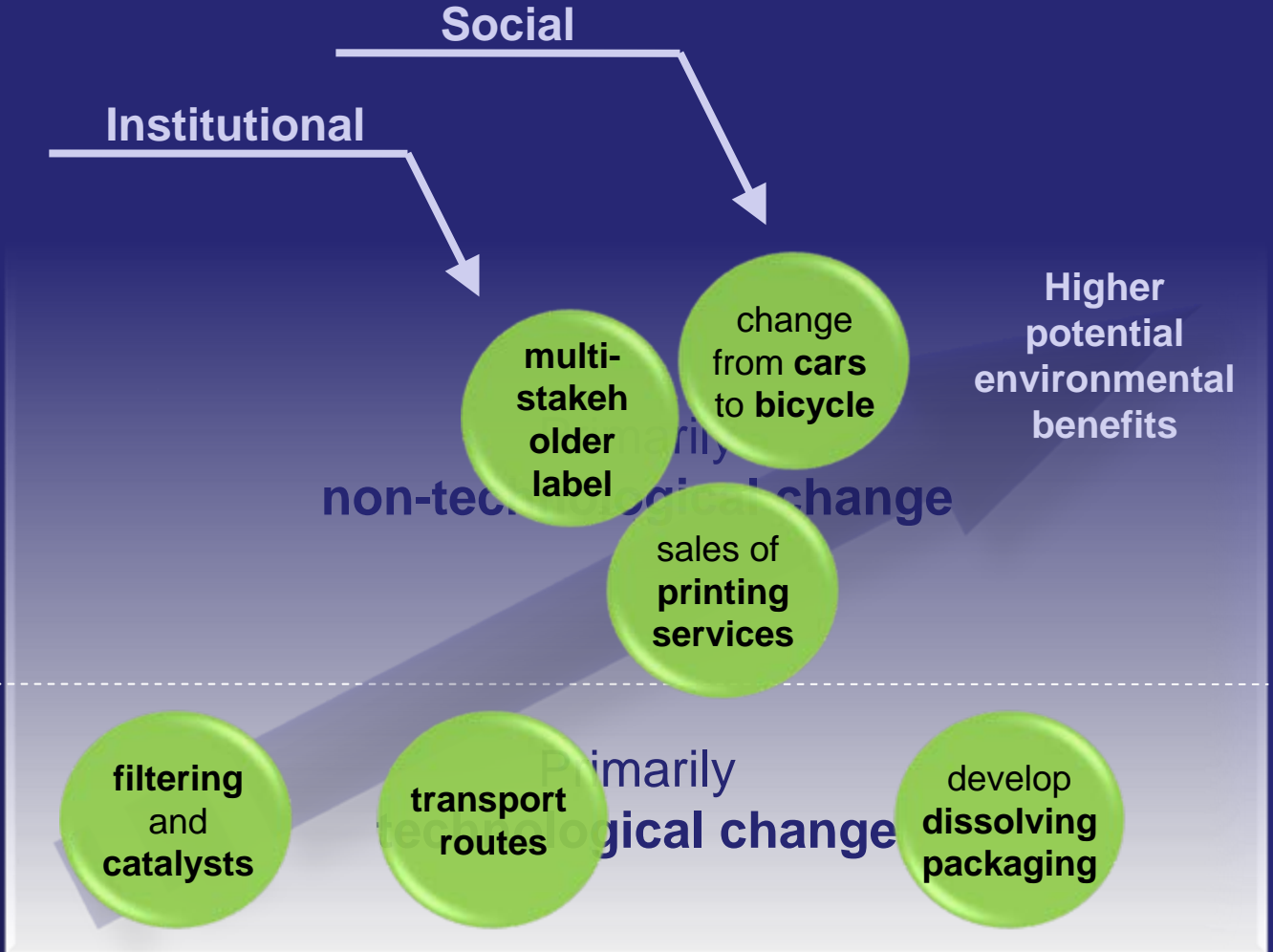
What is the effect of the change?

IMPACT

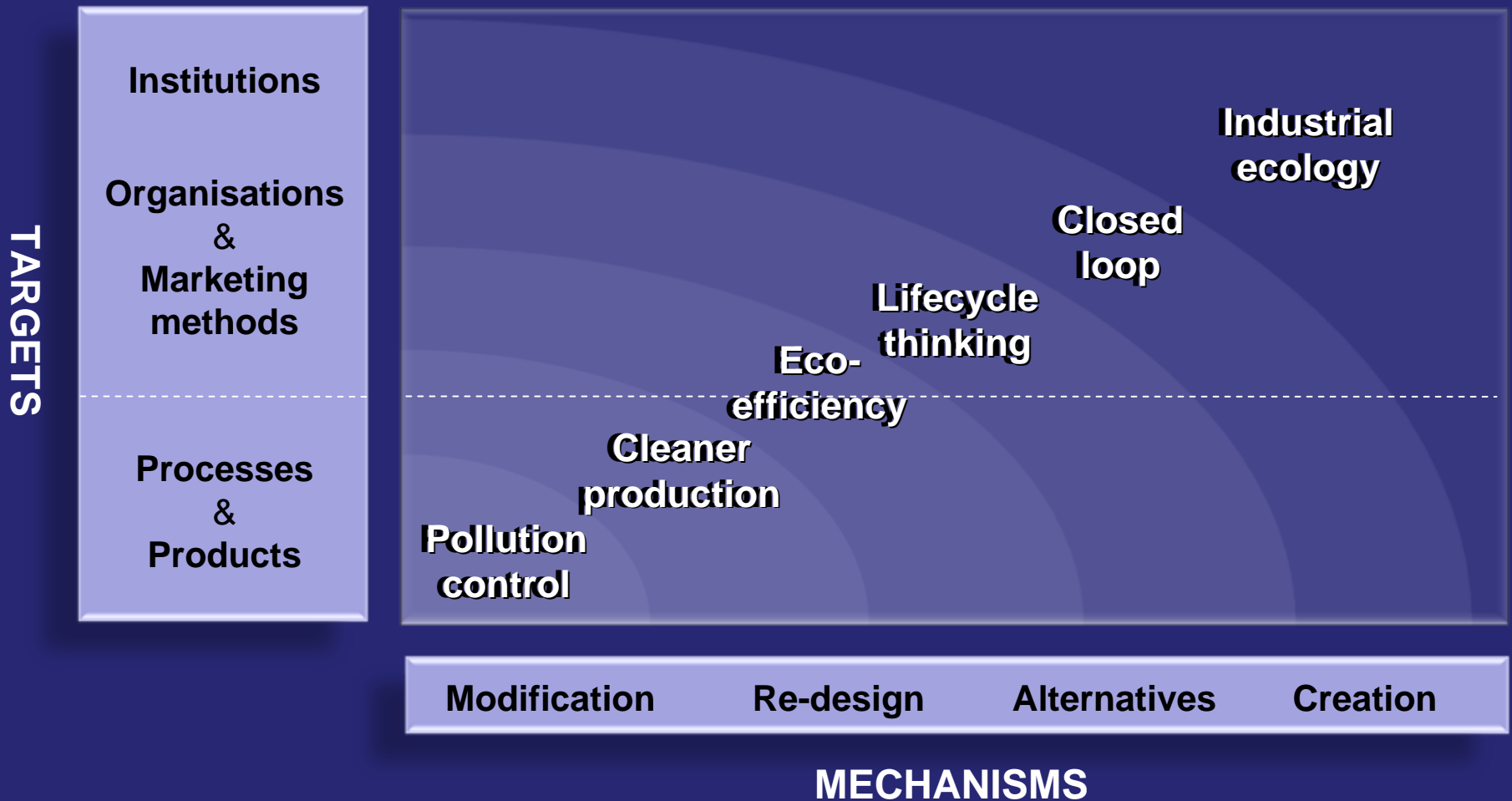
Beneficial
environmental
and/or
social effects



TARGETS



MECHANISMS



Categories of Indicators

- Individual indicators
- Key performance indicators (KPIs)
- Composite indices
- Material flow analysis (MFA)
- Environmental accounting
- Eco-efficiency indicators
- Lifecycle assessment (LCA) indicators
- Reporting indicators
- Socially responsible investment (SRI) indices

Criteria for indicator analysis

1. Comparability for external benchmarking
2. Applicability for SMEs
3. Usefulness for management decision-making
4. Effectiveness for operational improvement
5. Possibility for data aggregation & standardisation
6. Effectiveness for finding innovative products & solutions

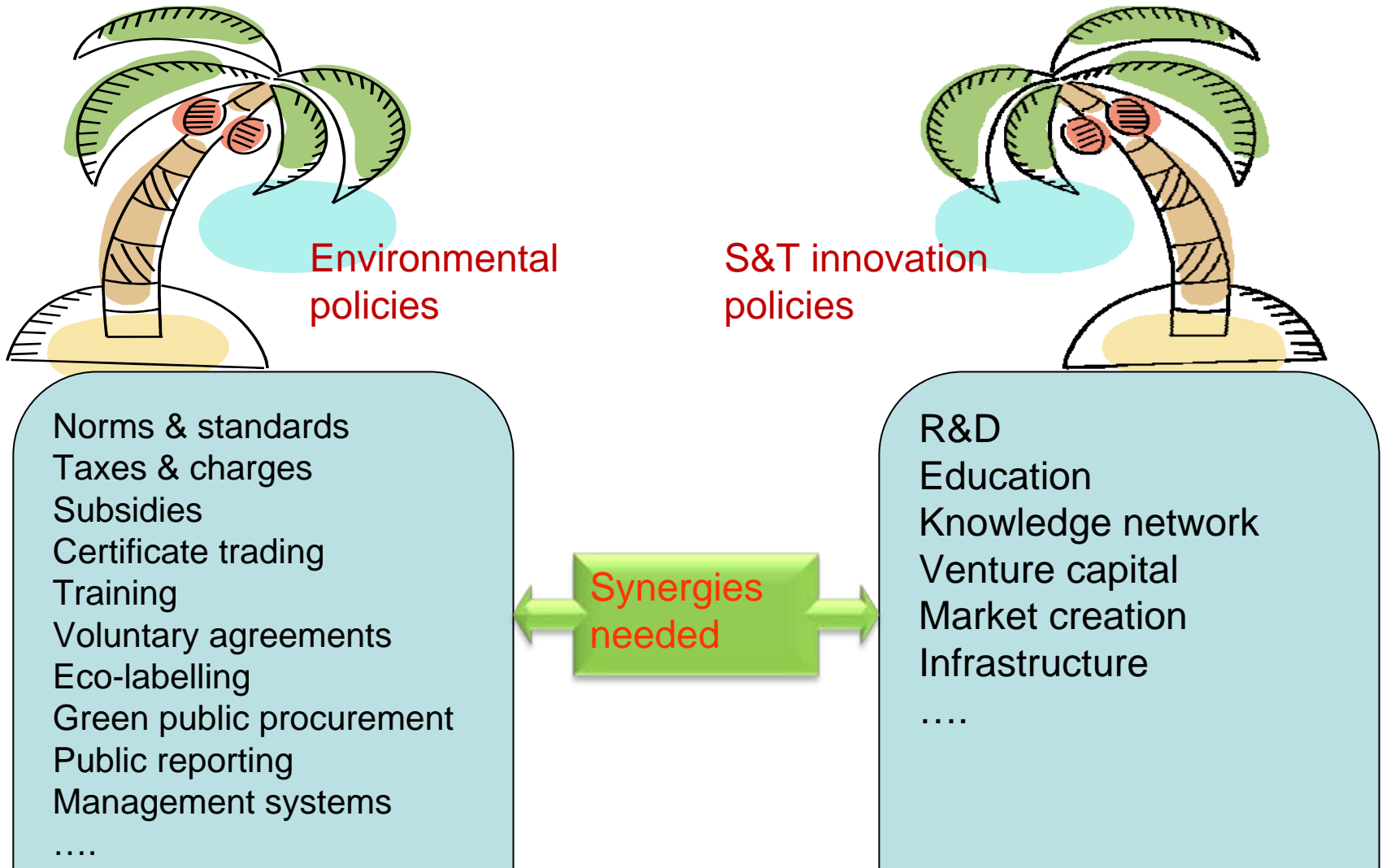
Summary of analysis

	Comparability	SMEs	Decision-making	Operation	Aggregation	Innovation
Individual indicators		Dark Blue		Light Blue		
Key performance indicators			Dark Blue			
Composite indices	Light Blue		Light Blue	Light Blue	Light Blue	
Material flow analysis				Dark Blue	Dark Blue	Dark Blue
Environmental accounting	Light Blue	Light Blue	Light Blue	Dark Blue	Light Blue	Light Blue
Eco-efficiency indicators	Light Blue		Light Blue	Dark Blue		Dark Blue
LCA indicators	Light Blue	Light Blue		Dark Blue	Light Blue	Dark Blue
Sustainability reporting indicators		Light Blue		Light Blue		
SRI Indices	Light Blue		Light Blue			

Conclusions of the analysis

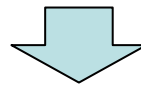
- Diverse and original indicators ... lack of common understanding and comparability
- No ideal single indicator set ... possibility for combination (*e.g.* MFA, LCA & accounting)
- Separation between those used for operations and for decision-making ... Eco-efficiency could address both
- SMEs need steps to develop indicators
- Need for system-wide indicators beyond product lifecycle

Two main policy fields apart



Measuring eco-innovation

- **Input:** R&D expenditure/personnel
- **Intermediate output:** No. of patents; no. & types of scientific publications
- **Direct output:** No. of innovations; sales of new products
- **Indirect impact:** changes in environmental impact & resource efficiency



Most of **non-technological innovations**
cannot be captured by statistics

Possible work for Phase 2

1. **A toolbox of sustainable manufacturing indicators**
 - Particular interest in environmental accounting
2. **Eco-innovation platform**
 - Database of best examples
 - Knowledge network ... seed searching & roadmaps
 - Exploration of “outcome-oriented” “dynamic” policy-making
 - Benchmarking national performance

Other relevant OECD work

- “Embedded carbon” measurement based on OECD Input-Output Database & trade data (DSTI)
- Measuring eco-innovation based on patent data; Collection of eco-innovation policies (ENV)
- Application of computable general equilibrium (CGE) models and OECD STAN database for identifying policy outcomes
- Sector-specific work: ICT & bio, nano-tech (DSTI); transport (ITF); energy (IEA)

Looking forward to collaboration!

Visit our website:

[www.oecd.org/sti/innovation
/sustainablemanufacturing](http://www.oecd.org/sti/innovation/sustainablemanufacturing)

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