How to make money with green, how can EcoDesign be integrated into the business?

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Outline

1. Position of EcoDesign in Functionality Design in general

2. Why environment and business

3. Five ways to make money with green

4. Vision, strategy and trends

5. Roadmaps, performance indicators

6. The integrated process

7. Conclusions

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Position of Applied EcoDesign in the Business

Design for Functionality ➤ EcoDesign ➤ Design for X
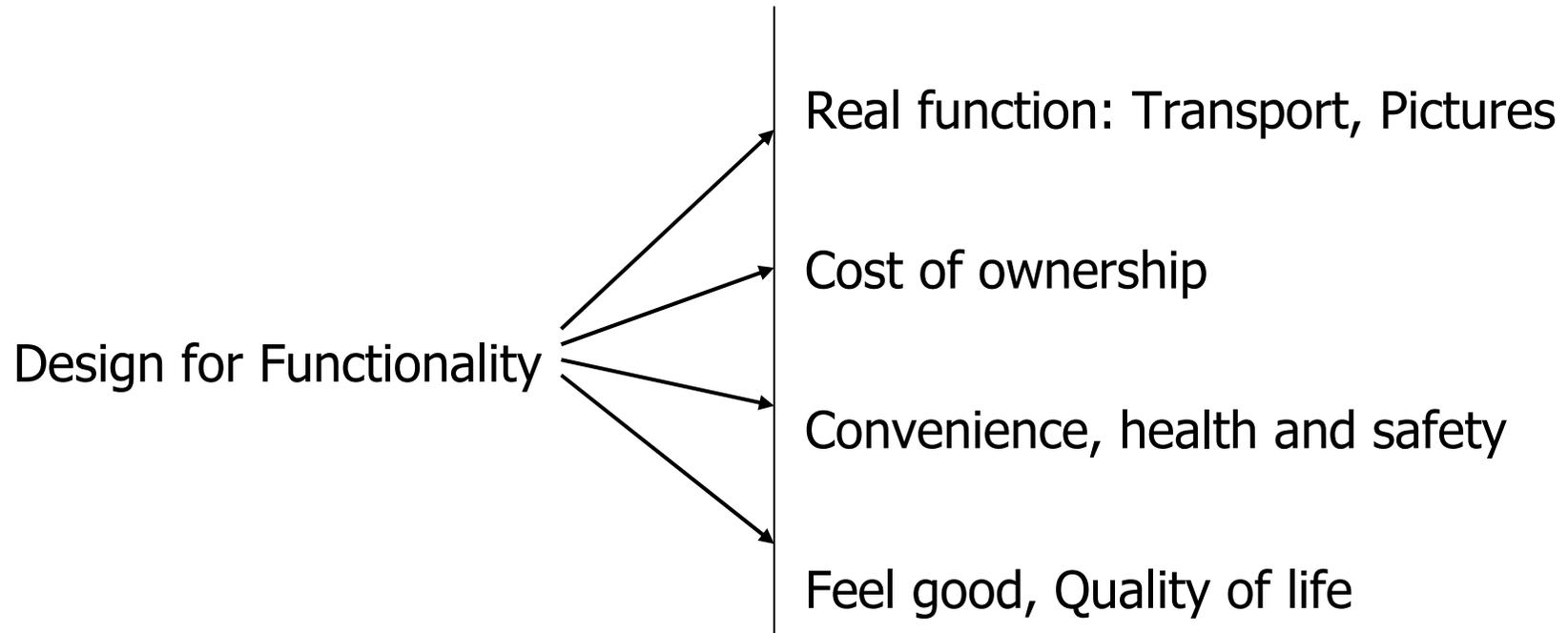
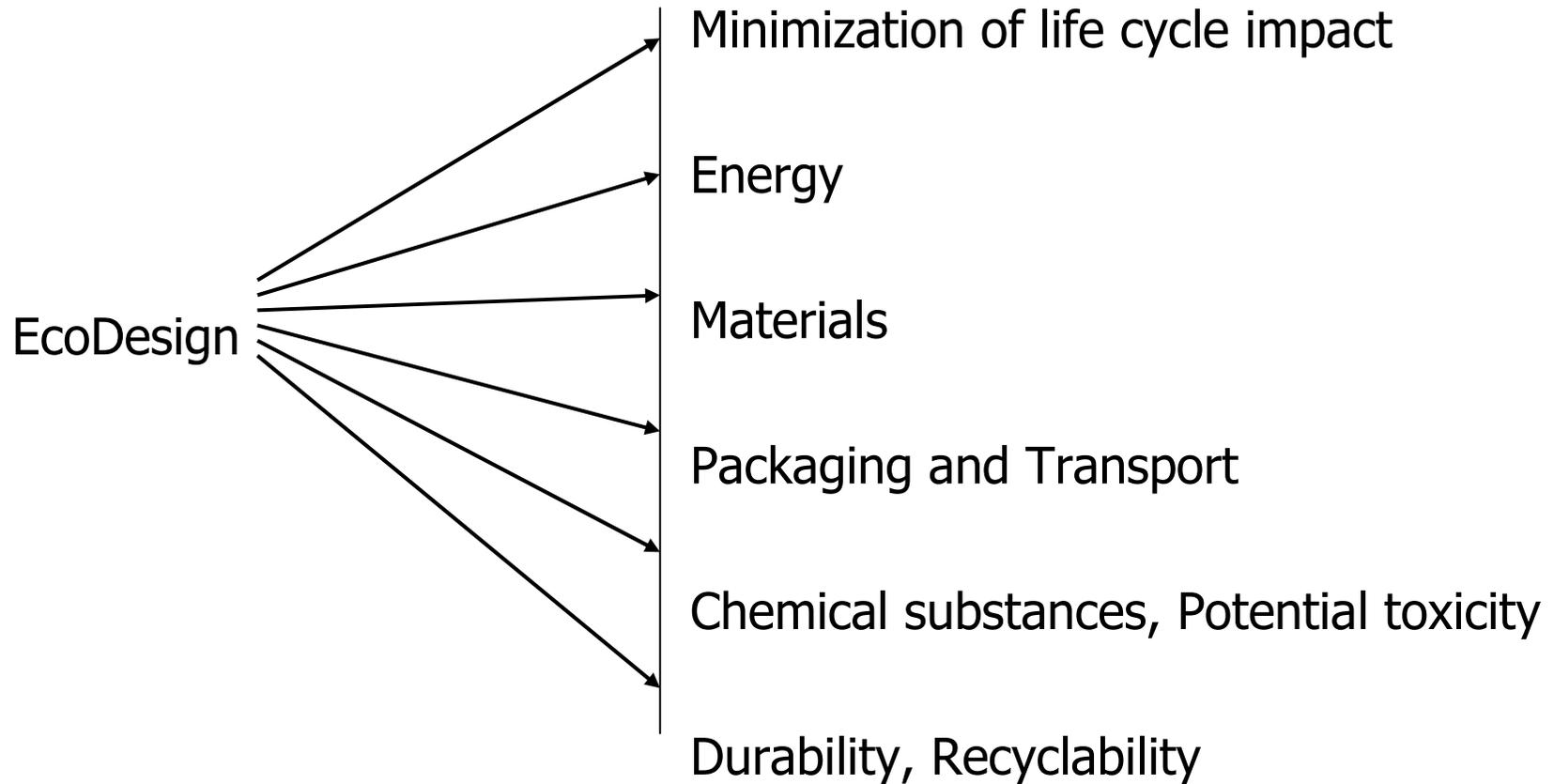(Value in the shop)

(Minimization of impact over life-cycle)

X =
- Energy minimization
- Dematerialization
- Minimizing packaging and transport
- Chemical content reduction
- Recycling

A lot of products are bought on basis of fashion, not on basis of functionality!

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Design for Functionality

Design for Functionality

- Real function: Transport, Pictures
- Cost of ownership
- Convenience, health and safety
- Feel good, Quality of life

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EcoDesign

EcoDesign

Minimization of life cycle impact

Energy

Materials

Packaging and Transport

Chemical substances, Potential toxicity

Durability, Recyclability

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Example Design for X

Design for Recycling

Recuperation of resources

Amount of resources saved

Purity / Level of reapplication

Toxic control of left over

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Design for Functionality

- Embodiments always require certain physics, chemistry, …

➡ A lot of the environmental load is already fixed!

- First Design Strategy:

  What is the <u>real</u> function needed and what physics is needed?

  – Real function includes intangibles!
  – Alternative physics example: Liquid Crystal Display instead of Cathode Ray Tube

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Applied EcoDesign

- Is subject to functionality, requirements and limits of physics, chemistry etc.

- Minimization of impact implies compromises between the design area's

- EcoDesigners are 'Design organizers', bring disciplines and business functions together.

Result: you do better in green; you do not save the world

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Why Environment and Business?

IT IS BUSINESS not just technicalities.

- Upstream: suppliers, creativity

- Downstream: marketing and sales, image
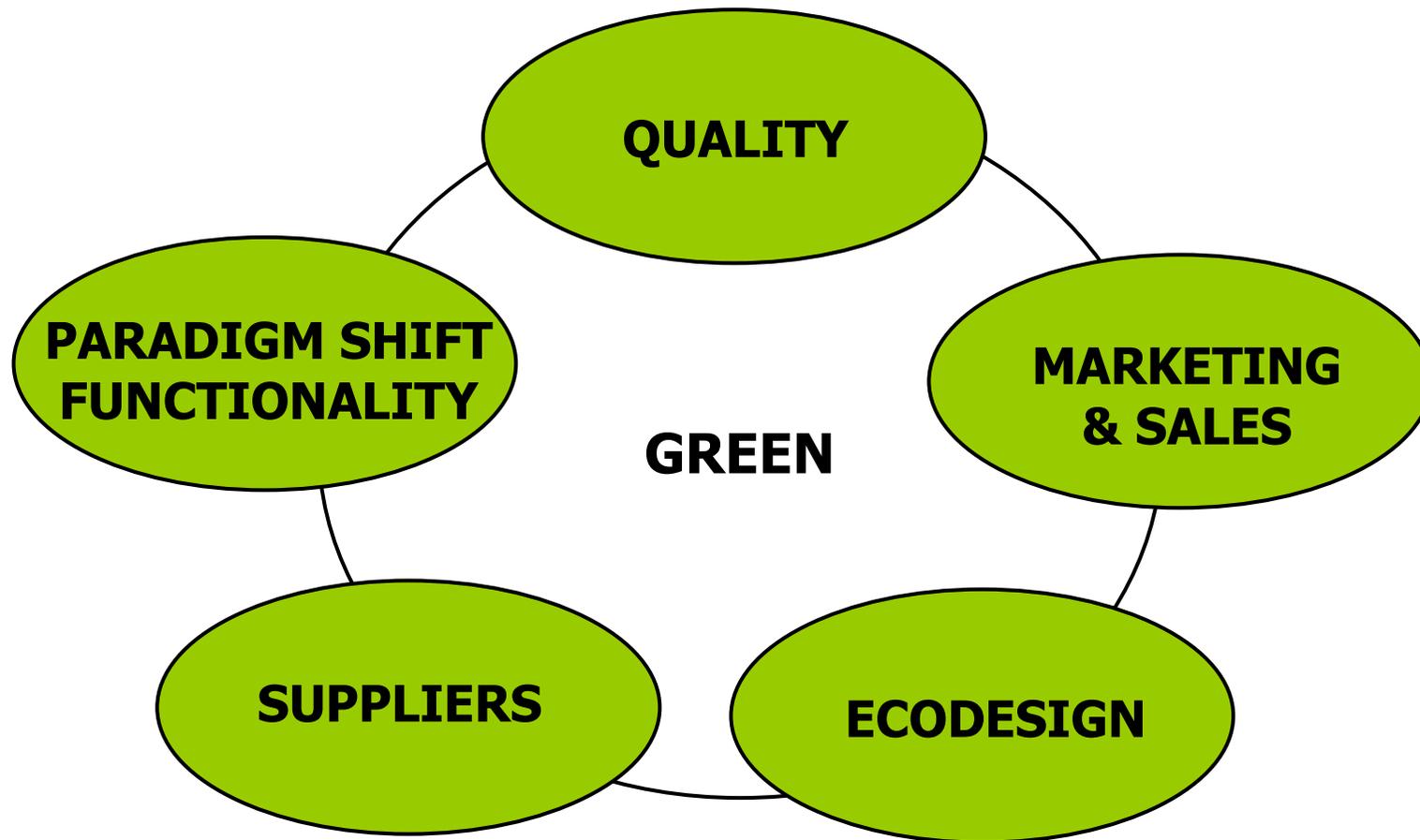
IT IS BUSINESS not just design

- Vision, strategy, programme

IT IS BUSINESS

- Managing the green processes

GREEN IS ABOUT MONEY!

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Five ways to make money while being green

QUALITY

PARADIGM SHIFT FUNCTIONALITY

GREEN

MARKETING & SALES

SUPPLIERS

ECODESIGN

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Environmental thinking as a new creative management approach

"Look with fresh eyes at old problems"

- Prevention ("do not make it happen")

- Functionality thinking, paradigm shift

  ("why are things as they are")

- Life cycle approach ("stakeholder benefits")

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How to make money with green?
(Supplier)

- Less use of utilities, auxiliaries
    - Example: printed wiring boards (Lucent)

- Use of recycled material
    - Example: TV cabinets (Philips)

- Contributions to Eco Design
    - Example: IC, subassemblies

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How to make money with green?
(EcoDesign)

- Less materials
  - Example: Bill of material of green flagships (Philips)
- Application of smart materials
  - Example: Self disassembly of phones
- Application of recycled material
  - Example: 10% recycled cardboard = 3% less cost
- Less Packaging, weight, volume'
  - Example: Philips packaging reduction strategy
- Less environmentally relevant substances
  - Example: TV cabinets
- Lower disassembly time lower assembly cost
  - Example: Philips Monitors

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How to make money with green?
(Customer)

- Lower cost of ownership
  - Example: Reduce energy consumption in use phase

- Easy, fun, convenience

- Unpack, packaging waste

- Feel good, examples:
  - Philips is a caring company (image)
  - This product is 100% recyclable
  - No hazardous substances

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How to make money with green?
(Quality)

- Increase quality, reduce reject level

- Reduction of design complexity

- Shifts in the Hinkley diagram

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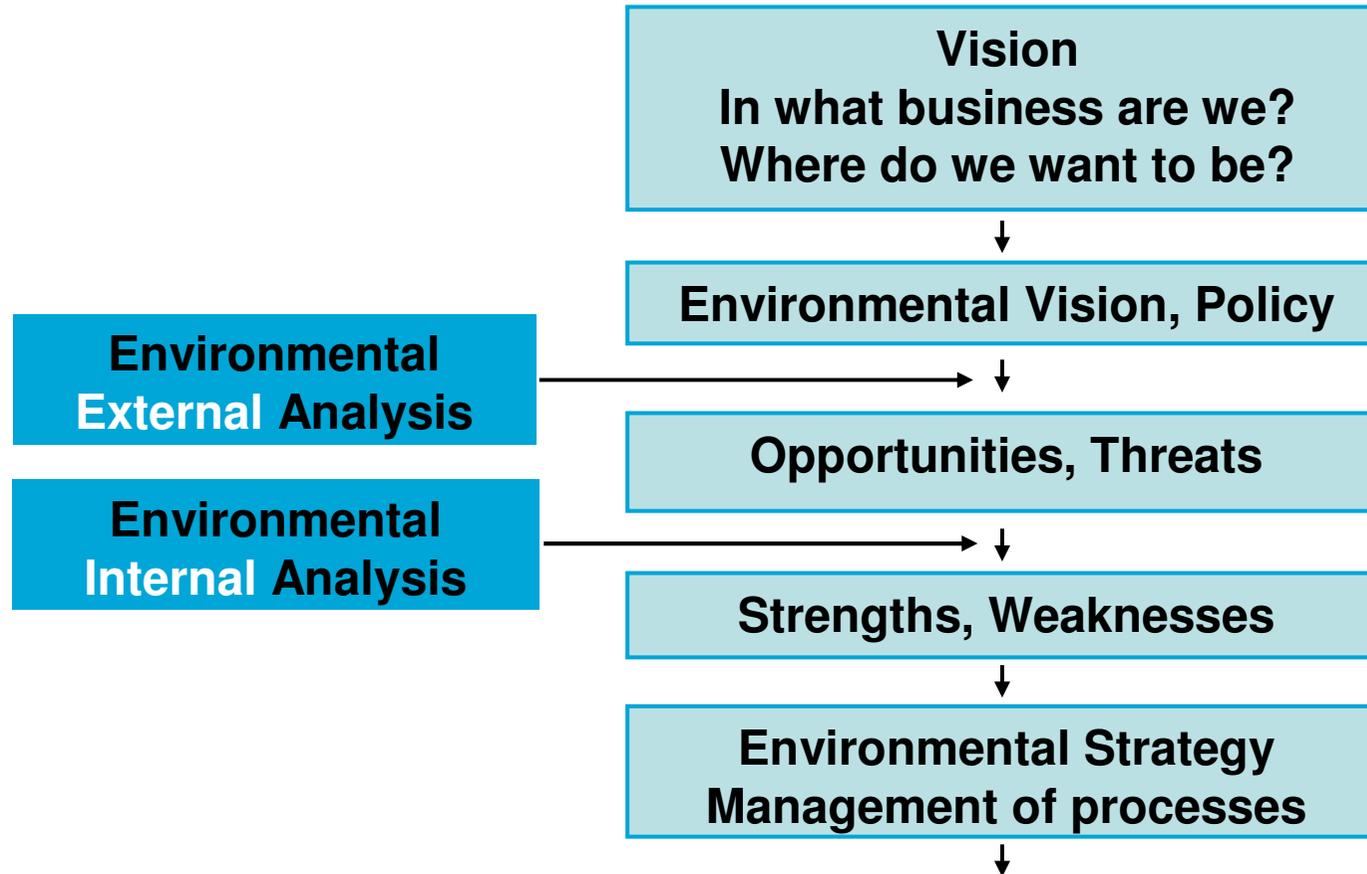# How to make money with green?
(Paradigm shift)

Functionality instead of embodiment focus

- Life Cycle Optimisation (example smart IC)

- Different Physical Principles
  - Example: LCD instead of CRT

- Service capabilities without mechanics
  - Example: IT applications)

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Correlation five ways to make money and benefits

Way	Money	Immaterial/Emotion
EcoDesign	Resource depletion	Lower life cycle impact, compliance
Suppliers	Supply costs	Enable EcoDesign
Green Marketing and Sales	Sell more	Caring, fun, nice to have
Quality	Less reject	Easy, simple
Paradigm shift / Functionality	Higher margins Lower costs of ownership	Lower life cycle impact

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Environment as part of vision, strategy and roadmaps, I

Vision In what business are we? Where do we want to be?

↓

Environmental Vision, Policy

Environmental External Analysis →

↓

Opportunities, Threats

Environmental Internal Analysis →

↓

Strengths, Weaknesses

↓

Environmental Strategy Management of processes

↓

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Environment as part of vision, strategy and roadmaps, II

Environmental strategy
Management of processes

Organizations, Roadmaps

Responsibilities
Processes
Skills

Technical
Purchasing, Industrial
Commercial

Deployment,
Implementation

Monitoring, Review

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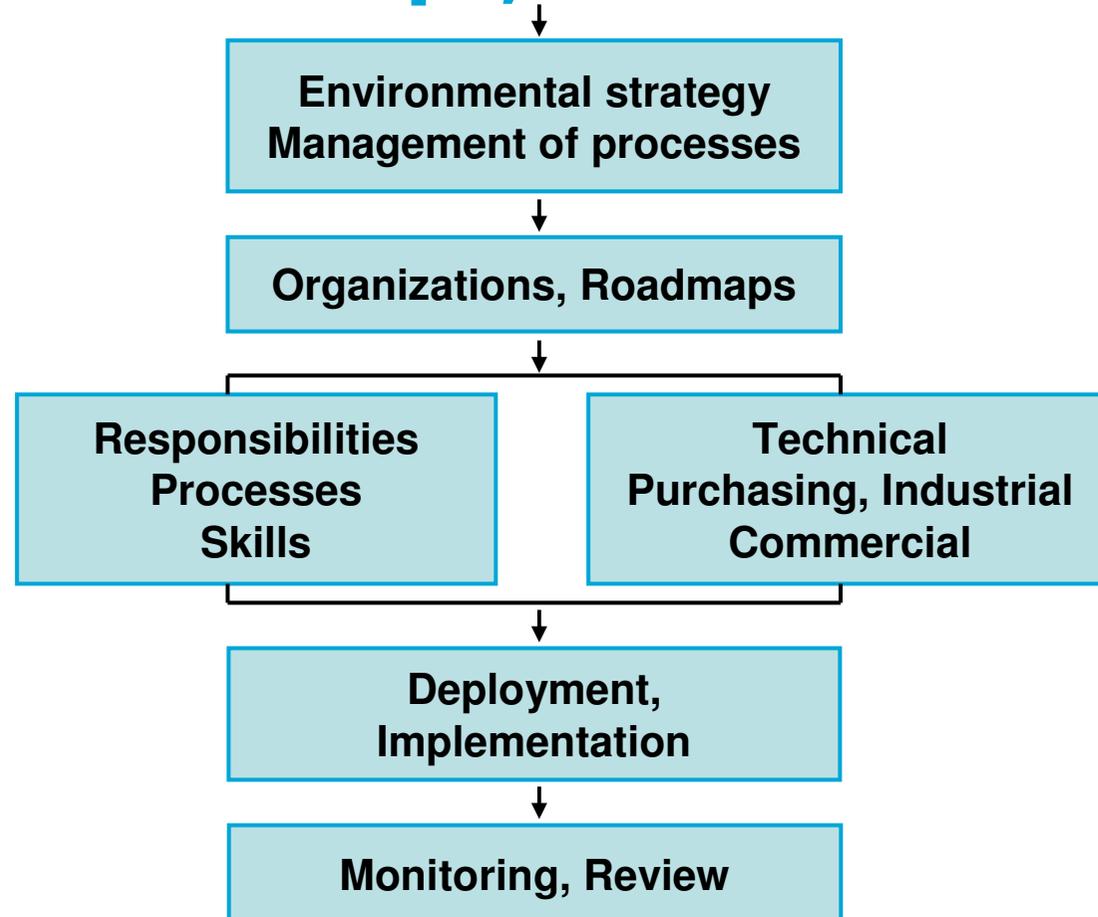
Environmental Vision
(Example)

Philips shall be the leading eco-efficient company in lighting and electronics industry

Background

- Good for the environment (More sustainable)

- Company value (Enhances brand image)

- Customer benefit

- Pro-active to the society (It can be done)

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The Philips Environmental Policy

- Sustainable Development

- Prevention is better than cure

- The total effect on the environment counts

- Open contact with authorities

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Environmental Trends, I

- Awareness consumer
  - Increasing
  - Diverging interest

- OEM requirements

- Public sector purchasing requirements

- Green labelling to increase
  - Energy consumption
  - Labelling schemes
  - Blue Angel
  - TCO '95

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Environmental Trends, II

- Market is becoming the driver instead of regulation
- Competition is using green in marketing
- Legal/regulation requirements
  - Differences per country (priority)
  - Voluntary programs
  - Self declaration
- Restriction on use of chemicals/substances
- Energy declarations
- Take-back

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Environmental Trends, III

- Limitation on landfill, incineration
- 'Green' taxation, levies on energy and material use
- Environmental management systems (ISO 14000)
- Environmental reporting, auditing will come
- Environmental design manual/integration of green in design process
- Use of Life Cycle Analysis and Life Cycle Cost techniques
- Recycling companies offer their services

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Environmental Trends, IV

- Japanese companies catching up fast, threaten to take the lead

- More and more companies develop environmental strategies, roadmaps, programs, …..

- Environment is seen as a managerial tool for
  - Cost reduction
  - Quality improvement
  - Employee motivation

- More and more environmental constancy bureaus offer their services, quality of service is increasing

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Environmental Trends, V

- Well educated environmental specialists become available at the labor market

- Technology has huge environmental consequences
  - Miniaturization
  - Digitalization
  - Software
  - Portability

- Function integration

- Electronic transport versus mechanical transport

- Global village

- Lots of functionality for little money

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Roadmap characteristics, I

- Where do we stand?

- Where do we want to be 5 years from now

- Improvement roadmap
    - Formulation and deployment
    - Implementation
    - Monitoring

- Two levels
    - Corporate roadmap
    - BU roadmap (tailored to business situation)

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Roadmap characteristics, II

- ## Three area's
  - Defensive (compliance)
  - Cost driven
  - Pro active/gaining market share on basis of green

- ## Roadmap items
  - Image
  - Technical attributes

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Content of Roadmap, I

	Issue	Owner Target (4 years)
Chapter 1	Strategy	Policy, program, Roadmap
		key performance Indicators, Strengths and Weaknesses
Chapter 2	Business	Green products (better than competition)
		Eco-indicator, benchmark
Chapter 3	Products	Energy consumption, Materials application, Packaging, Substances, Recycling

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Content of Roadmap, II

	Issue	Owner	Target (4 years)
Chapter 4	Manufact-uring	Energy, Water, Auxiliary materials, Emission to air, water; waste	
Chapter 5	Program's	Philips EcoVision ISO 14.001 Green marketing and communication	
Chapter 6	Deployment	Internal communication Training	

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Environmental Key Performance Indicator

EKPI = $\sum A_i$ * score per item
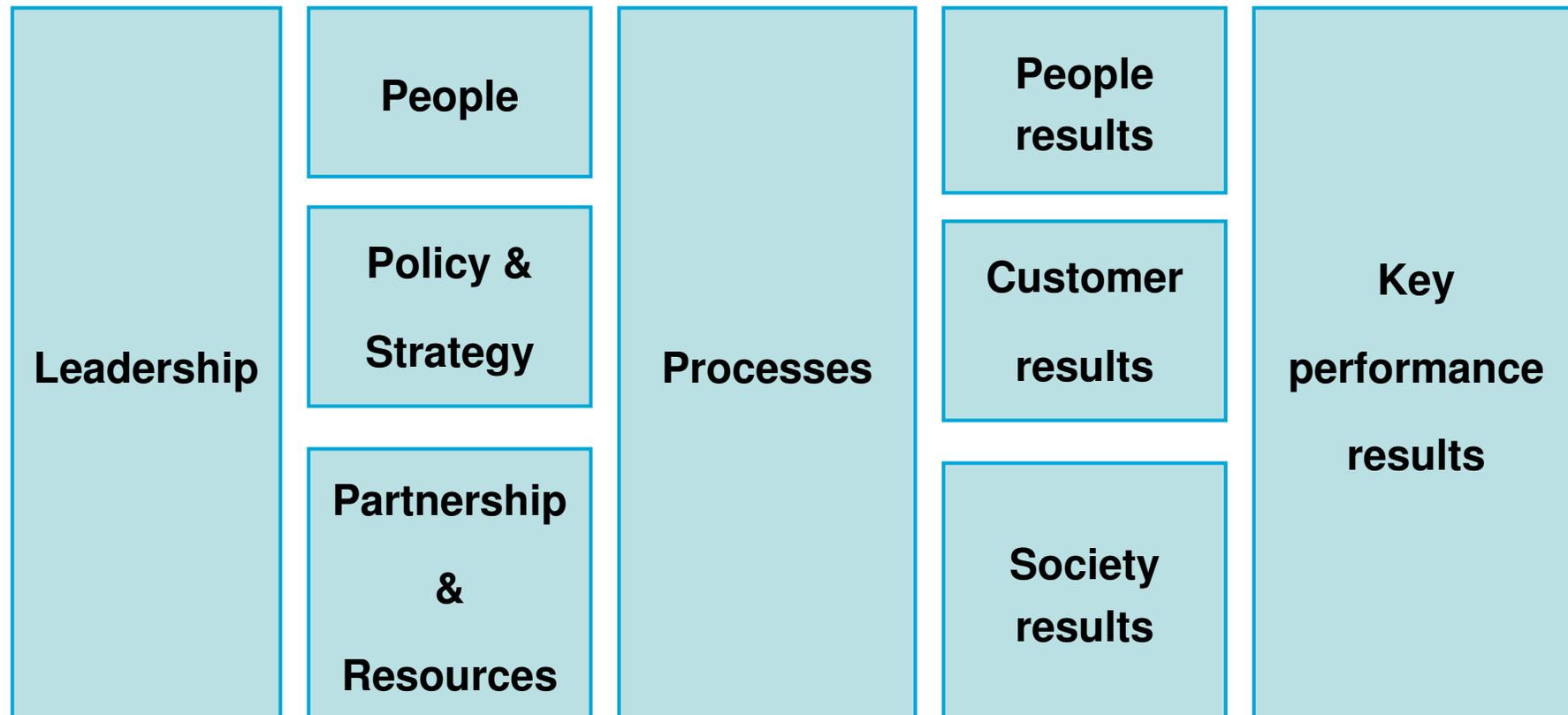
A = weight or importance, $\sum A_i$ = 100%

Score = per item	1	=	OK	=	**green**
or	0,5	=	more or less fulfilled	=	**yellow**
or	0	=	not fulfilled	=	**red**

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Embedding Environment in Business Excellence

Leadership	People	Processes	People results	Key performance results
	Policy & Strategy		Customer results	
	Partnership & Resources		Society results	

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Embedding of EcoDesign into business

Business perspective (money, ease of operation, image)

```
  ┌─────────────┐        ┌─────────────┐
  │  Strategic  │   →    │   Roadmap   │
  │   input     │        │             │
  └─────────────┘        └─────────────┘
         │                      │
         ↓                      ↓
  ┌─────────────┐     ┌───────────────┐     ┌────────────────┐
→ │ Green idea  │  →  │    Product    │  →  │     Green       │ →
  │ generation  │     │   creation    │     │ communication,  │
  └─────────────┘     └───────────────┘     │     Sales       │
         ↑                      ↑           └────────────────┘
         │                      │                    ↑
  ┌─────────────┐     ┌───────────────┐     ┌────────────────┐
  │Tool support │  →  │ Technicalities│  →  │  Support tools │
  │a.o.         │     │ and           │     │                │
  │benchmarking │     │ validation    │     │                │
  └─────────────┘     └───────────────┘     └────────────────┘
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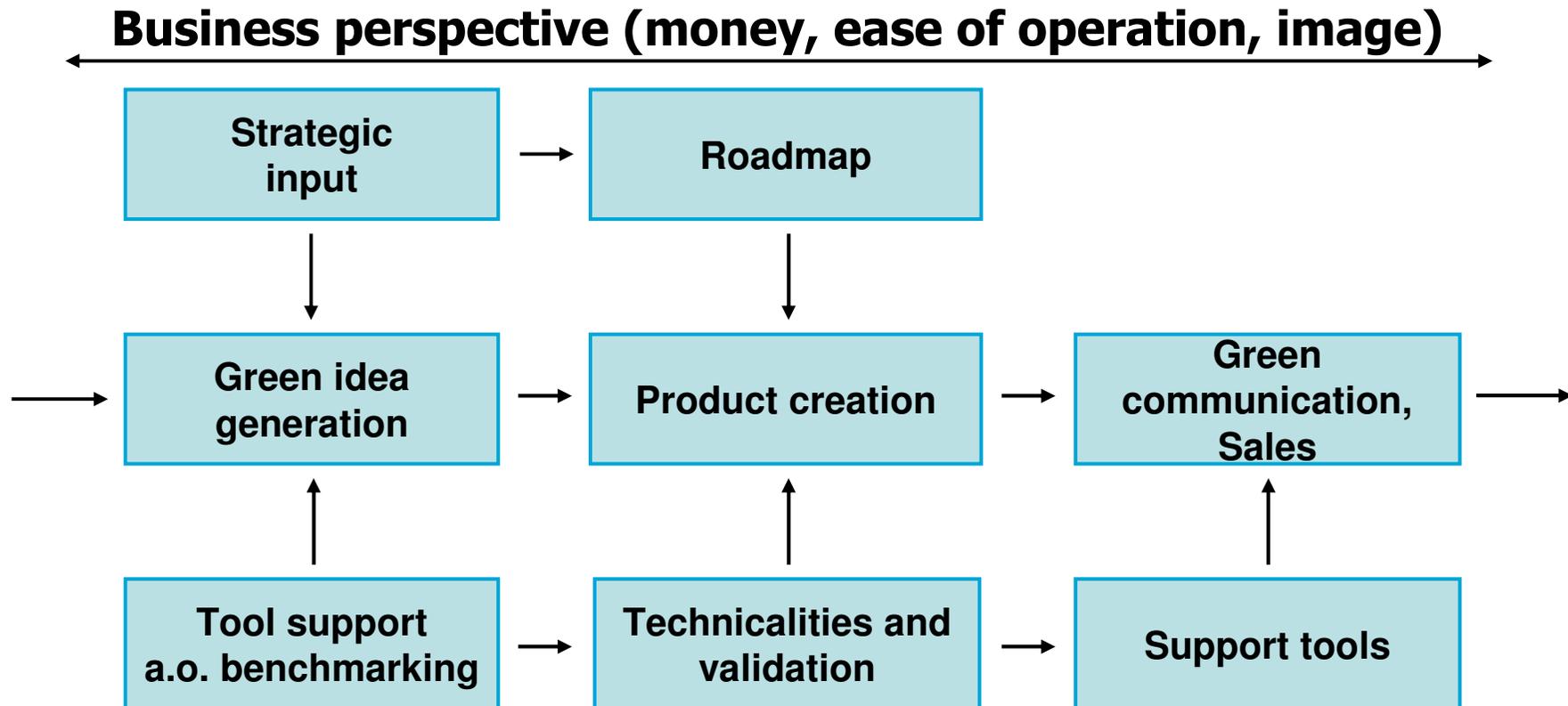
Green idea generation
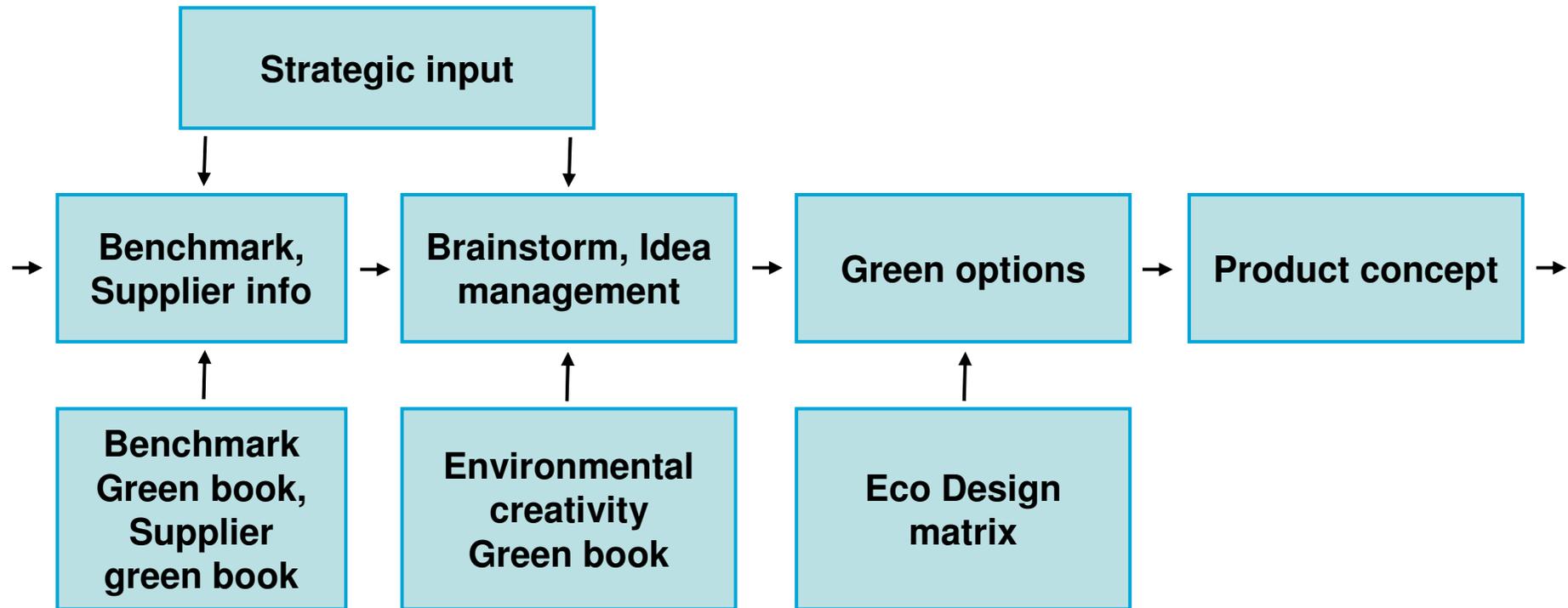
Prioritize: Ecodesign matrix

Green options	Benefit			Feasibility		
	Environment	Business	Customer	Societal	Technical	Financial
1st option						
2nd option						
3rd option						
nth option						

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The benefit in the EcoDesign matrix

	Company	Customer	Society
Material	Cost reduction	Lower cost of ownership	Use of fewer resources
Immaterial	Simpler to produce	Easier	Better compliance
	Simpler to sell	Convenience	
		More fun	
Emotional	Better image	Feel good	We make progress in green
		Quality of life	

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Environmental Benefit matrix

Focal Area Aspect	Energy	Materials	Packaging Transport	Chemical Content	Recyclability
Emissions	+++	++	+	+	+
Resources	++	++	+	0	+++
Potential Toxicity	o	+	o	+++	++

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Integration of green into product creation
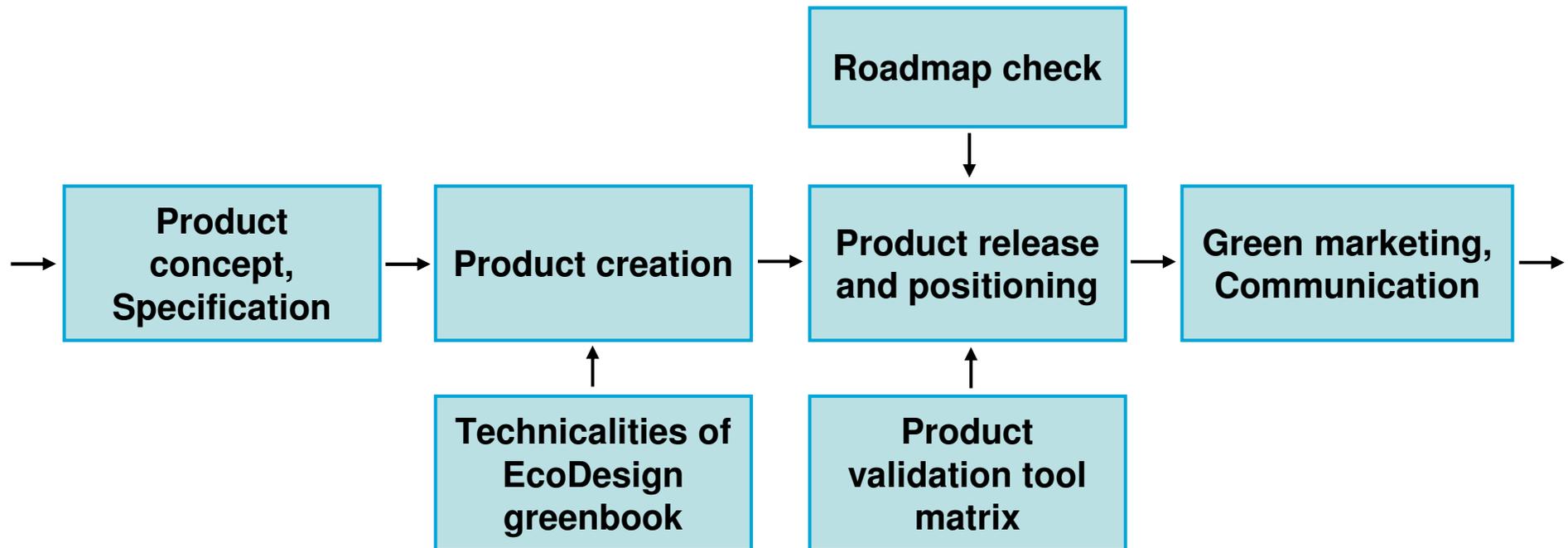
Exploitation of results
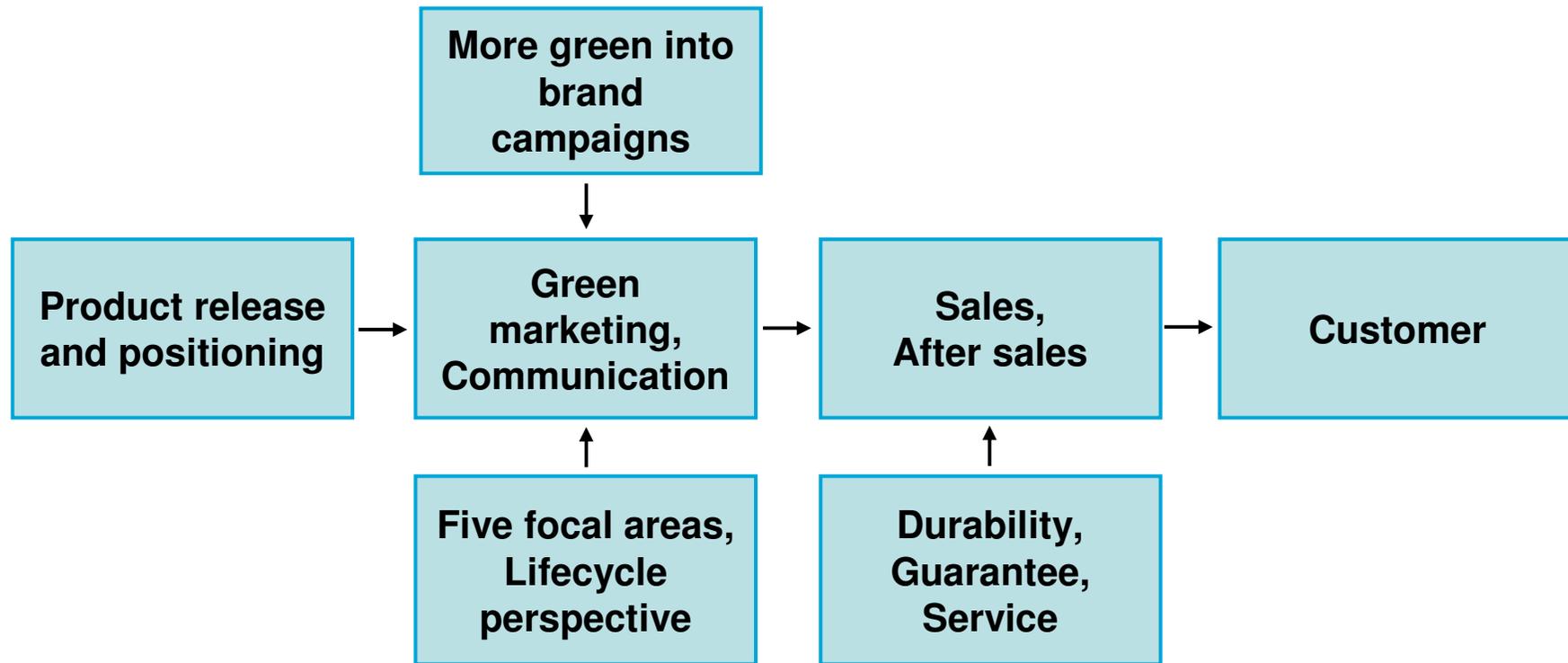
Critical issues in Integrating EcoDesign

- Green performance to be put in incentive schemes

- Green in supply chain / outsourcing of production

- Putting green requirements into the product specifications

- Exploitation of technical progress (IT, …)

- Green marketing and sales

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Companies activity matrix

	Strategy	Product Creation	Green Marketing
Fact Finding	SWOT	Facts, Benchmarking	Potential benefits
General items	Strategy	Green Actions	Messages
Codification	Roadmap	Green product specification	Brochures, Web
Execution	Deployment	EcoDesign	Language
Review	Scorecard	Validation	Ethics

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Conclusions

1. Environment is a business item (not just a technical item)

2. Vision, strategy, roadmap should be the framework for activities and programs

3. Look at what is happening in the outside world (trends, competition)

4. EcoDesign to be understood and organized/ integrated into product creation

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