NSF International

- Independent, not-for-profit organization founded in 1944 by faculty and staff from UoM's School of Public Health
- Global leader in public health and safety
- Strong ties to government and academe, including as a Collaborating Center for the World Health Organization
- Testing, inspection, certification: food, beverage, water, pharma, consumer products, sustainability; services to 12,000 companies in 100 countries
- Standards development: 72 national consensus standards
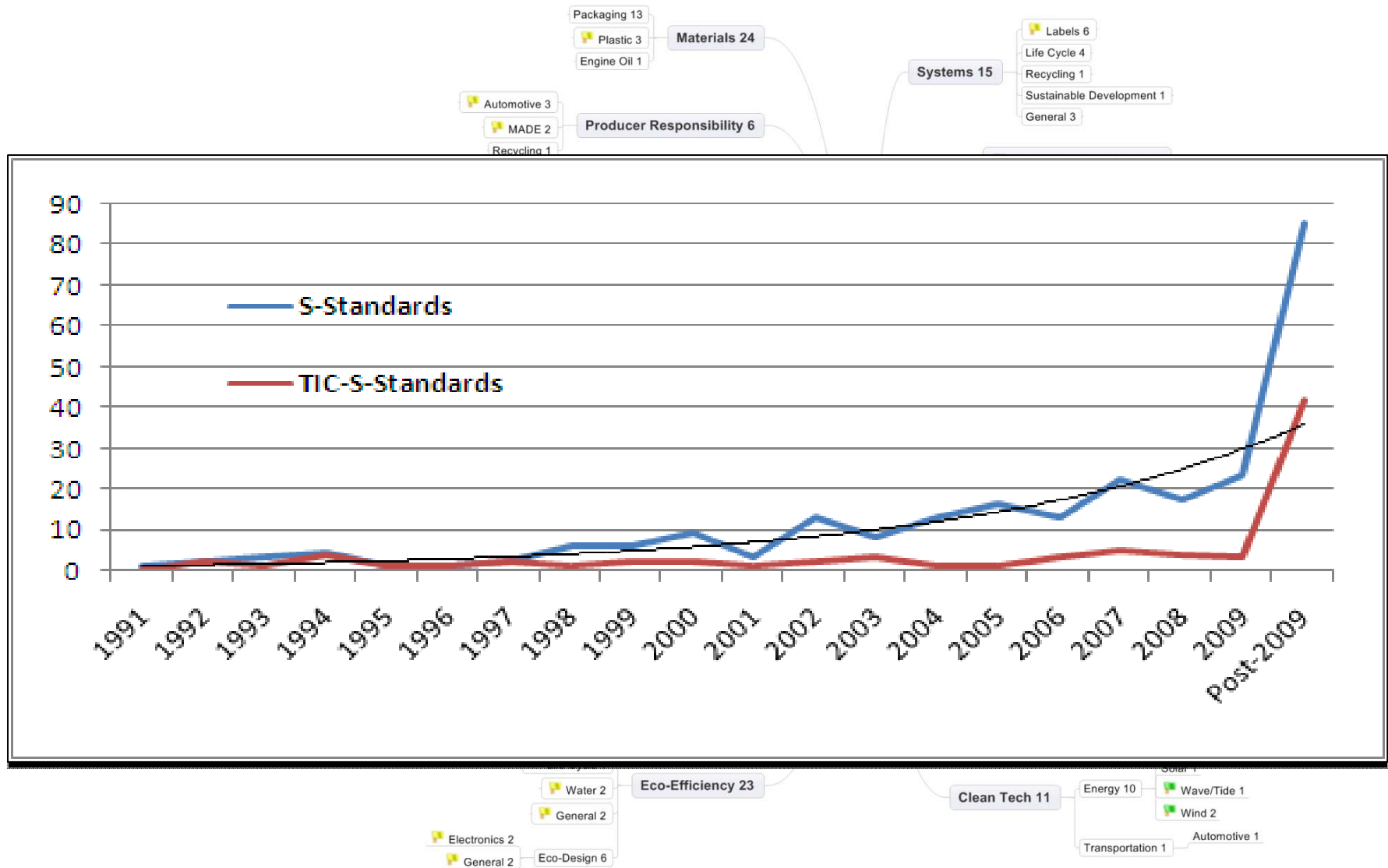
ISO 14001   ISO 17025

NSF Sustainability

- Major provider of LEED reviews for US Green Building Council
- ANSI/NSF sustainability standards and protocols: building and institutional products and materials, green chemistry, recycled plastics, eco-efficiency, IAQ…
- 3rd Party Certifications: USDA organic, EPA's DfE, WaterSense, Energy Star, CleanGredients, ISO14001, RCMS, BIFMA-e3, carpets, personal care products, green chemicals, GHG, Marine Stewardship Council, Sustainable Forestry Initiative…
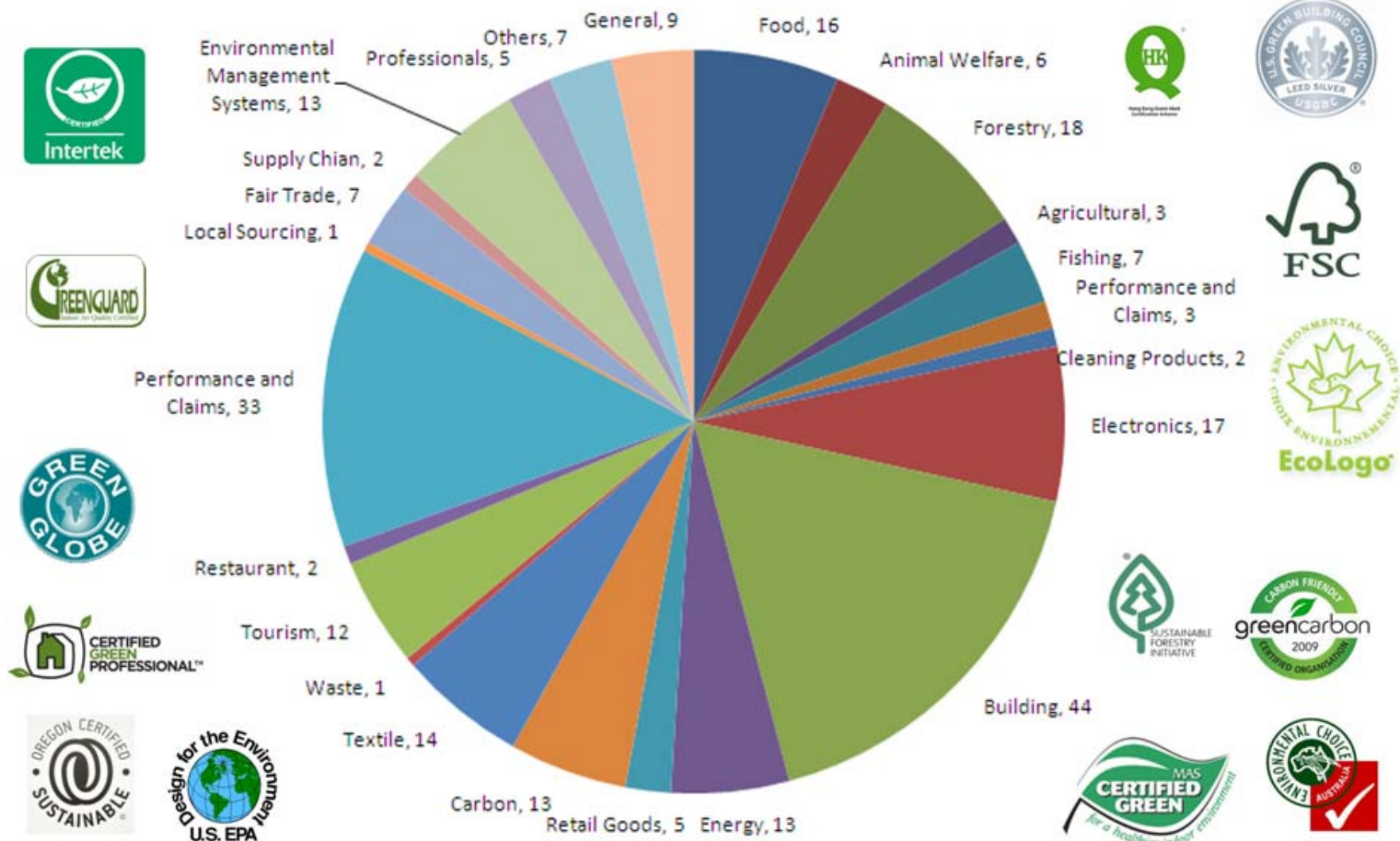- Environmental claims verifications…

The source of green 'certification' data...

Activity
ISO14001 Environmental Management Systems

Operations
American Chemical Council, Responsible Care

Service
Green Seal Commercial Cleaning

Projects
ISO14064 GHGs

Product
BIFMA-e3 Furniture

Process
Sustainable Forestry Initiative, Chain of Custody

System
SA8000 Social Accountability

Enterprise

| Natural Resources | Supply Chain | Manufacture Production | Distribution | Product/ Service | Use Consumption Post |

B2B & Inst.

B2C Retail

People

GBCI LEED Professional
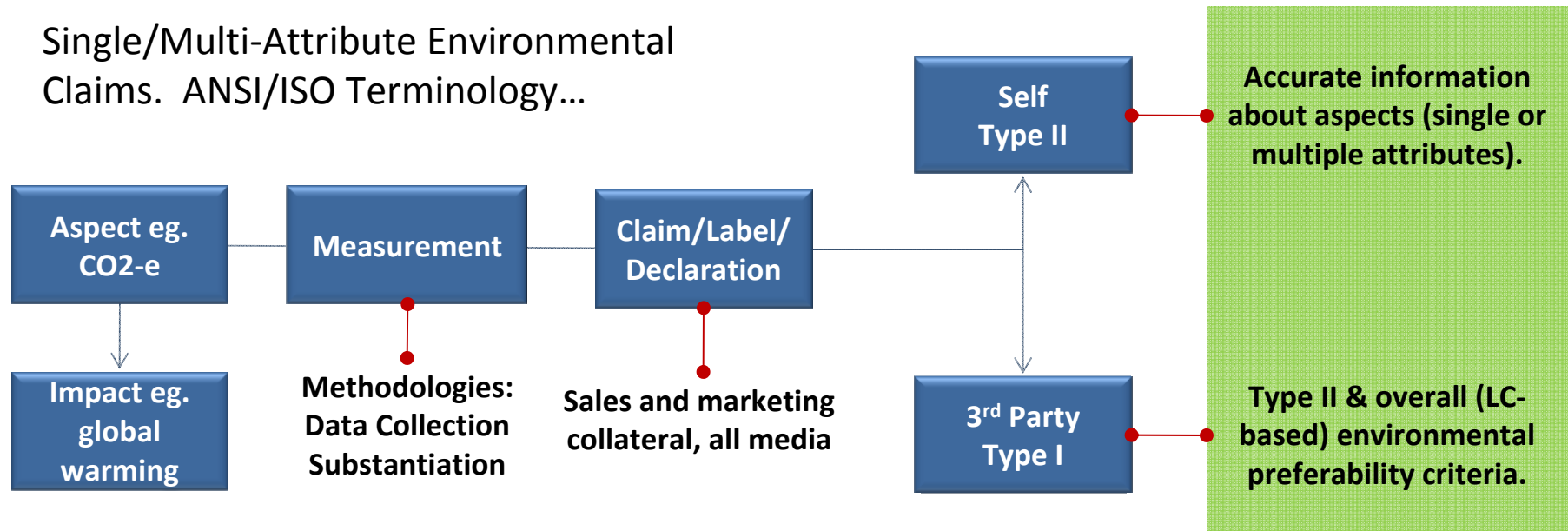
Product
Rainforest Alliance

Types of Assurance: Certification; Evaluation; Registration; Verification; Validation

What data is getting to market?

Single/Multi-Attribute Environmental
Claims. ANSI/ISO Terminology…

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                                          ┌──────────┐
                                          │   Self   │──── Accurate information
                                          │ Type II  │     about aspects (single or
                                          └──────────┘     multiple attributes).
┌──────────┐   ┌──────────────┐   ┌──────────────┐
│ Aspect eg.│   │              │   │ Claim/Label/ │
│  CO2-e    │   │ Measurement  │   │ Declaration  │
└──────────┘   └──────────────┘   └──────────────┘
     │                │                  │
┌──────────┐   Methodologies:   Sales and marketing   ┌──────────┐
│ Impact eg.│   Data Collection   collateral, all media  │ 3rd Party │──── Type II & overall (LC-
│  global   │   Substantiation                          │  Type I   │     based) environmental
│  warming  │                                           └──────────┘     preferability criteria.
└──────────┘
```

Compostability Data Example:

•Programmatic information: methodology, criteria, governance, rigor, dynamics
•Attributes: beneficial properties; presence of soil amendment inhibitors, harmful substances
•Performance: compost rate; preferability
•System: type of composting process/facility; preparation/separation requirements
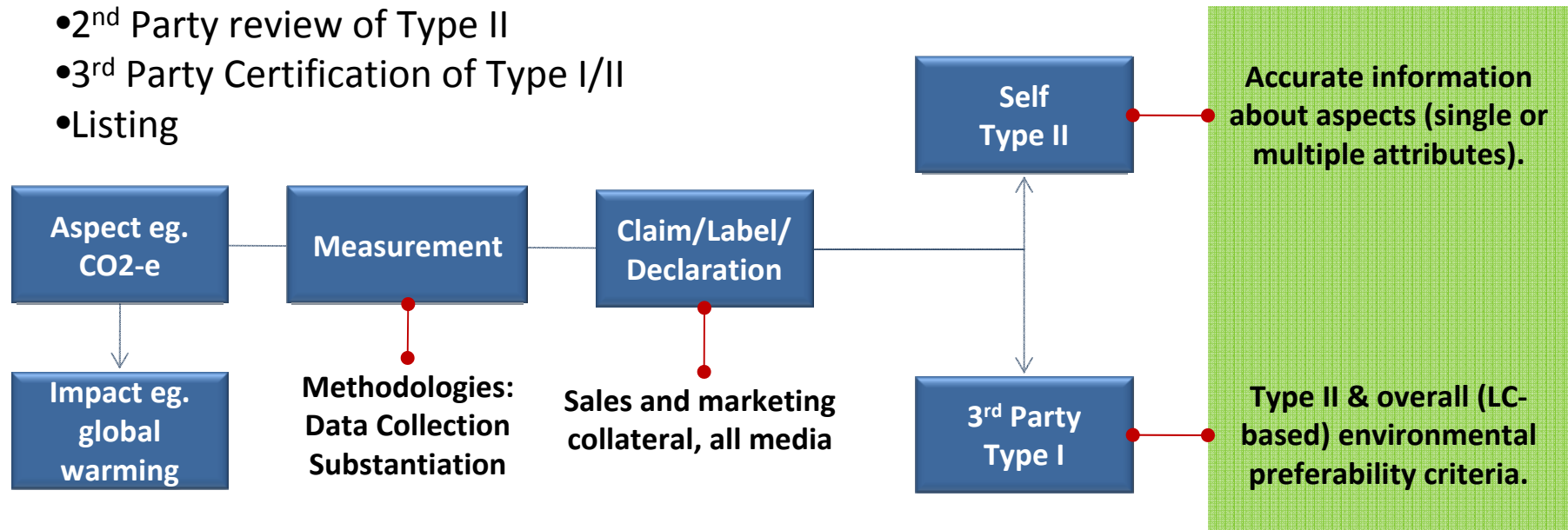•Supply: equipment necessary; presence of composting facilities

NSF Role
- Methodology development, protocols
- Data collection perhaps including Trucost & LCA)
- 2nd Party review of Type II
- 3rd Party Certification of Type I/II
- Listing

ANSI/ISO/FTC Terminology

Aspect eg. CO2-e

Measurement

Claim/Label/ Declaration

Impact eg. global warming

Methodologies: Data Collection Substantiation

Sales and marketing collateral, all media

Self Type II

3rd Party Type I

Accurate information about aspects (single or multiple attributes).

Type II & overall (LC-based) environmental preferability criteria.

Value Creation through Sustainability (adapted from MIT Sloan Management Review)
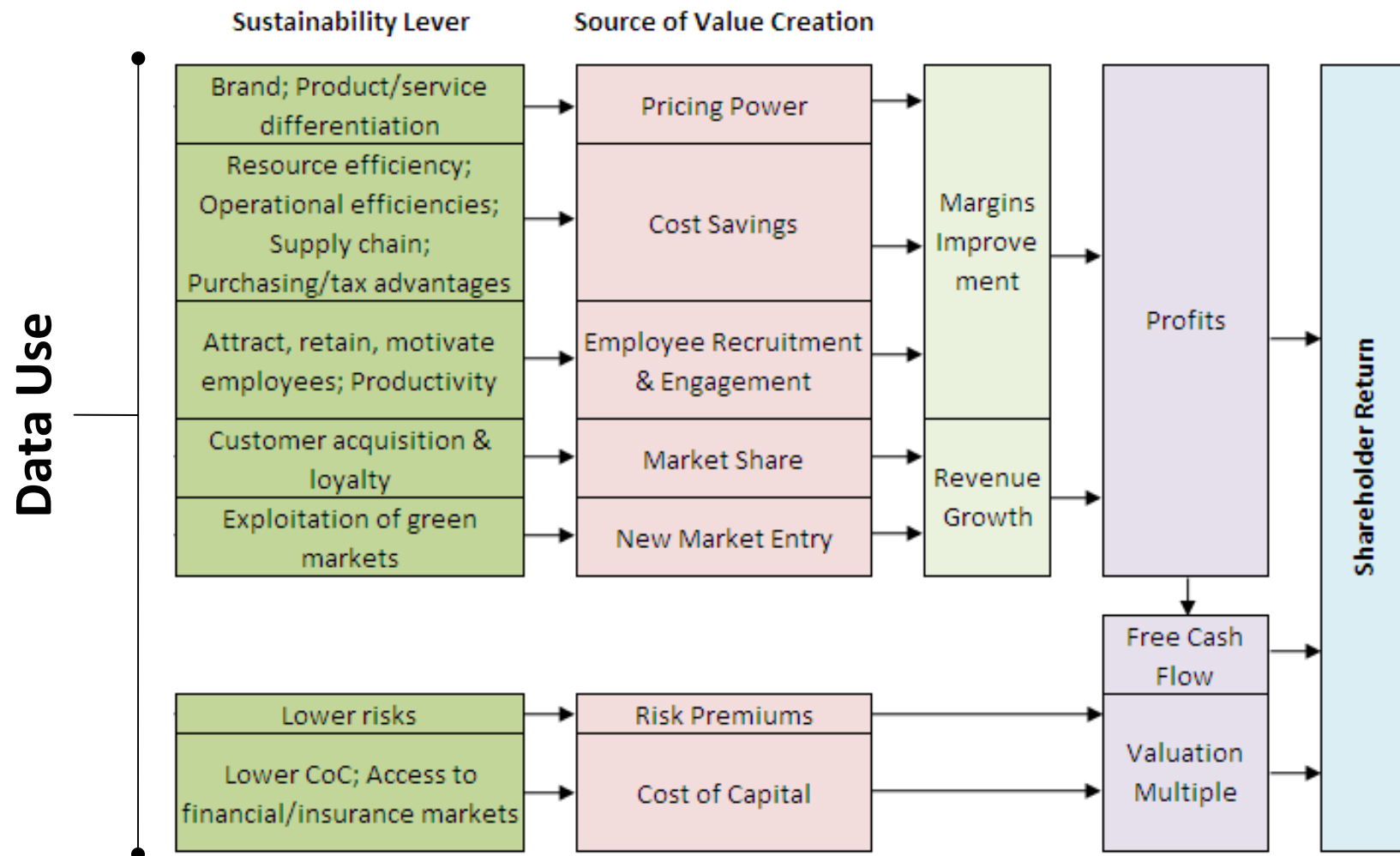
Evolution of certification systems...
Ten Dynamics of relevance...

↓ 1 Proliferation, greenwashing, traction, demand

↑ 2 Emergence of umbrella schemes (eg., LEED); secondary market

↑ 3 Single to multi-attribute; associated brand extensions (eg., GreenGuard, Energy Star)

↔ 4 Solution to multi-attribute incomparability: normalization to point schemes (eg., BIFMA level, LEED)

↔ 5 Future shock: LC & ISO14020 series, data transparency, IP, supply chains

↑ 6 Maturation models, dynamic systems, obsolescence

↓ 7 Fraud

↓ 8 Uncertainty, time to market, risk, disincentives

↓ 9 Local conditions (eg., LEED, India, supply chains, costs, barriers)

↔ 10 Voluntary...codification...regulation