Sustainability tools, initiatives, and approaches & Sustainability reporting

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Corporate Voluntary Efforts to Contribute to Sustainability

- Environmental and social concerns and costs have served as catalysts for the **development and rapid growth** of initiatives, tools and approaches that go beyond compliance (Daily & Huang, 2001; K.-H. Robert *et al.*, 2002; Yang, 2002)

- During the last three decades, corporate voluntary initiatives to contribute to Sustainability have been switching from '**end-of-pipe**' solutions to **whole-system** approaches, by changing products, processes and systems (McIntosh, Leipziger, & Jones, 1998)
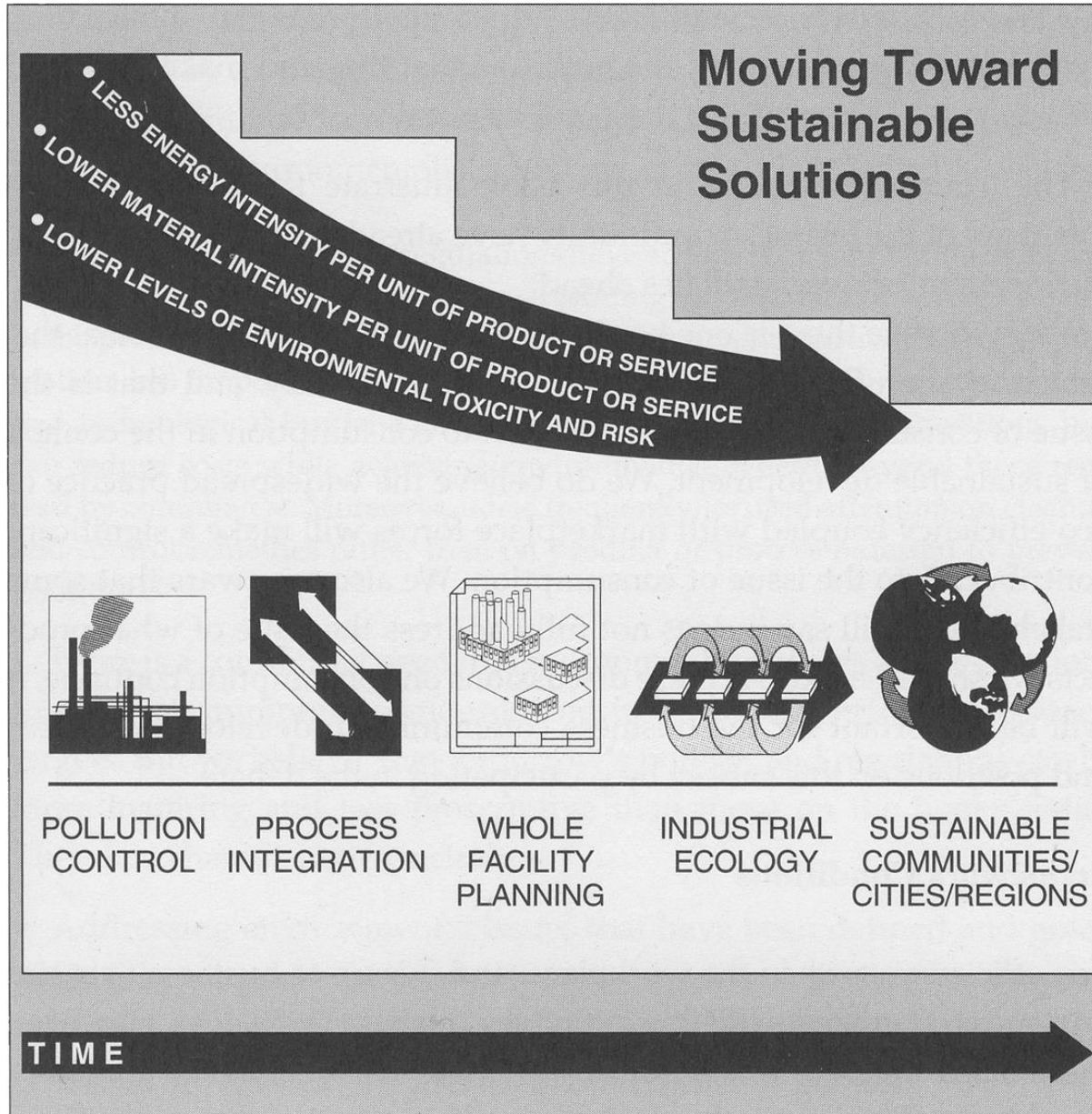
Towards more sustainable societies

- Corporations have **recognised** that they possess resources, technology, global reach, marketing skills and motivation to work towards more **Sustainable Societies** (DeSimone & Popoff, 2000; Hart, 2000b; Henriques & Richardson, 2005)

- **Initiatives**, **tools** and **approaches** that go beyond compliance have been developed for and by corporations, evolving from 'end-of-pipe' solutions to whole-system approaches (Daily & Huang, 2001; McIntosh, Leipziger, & Jones, 1998; Robert et al., 2002; Yang, 2002)

Interest in sustainability

- **Interest** in sustainability from the corporate sector is evidenced by over 7,700 companies in 130 countries (UNGC, 2010) that have signed the UN Global Compact (UNGC, 2008)

- However, embedding sustainability principles, such as the Global Compact, into companies' systems represents **significant challenges**, especially due to their complexity and the multi-dimensional issues (Langer & Schön, 2003)

Moving Toward Sustainable Solutions

- LESS ENERGY INTENSITY PER UNIT OF PRODUCT OR SERVICE
- LOWER MATERIAL INTENSITY PER UNIT OF PRODUCT OR SERVICE
- LOWER LEVELS OF ENVIRONMENTAL TOXICITY AND RISK

POLLUTION CONTROL | PROCESS INTEGRATION | WHOLE FACILITY PLANNING | INDUSTRIAL ECOLOGY | SUSTAINABLE COMMUNITIES/ CITIES/REGIONS

TIME

Source: (DeSimone & Popoff, 2000)

Voluntary initiatives

- From the 1970s until the late 1990s, such corporate initiatives evolved from purely **'end-of-pipe' solutions** (Porter & van der Linde, 1995; Sarkis & Cordeiro, 2001) towards **whole-system approaches**, by changing products, processes and systems

- **Corporate voluntary** initiatives have been gaining momentum to foster sustainability in companies (Dunphy et al., 2003; Ny, 2009; Ny, et al., 2006)

Sustainability tools and initiatives

- *Circular Economy*
- *Cleaner Production*
- *Corporate Citizenship*
- *Corporate Social Responsibility*
- Corporate Sustainability
- *Design for Environment*
- *Eco-efficiency*
- *Eco-labelling*
- *Environmental Management Systems (EMAS and ISO 14000 series)*

- *Factor X*
- *Green/sustainable Chemistry*
- *Green/sustainable Marketing*
- *Industrial Ecology*
- *Integrated Management Systems*
- *Life Cycle Assessment*
- *Socially/Sustainable Responsible Investment*
- *Sustainability Reporting (AA1000, GRI, ISO 26000, SA8000)*
- *Sustainable Supply Chains*
- *The Natural Step*
- *Triple Bottom Line*

Cleaner Production (CP)

- CP is the continuous use of **integrated preventive strategies** to process, products, and services, utilising raw materials, e.g. energy and water, **efficiently** to reduce waste at source, and minimising risks to the environment and society (DeSimone & Popoff, 2000; Robèrt, et al., 2002; UNEP, 2000a, 2001)

- In general, CP focuses on achieving **environmental** improvement in processes and product development (Glavič & Lukman, 2007; Pauli, 1997)

Corporate Citizenship (CC)

- A concept where corporations have **social rights and responsibilities** to their **stakeholders** beyond **wealth maximisation** (Carroll, 1998; Leisinger, 2003; McIntosh, et al., 1998; Zadek, 2001)

- This includes **compliance** with laws and regulations, ethical behaviour, and contributions to social and economic welfare (Carroll, 1998; Rondinelli, 2003)

- CC is considered to be a core **business strategy tool** (Birch & Littlewood, 2004), which has started to become mainstream in business thinking (Leisinger, 2003)

Corporate Social Responsibility (CSR)

- CSR may be considered to be **one of the first initiatives** to contribute to sustainability (Lozano, 2009)

- **Key points** being addressed include: S
  - Stakeholder engagement and participation (C.E.C., 2001; Holme & Watts, 2000)
  - Product impact, health and safety, and dealing with corruption (Holme & Watts, 2000)
  - Human rights and freedom of association (C.E.C., 2001; Holme & Watts, 2000; UNGC, 2008; Welford, 2005; Zadek, 1999)
  - Communication, reporting, disclosure, and transparency (Holme & Watts, 2000)
  - Environmental protection and management of resources (C.E.C., 2001; Elkington, 2002; Holme & Watts, 2000)

Design for the Environment (DfE)

- DfE, also called eco-design, refers to the inclusion of environmental factors and considerations in the **design of the product or service** (Holliday, Schmidheiny, & Watts, 2002), so that it becomes easier to recover, reuse, or recycle (Anastas & Breen, 1997; Ashley, 1993; DeMendonça & Baxter, 2001; Hart, 1997)

- This has mainly emanated as a response to increased **consumer environmental awareness**, and tougher competition in the market respecting the environmental impacts of products (Hallstedt, 2008)

Eco-efficiency

- A **contraction** of ecological and economic efficiency (Willard, 2002)

- It is fundamentally a **ratio** of some **economic value** added in relation to some measure of **environmental impact** (J. R. Ehrenfeld, 2005)

- It aims to link environmental and business excellence, i.e. making profits by using less natural resources, with less waste and emissions within the earth's carrying capacity (DeSimone & Popoff, 2000; Ekins, 2005; Hamann, 2003)

- It is one of the concepts most widely accepted as the **business link** to sustainability (Dyllick & Hockerts, 2002; Korhonen, 2003)

Ecolabelling

- Based on a **market approach** to the protection of the environment (Hale, 1996; OECD, 1997)

- It aims to **inform consumers** of the environmental impacts throughout the production, consumption, and waste phases of products and services, and, to a great extent, influence consumers' behaviour towards more environmentally friendly consumption patterns (Hale, 1996; Nadaı, 1999; Rex & Baumann, 2007)

- It also aims to **encourage** producers, governments, and other agents to increase the environmental standards of products and services (Galarraga Gallastegui, 2002; Hale, 1996)

Environmental Management Systems (EMS)

- EMS are **administrative tools** aimed at assessing the environmental impact of the operations of organisations, mainly corporations, and in improving their environmental performance (Brorson & Larsson, 1999; Robèrt, 2000)

- Two of the most recognised EMS are the International Organisation for Standardization (ISO) **14000 series**, and the EU EcoManagement and Audit Scheme (**EMAS**) (Brorson & Larsson, 1999; Robèrt, 2000)

Environmental and Social Accounting (ESA)

- ESA's objective is to **attach monetary values** to the direct and indirect environmental and social impacts of a company's activities using a diversity of valuation methods (Burritt, Herzig, & Tadeo, 2008; de Beer & Friend, 2006; Warhurst, 2002)

- This can help to demonstrate the **potential for environmentally beneficial investments** to yield significant financial pay-offs, through the avoidance of environmental and social liabilities (de Beer & Friend, 2006)

Factor X

- Factor X refers to the **Eco-efficiency initiatives** Factor 4, Factor 5, and Factor 10, developed by the Wuppertal Institute (Robèrt, 2000; UNU, 2007; von Weizsäcker, Lovins, & Lovins, 1998), and extended to Factor 20 (Quist, Knot, Young, Green, & Vergrat, 2001)

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- They are based on **reductions in turnover of resources** on a global scale (Robèrt, 2000), i.e. increasing by a factor of 'x' the amount of wealth that is extracted from one unit of a natural resource (DeSimone & Popoff, 2000; Holliday, et al., 2002; von Weizsäcker, et al., 1998)

Green Chemistry (GC)

- GC follows similar principles to DfE, but its focus is on the **use of chemical techniques** to reduce or eliminate the use, or generation, of feed-stocks, products, by-products, solvents, reagents, or other hazardous chemicals that are, or might be, dangerous to human health or the environment (Anastas & Breen, 1997)

- GC is aimed at **preventing waste** before it is ever formed by considering the environmental impact, or potential impact, of a product or process (Anastas & Breen, 1997)

- GC relies on **12 rules based on five principles** (waste minimisation, renewable resources, eco-efficiency, degradation, and health and safety) that are aimed at designing or modifying chemical reactions to be more environmentally friendly (Glavič & Lukman, 2007)

Industrial Ecology (IE)

- Refers to the restructuring of industry in the form of **an ecosystem** with materials (including raw materials and wastes) flowing through inter-connections of production processes (EC, 2009; J. Ehrenfeld, 2004; Isenmann, 2003; Lowenthal & Kastenberg, 1998)

- The object of IE is to treat materials and energy, considered as **by-products or waste, as raw materials** by other companies (DeSimone & Popoff, 2000; EC, 2009; Heeres, Vermeulen, & de Walle, 2004; Lowe & Evans, 1995)

Life cycle assessment (LCA)

- LCA refers to the evaluation of all processes in the **life cycle** of a product or service, from downstream (i.e. extraction), to upstream (i.e. disposal), including use (DeSimone & Popoff, 2000; Holliday, et al., 2002; Robèrt, 2000)

- It focuses, primarily, on **quantifiable information** that can help in the decision making process (Hale, 1996)

Sustainable Livelihoods (SL)

- Focuses on creating new businesses and markets that **benefit the poor and the company**

- Aims to **align the company** with the laws, norms, expectations and aspirations of the society in which it operates (WBCSD, 2004a)

- Aims to **benefit society** by focusing on, in addition to employment, natural resource management, redistribution of livelihood resources, prices and payments, and health, while abolishing restrictions and hassle, and providing safety nets for poor people during bad times (Chambers, 1995)

- Nased on **providing the skills and assets** necessary for people to live reasonably secure lives, to cope with and recover from stress and shocks, and to provide opportunities for the next generation (Chambers, 1995; WBCSD, 2004a)

Sustainability Reporting (SR)

- SR is a voluntary activity with two general purposes:
  - To **assess** the current state of an organisation
  - To **communicate** to stakeholders the efforts and progress in the economic, environmental and social dimensions (Dalal-Clayton & Bass, 2002)

- Additional purposes:
  - Assessing sustainability **performance** over time,
  - **Benchmarking** against other companies, and
  - **Demonstrating** how the organisation influences, and is influenced by, expectations about sustainable development (Daub, 2007; GRI, 2011; Lozano, 2006a; Schaltegger & Wagner, 2006)
  - **Planning changes** for sustainability (Lozano, et al. 2015)

The Natural Step (TNS)

- An international educational organisation dedicated to accelerating society's **movement towards SD** (Robèrt, et al., 2002; Willard, 2002), with a **framework** to aid in this transition (Robèrt, 2000)

- TNS is built on **back-casting**, i.e. envisioning a desirable future and working to move to that point (Robèrt, et al., 2002)

- It works on **four sustainability principles** (SPs):
  1. Concentrations of substances extracted from the Earth's crust;
  2. Concentrations of substances produced by society;
  3. Degradation by physical means; and
  4. Conditions that systematically undermine people's capacity to meet their needs.

The Triple Bottom Line (TBL)

- The TBL focuses on **incorporating** environmental and social performance indicators, while complementing and balancing the economic indicators, into **company management, measurement and reporting processes** (Atkinson, 2000; Elkington, 2002; Frankental, 2001; Wilenius, 2005)

- TBL aims to **question** a company's values, strategies and practices, and how these can be used to achieve SD (Milne, Kearins, & Walton, 2003)

Corporate initiative	Corporate System					Sustainability			
	O&P	M&S	OS	P&M	A&R	Econ.	Env.	Social	Time
CP	√					√	√		Limited
CC		√						√	
CSR		√			Limited		Limited	√	
DfE	√						√		
Eco-efficiency	√					√	√		
Eco-labelling				√	√		√	Limited	
EMS		√	Variable		√		√		
ESA		√			√	√	√	√	
Factor X	√					Limited	√		
GC	√						√		
IE	√	√				Limited	√		
LCA	√				√		√		
SLs		√				√	√	√	√
SR		Limited			√	√	Variable	Variable	
TNS		√	Limited			Limited	√	Limited	Limited
TBL		√		√		√	√	√	

Circular Economy	System elements							Sustainability			
	Operations a	Managemen	Organisation	Procurement	Assesement	Governance	Collaboration	Economic	Environment	Social	Time
Circular Economy	G						Y	G	G		
Cleaner Production	G							G	G		
Corporate Citizenship		G								G	G
Corporate Social Responsibility		G			Y (1)			Y (1)	Y (1)	G	
Corporate sustainability	G	G	G	G	G	G	G	G	G	G	G
Design for the Environment/eco-design									G		
Eco-efficiency	G							G	G		
Ecolabels				G	G		Y	Y (1)	G		
Environmental Management Systems (EMAS)		G	Y (1)		G				G		
Environmental Management Systems (ISO 14000 series)		G	Y (1)		G				G		
Factor X	G							Y	G		
Green/sustainable chemistry									G		
Green/sustainable marketing				G					G	G	G
Industrial ecology	G						G		G		
Integrated Management Systems		G	Y (1)		G			Y (1)	G	Y (1)	
Life Cycle Assessment	G			Y (1)	G				G	G	
Socially/Sustainable Responsible Investment		G					Y	G	Y (1)	Y (1)	
Sustainability reporting (AA1000)		Y (1)			G		G	G		G	
Sustainability reporting (GRI report)		Y (1)					Y	G	G	G	
Sustainability reporting (ISO 26000)		Y (1)			G			G		G	
Sustainability reporting (SA8000)		Y (1)			G		Y			G	
Sustainable supply chain	G			G	Y (1)		Y	G	G	Y (1)	
The Natural Step		G	Y (1)					Y	G	Y (1)	
Triple Bottom Line		G						G	G	G	

Some critiques and limitations (1)

- The majority of CS efforts described in the literature focus on integrating the **economic and environmental dimensions** (e.g. Atkinson, 2000; Costanza, 1991; Lozano, 2012; Reinhardt, 2004)

- Salzmann et al. (2003) indicate that this emphasis is due to social issues being **less developed** than environmental ones

- The tools and approaches have focused principally on **'hard' technocentric i**ssues, such as reducing impacts, or improving efficiencies and effectiveness, and on managerial ploys (Lozano, 2012)

Some critiques and limitations (2)

- Even though there have been proposals to explore the initiatives' potential synergies (see Robèrt, 2000; Robèrt, *et al.*, 1997; Robèrt, *et al.*, 2002), the repertoire of initiatives presented have been **limited** in their contribution to:
  - The economic, environmental, and social **dimensions of sustainability** (see Oskarsson & von Malmborg, 2005)
  - The **time** dimension (Lozano, 2008)
  - Company **processes** (see Oskarsson & von Malmborg, 2005; von Weizsäcker, *et al.*, 2009)
  - How could **they can be combined** to address the entire company system.

Combinations

- For the sixteen initiatives discussed there could be **65,535 combinations**, dependant on company strategy, organisational culture, and contextual factors

- One option would be to **use all** of the initiatives presented; however, this requires countless resources, effort, and coordination, as well as potential duplication of tasks

- Another option is to choose **only one initiative**, but as previously discussed, this does not address the company system and the four dimensions of sustainability

Corporate Integration of Voluntary Initiatives for Sustainability (CIVIS) framework

- Developed under the premise that a **combination of initiatives** is needed, constrained by
  - (1) the least possible number of initiatives, and
  - (2) achieving full coverage of the company system and the four dimensions of sustainability

- Let CSy be the company system, FDS the four dimensions of sustainability, and CI the combination of initiatives; therefore: CI is a set of initiatives that is constrained by the conditions CSy and FDS.

Corporate initiative	Corporate System					Sustainability			
	O&P	M&S	OS	P&M	A&R	Econ.	Env.	Social	Time
TBL		■		■		■	■	■	
TNS		■	▨			▨	■	▨	▨
LCA	■				■		■		

Colour coding

■ Full contribution

▨ Limited contribution

▢ Variable contribution

Discussion (1)

- Each initiative has its **advantages** in regards to scope and focus in the dimensions and the system elements, but it also has **disadvantages** when it comes to dealing with the complexity and broadness of sustainability

- Relying only, or even mainly, in one initiative can result on a **limited and narrow** contribution to sustainability

- The challenge that leaders and sustainability champions face is to **understand the structure** of their companies and **the context** where they operate, so that they can choose a combination of initiatives that would be able to address their company needs, as well as the four sustainability dimensions

Discussion(2)

- The least addressed elements of the company system have been **organisational systems** and **procurement and marketing**

- Technocentric fixes are deficient, especially when they are relied upon as the sole 'fix', and, rather, the answer lies in **engaging holistically** with **'people'** in changing companies (and organisations) in order to help current generations and future ones to become more sustainable

Engaging in CS

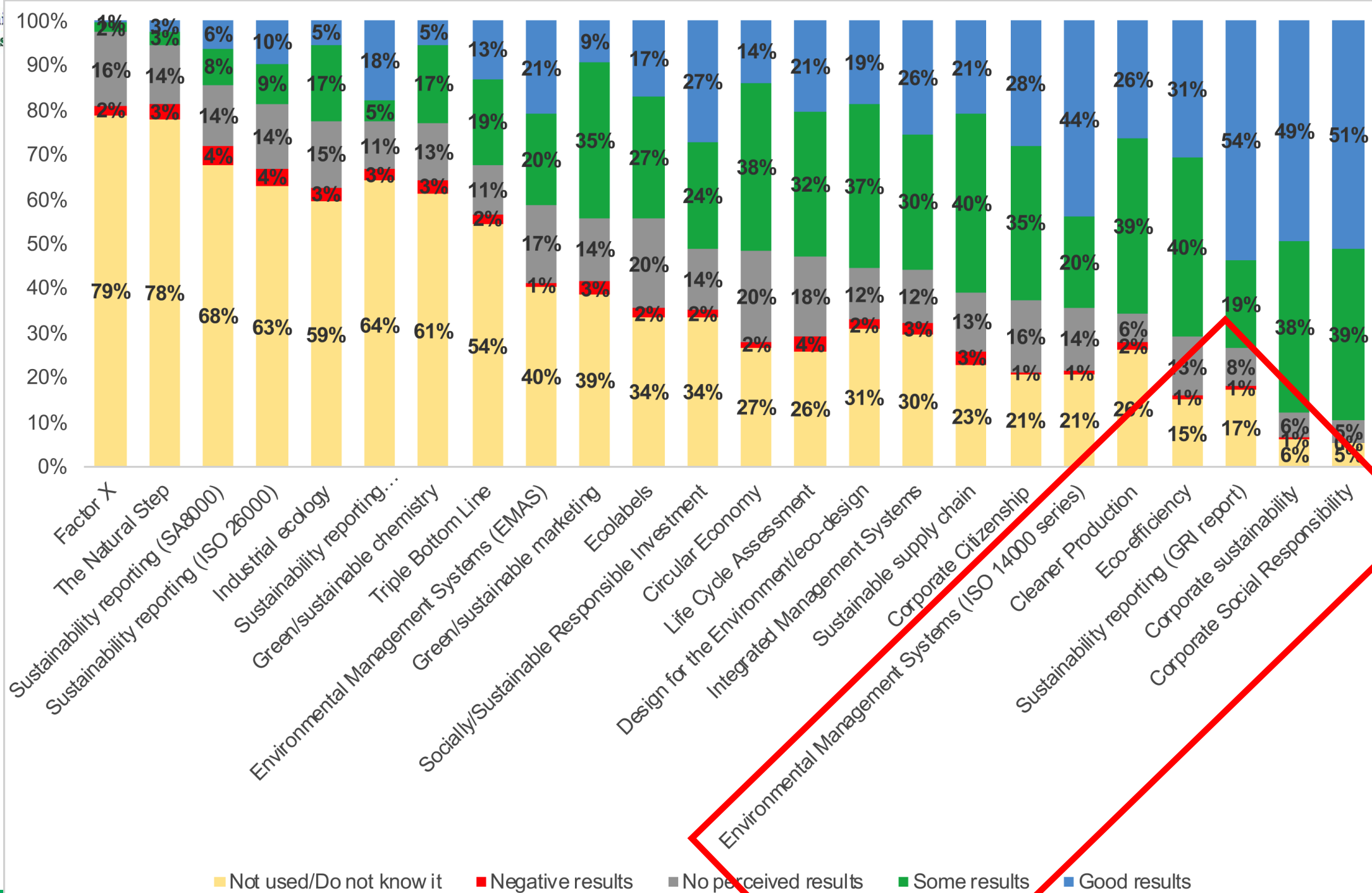- The companies that have engaged in sustainability have done it mainly through upper **management levels' initiatives** (Siebenhüner & Arnold, 2007), but companies have been, generally, treated as **'black boxes'**, thus not accounting for subcultures and intra-organisational differences (Küpers, 2011; Linnenluecke, et al., 2009), or failing to engage with their organisational systems (Lozano, 2012)

Methods

- A survey was developed and sent to a database of 5,299 contacts from different organisations (of which **3603 were companies**) obtained from the Global Reporting Initiative (GRI) database, and personal contacts

- Of the responses **202** were from companies, but only 189 provided useable responses for the tools and approaches used, of which 27 were from Sweden

- The responses were analysed using: descriptive statistics, Friedmand test combined with quintiles, ratio analysis, cluster analysis, and principal component analysis

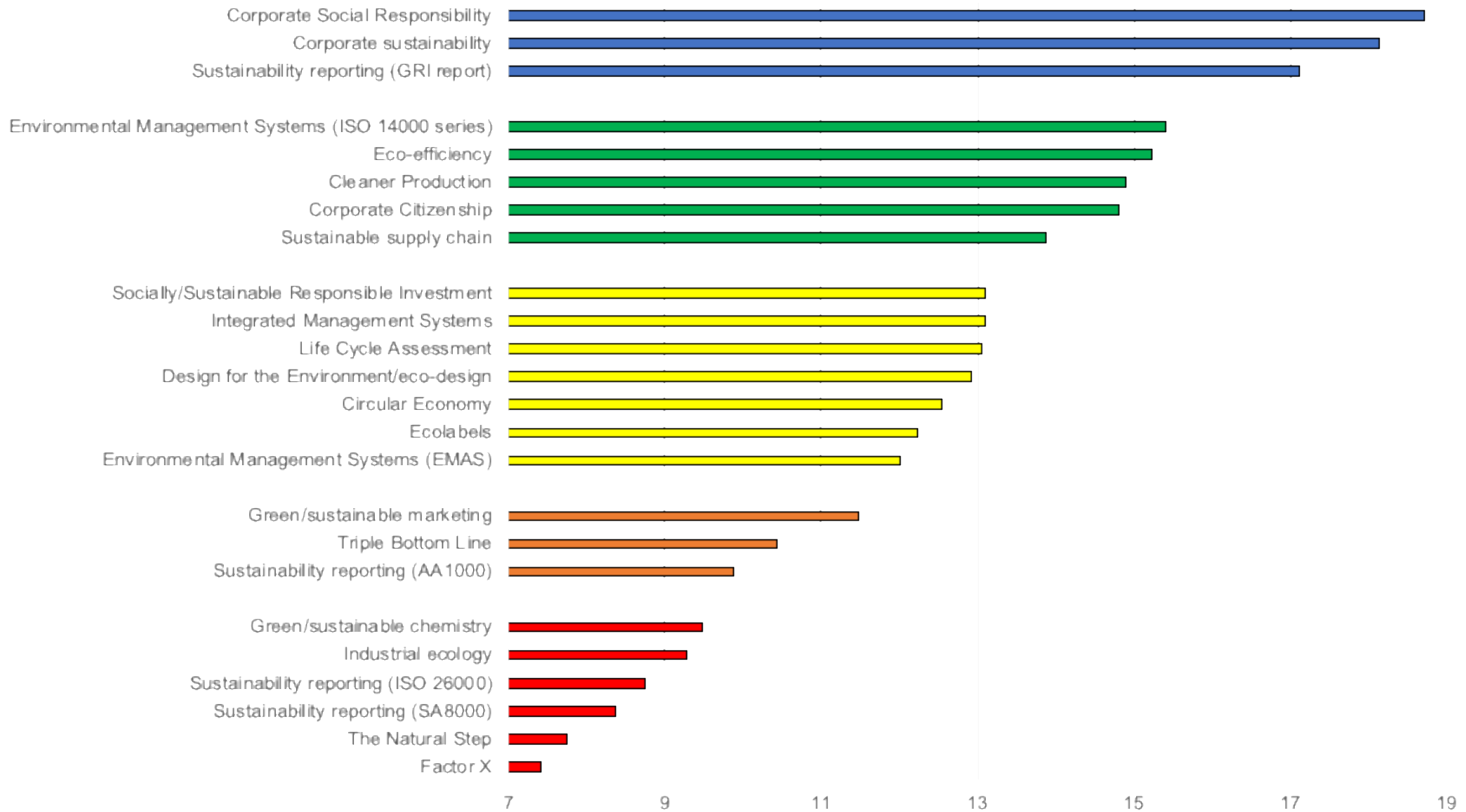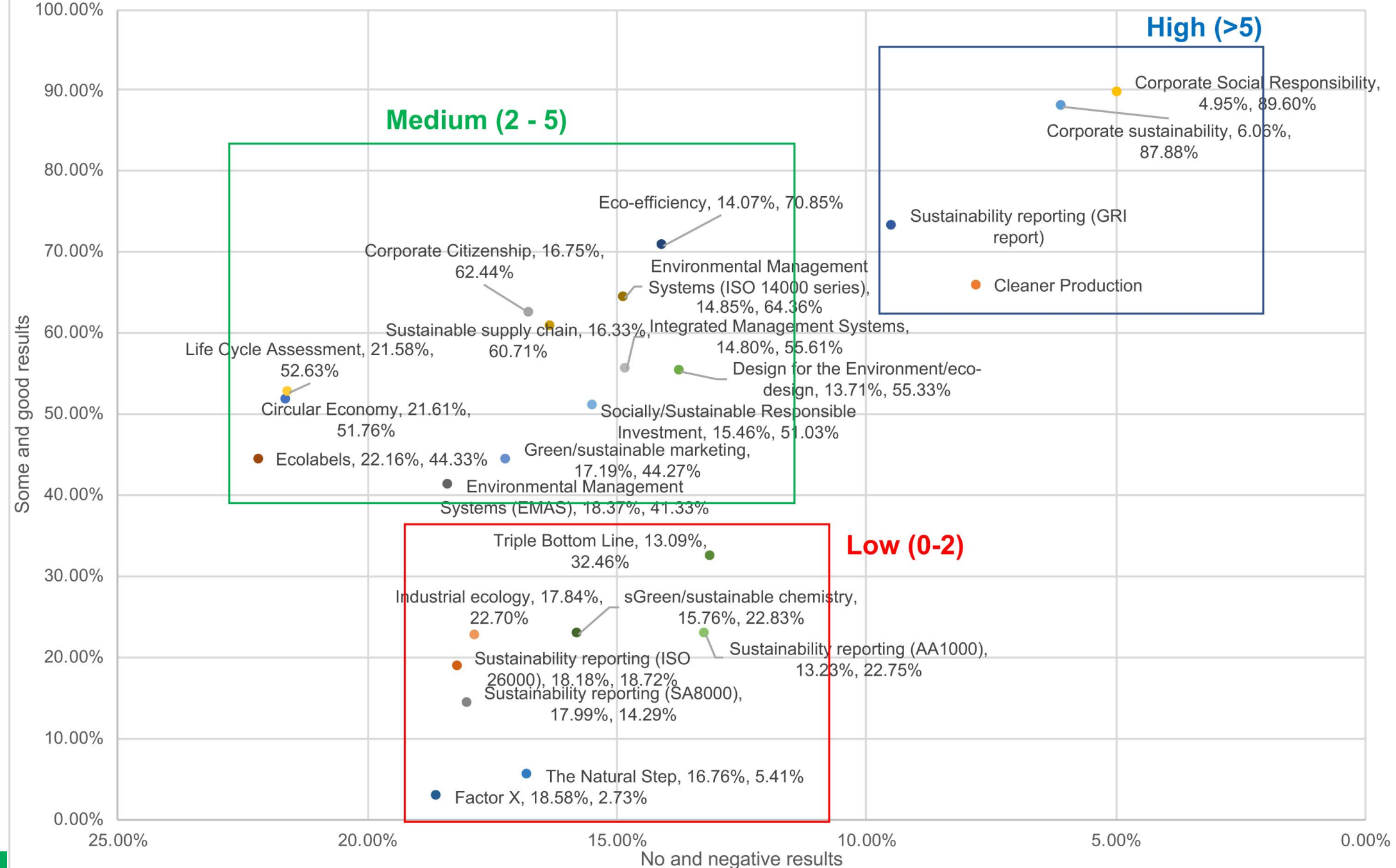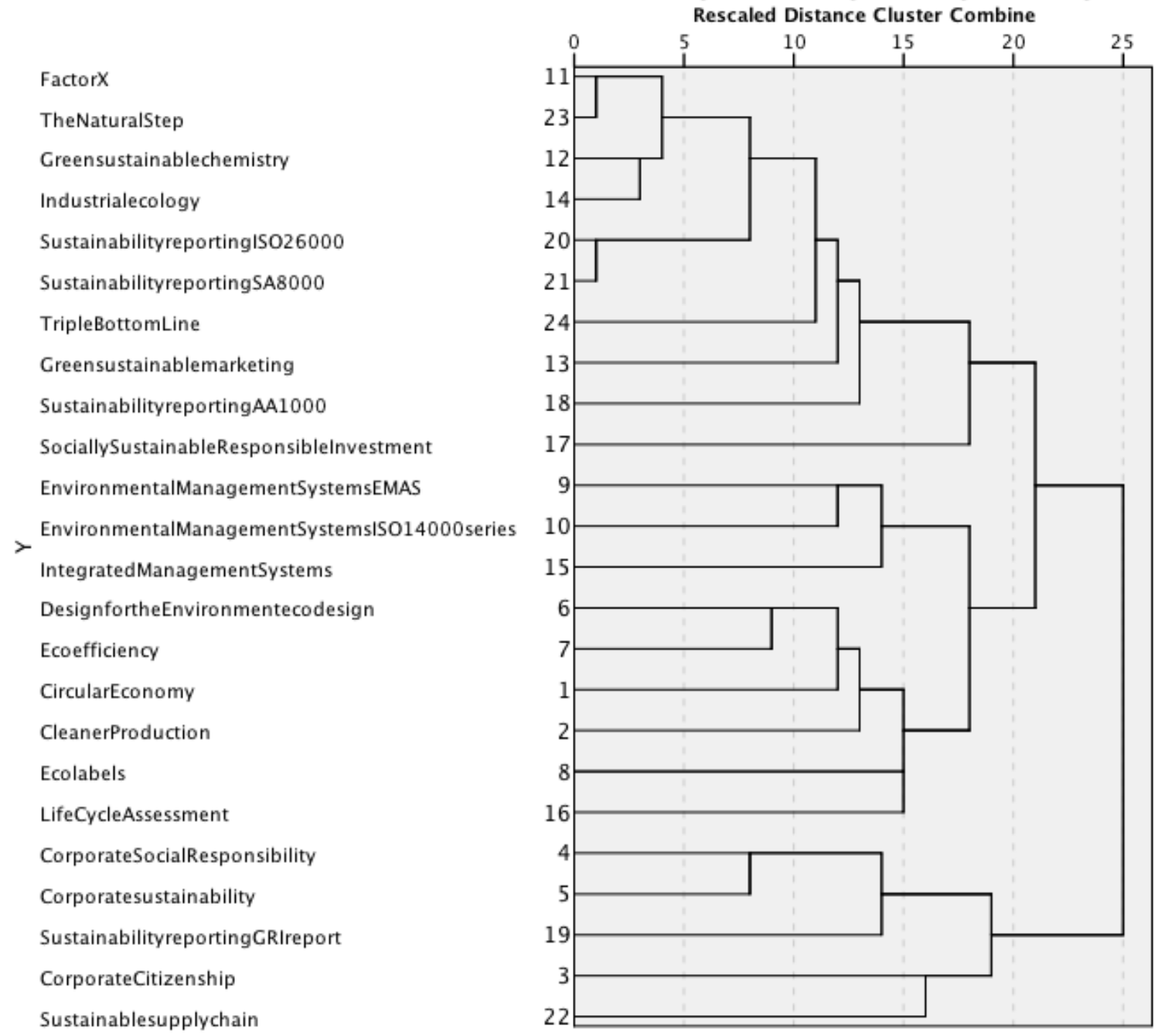|	Not used/Do not know it	Negative results	No perceived results	Some results	Good results
Factor X	79%	2%	16%	2%	1%
The Natural Step	78%	3%	14%	3%	3%
Sustainability reporting (SA8000)	68%	4%	14%	8%	6%
Sustainability reporting (ISO 26000)	63%	4%	14%	9%	10%
Industrial ecology	59%	3%	15%	17%	5%
Sustainability reporting…	64%	3%	11%	5%	18%
Green/sustainable chemistry	61%	3%	13%	17%	5%
Triple Bottom Line	54%	2%	11%	19%	13%
Environmental Management Systems (EMAS)	40%	1%	17%	20%	21%
Green/sustainable marketing	39%	3%	14%	35%	9%
Ecolabels	34%	2%	20%	27%	17%
Socially/Sustainable Responsible Investment	34%	2%	14%	24%	27%
Circular Economy	27%	2%	20%	38%	14%
Life Cycle Assessment	26%	4%	18%	32%	21%
Design for the Environment/eco-design	31%	2%	12%	37%	19%
Integrated Management Systems	30%	3%	12%	30%	26%
Sustainable supply chain	23%	3%	13%	40%	21%
Corporate Citizenship	21%	1%	16%	35%	28%
Environmental Management Systems (ISO 14000 series)	21%	1%	14%	20%	44%
Cleaner Production	26%	2%	6%	39%	26%
Eco-efficiency	15%	1%	13%	40%	31%
Sustainability reporting (GRI report)	17%	1%	8%	19%	54%
Corporate sustainability	6%	1%	6%	38%	49%
Corporate Social Responsibility	5%		5%	39%	51%

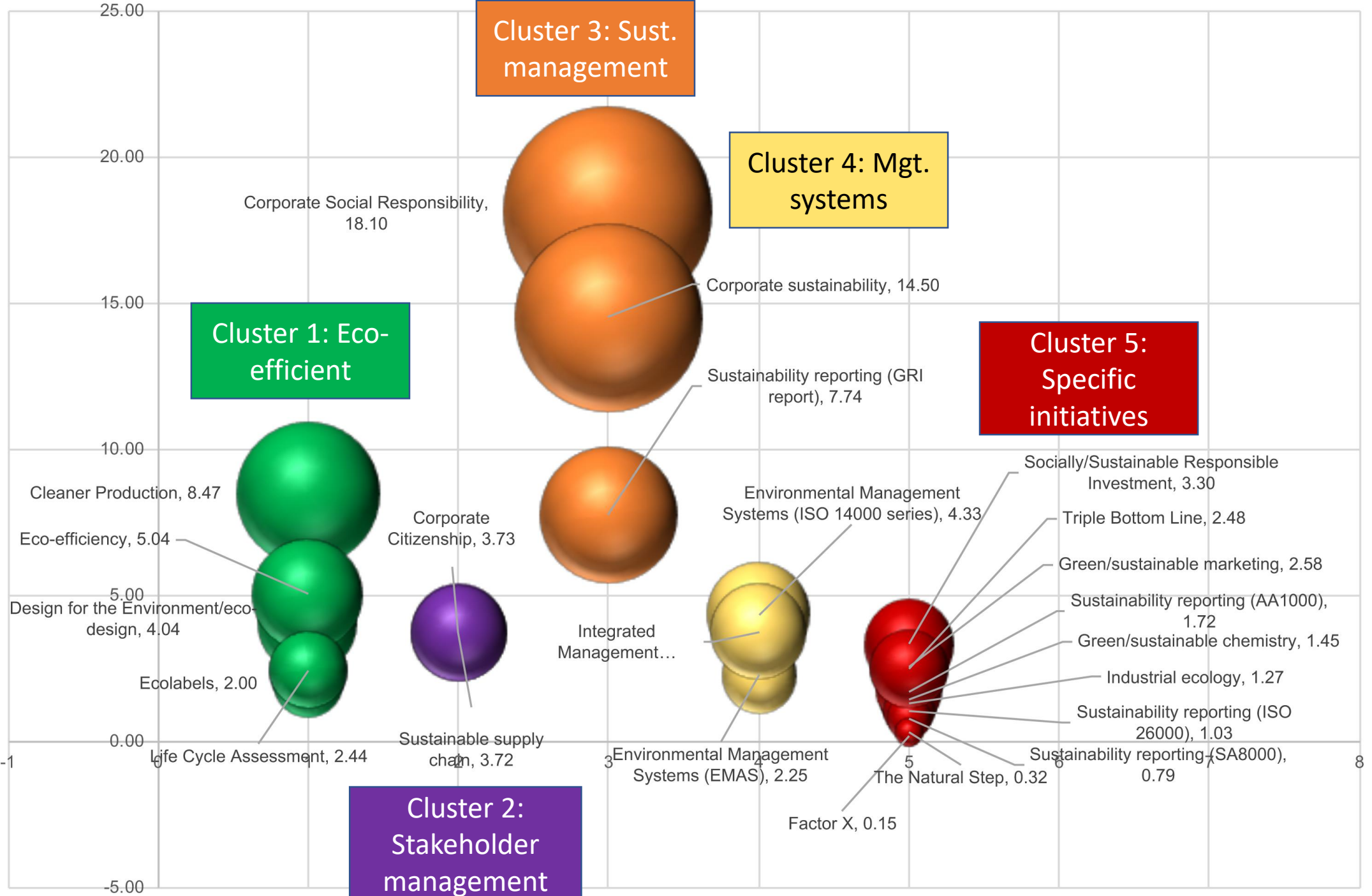Ratio results vs no results
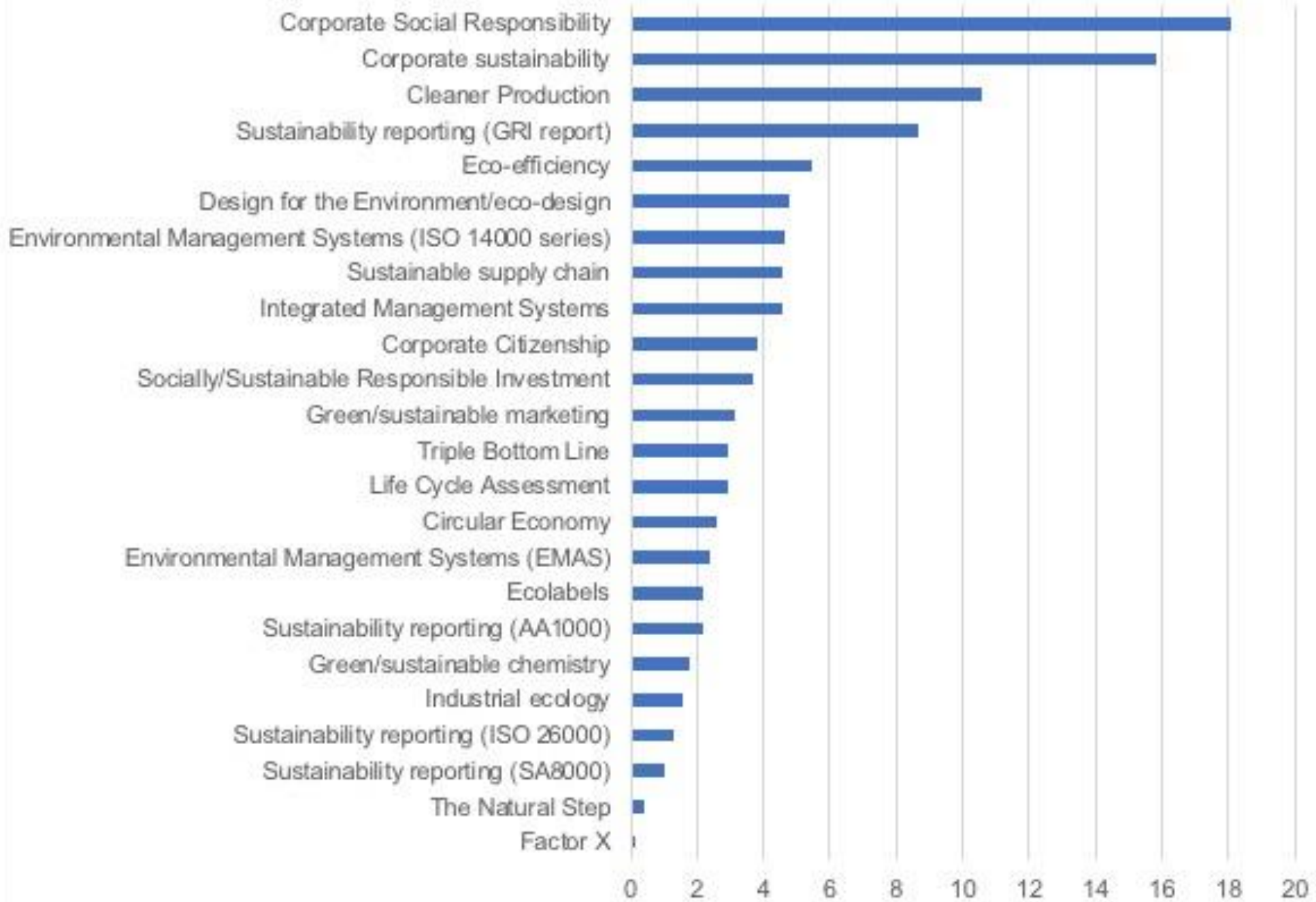
Ranking of sustainability tools (corporations)

Some and good results versus no and negative results

High (>5)

Medium (2 - 5)

Low (0-2)

Corporate Social Responsibility, 4.95%, 89.60%

Corporate sustainability, 6.06%, 87.88%

Sustainability reporting (GRI report)

Cleaner Production

Eco-efficiency, 14.07%, 70.85%

Corporate Citizenship, 16.75%, 62.44%

Environmental Management Systems (ISO 14000 series), 14.85%, 64.36%

Sustainable supply chain, 16.33%, 60.71%

Integrated Management Systems, 14.80%, 55.61%

Life Cycle Assessment, 21.58%, 52.63%

Design for the Environment/eco-design, 13.71%, 55.33%

Circular Economy, 21.61%, 51.76%

Socially/Sustainable Responsible Investment, 15.46%, 51.03%

Ecolabels, 22.16%, 44.33%

Green/sustainable marketing, 17.19%, 44.27%

Environmental Management Systems (EMAS), 18.37%, 41.33%

Triple Bottom Line, 13.09%, 32.46%

Industrial ecology, 17.84%, 22.70%

sGreen/sustainable chemistry, 15.76%, 22.83%

Sustainability reporting (AA1000), 13.23%, 22.75%

Sustainability reporting (ISO 26000), 18.18%, 18.72%

Sustainability reporting (SA8000), 17.99%, 14.29%

The Natural Step, 16.76%, 5.41%

Factor X, 18.58%, 2.73%

Some and good results (y-axis)

No and negative results (x-axis)

Dendrogram using Average Linkage...

Organisational Sustainability

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1. Products, operations, and management
- Eco-design
- Eco-efficiency
- Circular Economy
- Cleaner Production
- Ecolabels
- Life Cycle Assessment
- Corporate Sustainability

3. Environmental initiatives
- Green/sustainable chemistry
- Factor X
- Industrial Ecology
- Green/sustainable marketing

4. Management
- Corporate Citizenship
- CSR

6. Stakeholders
- Triple Bottom Line
- The Natural Step
- GRI reports
- Sustainable supply chain
- Integrated Management Systems

2. Reporting
- SA8000
- ISO26000
- AA1000
- Socially/sustainable responsible investment

5. Management systems
- EMAS
- ISO 1400x

Principal Component Analysis

Concept	Cluster	Ratio	Operations and...	Management	Organisation	Procurement	Assesement	Governance	Collaboration	Economic	Environment	Social	Time
Cleaner Production	1	8.47	■								■		
Eco-efficiency	1	5.04	■								■		
Design for the Environment/eco-design	1	4.04	■								■		
Life Cycle Assessment	1	2.44	■			▨	■						
Circular Economy	1	2.40	■						▨		■		
Ecolabels	1	2.00				■			▨	▨	■		
Corporate Citizenship	2	3.73		■								■	
Sustainable supply chain	2	3.72	■			■	▨		▨	▨	■	▨	
Corporate Social Responsibility	3	18.10		■			▨			▨	▨		■	
Corporate sustainability	3	14.50	■	■	■	■	■	■		■	■	■	■
Sustainability reporting (GRI report)	3	7.74		▨				■	▨	■	■	■	
Environmental Management Systems (ISO 14000 series)	4	4.33		■	▨		■				■		
Integrated Management Systems	4	3.76		■	▨		■			▨	■		
Environmental Management Systems (EMAS)	4	2.25		■	▨		■				■		
Socially/Sustainable Responsible Investment	5	3.30		■					▨	■	▨	▨	▨
Green/sustainable marketing	5	2.58				■				■	■	■	
Triple Bottom Line	5	2.48		■						■	■	■	
Sustainability reporting (AA1000)	5	1.72		▨			■		■		■		
Green/sustainable chemistry	5	1.45	■							▨	■		
Industrial ecology	5	1.27	■						■	■	■		
Sustainability reporting (ISO 26000)	5	1.03		▨			■			■		■	
Sustainability reporting (SA8000)	5	0.79		▨			■		▨		■	■	
The Natural Step	5	0.32		■	▨					▨	■	▨	
Factor X	5	0.15	■							▨	■		

Discussion (1)

- There are some initiatives that are **well known** and **provide results (some and good)** when used, such as corporate social responsibility, corporate sustainability, GRI reports, and eco-efficiency)

- There are some initiatives that are **not known/not used** (e.g. Factor X, The Natural Step, SA8000, and ISO26000)

- Four similar concepts are used in very different ways: CSR and CS are used almost equally with good results, and thus **could be used interchangeable** (depending on the context); corporate citizenship is **used slightly less** with some lesser results; whereas, the triple bottom line is **seldom used** in practice

- Cleaner production and eco-efficiency have very similar results, and thus could potentially **be used interchangeably**

Discussion (2)

- The most widely know initiatives **focus mainly** on management and strategy, and assessment and reporting with a broad sustainability perspective

- In general, the four more widely known initiatives **have a good ratio** of results versus no results

- There are some initiatives that are **less known** (e.g. The Natural Step or Factor X), which tend to also have **less results**

Discussion (3)

- The initiatives used **focus**, generally, on operations and production, management and strategy, and assessment and reporting

- Governance and organisational systems tend to be **not addressed** by the initiatives, therefore, **other efforts need to be** taken to address these

- The initiatives have **limited coverage** on organisational systems, governance, and stakeholders engagement

Discussion (4)

- Then the cluster analysis resulted in **five characteristic groups**, whereas the the PCA showed **a clear separation** of the groups, where only Green/sustainable marketing and Integrated management systems serve as links between groups

- The cluster and analysis and PCA groups can serve **as guides** to decide **which initiatives to combine** in order to address the company system and sustainability dimensions

- **A combination** between four to six initiatives should provide the most efficient way to address sustainability

Conclusions (1)

- The initiatives can help to **address sustainability** in corporations

- However, the majority of such efforts have focussed on the **economic** and **environmental dimensions** and on **operations and production**, **management and strategy**, and **assessment and reporting**

- Relying on **one initiative** can result in a limited and narrow contribution to sustainability and curtail coverage of the company's system and using **too many tools wastes resources** and energy due to duplication in tasks

There have been **many initiatives** proposed to **contribute to sustainability** by and for corporations. To better achieve this, the initiatives need to be **combined efficiently in a holistic** way to address the company and sustainability dimensions.
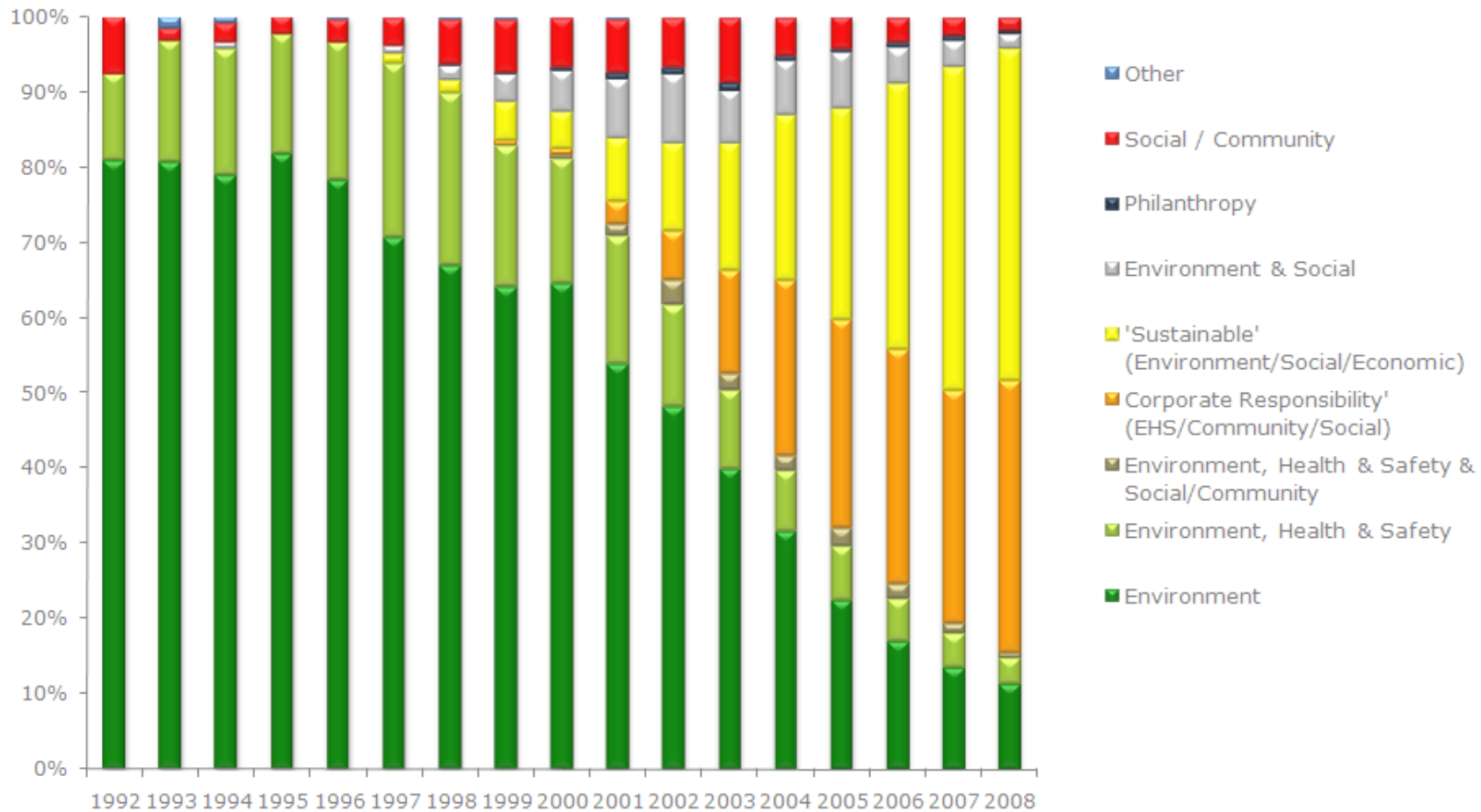
Sustainability reporting

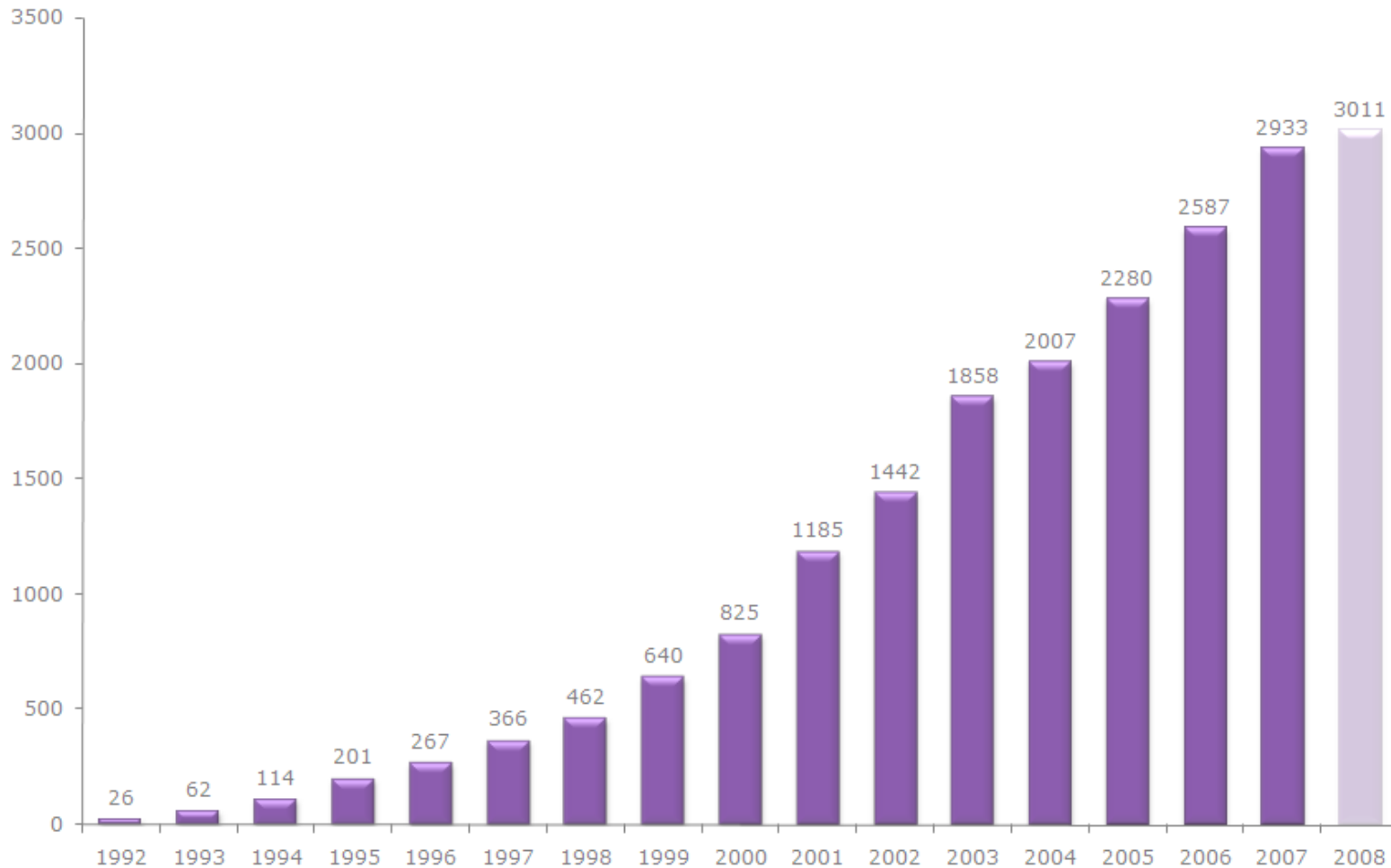# A brief history of sustainability reporting

1970s
First reports in USA, UK, and Germany
Emphasis on social issues (employment, union issues)

1980s
Environmental reporting
Response to major environmental disasters
Mainly driven by civil society activism

1990s
Mainly environmental
Beginning of the switch to sustainability after Rio conference

2000s
Emergence of sustainability reporting with CERES and GRI
National legislation incraesing

2010s
Sust reporting becoming mainstream
Less guidelines but more focuses
Emergence of Integrated Reporting

Reporting focus

(Corporate Register, 2009)

Sustainability Reporting

(Corporate Register, 2008)

Sustainability Reporting purposes

- Two main purposes:
  - to **assess** the current state of an organisation's economic, environmental and social dimensions
  - to **communicate** these efforts and their progress to stakeholders (Dalal-Clayton & Bass, 2002; GRI, 2006; Hamann, 2003; Heilmayr, 2005; Kolk, 2003)

- Additional purposes:
  - Assessing sustainability **performance** over time,
  - **Benchmarking** against other companies, and
  - **Demonstrating** how the organisation influences, and is influenced by, expectations about sustainable development (Daub, 2007; GRI, 2011; Lozano, 2006a; Schaltegger & Wagner, 2006)
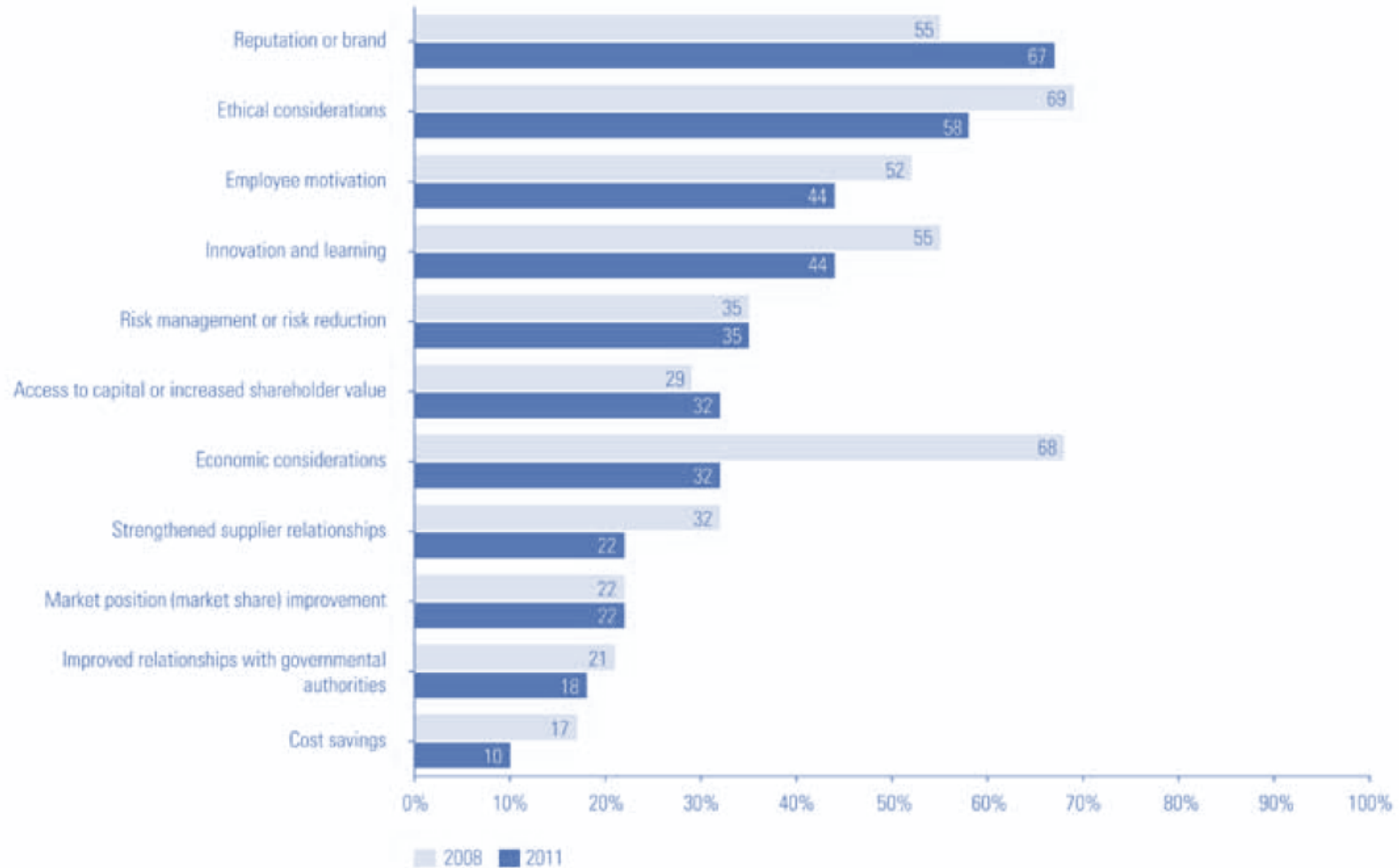 - **Planning changes** for sustainability (Lozano, et al. 2015)

SR status

- During the last decade SR has been increasingly recognised as **a key driver** of Sustainability in corporations (Cherp, 2003; Davis-Walling & Batterman, 1997; Morhardt, Baird, & Freeman, 2002)

Reporting Drivers

Figure 6: Reputation and ethical considerations top the list of global business reporting drivers for G250 companies

SR paths

- The **critical theorist** approach, which categorises SR as the cause and source of corporate sustainability problems

- The **management oriented** approach, which sees SR as a tool to help managers deal with different and difficult decisions:
  - **"outside-in",** focusing on the opinions and perceptions of stakeholders towards the organisation and,
  - **"inside-out",** relating to the decisions taken inside the organisation in regards to social and environmental problems, which strengthen the competitive position of the organisation. (Schaltegger and Wagner, 2006; Burritt and Schaltegger, 2010)

Company size and reporting

Figure 3: Larger companies are leaders in corporate responsibility reporting

Company size	Percentage
US$50-500b	92
US$10-50b	83
US$5-10b	72
US$1-5b	61
US$0-1b	48
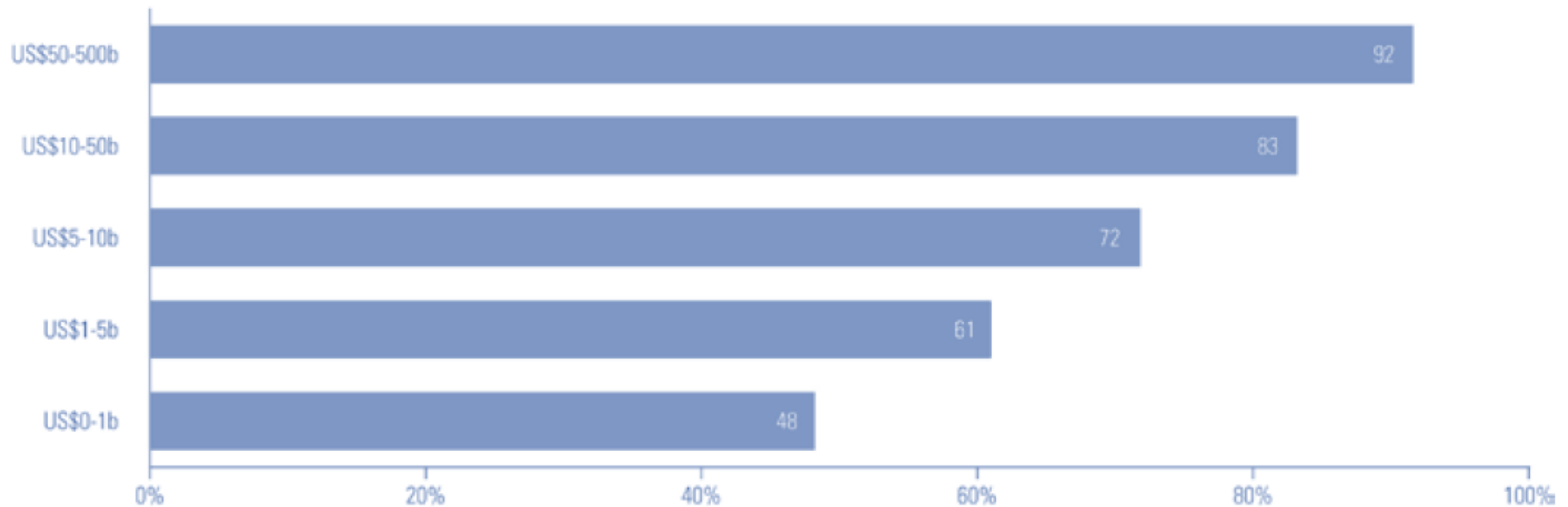
Source: KPMG International Corporate Responsibility Reporting Survey, 2011

Report types

- **Accounts**: these are constructions of raw data that are then converted to a common unit: monetary, area or energy

- **Narrative assessments**: these combine text, maps, graphics and tabular data. Narrative assessments might use indicators but they are not a cornerstone

- **Indicator-based:** these may include text, maps, graphics and tabular data, like the narrative assessment, but they are organized around indicators (by indicators the authors define them as: "a measurable part of a system")

(Dalal-Clayton and Bass, 2002)

Comparison of report types

Approach	Accounts	Narrative	Indicator-based
1. Potential for transparency	Low	Medium	High
2. Potential for consistency	High	Low	High
3. Potential for participation	Low	High	Medium
4. Usefulness for decision-making	Medium	Medium	High
Examples	Index of sustainable economic welfare Genuine progress indicator	State of environment reports World development report	Well-being assessment Dashboard of sustainability GRI guidelines

(Dalal-Clayton and Bass, 2002)

Indicator-based reports

Advantages

- Cover the most important parts of the component concerned

- Show trends over time and differences among places and groups of people

Disadvantages

- Extra work to gather all the data to fulfil all the indicators

- Once started with the process of reporting it becomes almost impossible to stop it

- Stakeholders tend to demand more from the corporation/institution

- Problematic to keep up the balance on details and core information

(Lozano, 2006)

SR Guidelines

- A large number of standards and guidelines have been developed during the last two decades (Lozano & Huisingh, 2011; Perrini & Tencati, 2006)

- The **most widely** used guidelines include:
  - the ISO 14000 series (especially ISO 14031 and 14063:2006) and EMAS
  - the Social Accountability 8000 standard (SAI, 2007);
  - the AA1000l
  - the GRI Sustainability Guidelines (Dalal-Clayton and Bass, 2002; Cole, 2003; and Lozano & Huisingh, 2011)

Tool	Brief description	Focus areas	Advantages	Disadvantages
ISO 14000 series (especially 14031) and EMAS	Assess the **environmental impact** of operations and improve their performance [Five main elements: 1. Identify impacts to the environment 2. Understand current and future legal obligations 3. Develop plans for improvement 4. Assign responsibility for plans implementation 5. Periodic performance monitoring	**Environment**	Systematic understanding of environmental dimension Report internally about results, performance and plans ISO 14031 is one of the most comprehensive in regards to environmental issues Recognised worldwide	Does not address economic and social dimensions Sometimes is entirely informational Costly and labour intensive It does not consider synergies among the dimensions.
SA 8000	Auditable certification standard based on international workplace norms of ILO conventions, the Universal Declaration of Human Rights and the UN Convention on the Rights of the Child	**Social** (mainly focused on human and labour rights)	Addresses human and labour rights explicitly throughout the company. It raises public awareness about the company's efforts	Not focused on environment and economic dimension of sustainability. It does not consider synergies among the dimensions.

| Tool	Brief description	Focus areas	Advantages	Disadvantages
AA 1000 Framework	Help to establish a systematic **stakeholder engagement** process to ensure greater transparency, and effective responsiveness to stakeholders	**Social** and Ethical	Stakeholder management through the entire process Emphasis on innovation over compliance, and possibility to chart own course	Complex in implementation. It is resource intensive. It does not explicitly consider the economic and environmental dimensions, or their synergies
GRI Guidelines	Guidelines for reporting on economic, environmental and social performance Their use is voluntary They contain general and sector-specific 122 Performance Indicators	**Economic**, **environmental**, and **social**	One of the most complete guidelines available Multi-stakeholder participation Recognised worldwide.	Large number of indicators, which complicates longitudinal comparisons and benchmarking It can become costly to collect the information for the indicators It does not consider synergies among the dimensions

GRI Guidelines

- Long-term, multi-stakeholder and international process
- Voluntary use
- Organised in terms of performance:
  - Economic
  - Environmental
  - Social
- More than 100 Performance Indicators

Elements of a GRI sustainability report

(Source: http://www.globalreporting.org)
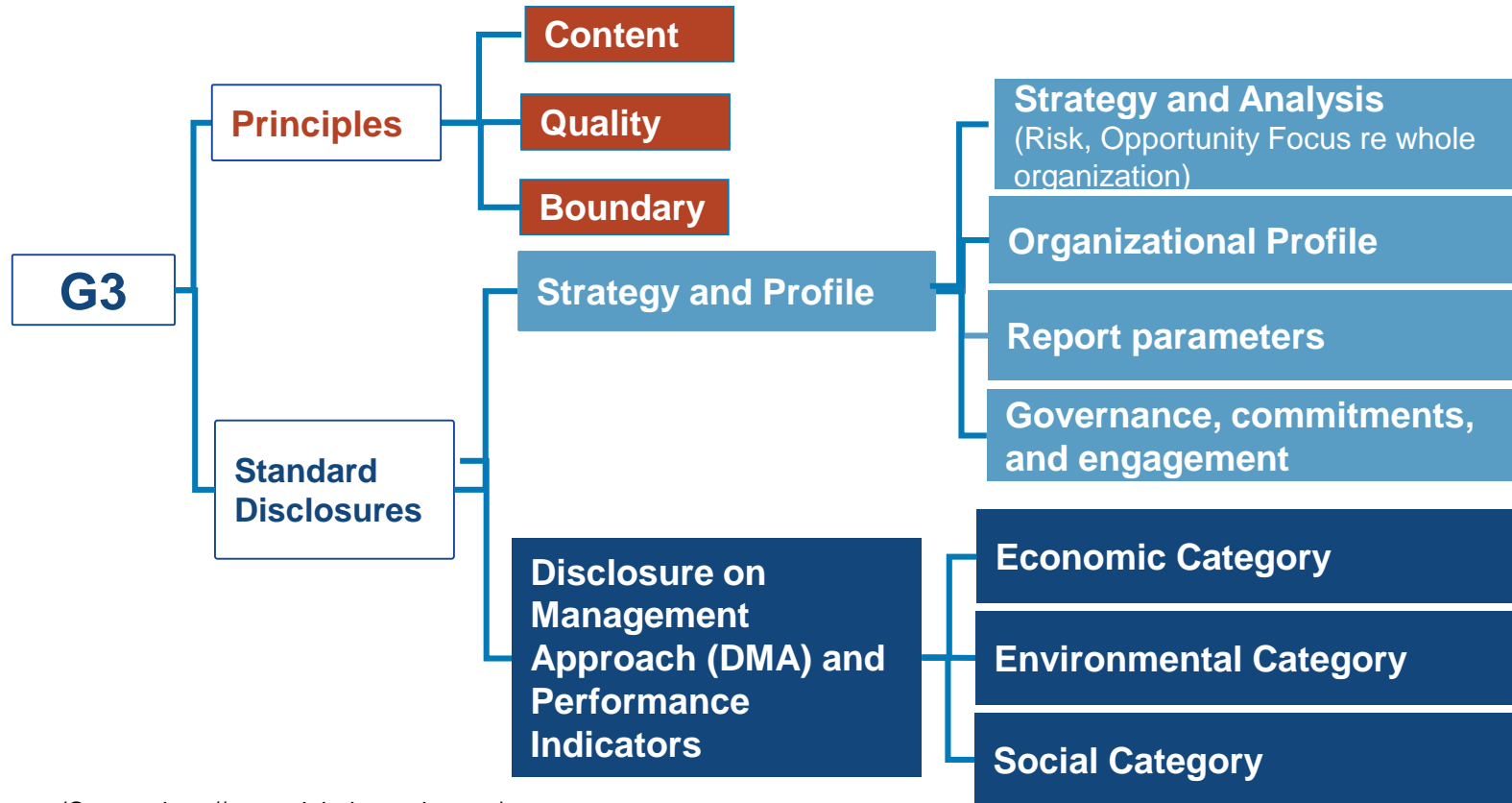
Defining report content

- Principles for defining report content
  - Materiality
    - "…significant economic, environmental, and social impacts, or that would substantively influence the assessments and decisions of stakeholders"
  - Stakeholder inclusiveness
    - Identification of SH and engagement processes
  - Sustainability context
  - Completeness
    - in terms of scope (content), boundaries and time

Principles for ensuring report quality

- Balance
  - Both positive AND negative trends in performance
- Clarity
  - "Information should be made available in a manner that is understandable and accessible to stakeholders using the report"
- Accuracy
  - Should enable external actors to assess performance
- Timeliness
- Comparability
  - Over time as well as relative to its peers
- Reliability

Setting report boundaries

- Especially difficult (and contested) in the case of complex supply chains, global commodity chains, etc.

(Source: GRI 2006: 18)

Indicators section

- **Core indicators** versus **additional indicators**
- **Four sections**:
  - Profile
  - Economic indicators
  - Environmental indicators
  - Social indicator
- Reporting on trends
  - Current reporting period, 2 previous periods & future targets

Profile
- Strategy and analysis
- Organisational profile
- Report parameters
- Governance, commitments, and engagement
- Management approach and performance indicators

Economic indicators
- Economic performance
- Market presence
- Indirect economic impacts

Environmental indicators

- Materials
- Energy
- Water
- Biodiversity
- Emissions, effluents and waste

- Products and services
- Compliance
- Transport
- Overall

Social indicators

- Four sub-categories
  - Labour practices and decent work
  - Human rights
  - Society
  - Product responsibility

Social indicators

Labour practices

- Employment
- Labour/management relations
- Health and safety
- Training and education
- Diversity and opportunity

Human rights

- Strategy and management
- Non-discrimination
- Freedom of association and collective bargaining
- Child labour
- Forced and compulsory labour
- Disciplinary practices
- Security practices
- Indigenous rights

Social indicators

Society
- Community
- Bribery and corruption
- Political contributions
- Competition and pricing

Product responsibility
- Customer health and safety
- Products and services
- Advertising
- Respect for privacy

SR challenges

- Once **starting** the process of reporting, it becomes almost **impossible to stop** it

- Stakeholders tend **to demand** more from the corporation/institution

- **Keeping up the balance** between details and core information presents a big challenge

- **Extra resources and time** are needed to gather all the data to fulfil the indicators and to engage the stakeholders

(Lozano, 2006b)

SR critiques

- '**Reporting fatigue**' (Brown et al., 2009)

- The number of companies reporting is **still insignificant** compared with the total number of businesses operating in the world today (ACCA 2004)

- The **quality** of the SR disclosures has yet to translate into meaningful and comprehensive SRs (ACCA 2004)

- Many of the reports fall short of the GRI/SR guidelines (Hussey, Kirsop et al. 2001; Andersson, Shivarajan et al. 2005; Wilenius 2005)

- The guidelines tend to **compartmentalise** the economic, environmental, and social dimensions, which neglects possible synergies, positive or negative, among the dimensions (Lozano and Huisingh, 2011)

New developments in SR

- The International **Integrated Reporting** Committee (IIRC) has been developing a framework that combine financial, social, and environmental information to help address compartmentalisation (ICAA, 2011; IIRC, 2011)

- The development of integrated or **inter-linking indicators** (Azapagic, 2004; Lozano & Huisingh, 2011; Lozano, 2013)

Conclusions

- Sustainability reporting as **potentially very** useful tool

- However:
  - **Few people** appear to read these reports; even fewer people work with the data
  - Focus on **qualitative** reporting
  - Different **information needs** linked to **different purposes** of sustainability reports
  - Different information needs of different **stakeholders**
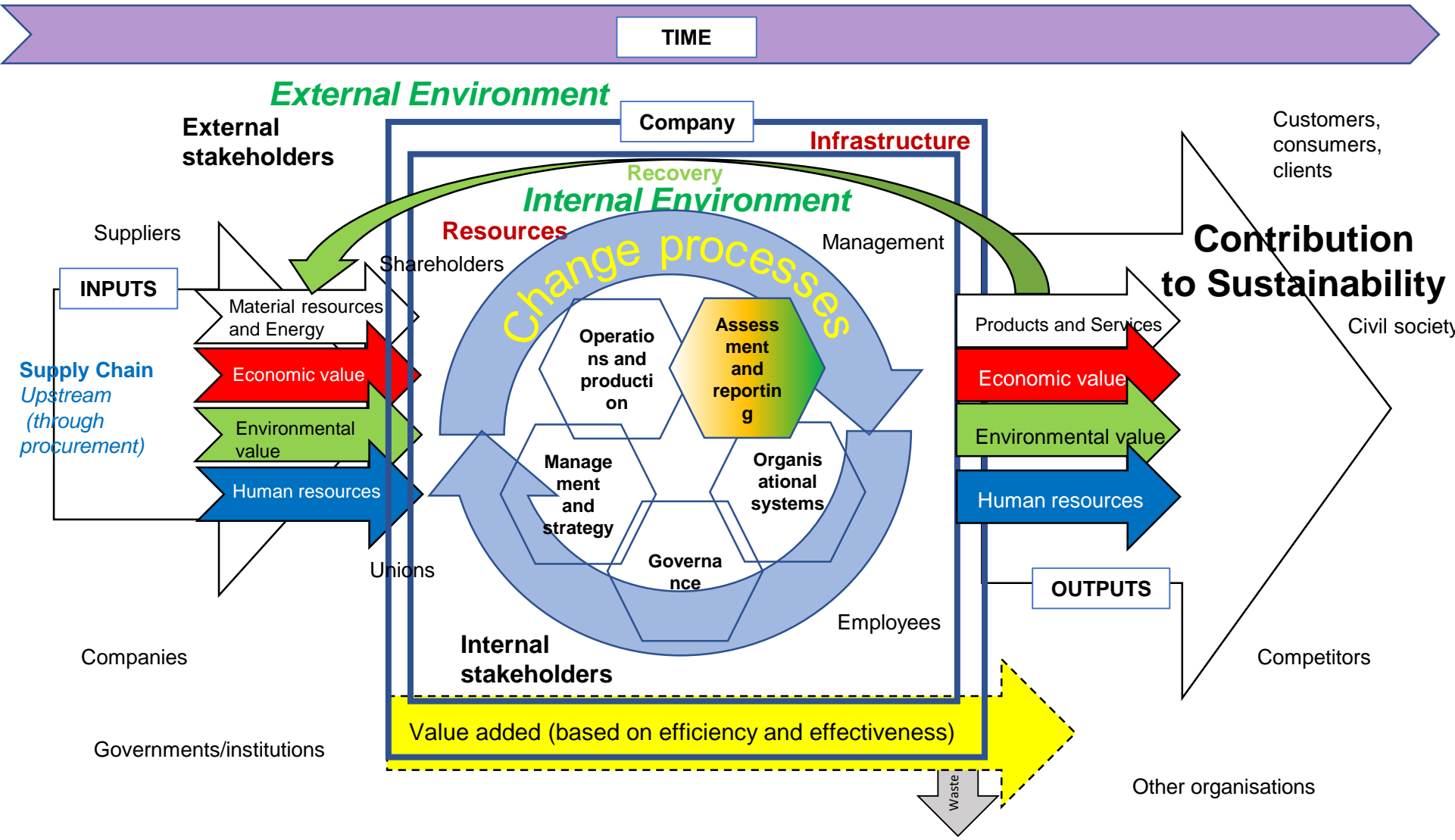
Sustainability inter-linkages coverage and performance

Methods

- Fifty-three European sustainability reports, embracing thirteen industrial sectors, were analysed

- The main criterion for choosing the reports had to be of A+ level

- Two independent researchers did the GRASP analysis of the fifty-three companies, over a period of six months. They had received extensive training prior to performing the analysis.

GRaphical Assessment of Sustainability Performance (GRASP) tool

- Based on Lozano's (2006b) the Graphical Assessment of Sustainability in Universities (GASU) tool, and Daub's (2007) quasi-quantitative sustainability reporting assessment, updated with the GRI G3 guidelines (GRI, 2006) and Lozano & Huisingh's (2011) inter-linking issues and dimensions indicators

- GRASP is a quasi-quantitative tool designed to graphically assess sustainability efforts in universities, facilitating their analysis, longitudinal comparison, and benchmarking against other universities, with respect to: Profile; Economic Dimension; Environmental Dimension; and Social Dimension, as well as the Inter-linking issues and dimensions.

GRASP indicators

- 43 for the profile
- 9 for the economic
- 30 for the environmental
- 40 for the social part
- 18 for the Inter-linking issues and dimensions

- The large number of indicators demands a large pool of resources to create a full report, as well as for its analysis

GRASP grading

- 0: There is a **total lack of information** for the indicator, it is non-existent, or the information was not found

- 1: The information presented is of **poor performance**

- 2: The information presented is of **regular or fair performance**

- 3: The information presented is considered to indicate **good performance**

New indicators

- During the analysis four new indicators were found :
  - Social investment (linking the economic and social dimensions): Found in Intesa San Paolo

  - Investment and Environment (linking the economic and social dimensions): Found in Intesa San Paolo

  - Training and the Environment (linking the environmental and social dimensions): Found in the EDP Renovaveis, FCC Construccion, Inditex, Intesa Sanpaolo, Mapfre, and Sonae Sierra reports

  - Sustainable investment (linking the economic, environmental, and social dimensions): Found in Intesa San Paolo

Interl-linking issues and dimensions (indicator coverage and performace)
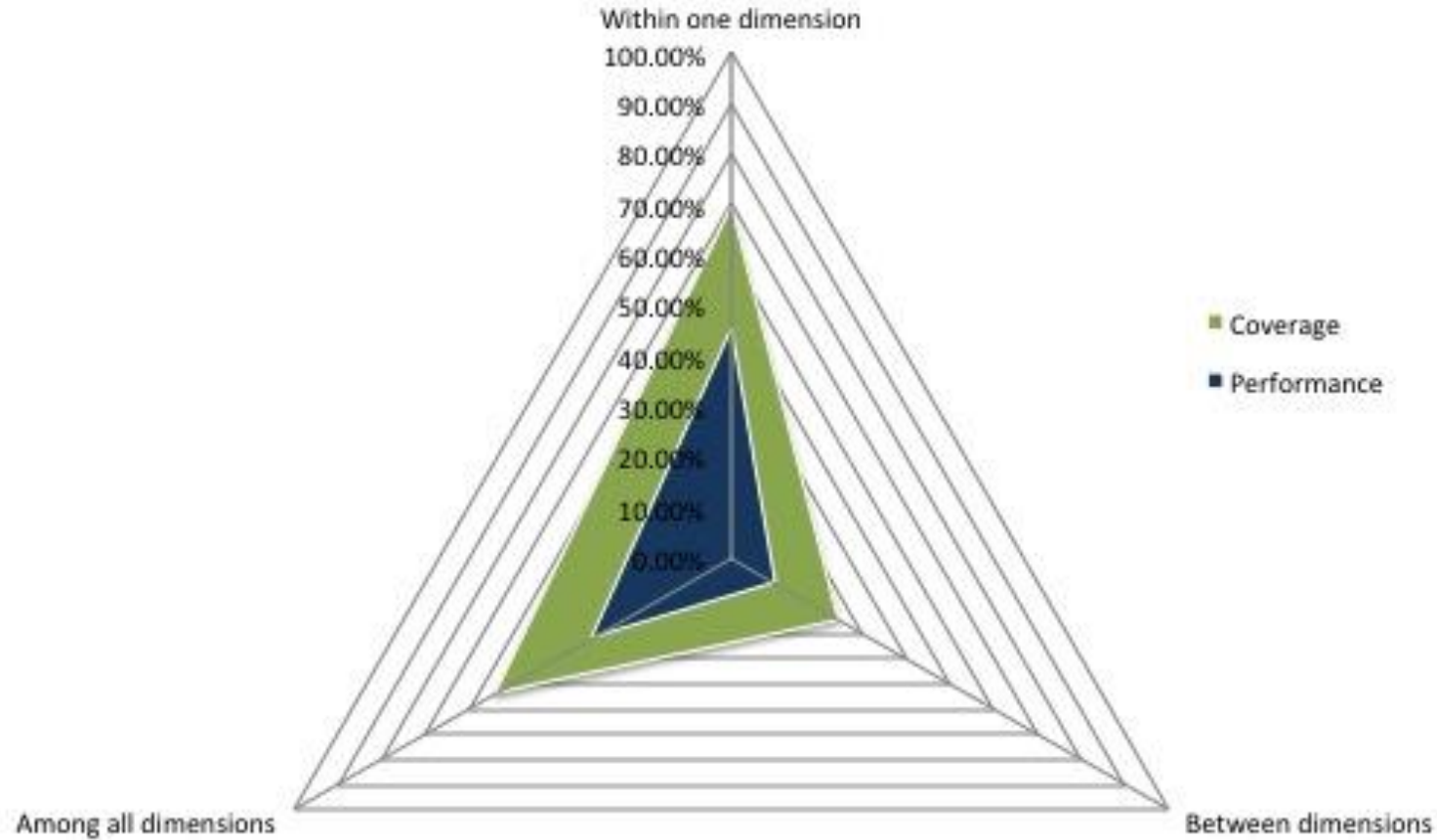
Results (1)

Category	Percentage of indicators covered	Performance of the indicators collated
Within the Economic dimension	3.77%	1.26%
Within the Environmental dimension	92.45%	63.52%
Within the Social dimension	90.57%	58.18%
Economic and environmental dimensions	13.21%	5.66%
Environmental and social dimensions	28.30%	11.74%
Three dimensions	53.77%	31.92%

Results (2)

Industry	Number of Companies	Within one dimension		Between dimensions		Among all dimensions	
		Indicators covered	Indicator performance	Indicators covered	Indicator performance	Indicators covered	Indicator performance
Commercial services	2	75.00%	41.67%	25.00%	10.42%	50.00%	20.83%
Construction	8	75.00%	45.83%	21.88%	8.33%	68.75%	39.58%
Construction materials	1	68.75%	45.83%	37.50%	17.71%	43.75%	29.17%
Electronics	1	75.00%	50.00%	25.00%	8.33%	75.00%	41.67%
Energy	8	68.75%	40.63%	34.38%	11.98%	53.13%	32.29%
Energy utilities	6	75.00%	51.39%	33.33%	14.58%	62.50%	36.11%
Financial services	10	60.00%	40.00%	12.50%	4.58%	50.00%	29.17%
Healthcare products	1	50.00%	25.00%	0.00%	0.00%	25.00%	16.67%
Logistics	1	75.00%	41.67%	12.50%	8.33%	25.00%	16.67%
Media	1	75.00%	66.67%	12.50%	4.17%	25.00%	16.67%
Mining	4	75.00%	45.83%	34.38%	13.54%	62.50%	35.42%
Retailers	3	75.00%	66.67%	33.33%	20.83%	58.33%	38.89%
Telecommunication	8	68.75%	43.75%	15.63%	6.25%	53.13%	32.29%

Conclusions (1)

- Although a number of authors have called for a more **systemic revision** for topics such as coverage, performance, with a move toward more **holistic reports**, there has been limited research done on these themes

- It can be seen from the results that companies are, perhaps accidentally, reporting on **inter-linked issues and dimensions**

- The differences between covered indicators and their performance could be due to companies reporting what is happening in the field, *i.e.* companies are **more aware of the inter-linkages** between sustainability issues than they realise

Conclusions (2)

- The GRASP tool shows that it has the potential to detect **coverage and performance** of sustainability issues,

- GRASP can also **facilitate comparisons** of a company's efforts and achievements towards sustainability in different years, as well as **benchmarking** against other companies.

- The sustainability reporting guidelines available, even the best ones, still treat sustainability issues from **a compartmental perspective**

Sustainability **champions**, and those compiling reports, have to adopt a more **holistic approach** towards **sustainability**

Thank you!

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For more information please refer to:

PAPERS