

CSR Research Seminar Monday 25 May

**Communicating CSR:
Enhancing or inhibiting socially
responsible business practice?**

Organized by CSR Forum NTNU

CSR Forum NTNU

- An arena for information- and knowledge sharing on CSR at NTNU
- A constitution of the CSR-research at NTNU and a strengthening of NTNU's profile on CSR
- Stimulate to more CSR-activity at NTNU
- Work as a resource-base for CSR research and -researchers at NTNU
- CSR fits very well with the the multididiplinary and technological profile of NTNU
- CSR truely is a multidisiplinary field

CSR Forum NTNU - history

- IØT initiative
- Rebirth with this seminar
- Related to IØT
- Related to NTNU's Globalization programme
- Several PhDs on CSR finished and coming up
- Approaches like management/engineering, STS, organizational psychology, philosophy/ethics etc

Coming happenings...

- CSR-stream at NTNU Program for applied ethics' workshop 15-16 June
- Aleksander Dahlsrud's PhD-defence in early August
- Seminar with Prakash Sethi and Jouni Korhonen 13 August
- More happenings during the autumn

Program today

| | |
|-------------|--|
| 0900 – 0915 | Øivind Hagen, coordinator CSR Forum NTNU: <ul style="list-style-type: none">- Welcome- CSR Forum at NTNU: Ambitions and plans |
| 0915 -10 | Juan Miguel Rey, associate professor University of Granada: “When evil firms play the game of CSR: The case of Altadis’ ”For... 0’7% social campaign in Spain”” |
| 1015- 11 | Øivind Hagen, researcher at SINTEF(/NTNU): “CSR as the nexus between marketing, PR and organizational change” |
| 11-1130 | Christofer Skaar, PhD-scholar at The department of Industrial Economics and Technology Management: “Communicating objective environmental information: experiences with Environmental Product Declarations” |
| 1130 | Øivind Hagen: Wrapping up |
| 1145-1230 | Lunch in Realfagskantina |

When evil firms play the game of CSR: The case of Altadis' "For... 0'7%" social campaign in Spain

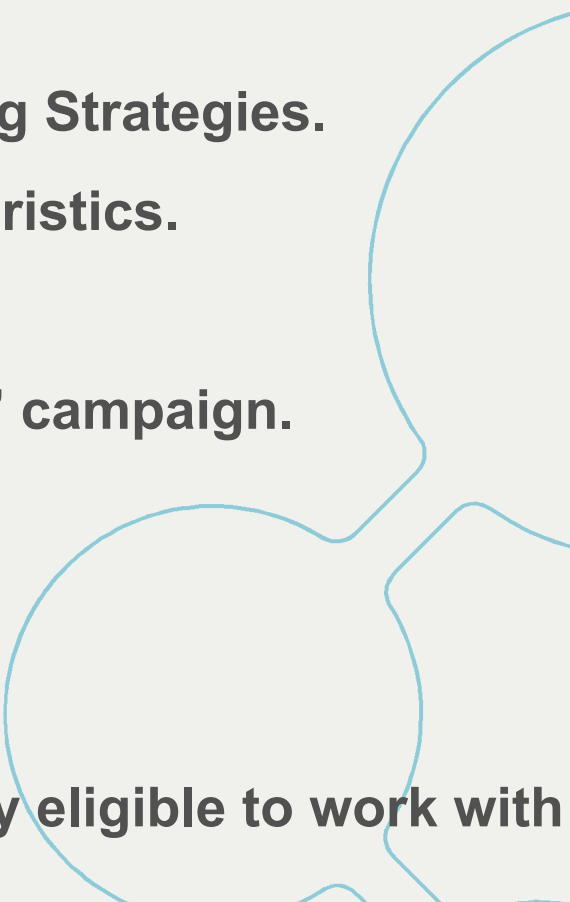
Juan M. Rey Ph.D.

University of Granada (Spain)



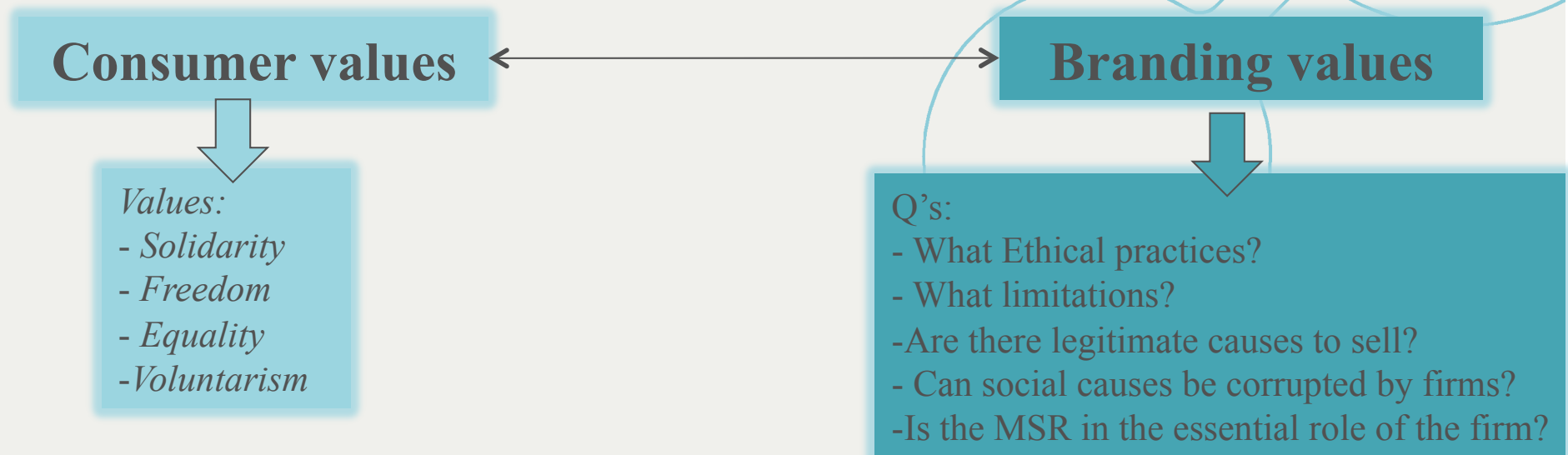
Communicating CSR: Enhancing or
inhibiting socially responsible business
practice?

CSR Forum NTNU

- 1. Marketing Social Responsibility.**
 - 2. Tobacco companies in Spain: Marketing Strategies.**
 - 3. Tobacco consumer behaviour characteristics.**
 - 4. The 0'7% GNP platform.**
 - 5. Altadis and Fortuna brand “For...0'7%” campaign.**
 - 1. Reactions from Social Agents.**
 - 2. Reactions from Altadis.**
 - 3. Results of the campaign.**
 - 6. Questions for the case: is any company eligible to work with Marketing Social Responsibility?**
- 

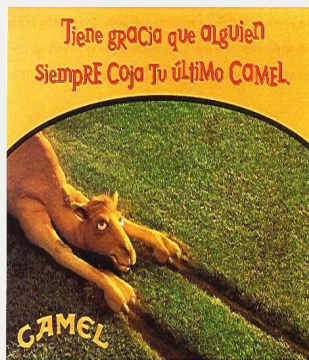
1. MAKETING SOCIAL RESPONSIBILITY.

- > An effective tool for positioning firms.
 - ▣ Enhances the human dimension of the firm.
 - » A tool for ameliorating the image of the firm.
- > A group of activities developed by a company or a sector of activity in order to achieve the compromise of consumers with a determined behaviour or interest, favouring at the same time the interests of the company related to their position in the market and its image (Kotler).

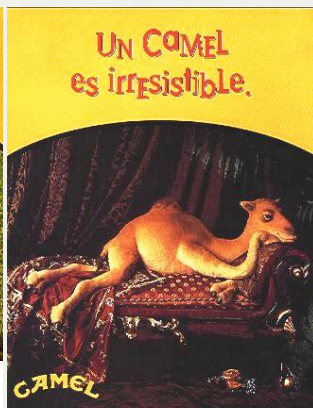


2. TOBACCO COMPANIES IN SPAIN: MARKETING STRATEGIES.

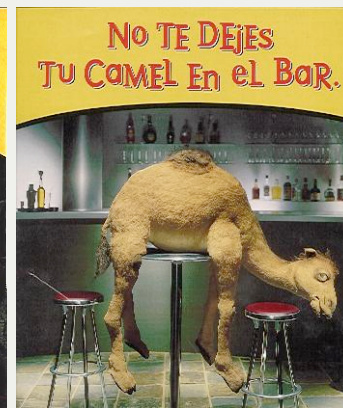
- > Leaders: Altadis (Fortuna) and Philip Morris (Marlboro).
- > Rise of low price cigarettes brands (LM, Gold Coast, Chester, Winston...).
- > Competition based on:
 - Price (Low cost cigarettes).
 - Image (Camel & Fortuna & Marlboro).



Las Autoridades Sanitarias advierten que el tabaco perjudica seriamente la salud.



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THE TOBACCO MARKET SHARE IN SPAIN.

Península e Illes Balears

Ranking por marcas (cajetillas)

**Acumulado Cigarrillos
Hasta.....:**

| | AÑO ACTUAL | | AÑO ANTERIOR | |
|---------------|-------------------------|---------------------|-------------------------|---------------------|
| | 31-Marzo-2009 | | 31-Marzo-2008 | |
| MARCA | Cajet. (20 uds.) | % CAJETILLAS | Cajet. (20 uds.) | % CAJETILLAS |
| MARLBORO | 135.461.092 | 14,552% | 164.953.679 | 15,947% |
| FORTUNA | 109.509.336 | 11,764% | 124.098.351 | 11,997% |
| WINSTON | 103.772.931 | 11,148% | 107.418.771 | 10,385% |
| CHESTERFIELD | 93.150.822 | 10,007% | 103.224.962 | 9,979% |
| DUCADOS NEGRO | 68.089.071 | 7,314% | 77.649.761 | 7,507% |
| DUCADOS RUBIO | 63.450.691 | 6,816% | 63.958.810 | 6,183% |
| CAMEL | 57.117.647 | 6,136% | 60.739.876 | 5,872% |
| NOBEL | 49.879.105 | 5,358% | 51.497.705 | 4,979% |
| L&M | 46.328.522 | 4,977% | 47.074.026 | 4,551% |
| LUCKY STRIKE | 43.558.787 | 4,679% | 49.510.252 | 4,786% |

3. TOBACCO CONSUMER BEHAVIOUR CHARACTERISTICS

- > Youth is the primary target for tobacco companies, specially women.
- > Characteristics:
 - Solidarity.
 - Against racism.
 - Caring the situation in the world.
 - High knowledge of 0'7% platform (diverse visible actions taken by this company led them to a good notoriety and compromise from people)
 - High voluntary work rates between 18-25 years old people.
 - Altruism and compromise.
 - Awareness about the impoverished countries situation



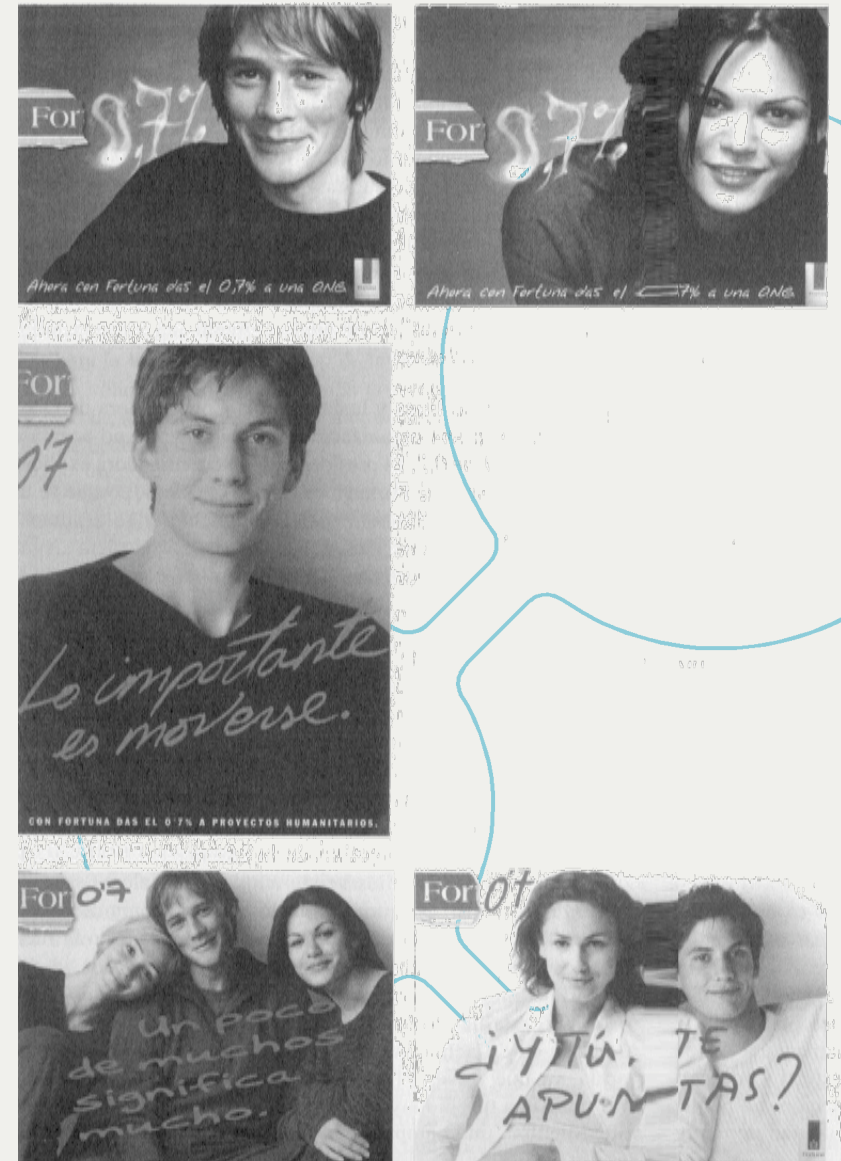
THE 0'7% GNP PLATTFORM.

- > The 0'7% Plattform was created as an NGO for Development in 1994.
- > Its main mission is accelerate the eradication of poverty and misery in the world by promoting a sustainable development for all the populations.
- > It demands (amongst others):
 - the accomplishment of the UN Agreement dedicate the 0'7% of the GNP to empoverished countries (UN, 1970)
 - To exempt the payment of the foreign debt.
 - More access of the empoverished countries products to the world market in fair conditions.
 - Care of the environment.
 - Gender equality.



ALTADIS AND FORTUNA BRAND “FOR...0’7%” campaign.

- > They used the 0’7% visibility to create a whole campaign, in order to recuperate their market share, specially among young people.
- > Give the 0’7% of their profit to social causes promoted by NGOs. Eligible NGOs projects should be directed towards:
 - Human development.
 - Human Rights.
 - Empoverished regions.
- > They detected that parents do not want their adolescent children to smoke but “if they are going to do it, better to smoke Fortuna because they are helping social causes”



- > **Media:** Lack of concretion about how they were going to donate the money and to who.
- > **NGOs for development:** Totally against them. They made demonstrations in front of the main building of Altadis saying that “using social causes for promoting tobacco was absolutely illicit”. Others claimed “manipulating solidarity”.
- > **The 0’7% platform:** accuse them of lack of ethical principles for confounding the society about their activities. Legal actions against Altadis.
- > **The public administration (the Ministry of Health)** reacted by accusing Altadis of going too far by using a damaging product to confound the population, specially the young people, giving them a reason to smoke.



- > The creation of the Fortuna For...0'7% Fund.
 - Silence to critiques.
 - Comision created for giving the funds.
 - Use of known people that would participate in the committee.
 - More advertising campaigns and more explicit about the destiny of the money.
 - A public phone number for calling and getting more info.

Figura 3: Logotipo y lema del Fondo Solidario Fortuna



THE FOR...0'7% FUNDING DESTINATION.

Cuadro 4: Proyectos financiados por el Fondo Solidario Fortuna desde su creación

| <i>Entidad solicitante</i> | <i>Proyecto financiado</i> | <i>País de destino</i> | <i>Importe financiado ptas.</i> |
|---------------------------------|---|------------------------|---------------------------------|
| Patronato Universal de Valencia | Dotación de un taller óptico generador de lentes acabadas en La Habana | Cuba | 47 616 018 |
| FUNDESCO | Bancos comunales para el apoyo de microempresarias en poblaciones indígenas | Guatemala | 20 800 000 |
| FAIPII | Desarrollo de ganadería en comunidades indígenas | Colombia | 8 624 090 |
| AECI | Envío de ayuda humanitaria a Kosovo | Kosovo | 50 000 000 |
| ANESVAD | Implantación de un centro educacional para internas en El Granal | India | 31 951 452 |
| CODESPA | Rehabilitación social de los pueblos afectados por el huracán Georges | Republica Dominicana | 48 341 758 |
| Acción contra el Hambre | Programa de preparación para el suministro de agua en situaciones de emergencia | Escala mundial | 29 890 000 |
| Fundación Padre Anup | Creación de laboratorios en la universidad para jóvenes marginados | El Salvador | 46 669 072 |
| CODESPA | Ayuda para la reconstrucción del país tras las inundaciones | Venezuela | 33 545 117 |
| MPDL | Sistemas de potabilización de agua | Mozambique | 30 000 000 |
| Agora y Empleo | Taller de acogida para niños | Venezuela | 22 897 414 |

Fuente: Elaboración propia a partir de publicidad de Tabacalera y www.planetafortuna.com

RESULTS OF THE campaign.

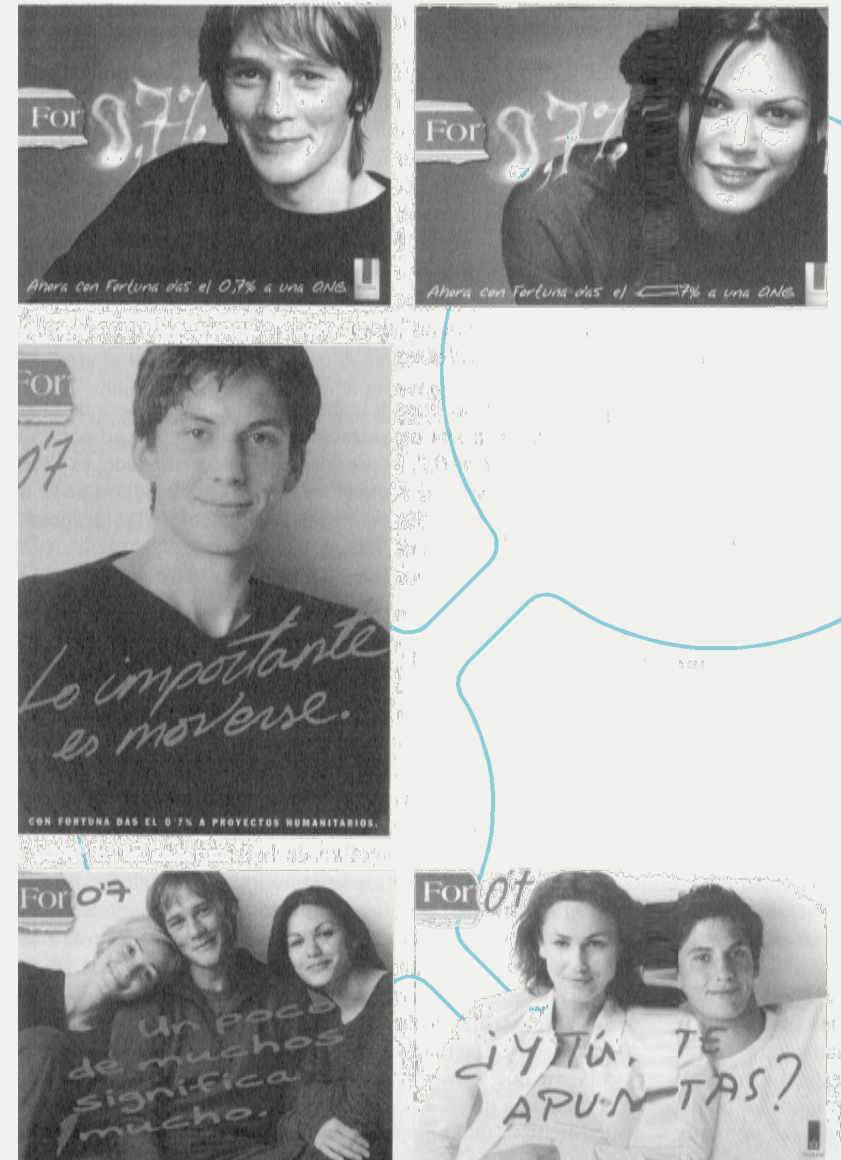
- > Better image (specially among young people).
- > Better market share (from 15% to 29% in one year).
- > More notoriety.

- > BUT...
- > From 2006, prohibition of all communication campaigns in the tobacco sector.
- > Losing continuously market share (lost their dominant position and have now a 11% of share in comparison to Philip Morris Marlboro (14%).
- > Rise of low cost cigarettes market share.
- > Due to taxes prices are higher (from 2,35 to 3,25 auros the 20 cigarettes packets), so there is a constant lowering of shares.



QUESTIONS FOR THE CASE: IS ANY COMPANY ELIGIBLE TO WORK WITH MARKETING SOCIAL RESPONSIBILITY?

- What Ethical practices?
- What limitations?
- Are there legitimate causes to sell?
- Can social causes be corrupted by firms?



CSR as the nexus between marketing, PR and organizational change

... and the implications of this perspective

Presentation at CSR Forum NTNU
25 May 2009

Øivind Hagen

Background of my dissertation

- Companies use increasingly more resources on exposing who they are and who they want to become
- Example: BP's 'beyond petroleum'-campaign
- Who do they communicate with? Themselves?
- **Research question: Could the external communication be a driver for organizational change?**
- Focus on exposure of social and environmental responsibility in the concept CSR

Theoretical framework

- Expressiveness-concepts:
 - Reputation, organizational identity, brand, image, legitimacy and storytelling
- Social constructionist paradigm
- Institutional theory
- Stakeholder theory
- Karl Weick's enactment theory

Something happens with the business language in the 1990s

- New concepts:
 - Corporate citizen, industrial ecology, extended producer responsibility, eco efficiency, end-of-life treatment, loop closing, eco-industrial parks, radical eco innovation
- British Petroleum becomes “beyond petroleum”
- Oil-companies become “energycompanies”
- Tomra: “Helping the world recycle”
- H&M
 - slogans: ‘Design for reincarnation’, ‘From cradle to cradle’
 - annual report 1995: 20: ”Access to clean water and sufficient food for a rapidly increasing population are fundamental requirements which need to be met. From this perspective, can H&M justify manufacturing chairs?” (H&M Annual report, 1995: 20)
- **Research question:**
 - **What does this language do to the companies using it???**
 - **Could the use of the proactive language be a driver for change and innovation?**

Om HÅG - Microsoft Internet Explorer

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DETTES ER HÅG
DYNAMISK ERGONOMI
MILJØ
STØTFANGERE
IR
JOBB I HÅG
PRESSE ROM

**essential
move.**



Støtfangere og Ketchupflasker

I 2001 klarte vi å få til en ny resirkulert materialflyt; HÅG tok initiativet til å samle og resirkulere brukte støtfangere og ketchupflasker i samarbeid med Bilansvarsforbundet og Plastkretsen. Plastikken blir vasket og regranulert hos en gjenvinningsbedrift i Sverige. Etter ny innfarging, blir råmaterialet sendt til Lycro i Norge for støping av nye seter og rygger til HÅGs produkter.

Vi har skiftet ut jomfruelig råmaterialer med plast fra støtfangere og husholdningsplast i HÅG Conventio, setet i HÅG Capisco og er i ferd med å gå over til gjenvunnet materiale i flere produkter.

For å gjøre en ekstra innsats for miljøet startet HÅG fra 01.01.02 å bruke støtfangere og husholdningsplast også i HÅG H03. HÅG brukte 200 tonn resirkulert plast i 2002. Det betyr at 200 tonn plast er spart - og gitt nytt liv! Og det morsomme er at det nye livet er gitt en garanti til å bli lenger enn det første!

[Miljø](#)

INVESTOR RELATIONS → BESTILL KATALOG → **your move.**

Start | Om HÅG - ... | Komm i org | Microsoft P... | 14:50



Search: Go

- The Helios
- Brand attributes
- Beyond petroleum**
- Brand promise
- Why is our brand important?

Beyond petroleum



'Beyond petroleum' is a summation of our brand promise and values. It's our way of expressing our brand to the world in the most succinct and focused way possible. It is both our philosophical ideal and a practical description of our work

Beyond petroleum does not mean that we are...

- abandoning oil and gas or getting out of hydrocarbons
- focusing only on alternatives (renewables)

Biofuels

Working to bring the next generation of biofuels to market



▶ [Learn about biofuels](#)

What does BP do?

From finding and drilling for oil, to alternative energy and everything in between, find out more about our operations

- ▶ [Finding oil and gas](#)
- ▶ [Making fuels and products](#)
- ▶ [Generating low carbon power](#)

Related links

▶ [Statistical Review of World Energy](#)



The world's current and historical energy trends

BP – beyond petroleum?

- 1995: Shells anis horibilis
- 1996: BP pulls out of the Global Climate Coalition
- 1997: CEO John Brown: "Dangerous to ignore the warnings on global warming"
- 1998: ambition of reducing their own CO₂-emission 10 % within 2010 compared to the 1990-level
- 2000: Launches the beyond petroleum-campaign

Reactions on beyond petroleum

- *NYT*: "How can an oil company be beyond petroleum without actively distancing itself from its core product..."
- *Fortune*: "If the worlds second largest oil company is beyond petroleum, *Fortune* is beyond words"
- ExxonMobil: "There is a Norwegian saying that 'The spouting whale gets harpooned'"
- **But did beyond petroleum change BP????**

What is CSR?

- From Smith via Keynes to Friedman
- CSR =
 - Acronym rediscovered by business in the mid 1990-tallet as a response to the globalization criticism
 - A concept/language developed by busieness so that it can take part in the dicourse on sustainable development and its own role in siciety
 - A brand in itself – everything that has to do with social responsibility is being communicated thorugh the three letters CSR
- Tripple bottomline (Elkington, 1998)
- WBCSD: *...the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large* (WBCSD, 1999: 3)
- 5 dimensions: environment, social, economy, stakeholder and voluntareness (Dahlsrud, 2006)
- **CSR is the interconnectoion (nexus) between marketing, PR and organizational change - or between commercial communication, reputation and change**

Why do companies communicate externally?

- Maintain legitimacy, licence-to-operate, maintain reputation, build the brand through storytelling and imagebuilding
- EC is the connection between the organization and its environment/the society
- Generate demand and legitimacy
- Commercial communication: Marketing, advertising and branding
- Non-commercial communication: PR - public relations (N: informasjon og samfunnskontakt)
- **In CSR the division between commercial and non-commercial communication disappears**

Marketing vs PR

| Marketing | PR |
|---|---|
| - Connection between and consumer | -Connection between producer and society/stakeholders |
| - Building the commercial brand | - Create a mutual understanding between the organization and its surroundings – ”the company as a necessary part of society |
| -Maintain customers, -segments chosen by the organization themselves | - Mantain stakeholders, must relate to who are the stakeholders at any given time |
| - Economic rationality, economic transactions the aim | - Proving that the company operates in accordance with the values of the society |
| - Normal phaces, toned down during crises | - Normal phaces, escaltes during crisis |
| - A mixture of marketing and PR (CSR) strengthen the commercial brand | - The mixture of marketing and PR hets problematic because it threathens legitimacy |
| - Image | - Reputation |
| | |

Ontological positions on the organization – environment relationship

- Positivistic approach
 - Reality exists 'out there' independently of the social actors
 - Scientists (and people) represents reality with language without distortion and losing meaning
- Interpretive, social constructionist approach
 - The world exists as social constructions in each and everyone of us
 - Reality is a context dependent construction founded on intersubjective consensus
 - Our representation of reality is coloured by our background, what we choose to emphasise and our language capabilities

Why do companies use CSR?

Institutional theory

- Inst. theory rises as a critique of modern organizational theory saying that companies are merely economic instruments
- Organizations reflect society's values – they develop identity and eigenvalue
- "An institution is an organization filled with values" (Selznick, 1957)
- Organizations do not only need resources from the environment, but also legitimacy
- Business interest in social responsibility reflects the focus on social and environmental issues in society in general
- Management of organizations
 - Not only about making financially rational decisions, but also about interpreting discourses in society
 - Managers are not autonomous and free, but tied to ruling values in society
- External communication is about showing that the company is reflecting society's values
- CSR is about connecting business with society and the discourse on sustainable development

What effect does CSR-communication have on organizations?

Weick's enactment theory

- Sos. constructionism: Human beings and human systems actively construct their realities and their environment
- Organizations (people) and their environment are not entities
- Organizations construct the very environment that they have to deal with and relate to – the environment is not objectively given
- Through these processes organizations create their own latitude and alternative courses of action
- Information overload is being prevented by org. culture working like a cognitive filter
- Organizations' constructions of their environment are influenced by preexisting concepts and ideas
- Information that confirms existing concepts are being over emphasized, while information that challenges existing concepts are being deemphasized
- Organizations construct and enact their environment by responding to their own construction of the environment

Implications

- External communication has a retroactive effect on organizations through processes of auto communication
- External communication may force organizational members to reflect on who they are, have been and will become, and as such drive change
- Companies' limited cognitive capacity lead to
 - ... too much emphasis on information that confirms who they are or want to become
 - ... information that challenges identity is de-emphasize
- Therefore; auto communication may lead to self fulfilling prophecies, but also self-seduction
- The case of HÅG



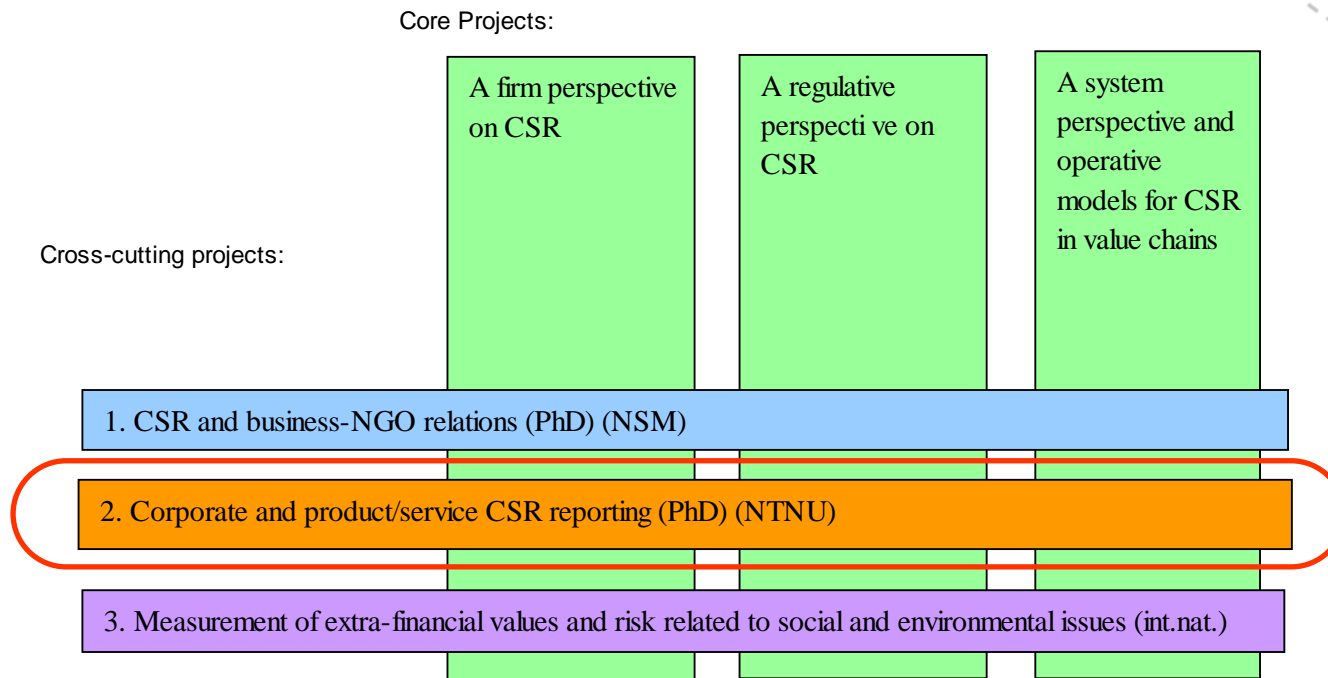
NTNU

Innovation and Creativity

Communicating objective environmental information: experiences with Environmental Product Declarations

Christofer Skaar
25 May 2009

C(S)R in Global Value Chains

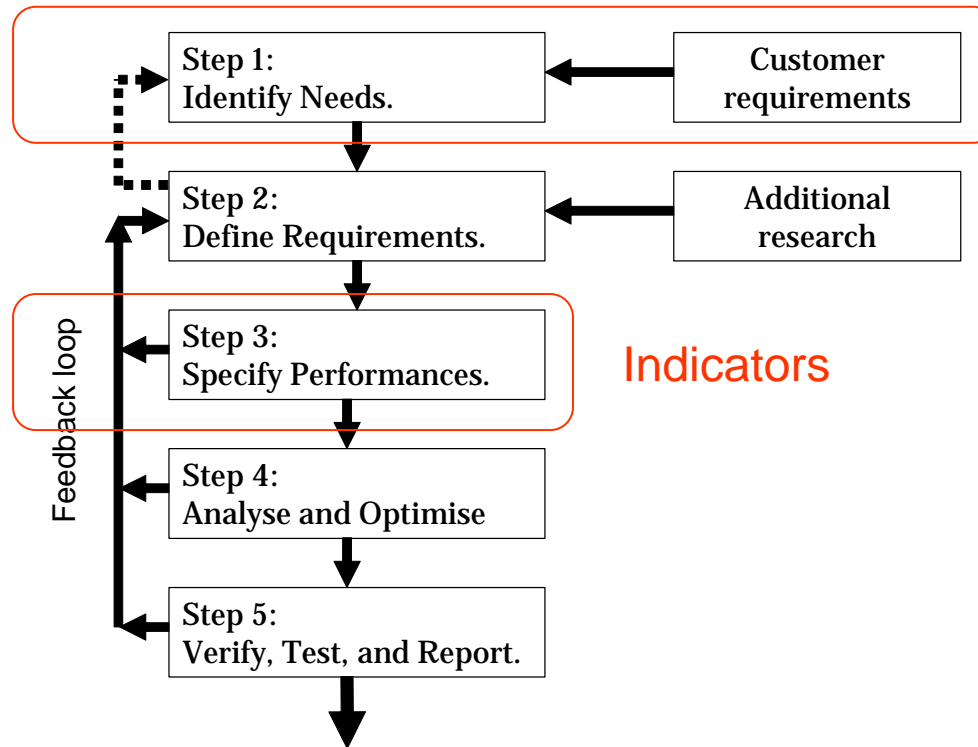


Corporate Social Responsibility

| | |
|---|---|
| Economic | Economic Performance, Market Presence, Indirect Economic Impacts |
| Environmental | Materials, Energy, Water, Biodiversity, Emissions, Effluents, and Waste, Products and Services, Compliance, Transport, Overall |
| Social: Labor Practices & Decent Work | Employment, Labor/Management Relations, Occupational Health and Safety, Training and Education, Diversity and Equal Opportunity |
| Social: Human Rights | Investment and Procurement Practices, Non-Discrimination, Freedom of Association and Collective Bargaining, Child Labor, Forced and Compulsory Labor, Security Practices, Indigenous Rights |
| Society | Community, Corruption, Public Policy, Anti-Competitive Behavior, Compliance |
| Product Responsibility | Customer Health and Safety, Products and Service Labeling, Marketing Communications, Customer Privacy, Compliance |

Corporate Social Responsibility as Triple Bottom Line
Source: Global Reporting Initiative

Systems engineering



Stakeholders

Indicators

Reporting as communication

- Provide information to decision makers
- Different types of information
 - Binary (OK or not OK)
 - Quantified information
 - Qualitative information
- Challenge: generate transparent and objective information on environmental and social aspects

State of the art of reporting

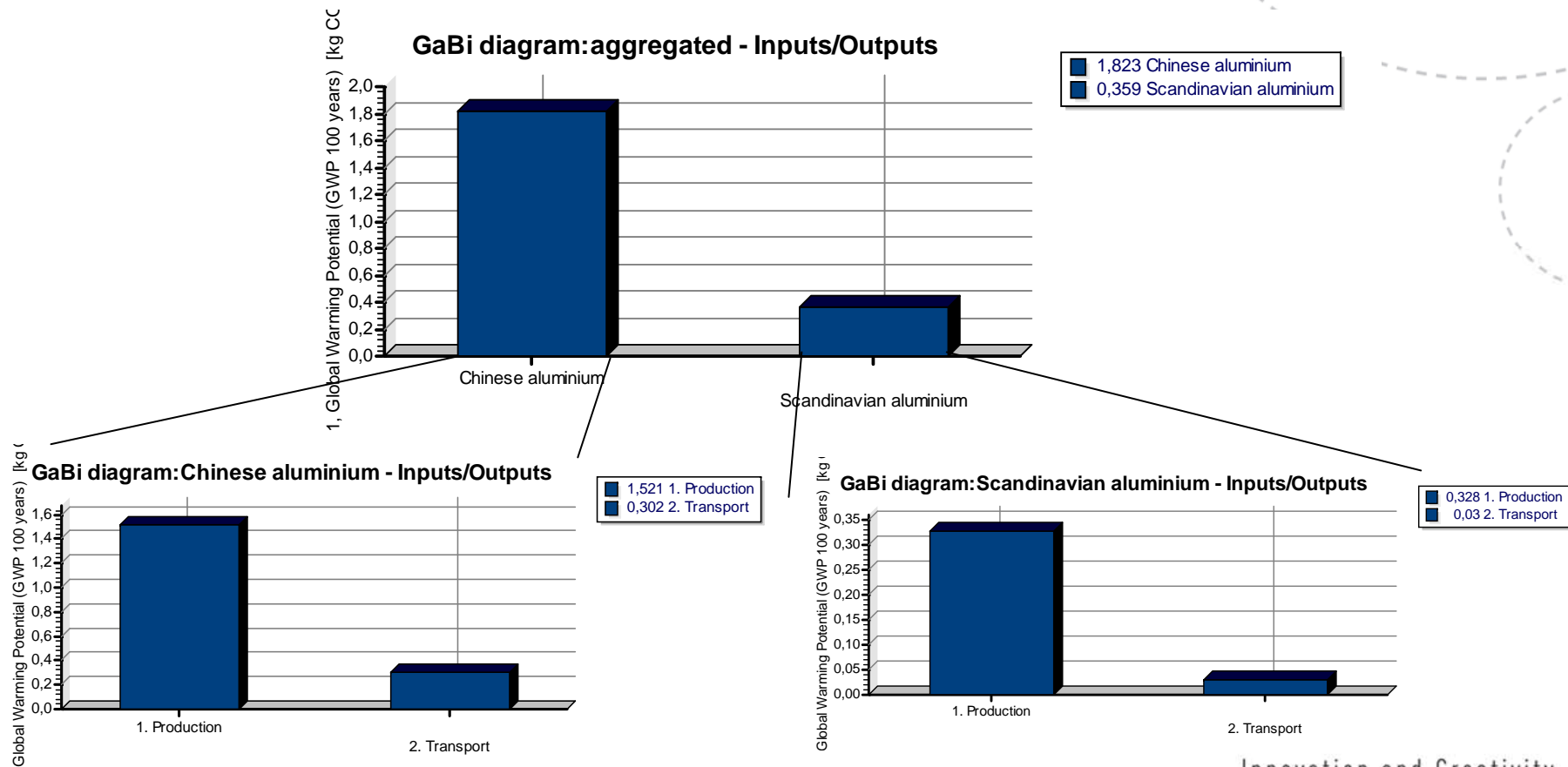
- Corporate CSR reporting
 - Global Reporting Initiative (GRI)
 - Social Accountability 8000 (SA8000)
 - AccountAbility 1000 (AA1000)
- Value chain CSR reporting
 - Environmental Product Declarations (EPD)
 - Labels: Nordic Swan, EU Flower, Blue Angel, etc.
- Findings
 - Supply chain is dealt lightly with in corporate approaches
 - Value chain approaches only look at the production value chain
 - Most reporting approaches are complex and intended for large corporations, not small and medium sized ones

Combining information

- Reporting systems not always compatible
- Goal of PhD is to develop a consistent framework for combining information from multiple sources to describe and develop value chains
- Example: Nordic Swan for furniture requirements to metals
 - Binary reporting
 - Minimum 50 % recycled aluminium
 - Minimum 20 % recycled for other metals
 - All other metal requirements concern surface treatments
- Example: Environmental Product Declaration
 - CO₂ emissions per kg of steel
 - SO₂ emissions per kg of steel
 - etc

Example: Aluminium

- Production process and transport to customer, not including raw material extraction



Innovation and Creativity

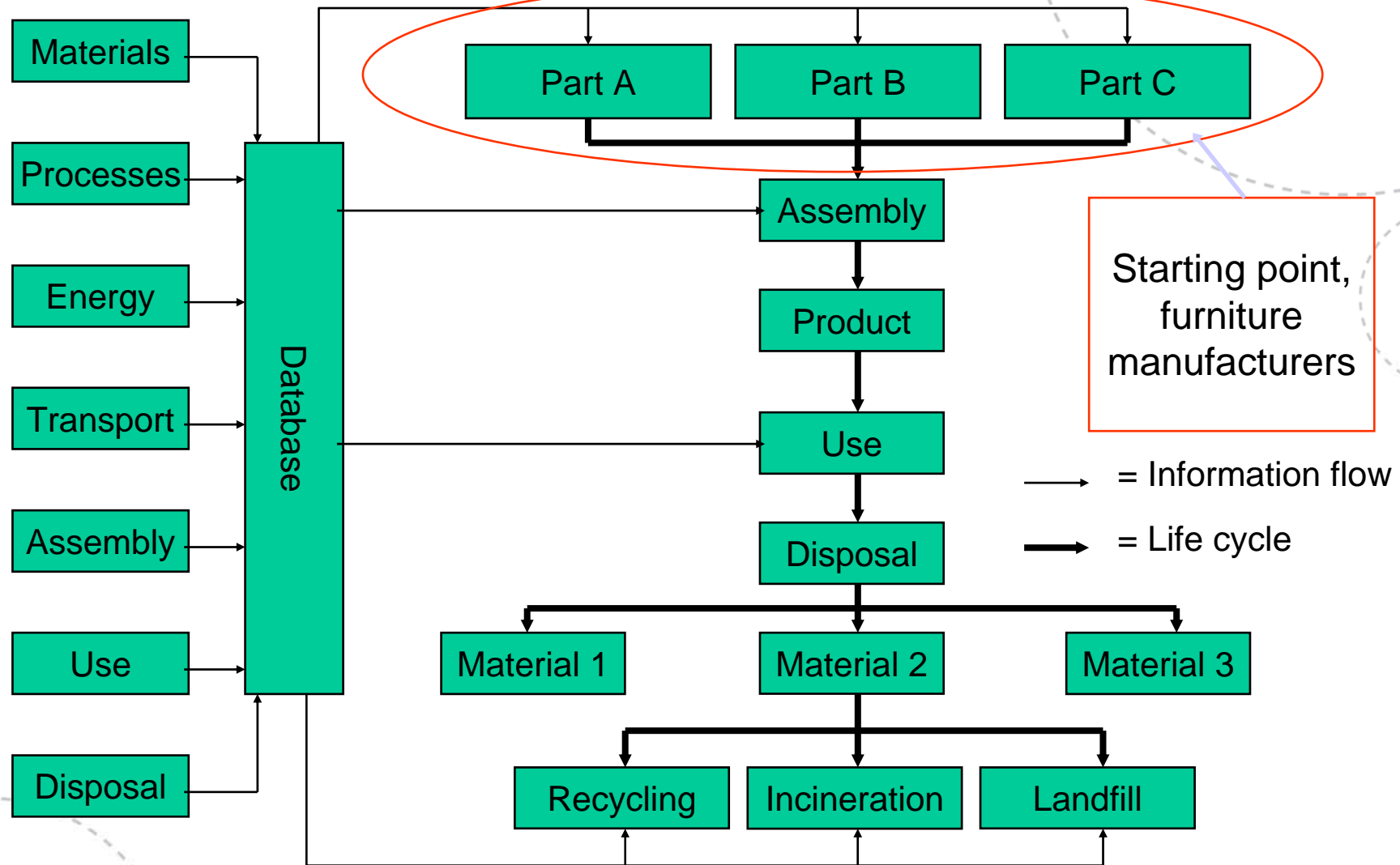
DATSUPI

- Data Assisted Tool for Sustainability Product Information
- Producing environmental and social information in a life cycle perspective is a resource intensive task
- Many SMEs do not have resources or expertise to perform these tasks themselves
- Idea behind DATSUPI: common LCI database for the Norwegian furniture industry in order to create Environmental Product Declarations
- Development of DATSUPI: 4 furniture companies, NTNU, RCN

The Norwegian furniture industry

- Incentives for creating EPDs:
 - Required by law to document products' environmental performance
 - Information requested by customers
 - Competitive advantage
- Incentives for establishing common life cycle database
 - Unified database makes comparison easier
 - Economic advantage of cooperation
 - Furniture industry mainly SMEs that do not have the resources to invest in LCA

CSR reporting for SMEs: DATSUPI



DATSUPI: User interface

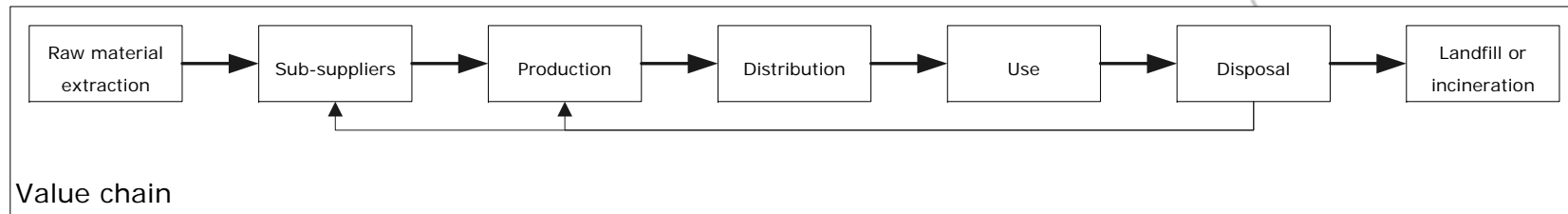
The screenshot displays the DATSUPUI software interface. The window title is "DATSUPUI" and the menu bar includes "Fil", "Verktøy", "Hjelp", and "Konfigurering". The interface is divided into several sections:

- Left Panel (Tree View):** Shows a hierarchical structure of construction components. The selected path is "Konstruksjon" > "Stoler og krakker" > "Stol A" > "Stol". Other visible items include "Stol B", "Stol C", "Senger", "Bord", "Seteramme", "Ryggramme", "Topp", "Nakkeramme", "Testgruppe", "Laboratorieskede møbler", "Ny kategori", and "Utemøbler".
- Top Right:** Displays "Stol A\Stol" and "Totalvekt (kg): 22.05".
- Center Panel (Modules):** Titled "Moduler som tilhører denne modulen", it contains a table listing components with their counts, weights, and total weights.

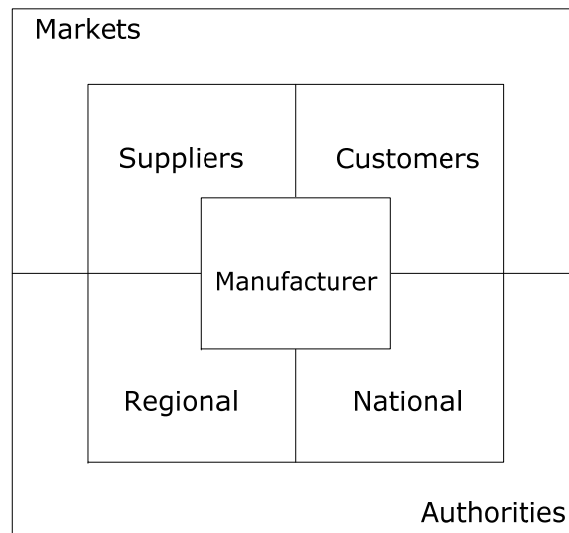
| Navn | Antall | Vekt (kg) | Totalvekt(kg) |
|------------------------|--------|-----------|---------------|
| Opphengsbolter | 2 | 0.75 | 1.5 |
| Baksarg | 1 | 0.6 | 0.6 |
| Ryggputer | 1 | 2.25 | 2.25 |
| Seteputer | 1 | 1.5 | 1.5 |
| Nakkepute | 1 | 0.01 | 0.01 |
| Rørramme rygg | 1 | 1.6 | 1.6 |
| Reg. beslag rygg/front | 1 | 1.8 | 1.8 |
| Festebeslag | 1 | 0.24 | 0.24 |
| Sidesarg | 1 | 0.6 | 0.6 |
| Gassfjor m/wire | 1 | 0.5 | 0.5 |
- Bottom Right (Materials):** Titled "Materialer i modulen", it contains a table listing materials with their counts, weights, and total weights.

| Materiale | Antall | Vekt (kg) | Totalvekt (kg) |
|------------------|--------|-----------|----------------|
| Lakk | 1 | 0.3 | 0.3 |
| Tekstil, ull | 1 | 1.2 | 1.2 |
| Emballasje, papp | 1 | 2.65 | 2.65 |
| Lim, PVAC | 1 | 0.1 | 0.1 |
| Lim, Smeltelim | 1 | 0.1 | 0.1 |
- Summary:** At the bottom right, "Vekt, undermoduler (kg): 17.7" and "Vekt, materialer (kg): 4.35" are displayed.

Value chain

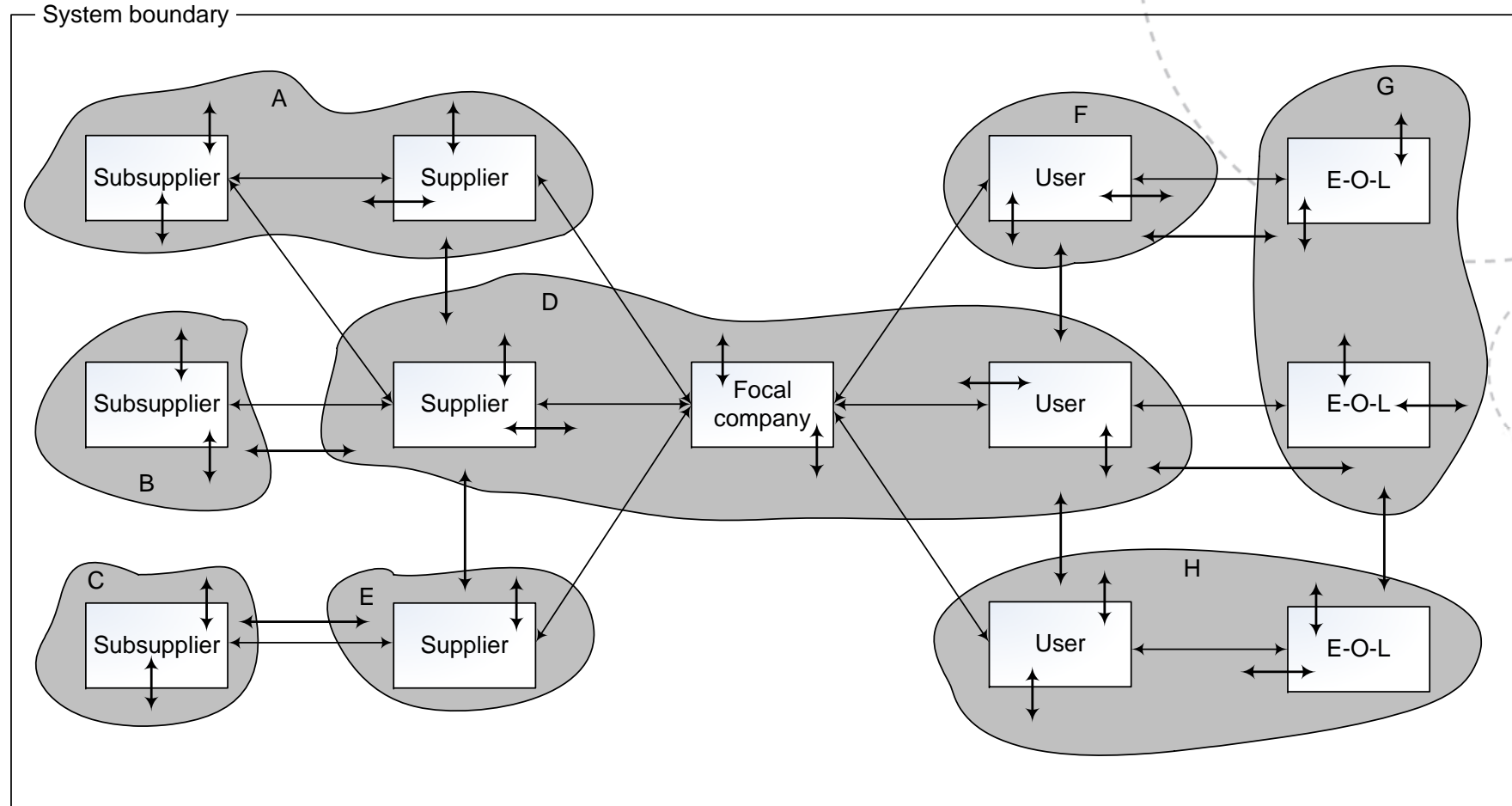


Value chain entry point



Key issues:

- Economic flows
- Material flows
- Information flows
- Governance
- Stakeholders

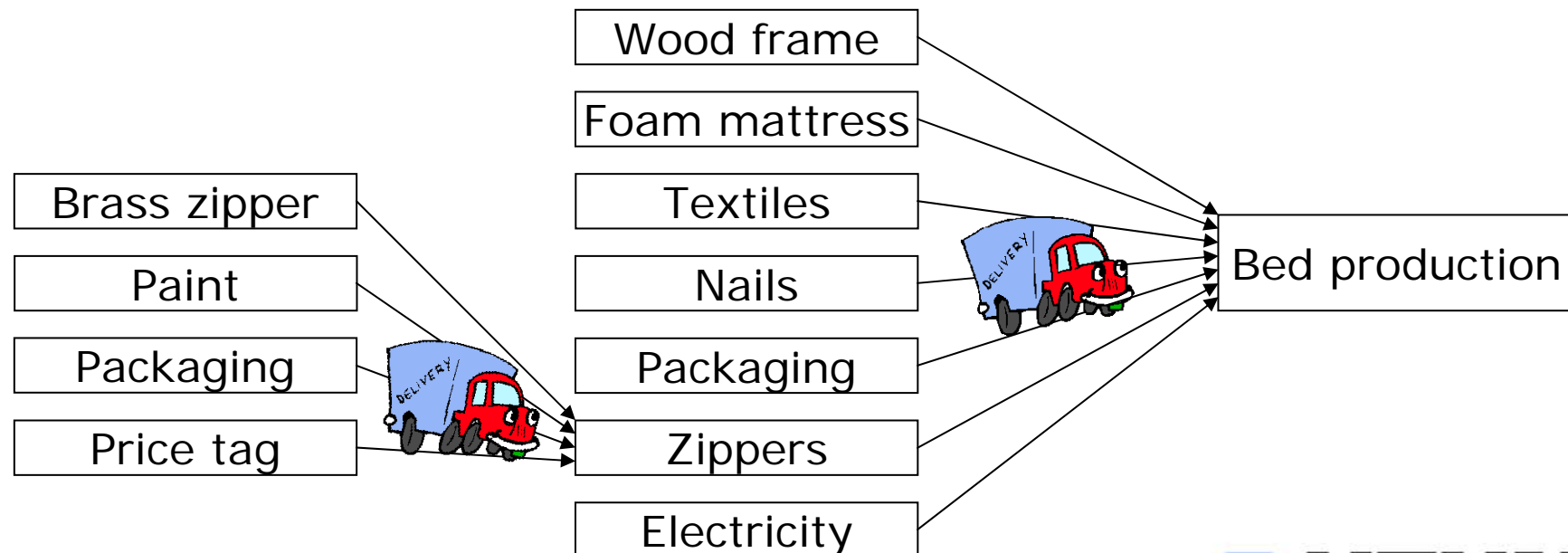


Michelsen (2008)

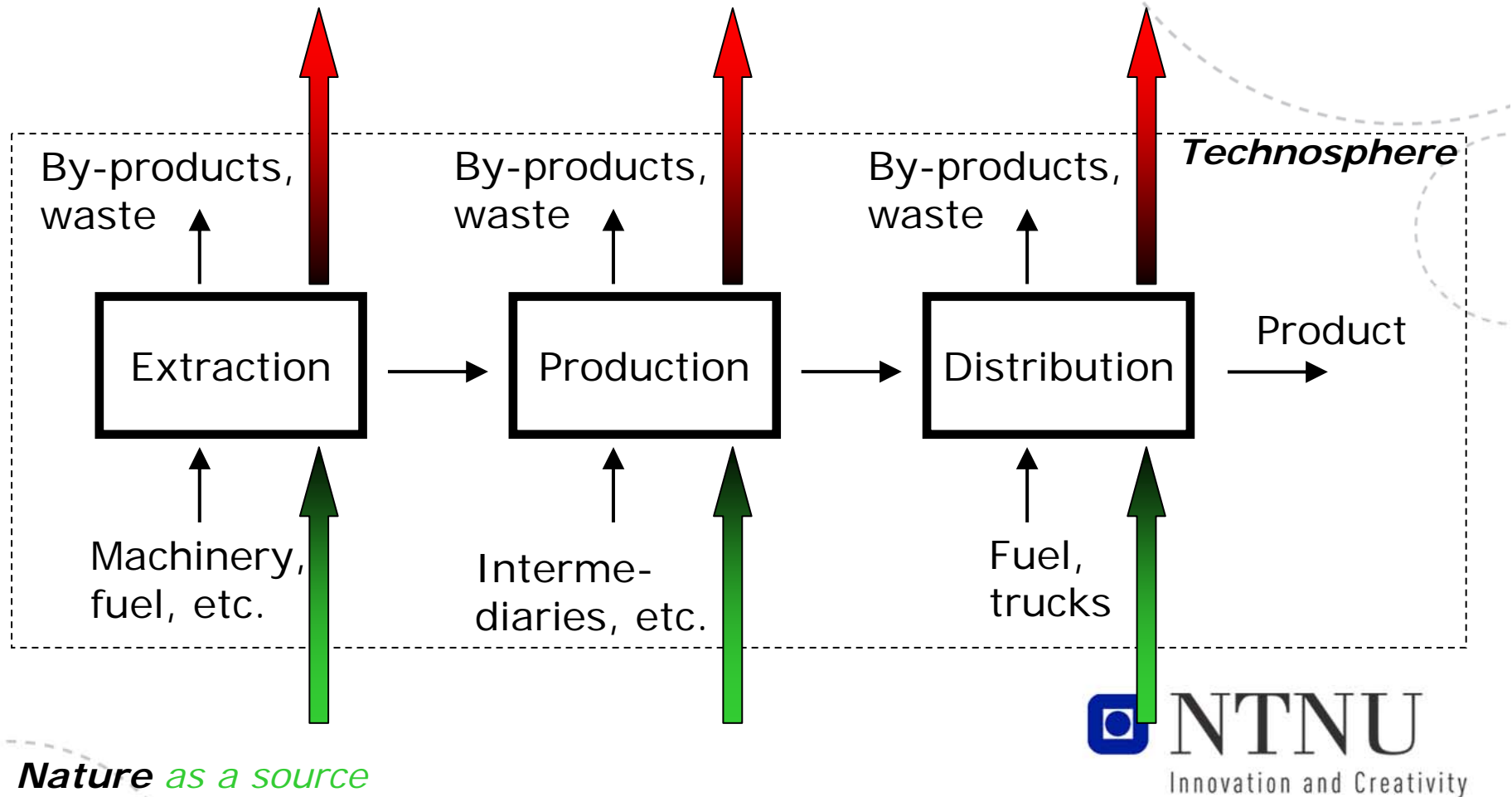
Modelling the value chain

What should be included as part of the value chain?

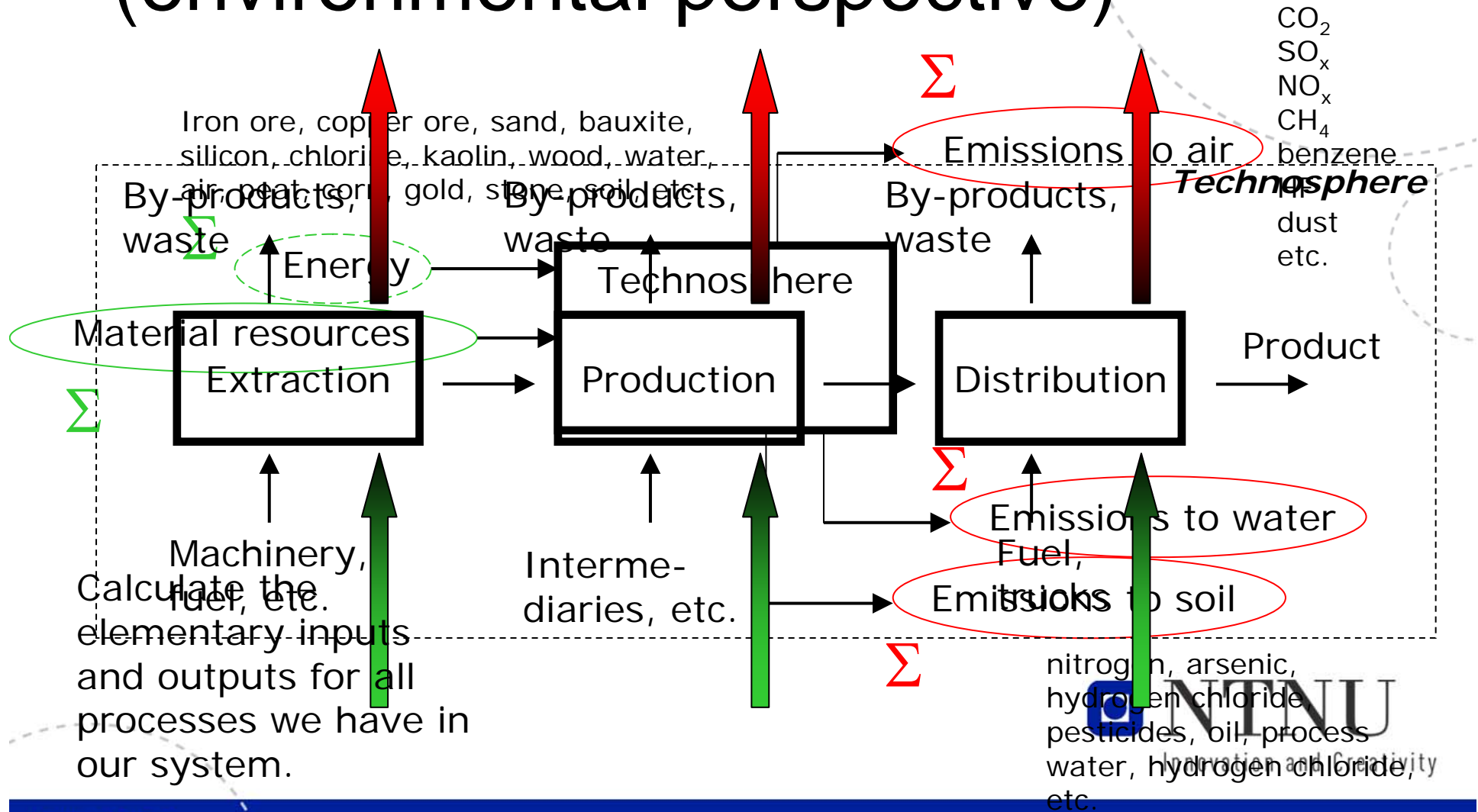
Complexity versus completeness



Modelling the value chain (environmental perspective)

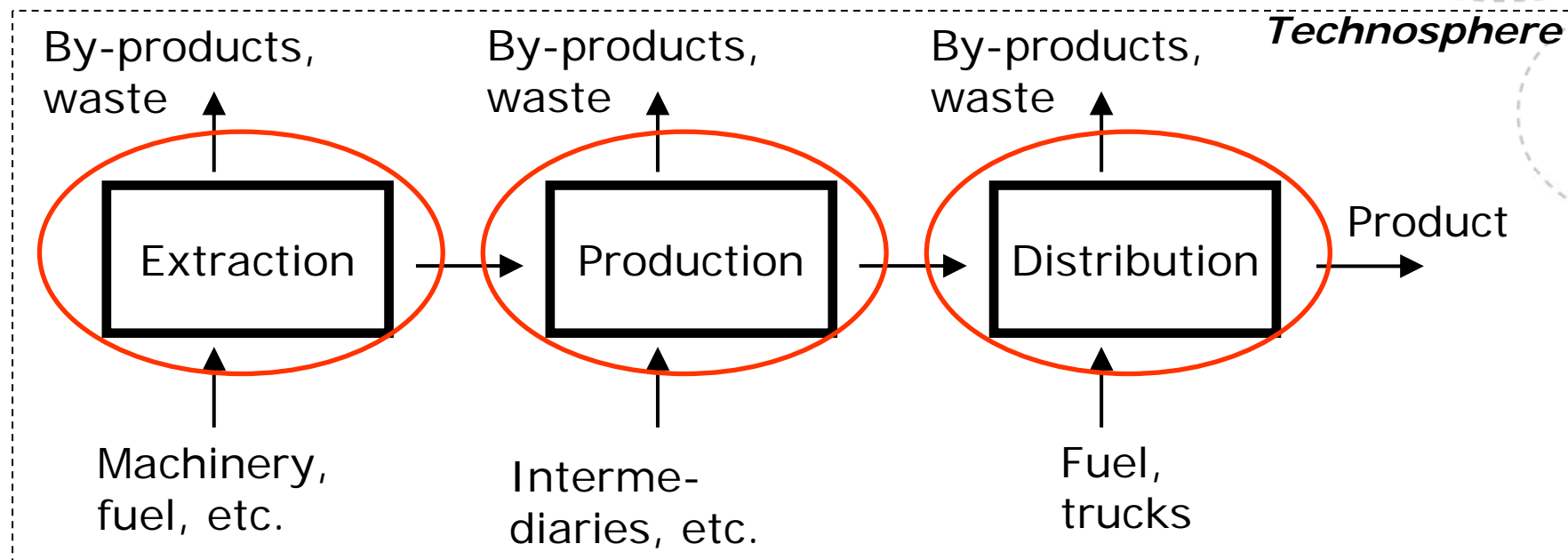


Modelling the value chain (environmental perspective)



Modelling the value chain (social perspective)

Σ Occupational health, compensation,
human rights, security, safety, etc



Σ Environmental management systems,
occupational health practices,

Inventory complexity

Inventory (technosphere) of inverse

$$\begin{pmatrix} x_1 \\ x_2 \\ \vdots \\ x_{pro} \end{pmatrix} \begin{bmatrix} 1 & 0 & \dots & 0 \\ 0 & 1 & \dots & 0 \\ \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & \dots & 1 \end{bmatrix} \begin{pmatrix} a_{11} & a_{12} & \dots & a_{1pro} \\ a_{21} & a_{22} & \dots & a_{2pro} \\ \vdots & \vdots & \ddots & \vdots \\ a_{pro1} & a_{pro2} & \dots & a_{propro} \end{pmatrix}^{-1} \begin{pmatrix} y_1 \\ y_2 \\ \vdots \\ y_{pro} \end{pmatrix}$$

Inventory:
Total for which

| | y | x |
|---------------|---|---------|
| Bed | 1 | 1,003 |
| Wood frame | | 12,5 kg |
| Foam mattress | | 6 kg |
| Textiles | | 0,5 kg |
| Nails | | 0,08 kg |

Impact assessment
Total impact

type demand
A = process dependency matrix
x = output vector
F = elementary flow matrix
e = elementary flow vector
= characterisation matrix
= impact vector

Goal and scope

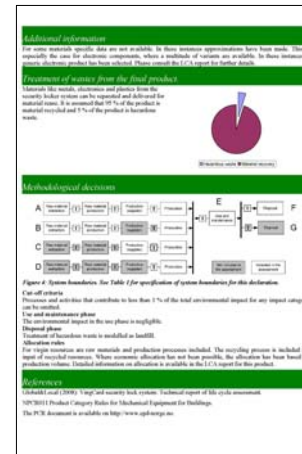
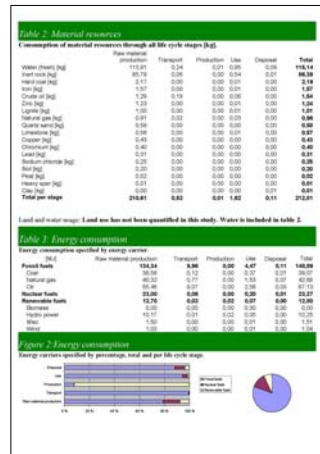
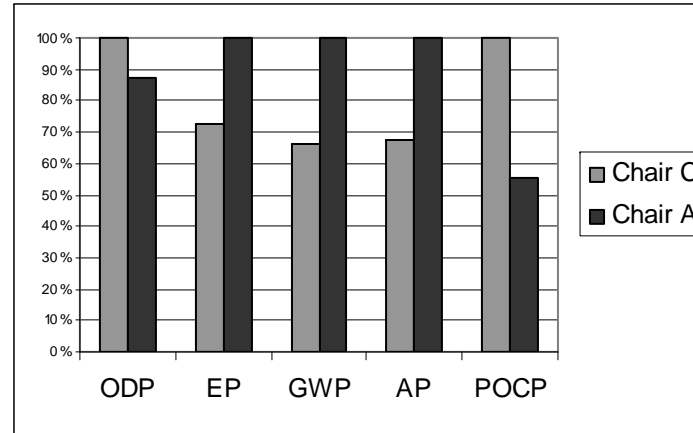
$$\begin{pmatrix} d_1 \\ \vdots \\ d_2 \end{pmatrix} = \begin{pmatrix} c_{11} & c_{12} & c_{13} & \dots & c_{1str} \\ \vdots & \dots & \vdots & \ddots & \vdots \\ c_{imp1} & c_{imp2} & c_{imp3} & \dots & c_{impstr} \end{pmatrix} \begin{pmatrix} e_1 \\ e_2 \\ e_3 \\ \vdots \\ e_{str} \end{pmatrix}$$



Source: Solli and Strømman (2005)

Communicating the results

- KPI
- Balanced scorecard
- EPD
- Dashboard
- Index

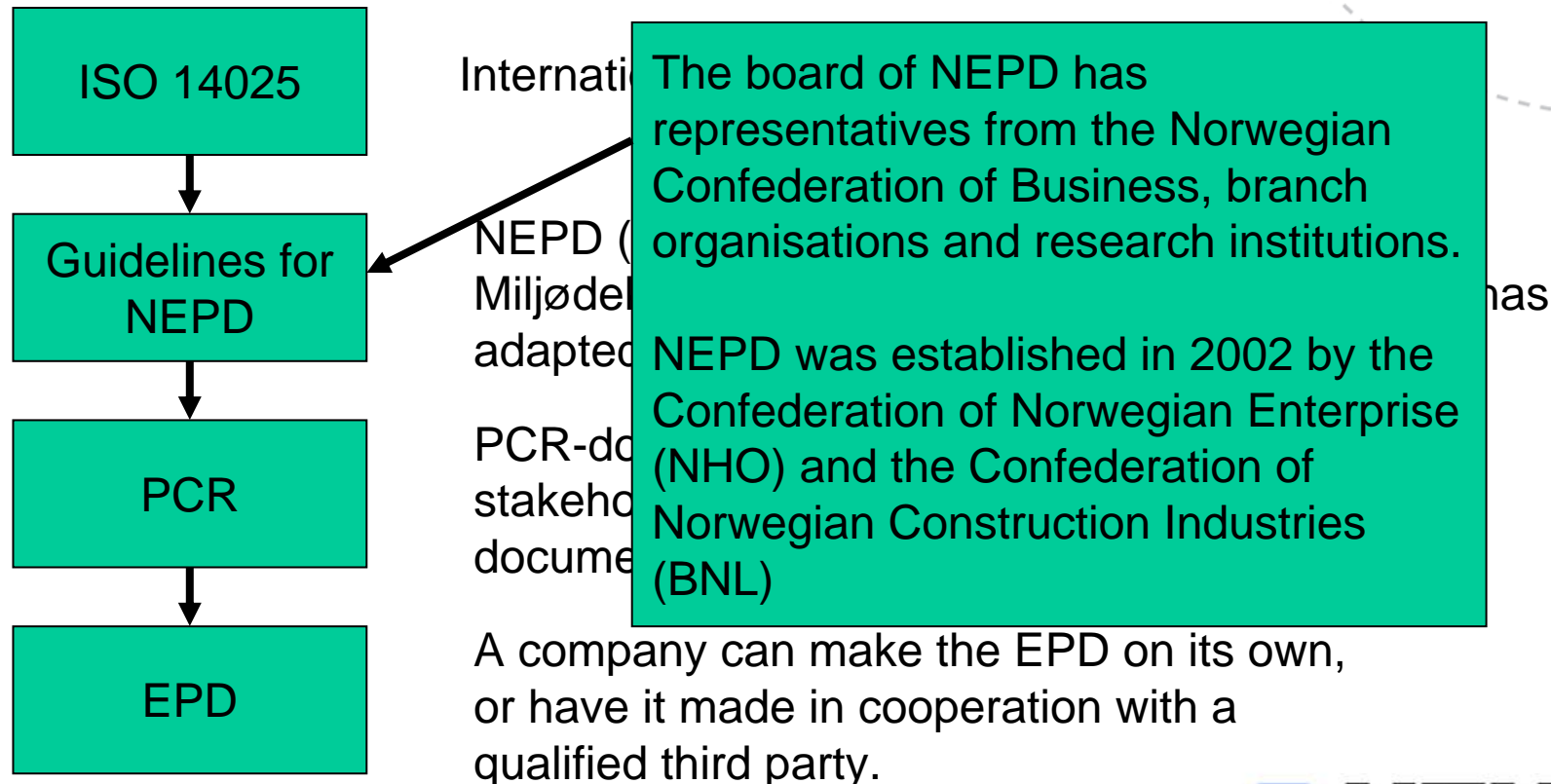


Type III Environmental Product Declarations

- Quantified environmental information
- Life cycle perspective
- Comparison of products fulfilling identical functions
- Transparent and independently verified
- There are NOT any performance requirements for a product to get an EPD



The EPD system in Norway



The EPD system in Norway

| | Approved 1st party | Approved independent 3rd party |
|--|--|--------------------------------|
| Collection of LCI-data and other relevant information by the business | Ok for B2C EPD, if the company is ISO 14001-cert. or EMAS-reg. | Ok for B2B and B2C EPD. |
| Collection of LCI-data and other relevant information by business and independent 3rd party. EPD by 3rd party. | | |

1. Requires new ISO procedures.

2. ISO or EMAS preferred.

3. External aid throughout the process.

B and B2C

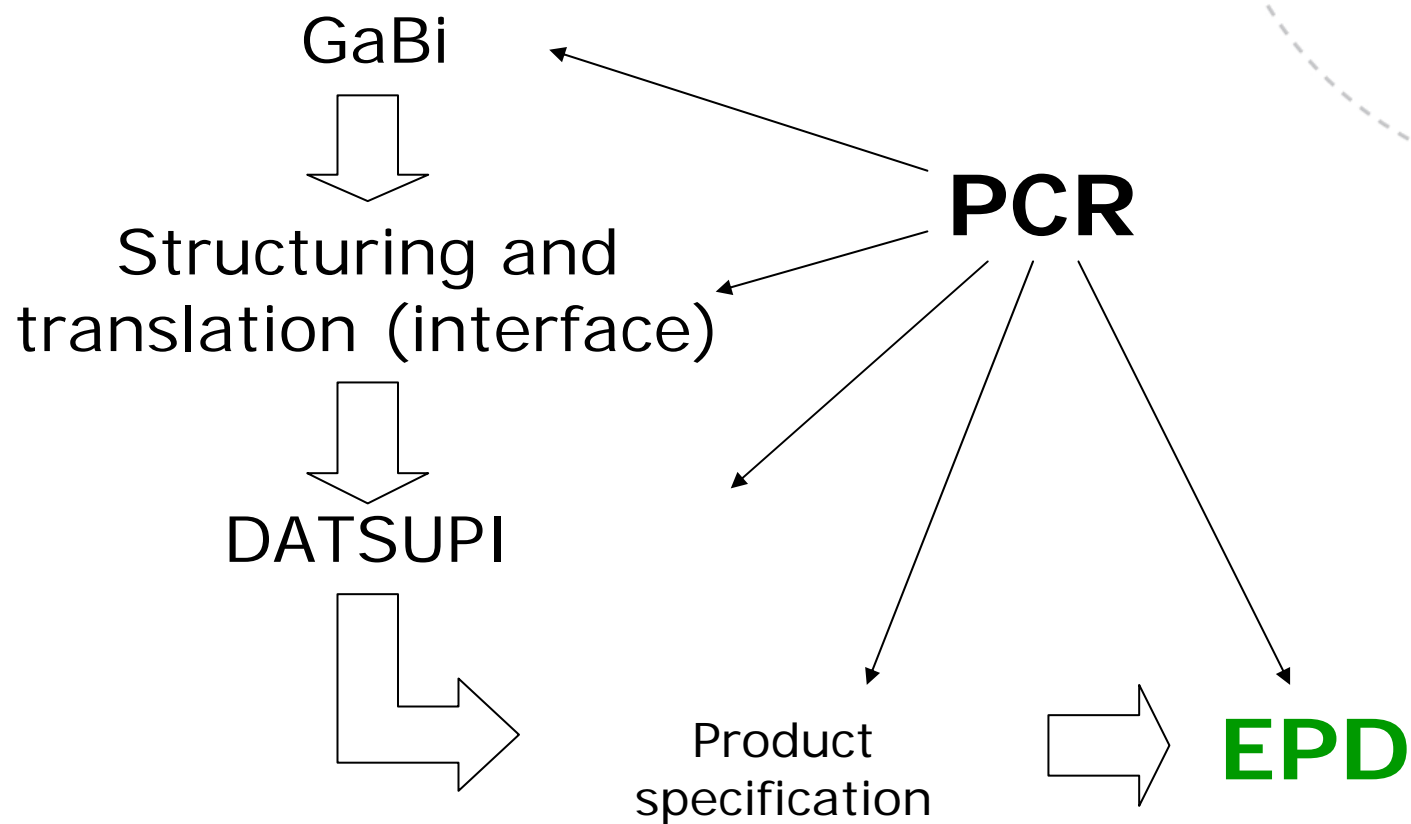
Product Category Rules

- Product category
 - Products that fulfil the same function
- Requirements and guidelines for creating an EPD, for example:
 - Common goal and scope for LCA
 - Common system boundaries and cut-off criteria
 - Data requirements
- PCRs are international

The Norwegian furniture industry

- Incentives for creating EPDs:
 - Required by law to document products' environmental performance
 - Information requested by customers
 - Competitive advantage
- Incentives for establishing common life cycle database
 - Unified database makes comparison easier
 - Economic advantage of cooperation
 - Furniture industry mainly SMEs that do not have the resources to invest in LCA

Structure



DATSUPI indicators: Occupational health

Chemicals in production

| Classification | Weighting factor (chem haz) | Weighting factor (prot.equipment) |
|--|--------------------------------|--------------------------------------|
| CRM: 45, 46, 49, 40, 46, (68), 60, 61,62,63 | 1000 | |
| Very toxic, airborne allegy, permanent damage and damage to breastfed infants: R26, 27, 28, 39, 64, 42, 48 | 100 | |
| Toxic, allergy, corrosive, permanent damage: R 43, 35, 23, 24, 25, 35, 33, 68 (YL-gr 4-5) | 10 | |
| Corrosive, hazardous: R34, 20, 21, 22, 34, 41, 65,(Yl-gr 2-3) | 0,1 | |
| No classification | 0 | |

DATSUPI indicators: Indoor environment for user

| INDEKS | DAG 3 | DAG 7 | REF |
|-------------------------|--|--|--------------------------------|
| Cancer potential | Sum C1, C2 < 10 µg/m ³ | Individual. C1, C2 < 1 µg/m ³ | Blue Angel |
| Cancer potential | - | Individual. C3 < 50 µg/m ³ | Natureplus |
| Reprotoxic and mutagene | Sum R1, R2, M1, M2 < 10 µg/m ³ | - | Natureplus |
| Reprotoxic and mutagene | - | Individual. R3, M3 < 50 µg/m ³ | Natureplus |
| Allergy potential | - | R42 + R43 subst. < 100 µg/m ³ | Natureplus |
| Toxicological potential | - | R-value and / or VOC < TLV/REL | Greenguard eller Blue Angel |

Opportunities

- DATSUPI is one example of CSR product reporting
- Demand for information from upstream in the value chain increases
- Opportunities for actors upstream in the value chain increase
 - CSR minimum performance as a requirement for market entry
 - CSR performance excellence as a niche opportunity

Conclusion

- DATSUPI in final development stages
- DATSUPI pre-tool (simplified version, without chemical information): More than 100 EPDs created
- Ongoing EPD harmonisation process (international and cross-industry): increasing comparability