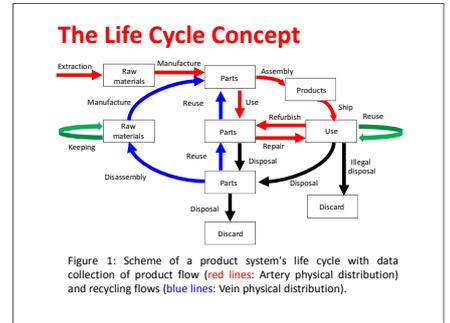# Cross Platform LCA System with Reliability, Simplicity and FOC for Standardization

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Cross Platform LCA System with Reliability, Simplicity and FOC for Standardization

Shift to eco-co-exist industry by LCA

- why use LCA
  - strong public demands for eco-products
  - shift to eco/benefit from costs/benefit
  - objective reliable/transparent cheep LCA
  - governments' backup by certification
  - industry's incentives to get certificates
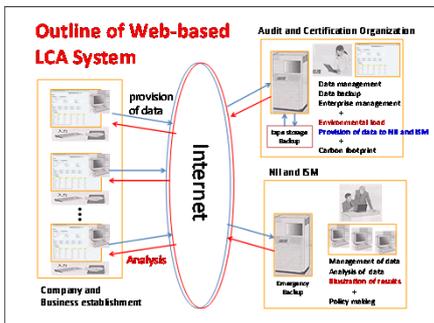 - industry's initiatives to increase sales

The Life Cycle Concept

Figure 1: Scheme of a product system's life cycle with data collection of product flow (red lines: Artery physical distribution) and recycling flows (blue lines: Vein physical distribution).
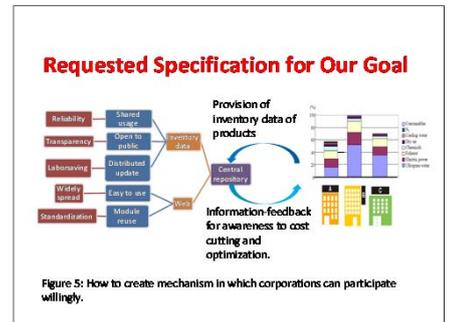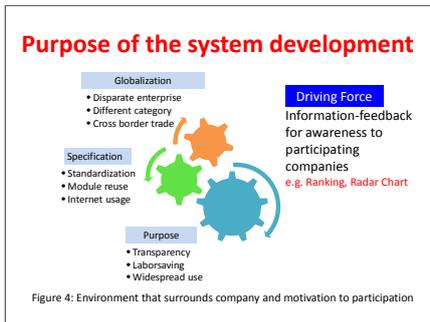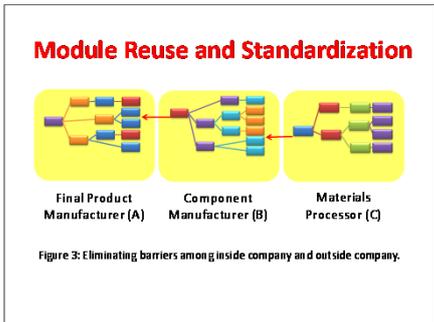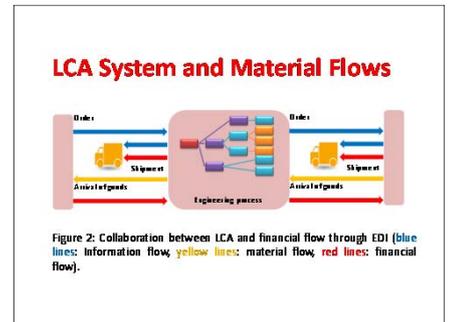
Life Cycle Assessment Software Tools (with version upgrade 3 or more)

Table 1: Major Commercial LCA Software.
(Other LCA tools are listed at http://lca.jrc.ec.europa.eu/lcainfohub/toolList.vm)

	SimaPro ver. 7	TEAM ver. 4	GaBi ver. 4	JEMAI-LCA Pro	Eco Assist ver. 3
Supplier	PRé Consultants	ECOBILAN	PE	JEMAI	Hitachi
URL	http://www.pre.nl/	http://www.eco bilan.com/uk_lc atool.php	http://www.pe -consulting- group.com/	http://www.jemai .or.jp/CACHE/lca_ index.cfm	http://www.eco assist.com/
Structure	standalone, network version available	standalone, virtual client server installation using Object store	standalone, developed with Delphi	standalone	network version

LCA for small/medium companies developing countries

- transparency : common inventory data
- low costs :
  - research institute initiatives
  - web-client/host server system
- easy to operate: web-based user interfaces
- developing countries: multi-lingual/local servers
- governmental certifications: strong promotions

LCA System and Material Flows

Figure 2: Collaboration between LCA and financial flow through EDI (blue lines: information flow, yellow lines: material flow, red lines: financial flow).

Module Reuse and Standardization

Final Product Manufacturer (A)　Component Manufacturer (B)　Materials Processor (C)

Figure 3: Eliminating barriers among inside company and outside company.

Purpose of the system development

Globalization
- Disparate enterprise
- Different category
- Cross border trade

Specification
- Standardization
- Module reuse
- Internet usage

Purpose
- Transparency
- Laborsaving
- Widespread use

Driving Force
Information-feedback for awareness to participating companies
e.g. Ranking, Radar Chart

Figure 4: Environment that surrounds company and motivation to participation

Requested Specification for Our Goal

Provision of inventory data of products

Information-feedback for awareness to cost cutting and optimization.

Figure 5: How to create mechanism in which corporations can participate willingly.

Outline of Web-based LCA System

Audit and Certification Organization

provision of data

Data management
Data backup
Enterprise management
+
Environmental load
Provision of data to NII and ISM
+
Carbon footprint

NII and ISM

Analysis

Management of data
Analysis of data
Illustration of results
+
Policy making

Company and Business establishment

Portal site of Audit and Certification Organization

- TOP screen
  new registration,
  function introduction (necessity, agreement, privacy policy),
  situation (the number of the participation companies),
  total situation (amount of discharge, quantity of reduction),
  information of supporting companies,
  news (environmental event information, news from the participation company),
  eco-idea from the participation company,
  a random banner link (links of supporting companies)

Audit and Certification Organization

- Certification system
- Enterprise management system
- Database of coefficient for environmental impact material
- Management system of coefficient for environmental impact material
- Database of company and business establishment
- Database of item information
  (manufacturing traffic service industry energy etc.)
- Database for standardization of investigation item
- Online estimating system of environmental load

NII and ISM

- Analytical system of statistical information
- Database of results of statistical analysis
- Display system of result of analysis

Prototype of Web-based LCA

Figure 6: The interrelationships of product life stages for case study.

Figure 7: Screenshots of prototype Web-based LCA system.

Architecture proposal of user friendly LCA for sustainable society

- standardization : module reuse
- embedded structure : access control
- easy to develop :
  introduce established formula
- correspond to business environment :
  globalization and supply chain
- user friendly eco-traceability :
  public participation

User Friendly Eco-traceability and Citizen Participation Program

Figure 8: Easy access realizes Eco friendly action.