

# GreenDelta<sup>TC</sup>

sustainability consulting + software

## e-DEA as a Practical EcoDesign Tool

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# Outline

1. Ecodesign (-problems)
2. E-DEA as a new webtool for EcoDesign, differences
3. The implementation for BIC
4. Conclusions, and discussion

# 1. EcoDesign

# EcoDesign, 1

- Most of the environmental impacts of a product are determined in the design stage
  - Choice of material: Product weight, durability, required maintenance, ...
  - Recycling options
  - Use patterns
    - DfE, DfX, ...

## EcoDesign, 2

- Simple assessment rules and methods may be misleading
  - Recycled material with higher environmental impact
  - Wood in railways, underfloor construction: much higher impacts than similar construction from Aluminum (Kunst, Ciroth, Gerner 2001)
  - ...

(in the end, main reason for the development of the LCA method!)

## EcoDesign, 3

- Product designers are not (and should not necessarily become) LCA experts
  - Design process very different from LCA modelling
    - Need for quick decisions and quick results
    - ‘playful’ (ideally)
    - Visual
- Does not fit to existing LCA software, but software is required to allow more sophisticated modelling.

## 2. E-DEA for EcoDesign

## e-DEA

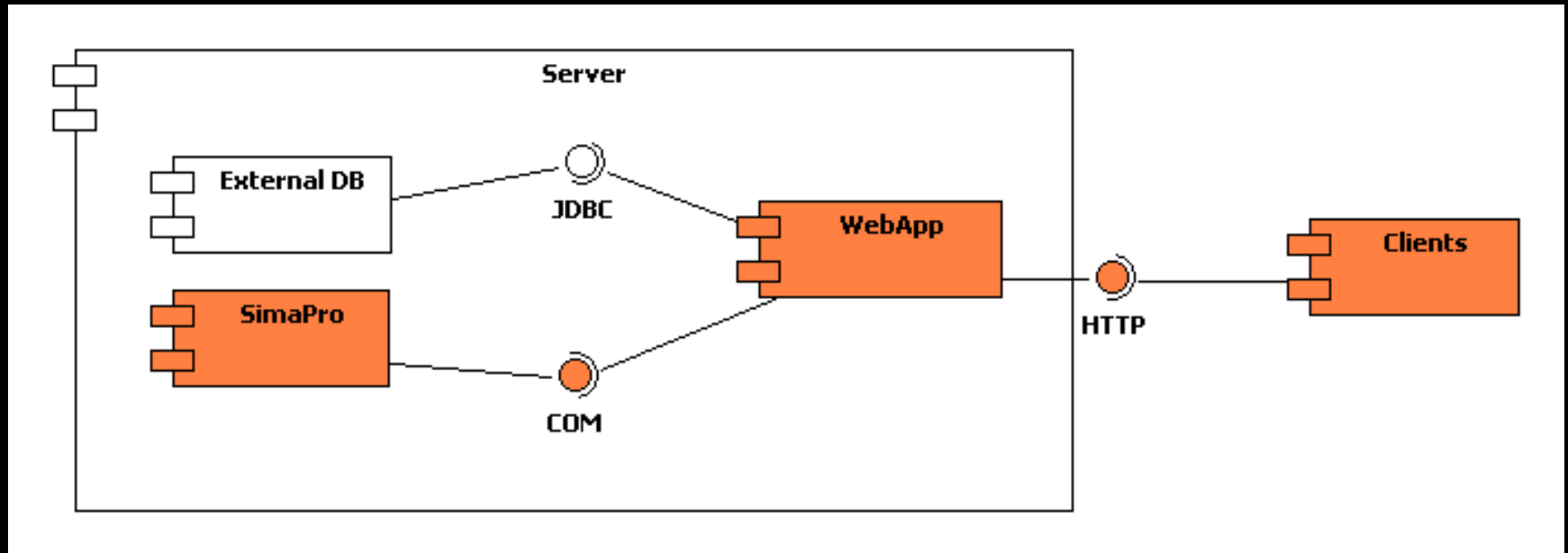
- Idea 1: Use “full power LCA”
  - full LCA software (modelling and calculation)
  - Large databases (generic, company-specific, up-to-date)
- Idea 2 : Prepare and guide
  - “chunks” of LCA models, modelled by LCA expert, following consistent methods, provided in LCA software
  - Default LCA methods provided in LCA software (LCIA, allocation, categories, ...)
- Idea 3 : Connect “Appealing” web-tool to the LCA software and database, and allows flexible modelling



# e-DEA, Structure



## e-DEA, Structure 2



# e-DEA, Access to one central server over LAN or WAN



### 3. Implementation for BIC

# e-DEA implementation for BIC

- Collaboration
  - evea (France): LCA modelling, data, local training
  - GreenDeltaTC (Germany): Implementation, training
- Implemented summer-autumn 2009, go live Dec. 2009, since then in use
- BIC: French multinational pen, razor, lighter company, [www.bicworld.com](http://www.bicworld.com)



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Design offices worldwide

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# e-DEA: a Rich Internet Application

The screenshot displays the e-DEA web application interface. At the top left is the GreenDelta logo. The top right features the 'evea' logo with the tagline 'EVALUATION & ACCOMPAGNEMENT'. The browser address bar shows 'http://localhost:8080/e-dea/MainPage.zul'. The page title is 'Shavers (Shavers, Category Administrator)'. A navigation sidebar on the left includes a 'Basket' section with items like 'Degreasing', 'LDPE', 'Packaging', and 'Injection moulding'. The main content area has a search bar and a breadcrumb trail 'Cr Shaver, Market, ABS'. Below this are tabs for 'Information', 'Constituents', 'Packaging', 'Assembling and Finishing', and 'Life Cycle'. The 'Add Product' section contains dropdown menus for 'Product' and 'Transport Scenario', and a text input for 'Amount' (set to 1) with an 'Add' button. The 'Add Commercial Reference' section is currently empty. The 'Products and Commercial References' section contains a table with the following data:

Product / Commercial Reference	Amount	Unit	Transport	Processing
Pr Shaver, ABS	1,0	p		
Co Shaver handle (ABS)	1,0	p		
ABS	75,0	g		Injection moulding
As Shaver head	1,0	p		
Co Blade	3,0	p		
Degreasing	50,0	cm2		
Steel	20,0	g		Steel processing
Co Blade protector	1,0	p		
Degreasing	25,0	mm2		

# Database and user management

The image displays a software interface for user management and database search. The main window is titled "User Management" and contains a table of users. A "New User" dialog box is open, allowing for the creation of a new user. A "Login" dialog box is also present, and a "Search" dialog box is shown at the bottom, listing database categories.

**User Management Table:**

User	Category	Role	SimaPro User
Admin	Shared	Global Administrator	Admin
Shavers			

**New User Dialog:**

- User:
- Password:
- Repeat Password:
- Category: Shavers
- User Role: Modeller
- SimaPro Name:

**Login Dialog:**

- User:
- Password:
- Login:

**Search Dialog:**

Database

- All
- Shared
- Shavers
- Lighters
- Stationery
- Packaging

# Design models

The screenshot displays a CAD software interface for a shaver assembly. The main window is titled "Pt Shaver, AL" and contains a search bar and navigation tabs for "Information", "Constituents", and "Assembling and Fi". Below these tabs is an "Add Component" button. A "Navigation" panel on the left shows a "New" dropdown menu with options: Commercial Reference, Product, Assembly, Packaging, Component, and SimaPro Data. The central "Constituents" panel lists the assembly structure:

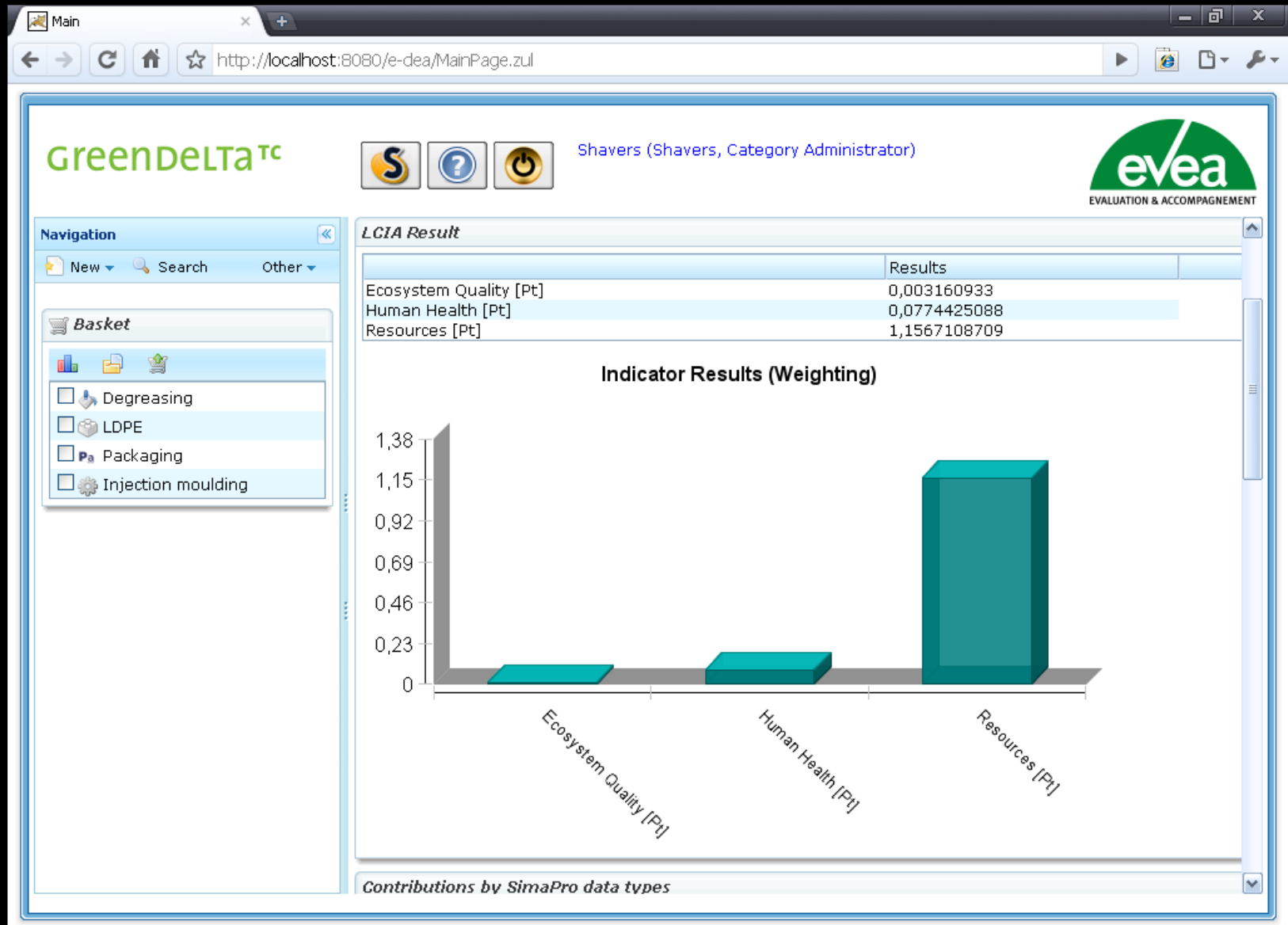
- assembly
- er handle (Al)
- greasing
- wder coating
- uminium
- er head
- ade
- Degreasing
- Steel
- Blade protector
- Degreasing
- ABS
- Aluminium

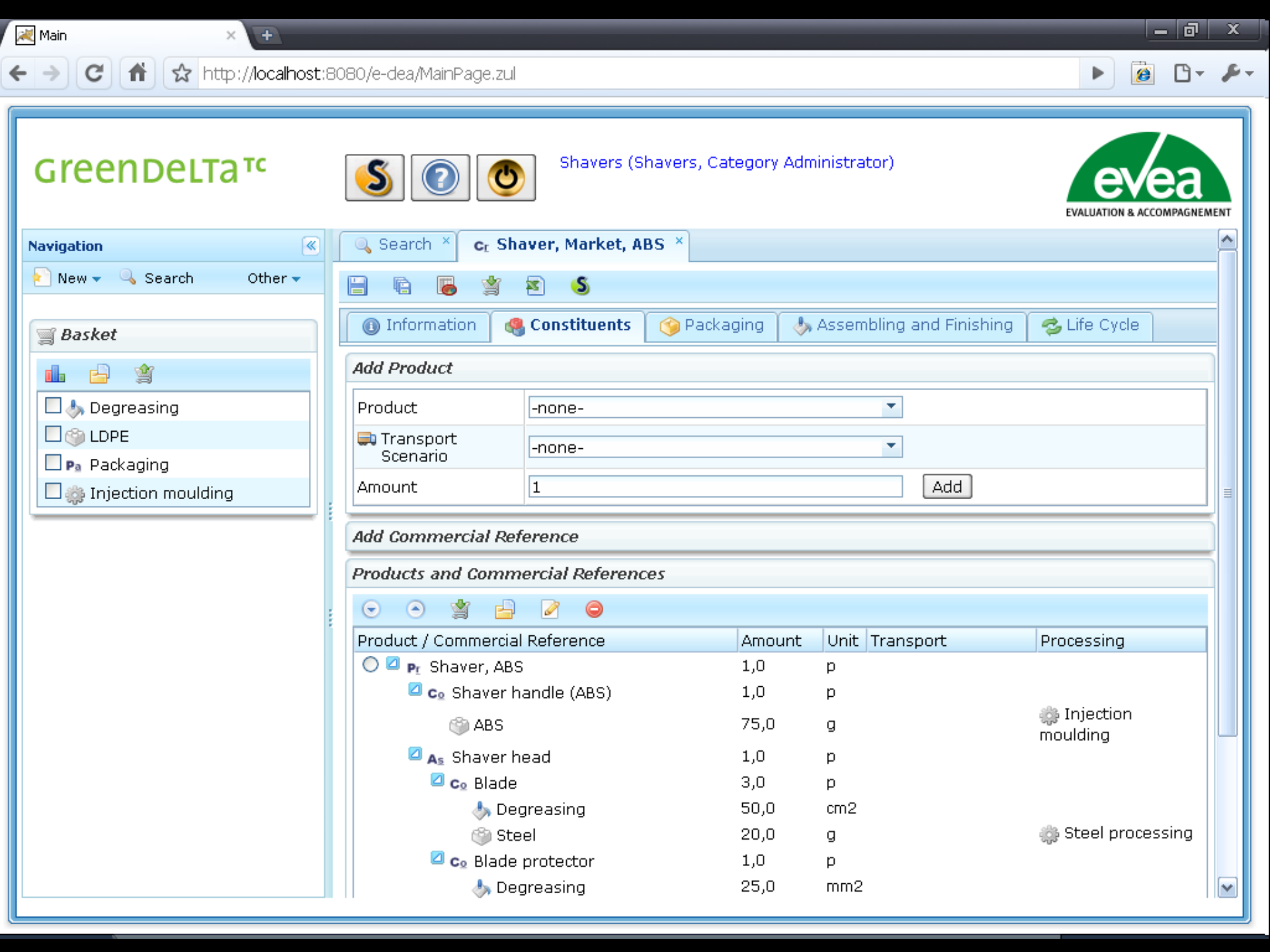
On the right, a "Nomenclature" panel shows "Usage value units" and "Families". The "Families" section includes a "New family" input field and two radio button options: "aluminium shavers" and "plastic shavers". Below the nomenclature, a table lists the components and their values:

Steel	20,0
<input checked="" type="checkbox"/> Blade protector	1,0
Degreasing	25,0
ABS	30,0
Aluminium	50,0



# Reporting





Navigation

New Search Other

Basket

- Degreasing
- LDPE
- Packaging
- Injection moulding

Search Shaver, Market, ABS



Information Constituents Packaging Assembling and Finishing Life Cycle

Add Product

Product	-none-	
Transport Scenario	-none-	
Amount	1	Add

Add Commercial Reference

Products and Commercial References

Product / Commercial Reference	Amount	Unit	Transport	Processing
Pr Shaver, ABS	1,0	p		
Co Shaver handle (ABS)	1,0	p		
ABS	75,0	g		Injection moulding
As Shaver head	1,0	p		
Co Blade	3,0	p		
Degreasing	50,0	cm2		
Steel	20,0	g		Steel processing
Co Blade protector	1,0	p		
Degreasing	25,0	mm2		

## 4. Conclusions, and discussion

## Conclusions

- e-DEA is an EcoDesign tool that combines “full-power” LCA software and data with an intuitive web tool that is tailored for non-LCA experts
- The web tool interacts with SimaPro, triggering LCA calculations; one central database is accessible worldwide, enabling company-wide cooperation
- A first implementation was tailored for BIC, and is in use since end of 2009
- Key to success at BIC was careful attention to needs of design departments, and adaptation of e-DEA (nomenclature, LCA structure, data, user interface options)

Thank you.

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