



Progetto
"GreenLab - Open Innovation per le pmi"
AVI/03/11

"Open innovation: concetti e metodologie"

Rinverdire l'innovazione
TRM come modalità di integrazione
nel ciclo dell'innovazione



Siamo già tutti belli verdi!

dal **Rapporto GreenItaly 2011**, condotto da Unioncamere, sembra che il 2011 sia stato l'anno della svolta green per le imprese italiane.

La percentuale di PMI manifatturiere che ha investito in prodotti e tecnologie verdi è quasi raddoppiata rispetto al 2010 e il Nordest è l'area che ha implementato maggiormente questa performance:

le piccole e medie imprese votate alla sostenibilità sono passate dal 28,3% nel 2010 al 57,3% nel 2011.

È anche una questione di politica economica?

Although this reasoning is still valid in many countries, there is an increasing consciousness that innovation should not only result in economic strength, but also in a better quality of the environment. After all, the quality of life does not depend only on the availability of money and the opportunity of buying goods and services, but also — if not primarily — on the safety and healthfulness of the living environment. ...

In this, technology can play a crucial role,

Vollenbroeck ,2002,Ministero olandese



Green Growth : Overcoming the Crisis and Beyond OECD 2009

- Necessario il contributo pubblico per stare nei costi specie di ricerca
- Es ccs carbon capture and storage
- Anche per stare sulla frontiera della ricerca
- Enviromental related research
- Ma il finanziamento pubblico non deve generare lock di inefficienze



- Eco innovation
- Green growth
- Green innovation
- Sustainable manufacturing

Sfumature diverse ma significato molto simile

- Link Oecd

[www.oecd.org/sti/innovation/sustainablemanufacturing.](http://www.oecd.org/sti/innovation/sustainablemanufacturing)

www.oecd.org/environment/innovation/globalforum and

[www.oecd.org/env/cpe/firms/innovation.](http://www.oecd.org/env/cpe/firms/innovation)

www.oecd.org/publications/Policybriefs

The OECD defines innovation as “the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations”.

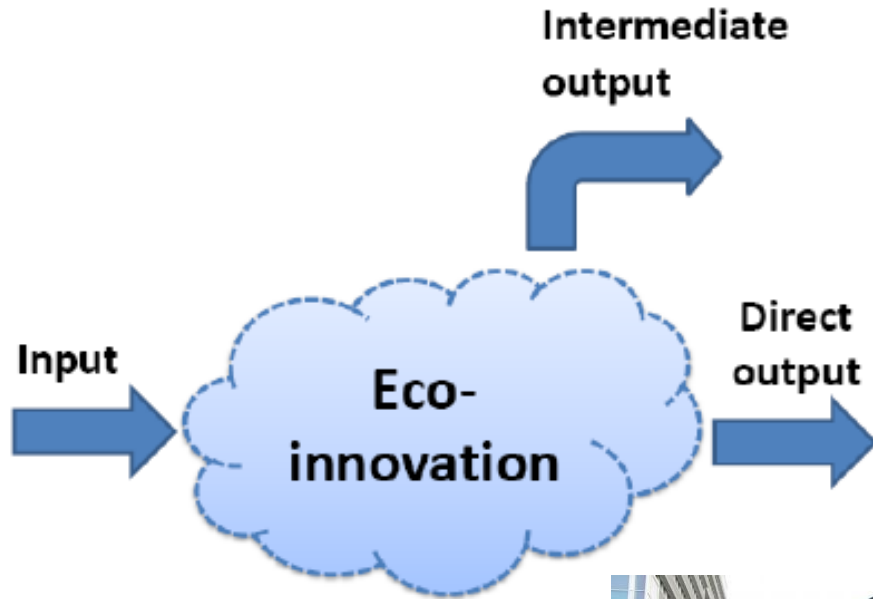
Eco-innovation is generally the same as other types of innovation but with two important distinctions:

- Eco-innovation represents innovation that results in a reduction of environmental impact, no matter whether that effect is intended or not.
- The scope of eco-innovation may go beyond the conventional organisational boundaries of the innovating organisation and involve broader social arrangements that trigger changes in existing socio-cultural norms and institutional structures.

Green for Inno for Green

- **The term, eco-innovation (environmental innovation, green innovation or sustainable innovation), is often used to identify those innovations that contribute to a sustainable environment through the development of ecological improvements.** Support for the development and diffusion of more ecologically fit products, processes, organizational models and systems can lead to improvements in the living conditions of present and future generations
- Unlike most new product development methods, systematic inventive thinking starts with an existing product and its characteristics rather than customers and their unmet needs.

I due livelli dell'eco innovation



Business verde

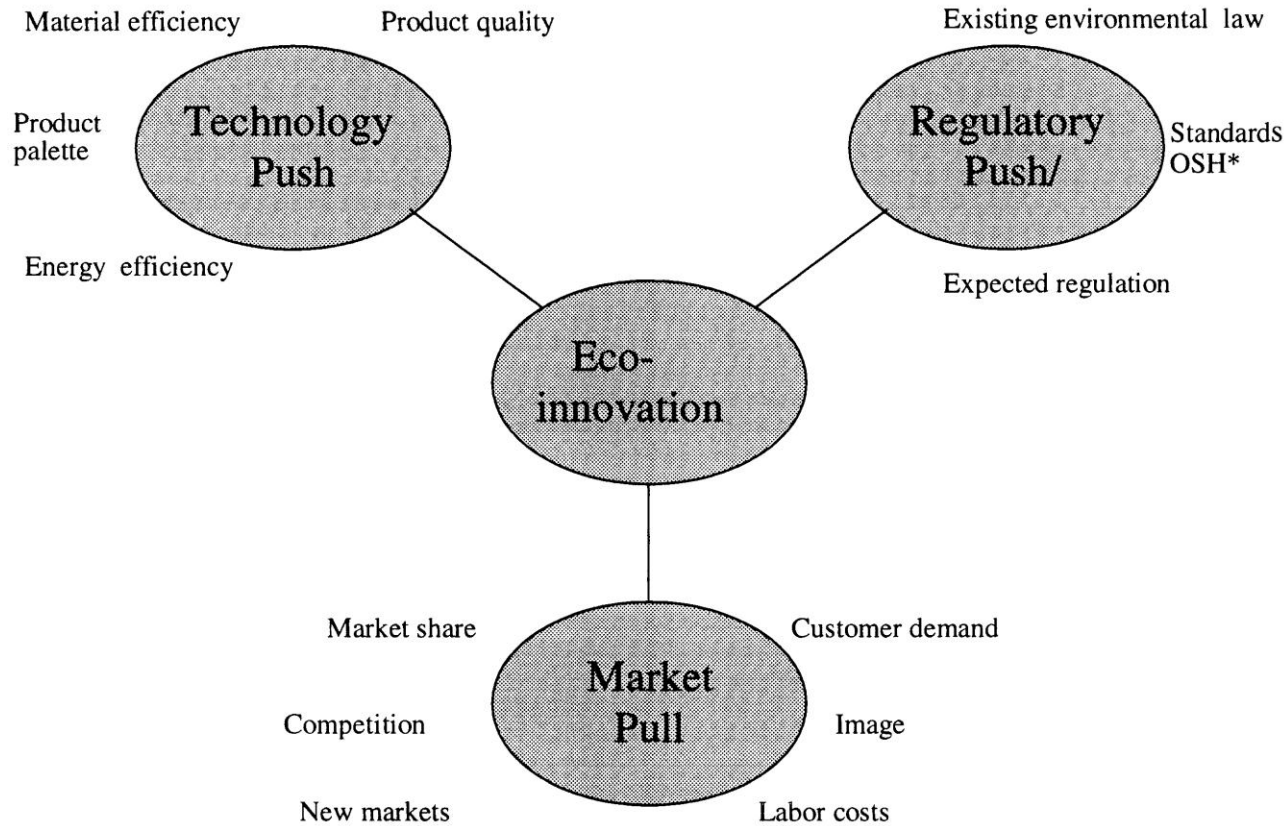


Più verde nel mio business

Green come driver

- Traiettorie definite
- Traiettorie tecnologie pervasive trasversali
- Partenza dai bisogni reali o meno che siano

Unlike most new product development methods, systematic inventive thinking starts with an existing product and its characteristics rather than customers and their unmet needs.



- Determinants of eco-innovations.
- *OSH_Occupational Safety and Health



- Tutti i veri cambiamenti innovativi oggi sono già di fatto green
- Principio di falsificazione di Popper: prova a fare un prodotto e dire che «consuma» di più
- E necessariamente open in quanto le innovazioni green -es tecnologie energetiche o di controllo o nuovi materiali -sono fortemente pervasive e trasversali. Pluri utilizzo, fertili



- la macchina è subito pronta, non necessitano cicli di preriscaldamento, non richiede componenti di prova per l'avvio della produzione;
- ho ottenuto la riduzione al minimo del lotto produttivo e quindi il materiale prelaborato richiesto a magazzino;
- ho aumentato la precisione e la ripetibilità dei pezzi, anche con materiali di fornitori diversi;
- ho conseguito una rilevante riduzione dei consumi di energia elettrica, grazie al recupero di energia cinetica mediante i servo-amplificatori di nuova generazione;



Ho scelto la pannellatrice "Servo-Elettrica" di Prima Power per AUMENTARE la produzione, OTTIMIZZARE le lavorazioni e RISPARMIARE nei consumi.

Tre grandi vantaggi in un'unica grande macchina

- 1) Contrazione del consumo energetico (-64%), riduzione di CO₂ (-64%), maggiore produttività (+10%) Analisi Univ. di Padova.
- 2) Rilevante diminuzione degli sprechi in produzione anche con materiali non omogenei.
- 3) Riduzione degli apparati oleodinamici e conseguente decremento della manutenzione (-60%).



Tecnologia applicata alla lavorazione della lamiera
 Punzonatrici - Cesioiatrici - Taglio laser - Pannellatrici - Piegatrici - Flexible Manufacturing System (FMS)

www.finn-power.it

Non-fluorocarbon -the SENZOHKO Refrigerator

- The Toshiba GR-NF415GX is an excellent example of a more environmentally benign product because it won the **2003 Grand Prize for Energy Conservation**



図1. GR-NF415GX —ノンフロン冷媒を使用し, 2ステージコンプレッサとPMVによる2ステージパラレル冷凍サイクルを搭載した鮮蔵・省エネタイプの5ドア冷蔵庫である。

GR-NF415GX energy-saving refrigerator



伊藤 達也 ITO Tatsuya



今久保 賢治 IMAKUBO Kenji



林 秀竹 HAYASHI Hidetake

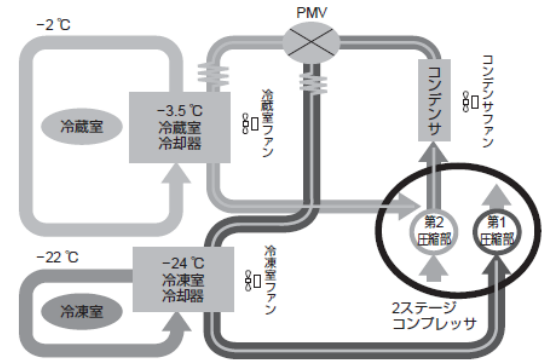
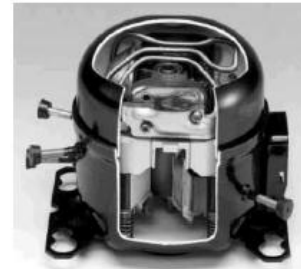
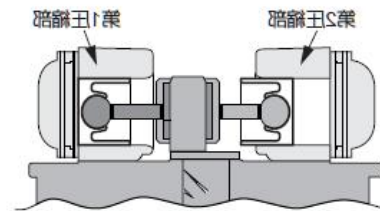


図2. 2ステージパラレル冷凍サイクル — 二つのシリンダを内蔵する2ステージコンプレッサにより冷凍室と冷蔵室を同時に冷却し, PMVにより冷媒流量を制御する。

Two-stage parallel freezing cycle



セットアップコンプレッサ (e)

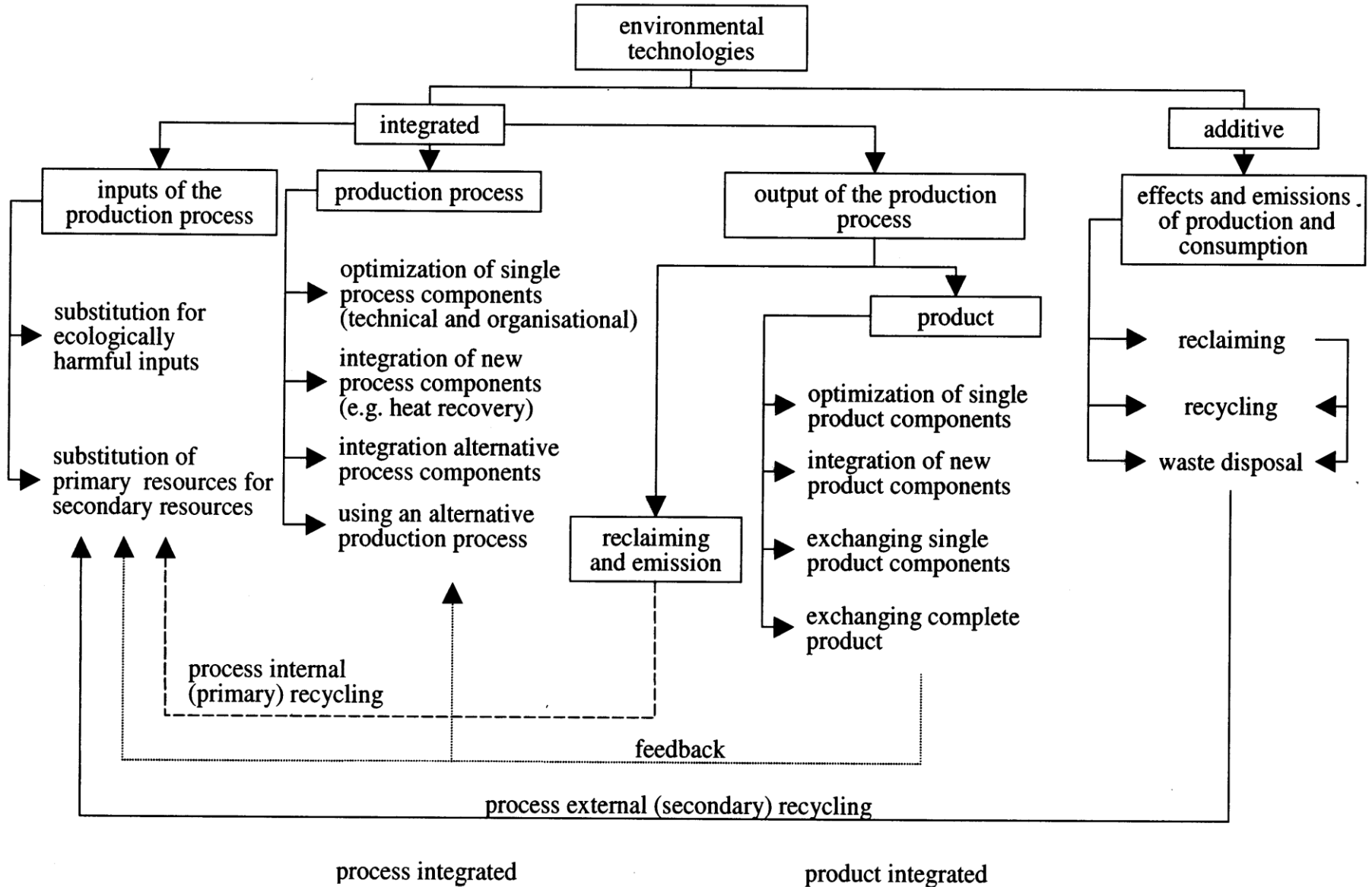


二シリンダコンプレッサ (d)

図2. セットアップコンプレッサの二シリンダ構造の断面図。右側は第1圧縮部、左側は第2圧縮部。

Two-stage compressor setup

Hohmeyer and Koschel (1995).



Già che ci siamo perché non studiarlo green...IL NUOVO PRODOTTO

A major goal of many organizations is increasing their market share of a particular product or family of products. In order to achieve this goal, organizations are constantly redesigning their products to keep up with their competitors. During the redesigns, organizations are interested in increasing the “usefulness” of their products. The term usefulness includes all valuable results of the product’s function such as specific features, ergonomics, and capacity. Within these redesigns it is also desirable to reduce the harmful (nocivo) effects of a product. Examples of harmful effects include cost, energy use, safety hazards, and pollution.

STAGE 1
Viewing Compliance as Opportunity

INNOVATION OPPORTUNITY

» Using compliance to induce the company and its partners to experiment with sustainable technologies, materials, and processes.

STAGE 2
Making Value Chains Sustainable

INNOVATION OPPORTUNITIES

» Developing sustainable sources of raw materials and components.

» Increasing the use of clean energy sources such as wind and solar power.

» Finding innovative uses for returned products.

STAGE 3
Designing Sustainable Products and Services

INNOVATION OPPORTUNITIES

» Applying techniques such as biomimicry in product development.

» Developing compact and eco-friendly packaging.

STAGE 4
Developing New Business Models

INNOVATION OPPORTUNITIES

» Developing new delivery technologies that change value-chain relationships in significant ways.

» Creating monetization models that relate to services rather than products.

» Devising business models that combine digital and physical infrastructures.

STAGE 5
Creating Next-Practice Platforms

INNOVATION OPPORTUNITIES

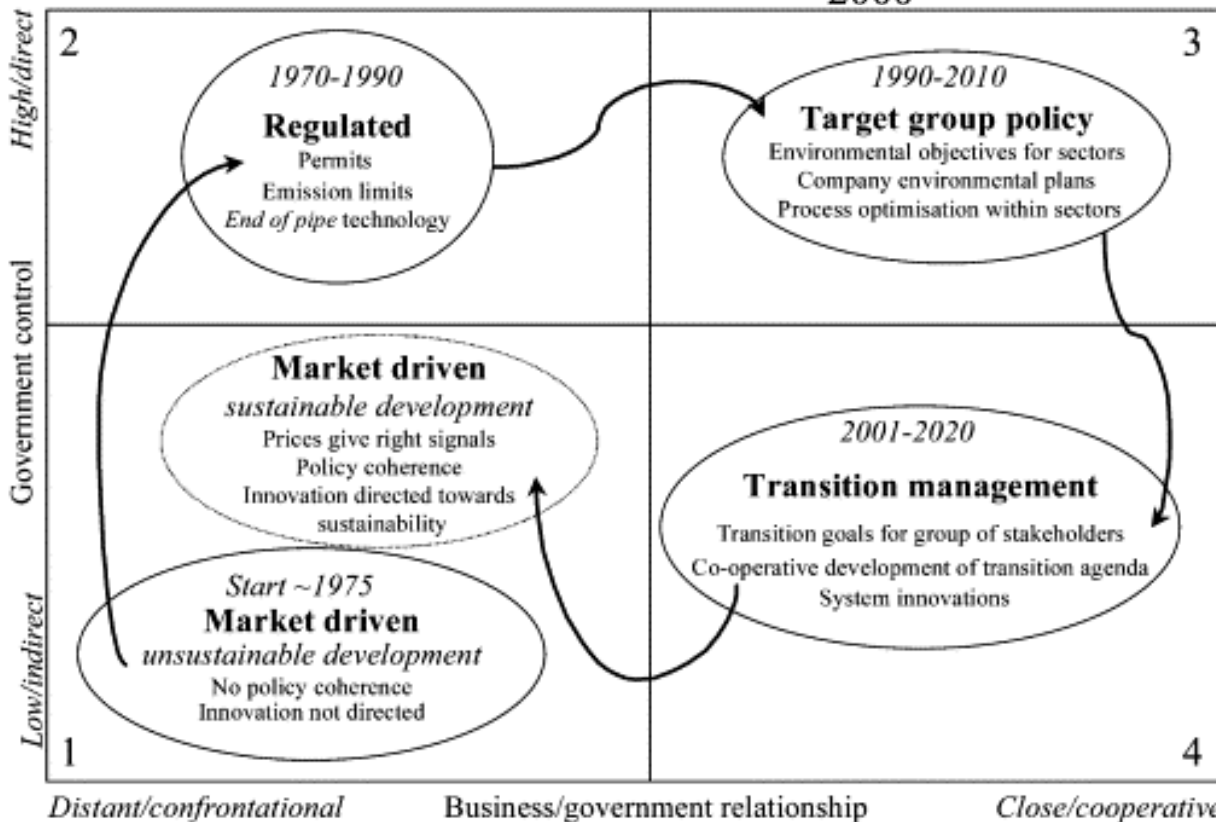
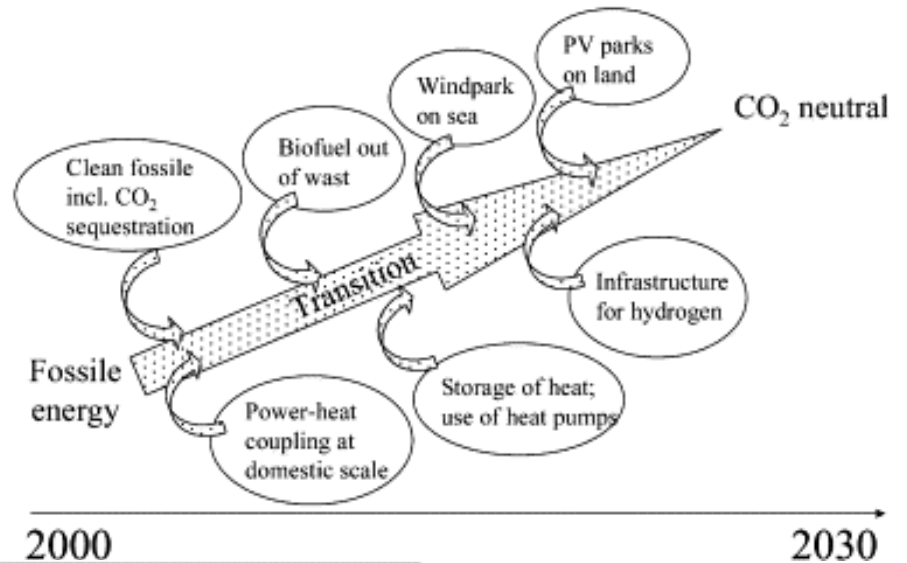
» Building business platforms that will enable customers and suppliers to manage energy in radically different ways.

» Developing products that won't need water in categories traditionally associated with it, such as cleaning products.

» Designing technologies that will allow industries to use the energy produced as a by-product.

<http://isites.harvard.edu/fs/docs/icb.topic747719.files/Supplemental%20Reading%20Folder/Innovaation%20harvardstudy.pdf>

Transizioni



Il ripensamento eco, o anche eco,

- spinge a nuove ricombinazioni anche se non necessariamente green, magari anche per altri aspetti costi fornitori etc
- Selezione + ricombinazione = innovazione
- Selezione + evoluzione = miglioramento
- Costringe a ripensare il prodotto secondo prospettive diverse:
 - come fascio tecnologico composto di componenti che assolvono funzioni che soddisfano bisogni
 - quindi ancorato ai bisogni del cliente e non bloccato alle competenze esistenti e comunque già open
 - Si parla di design for environment DFE

Si riscopre la filiera



Dream society

Jensen (1999)

ADVENTURES FOR
SALES

MARKET FOR
TOGETHERNESS,
FRIENDSHIP, LOVE

MARKET FOR
CARE

WHO-AM-I
MARKET

MARKET FOR
PEACE OF MIND

MARKET FOR
CONVICTIONS

Six Market Profiles

1. Adventures for Sale
2. The Market for Togetherness, Friendship and Love
3. The Market for Care
4. The Who-Am-I Market
5. The Market for Peace of Mind
6. The Market for Convictions

5 innovation patterns

Subtraction	remove product components
multiplication	copy product components
dividing	divide product into its components
task unification	add new task to existing product
attribute dependency change	connect product and environment



Kleef Riflessi sulle competenze

Innovation as problem finding, learning and action for sustainability involves networks of actors with very different perspectives, interests, and cultures spanning different levels and contexts. Examples of the challenge and complexity of these multi-actor innovation processes are found in the literature.

One approach to actor input has been referred to as strategic bridging. This provides an instrument for interaction between firms and external stakeholders, but is vulnerable to efforts of participants to control the organization, to internal or financial problems, and to participants leaving the organization

Ruolo ed enfasi sul trasferimento tecnologico e sugli attori e sistemi di relazioni collegati



Kleef 2007 Capabilities for sustainable innovation

In this paper sustainable development is seen as ‘a process of change in which the exploitation of resources, direction of investments, orientation of technological development, and institutional change are made consistent with future as well as present needs’.

Capabilities of employees, combined with each other in teams and connected through structures and routines, are the building blocks of competence. Competence, therefore, includes the organization of work, the involvement of employees, the commitment to working and communicating across boundaries within the organization, and the delivery of value to customers and other stakeholders. Competence is seen as the basis of competitiveness, it enables a company to offer products and services of value to customers and to innovate to generate new products and services, while adapting to changing circumstances faster than competitors.

E non poteva mancare anche qui: Lean & Green

