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Industrial Symbiosis

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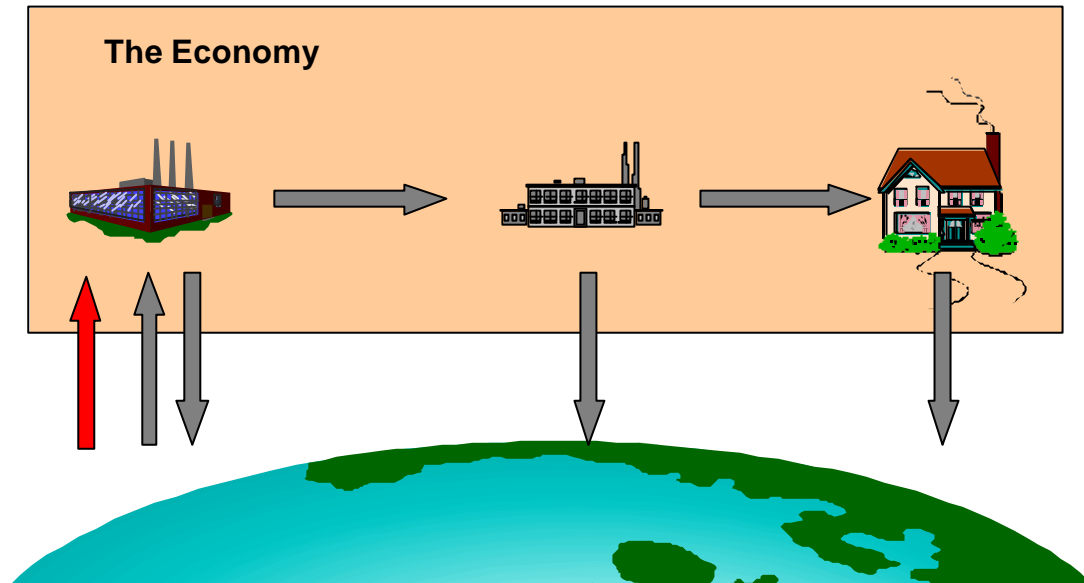
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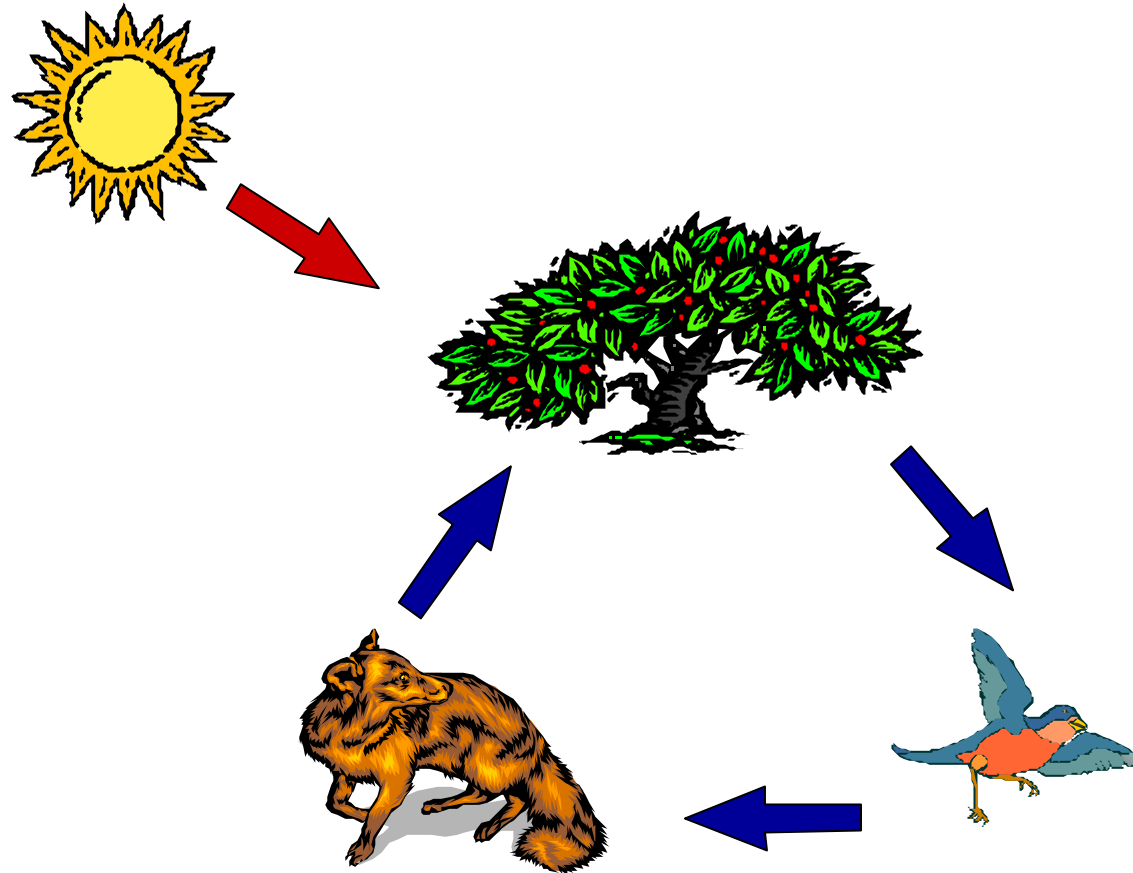
- ◆ Promotes industrial sustainability as a means to economic regeneration
- ◆ Expertise:
 - Sustainable Product Development
 - Cleaner Manufacturing
 - Eco-efficiency
 - Waste minimisation
 - Waste management, recycling and composting
 - Industrial symbiosis

**BEYOND
COMPLIANCE**

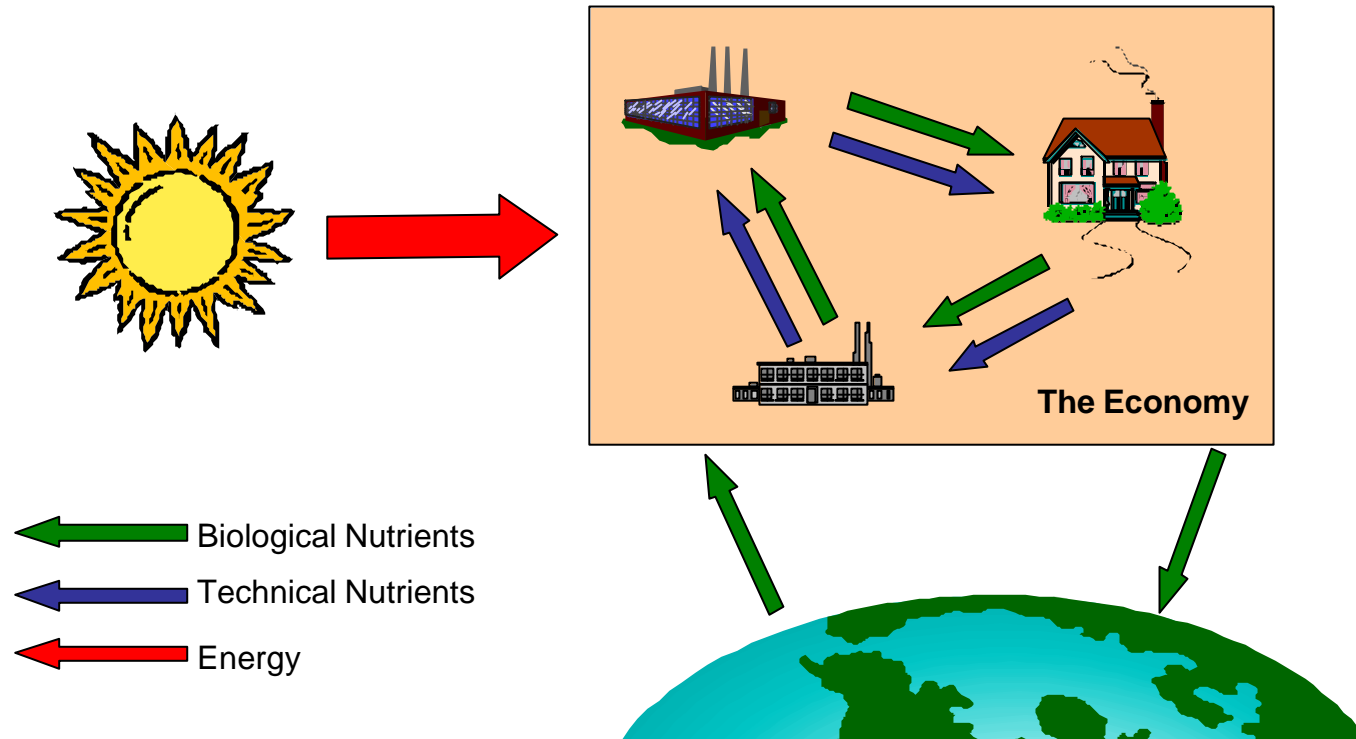
Current Paradigm



Natural Ecosystems



A Sustainable Economy?



So what is Industrial Symbiosis?

- ◆ “Co-operative use of waste heat and materials, and other under-utilised resources”
 - solid, liquid and gaseous wastes
 - waste heat and ‘coolth’
 - maximising use of process water etc
 - shared infrastructure: effluent treatment
 - shared services: laboratories, workshops, training facilities

“WASTE = FOOD”



What's in it for you?

◆ Economics

- Turns a disposal cost into an income stream
- Can reduce the cost of raw materials
- Maximises use of under-utilised resources and facilities
- Spreads costs of new infrastructure

◆ Less tangible benefits

- Public Relations
- Integration of business
- Adding economic robustness
- Safeguarding and creating employment

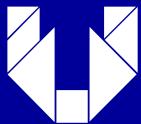
◆ Environment

- Reduces virgin resource use and net waste generation without compromising economic activity
- Major step towards a more sustainable society

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Examples of IS



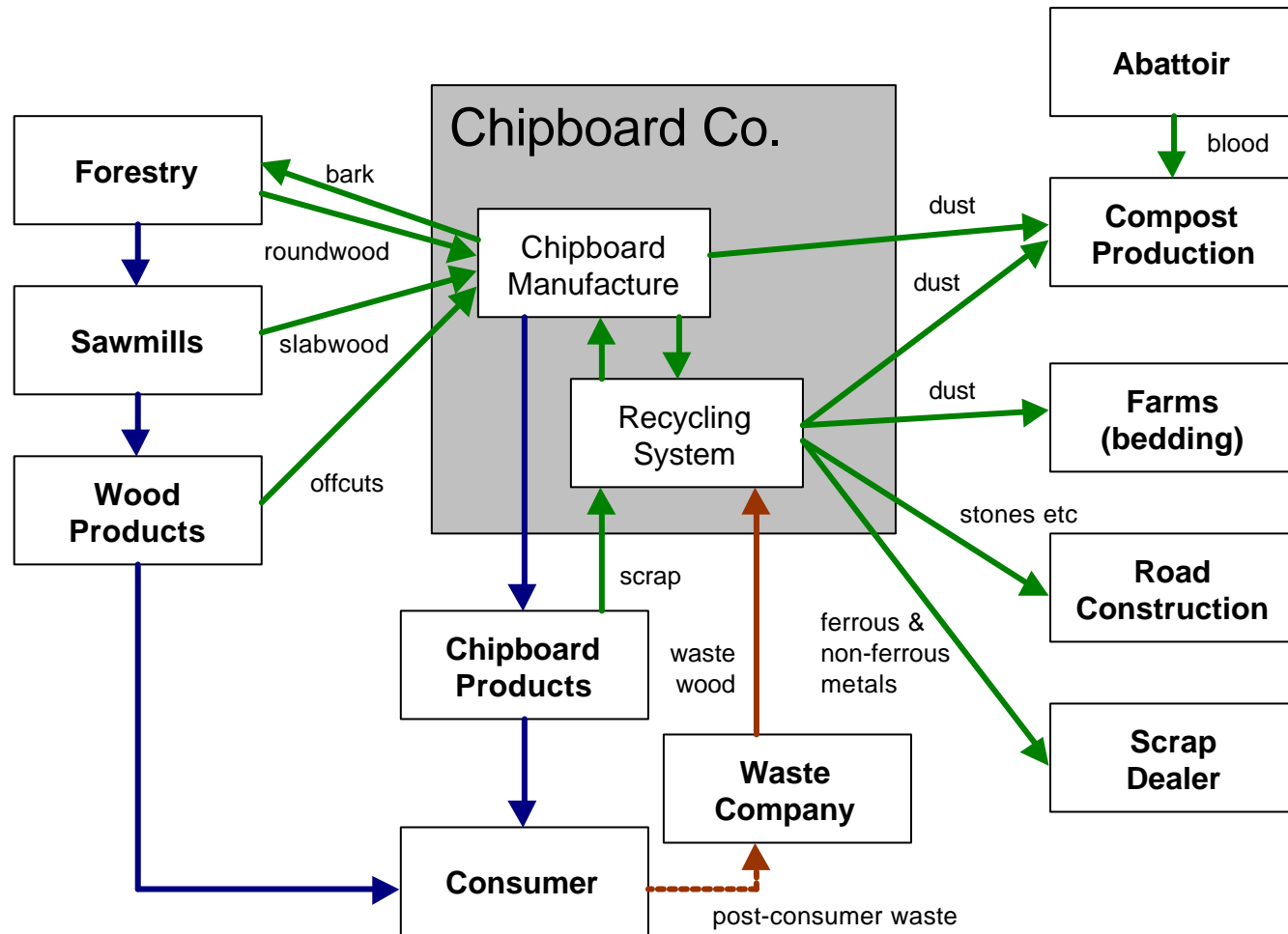
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Others

- ◆ **Styria, Austria**
 - Large 'organic' system driven by economics
 - Anchor tenants: power plant, cement, paper, plastics, steel plants
- ◆ **Chapparral STAR project, Texas, US**
 - Anchor tenants: steel, cement and automobile recycling plants
- ◆ **ZERI Projects**
 - Zero emissions projects in developing world
 - Extracting maximum value out of traditional agriculture
- ◆ **UK Projects:**
 - Mersey Banks
 - West Midlands
 - Humberside
 - **Tees Valley**
 - Championed by BCSD-NSR

Chipboard Manufacture



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“When asked the activities of my factory at Wilton, I used to describe them as a piece of chemical ‘pork butchery’... our aim was to utilise every last bit of waste and upgrade it by adding value and turning it into something useful.

The layout and development of the factory at Wilton bore living testimony to this belief, for each plant was in some way linked to, and supplied by, the others and the end product which had to be disposed of was very small.”

John Harvey Jones, *Managing to Survive*, 1993

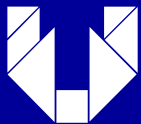


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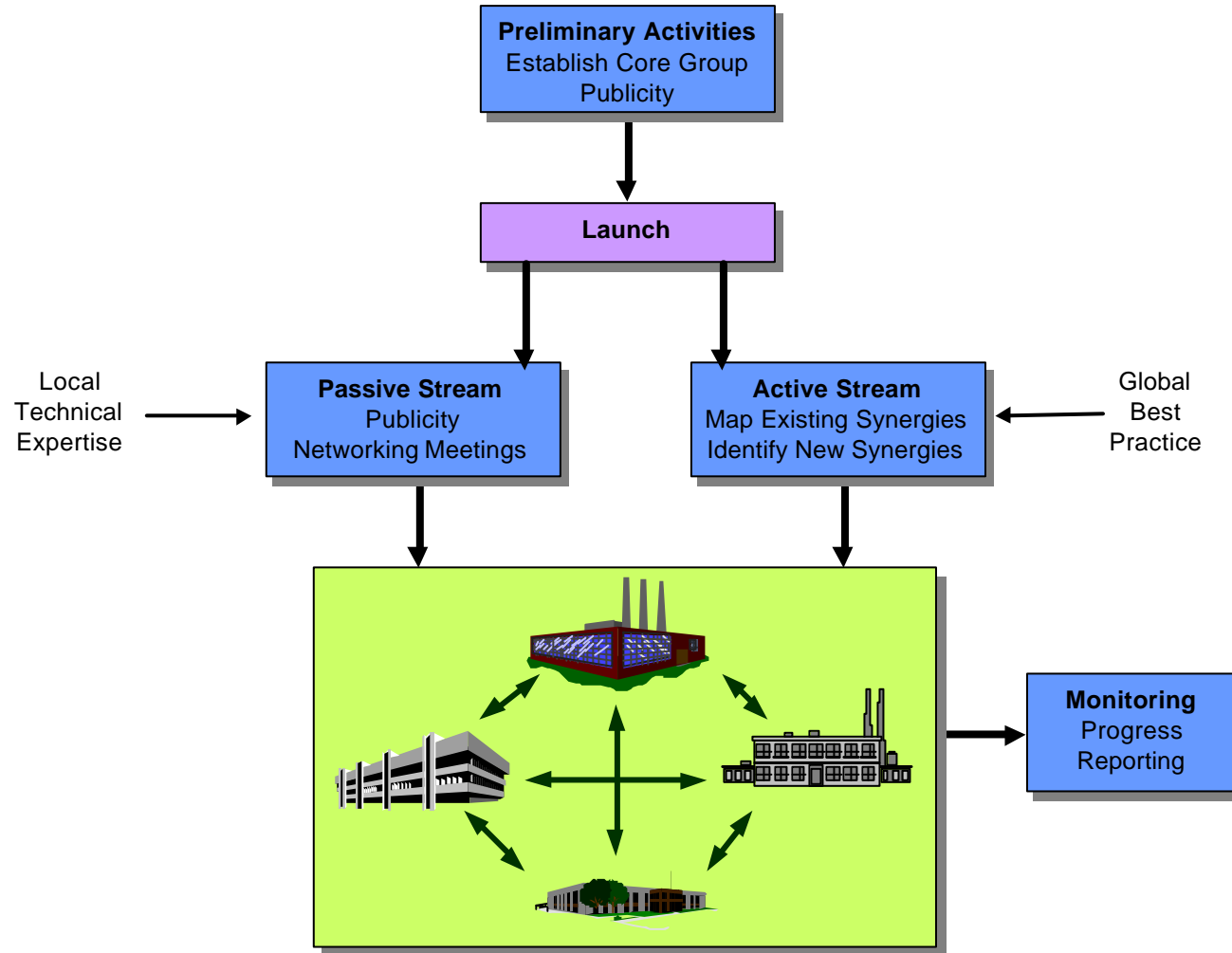
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Tees Valley Industrial Symbiosis Project (TVISP)



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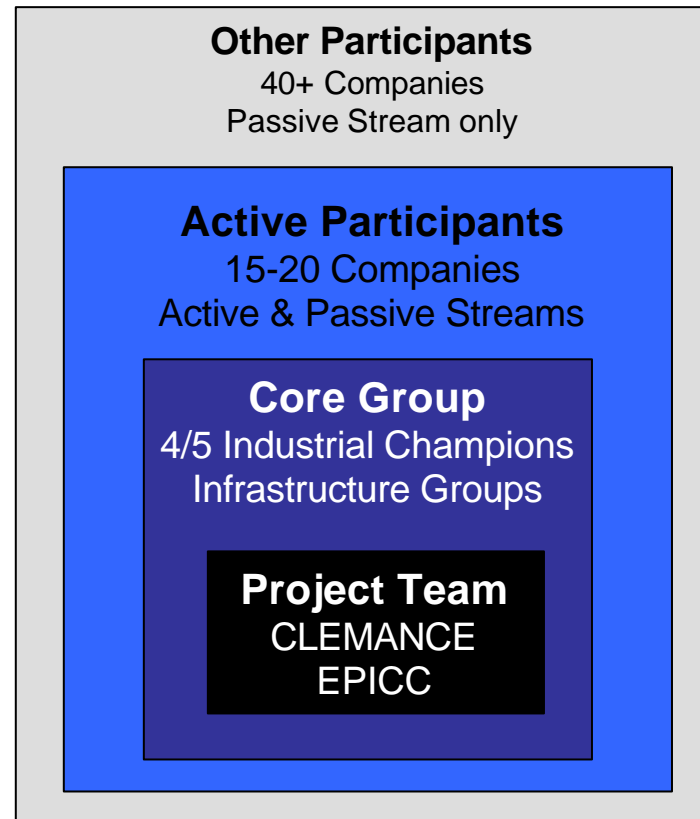
Strategy



Introduction to Industrial Symbiosis



Structure of TVISP





Added Value

- ◆ We have:
 - Time
 - No preconceptions
 - Independence
 - Wide range of contacts
 - Access to global best practice

- ◆ Benefits of facilitation have been proven
 - BCSD Examples on Merseyside, West Midlands, Gulf of Mexico
 - many new symbiotic links identified
 - Kalundborg companies invested \$60m, returned \$120m
 - have set up Symbiosis Institute

- ◆ Have already attracted interest



Commercial Issues

◆ Contractual Issues

- TVISP will point the way to symbioses
- The companies concerned will be left to do the necessary deals

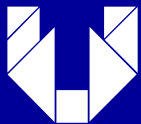
◆ Confidentiality

- Negotiating individual NDAs with so many companies will be impractical
- We will commit to maintaining confidentiality on data provided
- If this is insufficient for certain data then don't release it!
- However we do encourage openness

Project Funding

- ◆ **Renew Tees Valley Programme**
 - Fully funding TVISP for 2 years
 - Only cost to companies is in terms of time
 - Higher investment = more benefit

- ◆ **Post RTV**
 - subscription based funding
 - it pays to join up....!





Conclusions

- ◆ Industrial Symbiosis has the potential to be a major step towards regional sustainable development
 - The most effective project in the region?
- ◆ Economic and environmental benefits
 - Boosts economic flows of resources
 - Reduces flows of resources to/from environment