

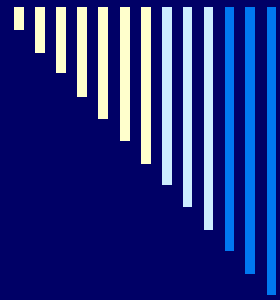


# The story of Verdal – how one intelligent community uses systems engineering to enable sustainable development



**Cecilia Haskins**  
**IS 2007**





# Presentation topics



- Motivation for change

- Background



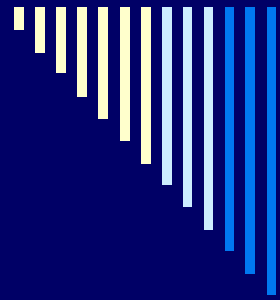
- iFACE – framework for process

- Sustainable communities



- Measuring movement toward sustainable community – Verdal, Norway

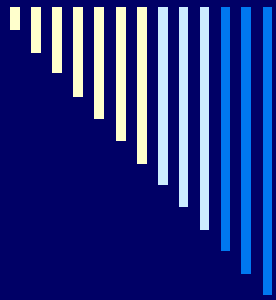
- Moving toward the future; patterns framework



# World in crisis – danger and opportunity



危机



# Sustainable supply chain



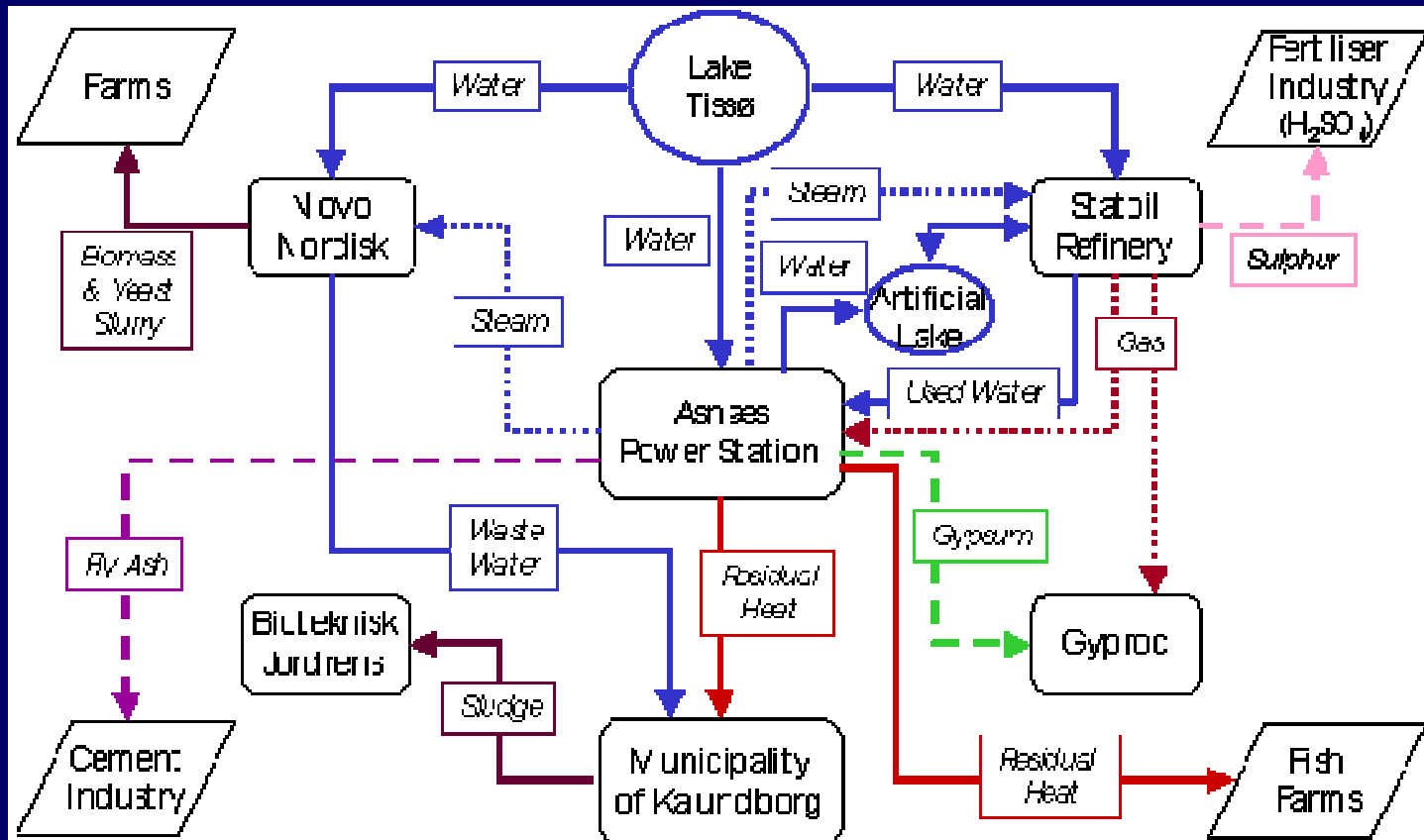
- A cradle to cradle concept of supply chain



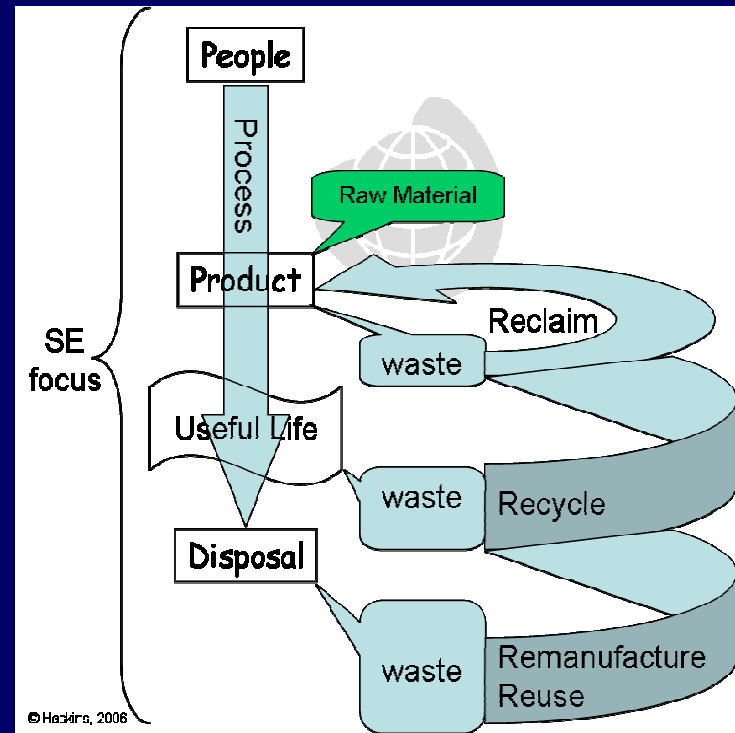
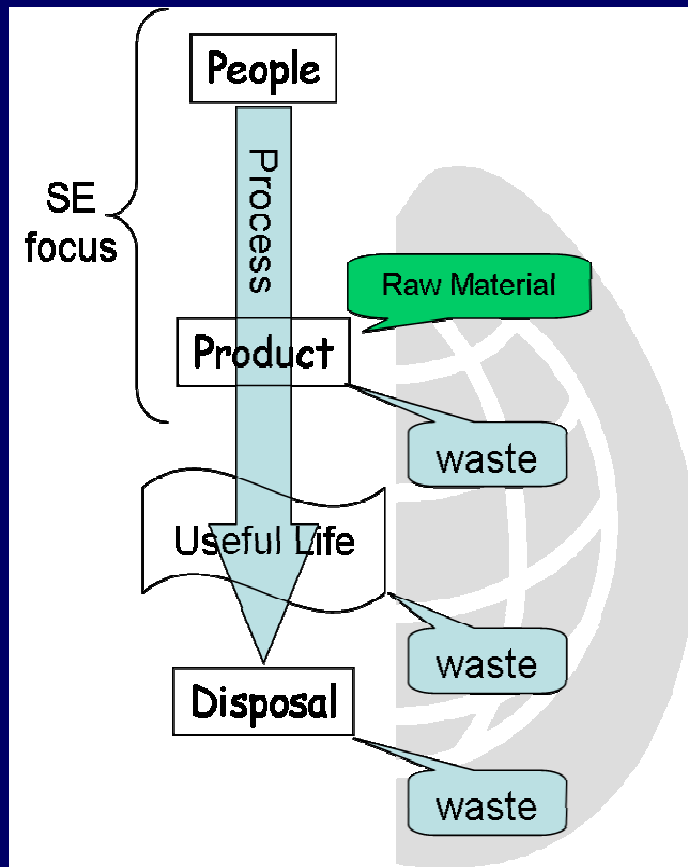
- Achieved through closed systems of collaborating enterprises
  - The waste of one is reused as the raw material input of the next
  - Industrial Ecosystems / Symbiosis
- Theory behind the eco-industrial parks



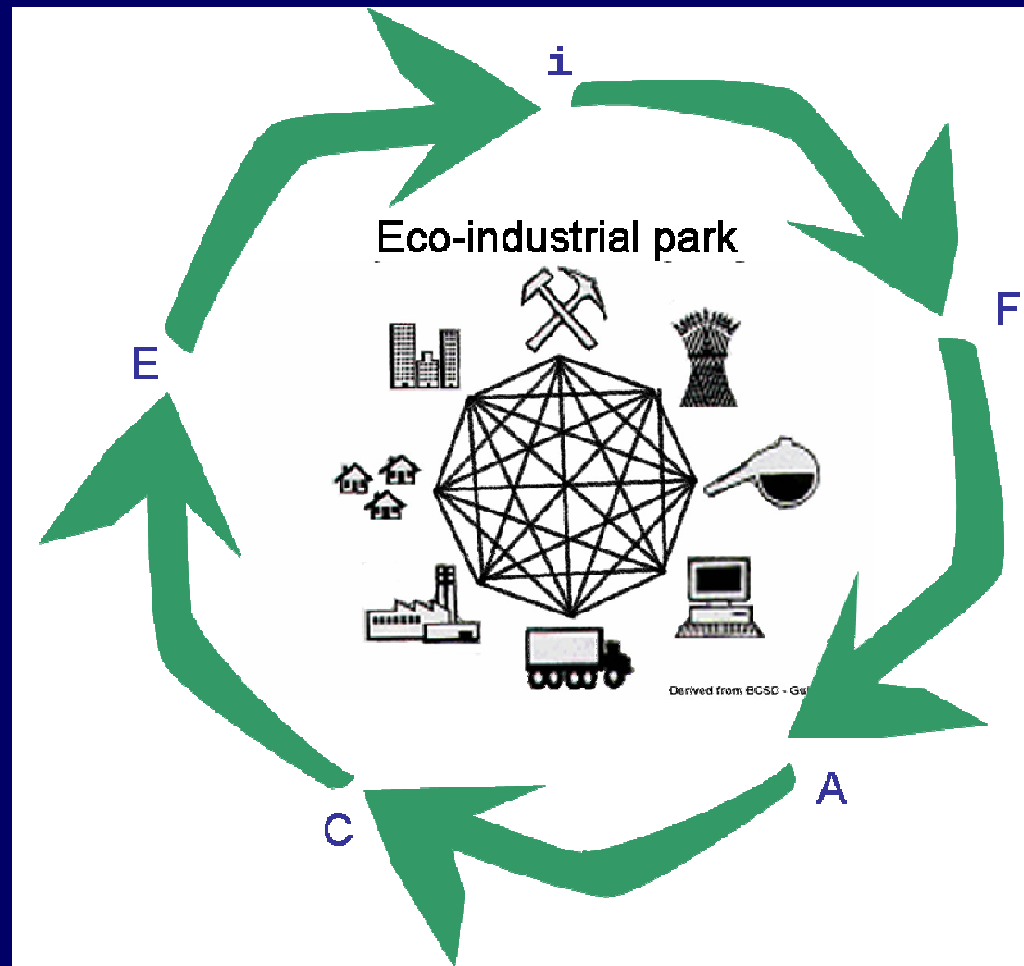
# The eco-park inspiration

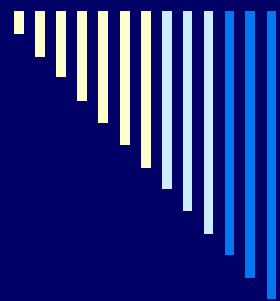


# AS IS – TO BE

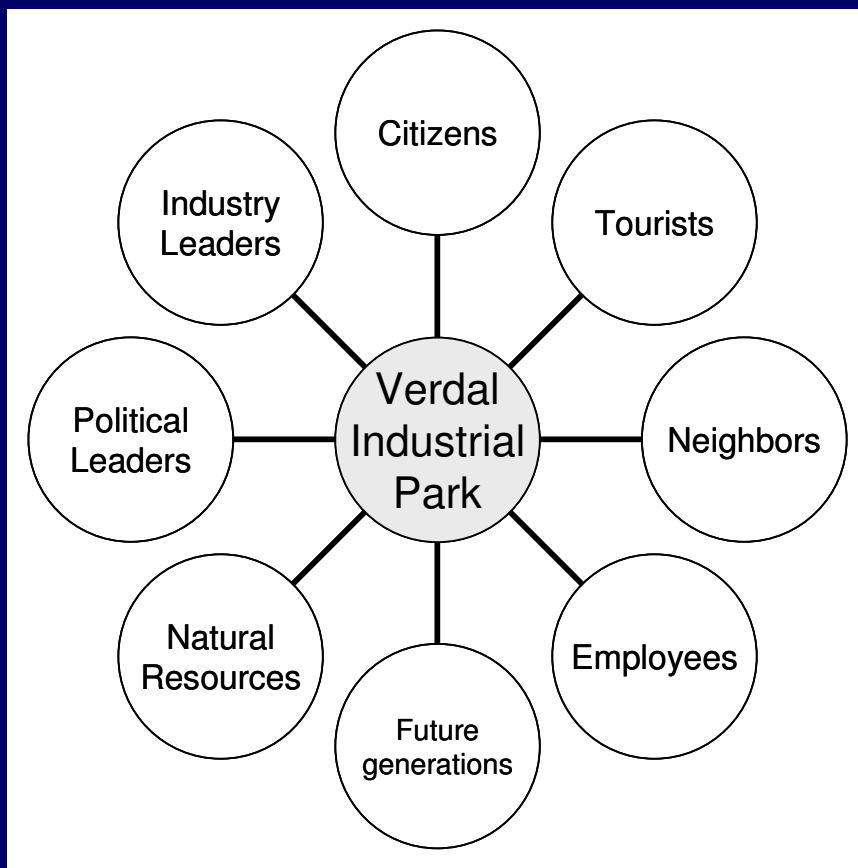


# iFACE – unifying framework





# VIP stakeholders



# Attributes of Sustainable Community



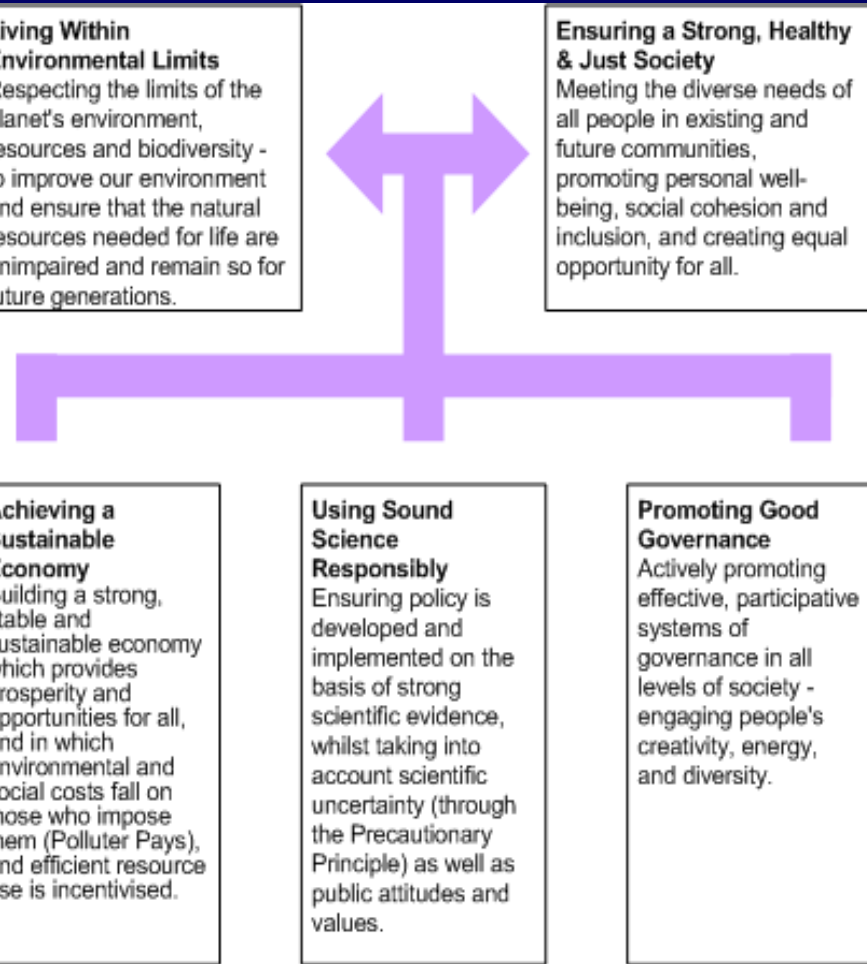
**Living Within Environmental Limits**  
Respecting the limits of the planet's environment, resources and biodiversity - to improve our environment and ensure that the natural resources needed for life are unimpaired and remain so for future generations.

**Ensuring a Strong, Healthy & Just Society**  
Meeting the diverse needs of all people in existing and future communities, promoting personal well-being, social cohesion and inclusion, and creating equal opportunity for all.

**Achieving a Sustainable Economy**  
Building a strong, stable and sustainable economy which provides prosperity and opportunities for all, and in which environmental and social costs fall on those who impose them (Polluter Pays), and efficient resource use is incentivised.

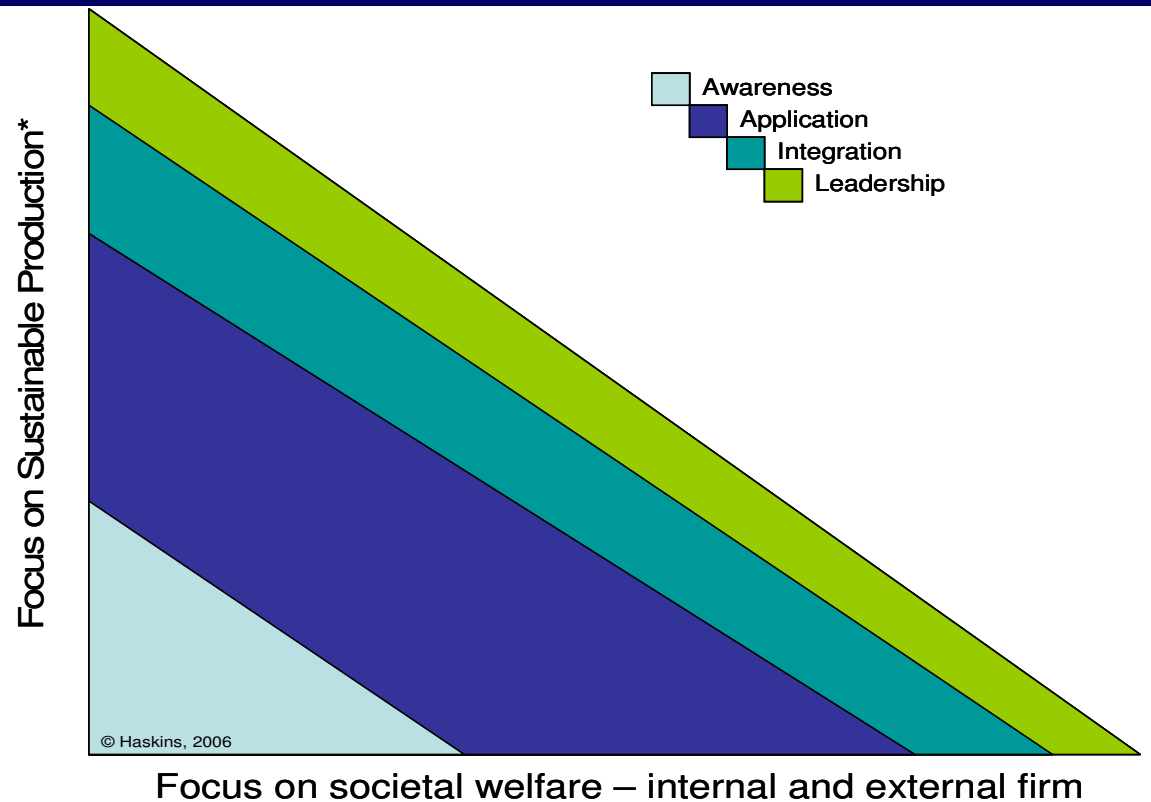
**Using Sound Science Responsibly**  
Ensuring policy is developed and implemented on the basis of strong scientific evidence, whilst taking into account scientific uncertainty (through the Precautionary Principle) as well as public attitudes and values.

**Promoting Good Governance**  
Actively promoting effective, participative systems of governance in all levels of society - engaging people's creativity, energy, and diversity.



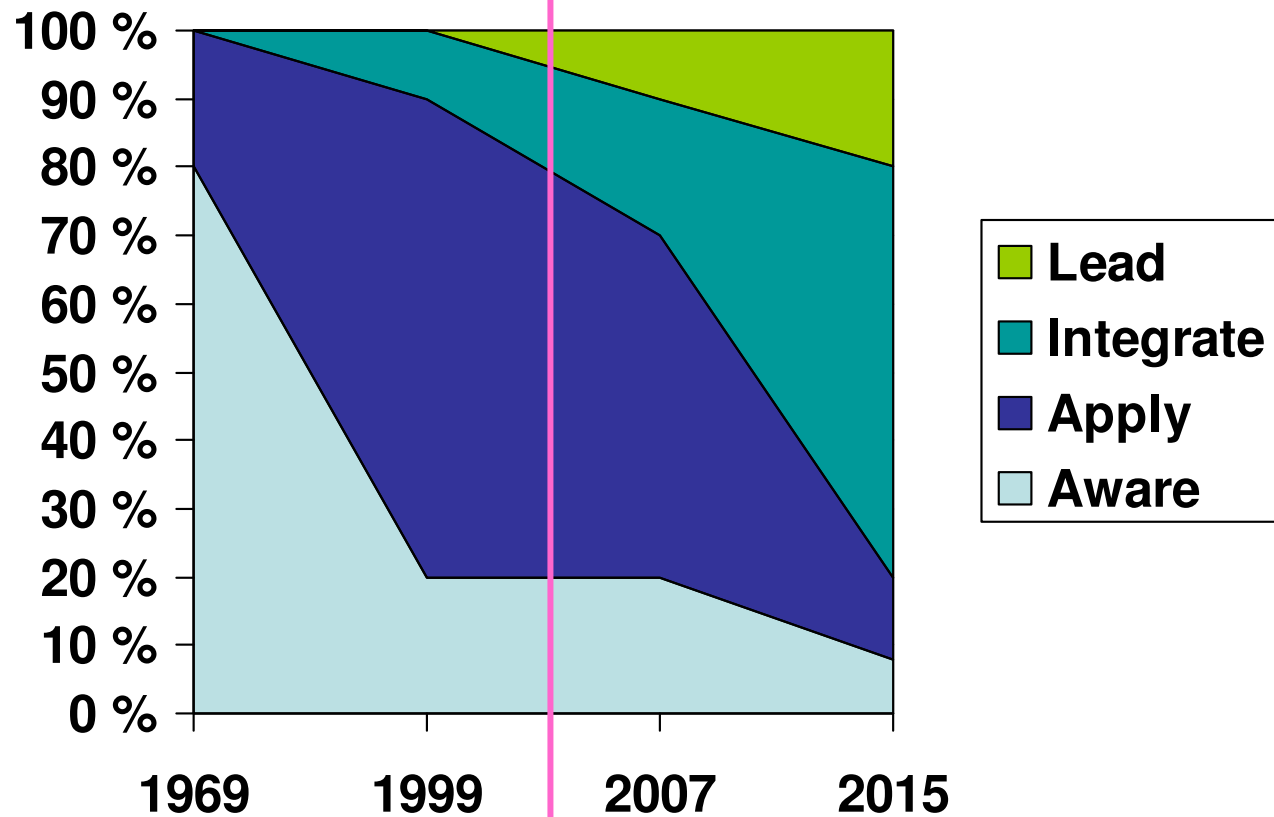
From UK-SD

# 4 phases of growth



\*Progression toward sustainable production = reducing Emissions and minimizing virgin Raw Material usage

# Case Study – Verdal, Norway





# Intelligent community - 1



## □ **Adaptability over legacy.**

- Traditions create identity but are insufficient to maintain future growth or prosperity
- New reliance on ability to adapt, to acquire new skills, and continue to make decisions that benefit all stakeholders



## Intelligent community - 2



### □ Skills over natural resources.

- Agricultural roots remain
- Favourable location attracted industry
- This built a workforce with strong mechanical and production skills
- Future competitiveness will be determined by the knowledge skills of people far more than proximity to natural resources



# Intelligent community - 3



## □ Innovation over location.

- Recognized center of innovation
- Verdal has proven that it is among the innovative communities. Now it must prove that it can adapt to change, find the opportunities that others may miss, and build sustainable prosperity.



# Verdal – Pattern framework

