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New Concepts for Future Industrial Parks – Do parks represent the answer to low carbon manufacture?

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Presentation at EFENIS &LOCIMAP joint event at Leverkusen

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New business models for Firms and Park Operators

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- The need new business models
- Park operators as facilitators

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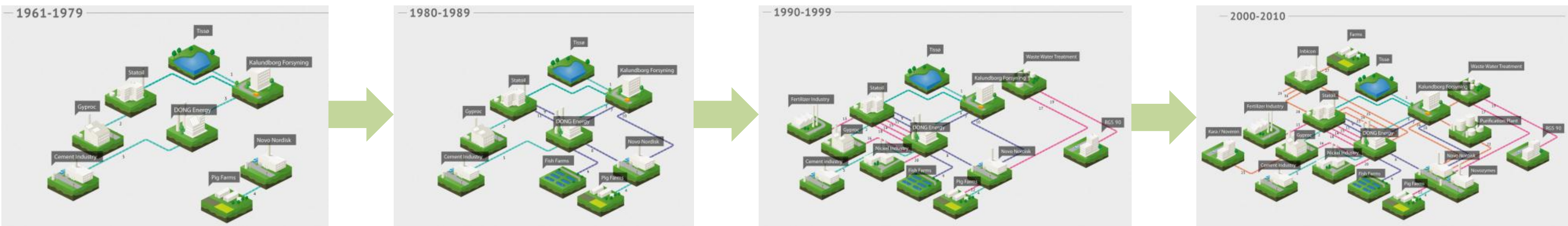
The need for new business models

Kalundborg Symbiosis
Diagram 1961-2010

1	Surface Water	1961	12	Yeast Slurry	1989	23	Waste	2004
2	Gas	1972	13	Sulfur Fertilizer	1990/2001	24	Sea Water	2007
3	Surface Water	1973	14	Tech. Water	1991	25	Steam	2009
4	Biomass/NovoGro	1976	15	Gas	1992	26	Condensate	2009
5	Fly Ash	1979	16	Gypsum	1993	27	Straw	2009
6	Heat	1980/89	17	Waste Water	1995	28	Bioethanol	2010
7	Heat	1981	18	Drain Water	1995	29	Lignin	2010
8	Steam	1982	19	Sludge	1998	30	C5/C6 sugars	2010
9	Steam	1982	20	Fly Ash	1999			
10	Surface Water	1987	21	Deionized Water	2002			
11	Cooling Water	1987	22	Water	2004			



- Spontaneous evolution
- Synergies identified usually by employees
- Firms performed feasibility studies
- Trust between partner firms

- What are the barriers?
- Do market forces suffice to initiate synergistic projects?
- What are the steps required to develop synergistic projects?

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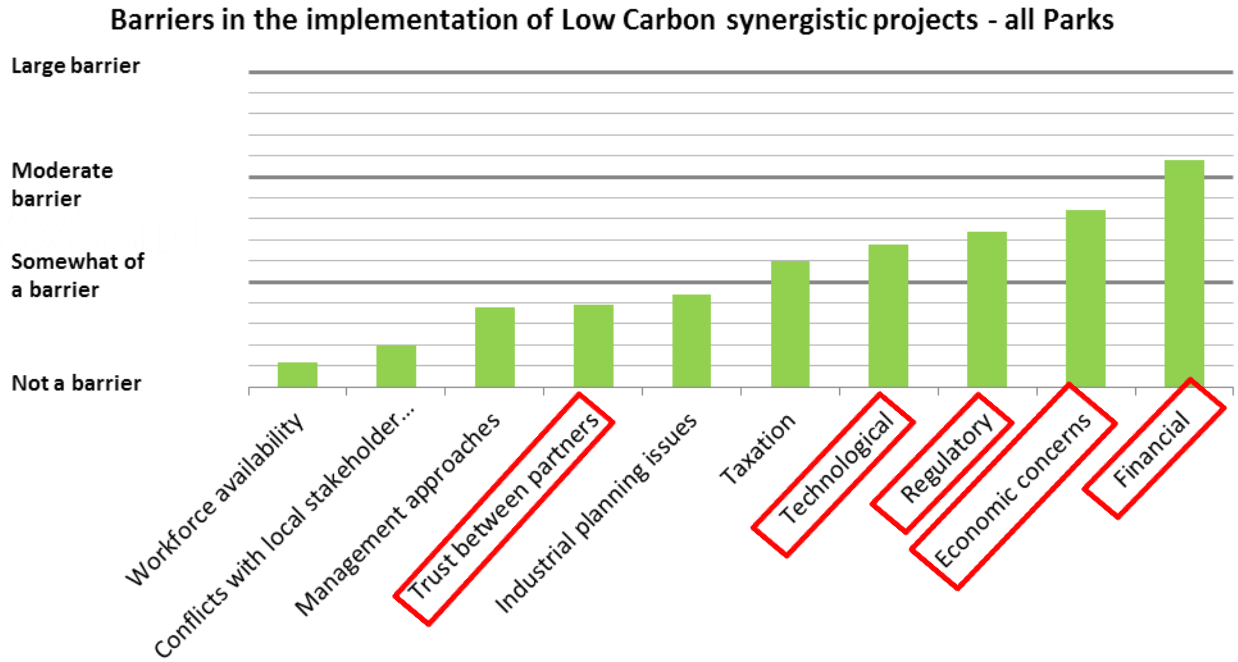
Which barriers exist?



*Firms are less keen to invest in low carbon projects because they have better ways to invest their money e.g in increasing capacity**

*Quote of a workshop participant during the 1st LOCIMAP meeting at Wilton site on July 10th 2013

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Steps of synergy* development in an organised manner

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1st step
Identification of opportunities

- Existing synergies
- Synergy database
- Company data
- On-site visits
- Workshops
- Employee ideas

1st step Facilitator

2nd step
Feasibility analysis

- Technical analysis
- Economic analysis
- Environmental analysis
- Regulatory analysis

2nd step Facilitator

3rd step
Implementation

- Business model
- Financing sources
- Design
- Construction
- Maintenance

3rd step Facilitator

Potential Facilitators:

- Research Institutes
- Industry Associations
- National bodies
- Private firms/consultants
- Park Operators
- etc

*Synergies refer to materials or energy exchange synergies between non-traditionally connected industries.

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Business model routes for synergistic projects

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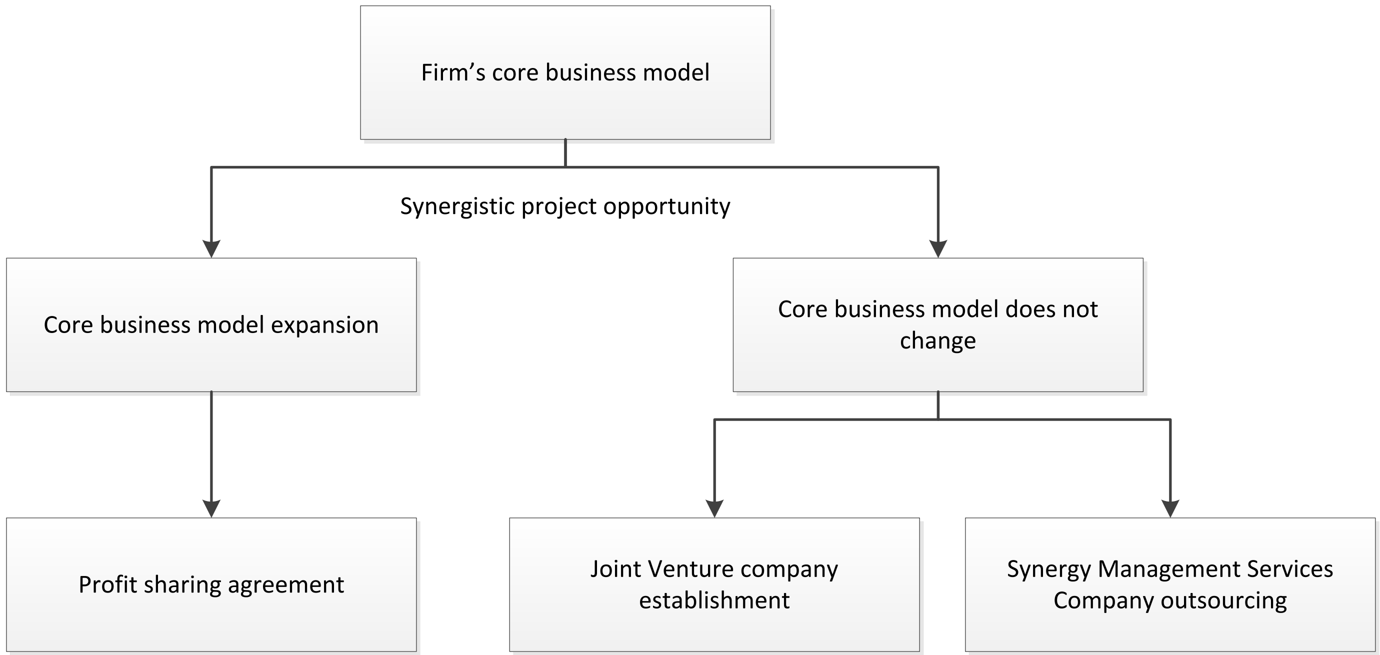

Focus on core business	–	+	+
Capital needs	–	–	+
Transaction costs	–	–	+
Trust issues	–	+	+

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Conclusions

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- LOCIMAPs require new approaches in terms of synergy development and business models.
- Development of synergies in an organised manner requires a facilitator or a set of facilitators involved in a three-step process.
- Firms can follow different business model routes when implementing synergistic projects depending on various parameters.
- There is an opportunity Park operators to take the lead and act as facilitators in all three steps of synergistic projects. Most important, they can expand their business model in offering Synergy Management Services.

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