

# Sustainability scanning of eco-industrial parks

*Greet Van Eetvelde\**, *Katelijne Deridder*, *Stijn Segers*, *Tom Maes\**, *Maarten Crivits\**

University Ghent, Department of Civil Engineering,

Environmental and Spatial Management; Poel 16, B-9000 GENT

\*Corresponding authors: [mrb@ugent.be](mailto:mrb@ugent.be); tel. +3292648213; fax ~8390

## Abstract

Clustering industrial activities proves to be an excellent lever for redirecting companies towards corporate social responsibility. Though it could be discussed whether the concept of industrial clusters itself is apt to foster sustainability, there is consensus that business parks should be overall managed from a triple bottom line perspective. Eco-industrial parks represent a mere accumulation of individual firms engaged in sustainable entrepreneurship. Yet they can also be considered as a matrix for synergetic effects, since they yield the opportunity to embark the hosted companies in activities that create higher win-win situations than solo-activities ever can. Hence, interfirm clustering is considered as a high potential concept, although it needs to be established within a strong and managerial organisation and it requires scrutiny from various points of view. Far too often cooperative activities fail due to legal inconveniences that entail disagreement and dispute. Moreover, no joint activity proves to be viable if it doesn't cause financial profit. Spatial care, technical feasibility of cluster projects and stakeholder management complete the angular points of the scrutiny and, for nearly 5 years, nourish the multidisciplinary research of interfirm collaboration.

This paper presents a conceptual framework to analyse and evaluate joint projects of business clusters. Through a pentagonal inquiry, a SWOT-analysis of the cluster activities is made from a legal, economic, spatial, technical and social (LESTS) perspective. Pondering the ecology (environmental), quality and comfort (human) and business (economic) outcome. The scanning method is tested on a variety of industrial sites, from newly developed business parks over settled industrial clusters to harbour communities. The scans clearly demonstrate the potential to corporate sustainability, based upon the sec interfirm relations, as well as the actual status of the sustainability process in all five angular points.

The method is proven to be simple and accurate in revealing determinants, partly contingent in nature, that outline the double-scans. The intercept between potential and actual status indicates the progress of business parks evolving to sustainable terrains. By merging the determinant factors with the angular intercepts, the scope of future activities can be set out. The span of activities is either broadened in total number of cluster projects or adequately dispersed over the five cluster poles.

# Sustainability scanning of eco-industrial parks

**Keywords:** sustainability scan, CSR, business clusters, eco-industrial parks (EIP), interfirm collaboration (IFC), LESTS, PPP

## Sustainable business parks

Eco-industrial parks aim at fostering a win-win situation for neighbouring or cascade companies by means of a joint approach of ecology, comfort and quality related actions. Spatial care, shared commuting, exchange of rest products, supportive services, etc. are typical examples of activities that profit from a common organisation. Moreover, clustering industrial activities can be considered as a leverage for encouraging companies towards economic, ecological and social receptiveness, and hence redirecting them towards corporate social responsibility (CSR; Holme and Watts, 1999).

## *IFC versus EIP*

Though it can well be rationalised that *interfirm collaboration (IFC)* as such is not a satisfactory criterion for designating sustainability, it is understood that the mechanisms of the collaboration process are inductive towards fulfilling the PPP goal setting (People-Planet-Profit; Elkington, 1997) on a cross border level.

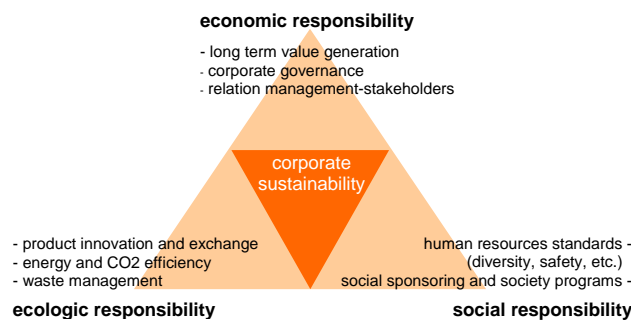


Figure 1: Corporate sustainability in a PPP-triangle

Hence, interfirm clustering serves as a blueprint for (re)directing companies towards economic, ecological and social sustainability. Industrial clusters can be considered as a matrix for synergetic effects, since they yield the opportunity to embark the hosted companies in activities that create higher win-win situations than solo-activities ever can. The rationale of an industrial cluster is indeed echoed in the business relations that are established and that venture durability. Cohesion between firms gradually exceeds rivalry (Van Eetvelde *et al.*, 2004).

## Coopetition and co-option

When cooperation and competition fuse due to a common interest, *coopetition* is often used as a contraction term (Bengtsson en Kock, 2000). Luo (2006) outlines seven reasons for coopetition and, as a consequence, for interfirm collaboration endeavouring eco-industrial clustering:

- (1) reduction of general costs (production, organisation, raw materials, transport, ...);
- (2) improvement of product quality and service;
- (3) exchange of knowledge and technology;
- (4) reduction of costs, risks and uncertainties that go paired with innovation or new products;
- (5) time saving in view of efficiency increases, quality control or product innovation;
- (6) addition of critical weight to joint interests versus external stakeholders (e.g. authorities), to reinforce a market position, to win a battle over technological standards, etc.;
- (7) larger strategic flexibility with respect to pure competition and pure cooperation.

Ma (2004) adds *co-option*, next to creation and innovation, to the determinants of competitive advantage in global competition. From an interfirm point of view, the co-option determinant is sustained since it indicates the taken opportunity of collaboration with each potential firm and stakeholder within the boundaries of a cluster activity. Evidently IFC is considered a creative and innovative way to cope with common businesses.

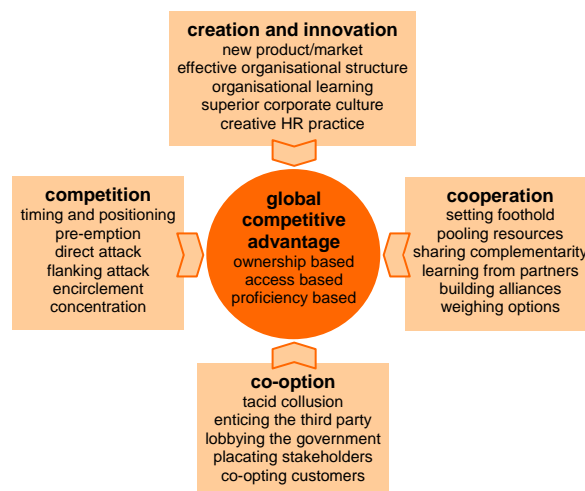


Figure 2: Global competition model by H. Ma (2004)

Hence IFC is considered as a high potential concept, although it needs to be established within a strong and managerial organisation, as observed with *eco-industrial parks* (Van Eetvelde *et al.*, 2005 - economic), prior to enabling sustainability labelling.

## Eco-industrial parks

According to Lowe *et al.* (2001) *'an eco-industrial park or estate is a community of manufacturing and service businesses located together on a common property. Member businesses seek enhanced environmental, economic, and social performance through collaboration in managing environmental and resource issues. By working together, the community of businesses seeks a collective benefit that is greater than the sum of individual benefits each company would realise by only optimising its individual performance.'*

Likewise, EIP can be defined according to the network theory of Inkpen and Tsang (2005). In their discussion, they adopt the concept of a strategic network from Brown & Hendry (1998), defined as *'a network comprising independent firms operating in the same or related market segments and a shared geographic locality, benefiting from external economies of scale and scope from agglomeration'*.

The experience tends to subscribe the above definitions, yet it must be stated that business clusters are not bound to the geographical constriction of being located on a common property (Van Eetvelde *et al.*, 2005 - spatial). Contrary to IFC, EIP intrinsically focus on physical areas and are therefore mainly restricted to local industrial sites. For simplification reasons, however, this paper too deals with local industrial parks and thus with geographically clustered businesses.

The goal of an EIP again is found in the handbook of Lowe (2001): it is *'to improve the economic performance of the participating companies while minimising their environmental impacts. Components of this approach include green design of park infrastructure and plants (new or retrofitted); cleaner production, pollution prevention; energy efficiency; and inter-company partnering. An EIP also seeks benefits for neighbouring communities to assure that the net impact of its development is positive.'*

It is explicit that EIP represent more than an accumulation of individual firms that collaborate; they are engaged in corporate sustainable entrepreneurship and require a managerial tactic on group level.

## *Managing business clusters*

The strength of an eco-industrial cluster is correlated with the executive authority of the umbrella management structure that embodies the collaboration activities (Van Eetvelde *et al.*, 2005 - legal). This doesn't imply the prerequisite of a formal coordinating partnership, yet when it is established, the embedding of a park management entity is factual. In that case, a

leverage is present for alternative thinking, for corporate action, for durable initiatives. Time and space prevail over term settlements and company borders. Corporate reasoning widens organisational angles, creates new opportunities and merges relations. As said by Wallner (1999), *'the most critical innovation of the industrial ecology concept is the level of inter-enterprise cooperation. It is not the single element of the production system, the company, that is the subject of analysis, but the network of region-wide settled enterprises for which a spatial proximity can be defined.'*

A specific role is reserved for the park manager. Irrespective of his functional position (terrain developer, park owner, partnership director, external consultant, ...), he is the driving force for collaboration initiatives and has a key function in the sustainability inclination of the business clusters (Van Eetvelde *et al.*, 2005 - economic).

From this point of view, the park management executive –structure or person– brings into play the principles of a catalysing process towards sustainable site development.

Three main principles can be discerned.

- (1) Interfirm collaboration creates external economies of scope and scale that augment the *cost efficiency* and increase *organisational efficiency* (Gordon and McCann (2000); Luo (2006)).
- (2) *Knowledge interaction* yields social capital that, depending on the quality and strength of the interaction, can be validated by other firms. In this context, Guiliani (2005) is quoted, arguing that *'the dynamic growth of a cluster depends on its absorptive capacity and therefore on the capacity of firms to absorb external knowledge and diffuse it into an extra-cluster knowledge system'*. She builds the principle theory on trendsetting research from Morosini (2004), though in this context Putnam (1993) is to be referred to as well.
- (3) Due to the geographical proximity of clustering, *spatial and image quality* of an industrial site is gaining interest. Devries (1998) and Wijnker and Doorackers (1998) state that the main objective of park management is to avoid financially exhausting revitalisation by sustaining the overall spatial quality. An indirect economic advantage is that, accordingly, the real estate value is maintained.

The three principles are interrelated: professional deals are made through a knowledge exchange process and qualitative knowledge is partly gained from efficient organisational and prospective site related measures.

It is believed that a structural park management can anticipate, even prevent, the expected infrastructural downfall on an industrial site (De Vries, 1998). A cross-border company policy,

based upon interaction with adjacent companies, is valuable for the site-wide working climate. Even the site stakeholders, including neighbours, profit from the shared approach of business clusters.

The above principles may guide the park management entity in motivating and coaching the firms involved in the collaboration activities towards win-win scenarios for environmental, human wellbeing and spatial-economic themes. Park management indeed exceeds time and space boundaries and hence contributes to the sustainable development of industrial sites.

Figure 3 illustrates the flow of principles leveraging towards a perceptible sustainable impact.

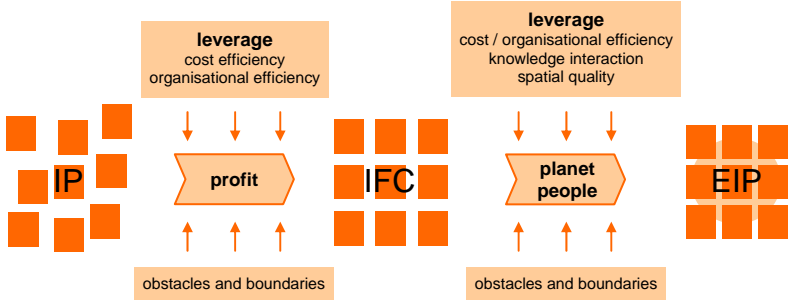


Figure 3: Managing industrial parks towards sustainability

In this chain, people management is found to be the ultimate step. Denoted as *corporate social sustainability*, it is referred to as a concept that merges time and space through durable social relations. By working out these relations in a time path, a blueprint of an EIP is created incorporating human next to environmental and spatial (plus economic) quality.

As to summarise, the concept of industrial clusters –thus IFC sensu stricto– is not regarded as an evidence of sustainability, yet it is believed apt to foster sustainable collaboration. Clustering is considered as an initiation of corporate responsibility. EIP, though, are situated in the second half of the sustainability chain; mature EIP are overall managed from a triple bottom line perspective.

*Cluster activities*

Some examples ratify the potential of managing cluster initiatives from a long-term and cross-border point of view (Van Eetvelde *et al.*, 2005 - technical).

- The collective approach of spatial planning, land issuing and terrain management not only permits a shared, efficient and careful use of space (spatial quality), it also loads the land

owners and plant managers with rules that incorporate sustainability principles and thus guarantees a time and space awareness concerning the entire business park. It may induce f.i. the emphasis on green appreciation and the integration of the park concept in the (rural or urban) neighbourhood. Subterranean and shared car parks, height construction, etc. are typical examples of efficient industrial land use.

- Physical clustering of chain businesses, such as supply companies, can cut down freight transport. Moreover it can inspire personnel mobility measures, e.g. through a (multimodal) commuting policy.
- A demarcating and collective management of product supply and waste zones facilitates construction and organisation measures, reduces the input of material and minimises nuisance.
- Shared waste water purification, water reduction initiatives, emergency water supplies, etc. yield rational economic and environmental benefits.
- Outlining a site-wide competence profile of human resources can maximise the supply-demand curve of the individual companies, given an adequate interfirm coordination.
- The establishment of a legal partnership ascertains the fulfilment of engagements, either spatial or technical, but even social. Legal instruments such as resale clauses, cost ventilation contracts, etc. strengthen the commitments.

The non-exhaustive list of examples illustrates the vast amount of potential cluster activities. In general, all types of *non-core businesses* exhibit a clustering potential, from standard reporting (mobility) and impact studies (environment) over common services (maintenance, surveillance) to shared exploitation (common on-site infrastructure and facilities). In each case, the rationale should align with the concept mechanisms of the initiative.

The activities urge a management approach within a wide space and time framework when durable perspectives are attempted, though it is admitted that simple collaboration forms such as IFC can equally create synergies and induce cost reductions (Van Eetvelde *et al.*, 2005 - legal). Here a two-step approach is revealed, enabling interfirm clustering to mature to eco-industrial clustering. Yet it has to be stressed that the actual status of IFC, and in the long run of the ventured sustainability, exceeds purely formal engagements (with evident theoretical advantages). It depends on the scope and intensity of each cluster activity, on a given terrain, with the given immanent and contextual boundaries. There is no ready-to-use concept for business parks, so an umbrella managerial structure is worth establishing.



## Sustainability framework

This paper presents a conceptual framework in order to analyse and evaluate joint projects of business clusters. After setting boundaries, a pentagonal inquiry is outlined, resulting in a SWOT-analysis of cluster activities from a legal, economic, spatial, technical and social (LESTS) point of view. Assessing the PPP-impact as related to time and space, a sustainability scan is aimed at.

### *Setting boundaries*

A significant discrepancy is elucidated between the aspired adoption of concepts such as sustainable development and the economic and societal reality that business parks exhibit. Labels alluding to sustainability or quality are subject to a (trendy) terminological magnetism. Although the opportunities gained from IFC can result in EIP, it should be clear that only activities, clearly portretted in the *PPP-triangle*, add to the sustainability profile of an industrial site.

Likewise it is repeated that the managerial umbrella structure cannot be regarded as being part of the core businesses of the hosted companies. This narrows down the working area of a park manager to –mainly– *outsourced activities* and puts the umbrella structure in a competitive position to 'home' consultants and service businesses of each company involved.

Consequently, a set of boundaries in the IFC and EIP discussion is reviewed, originating from three angles:

- (1) the (inter)subjective element;
- (2) the physical site context;
- (3) and the organisational structure.

The first boundary –*the (inter)subjective element*– stipulates what Gibbs (2003) refers to as 'soft infrastructures', based on Storper (1997). Trust, reciprocal relations, a mentality of cooperative thinking, etc. is the basis of all interfirm collaboration. Soft infrastructures are intra-personal and are value orientated; therefore they are not suitable for conceptualisation. Gordon and Mc Cann (2000) stress the economic importance of this immaterial, subjective space: *'All economic relations, even the "pure" market relations of the agglomeration model, are socially embedded in the sense that these depend on norms, institutions and sets of assumptions shared among a group of actors, and are not in themselves simply the outcome of economic decisions.'*



The diverging interest of all actors (companies, park managers, intermediary organisations, authorities, ngo, etc.), the leading mentality (social convention) towards clustering and sustainability, the enthusiasm and experience of the initiators and supportive actors or facilitators all entail specific sensitivities to be considered. The (inter)subjective element has direct relevance to the concept of critical mass, i.e. the crucial amount of actors needed to initiate and/or pull a cluster project.

The second boundary –*the physical context*– includes a variety of obstacles and constraints related to the factual context of the industrial site (Van Eetvelde *et al.*, 2004), such as:

- the status of the industrial zone (private, public or a combined public-private structure);
- the age of the park (new or existing);
- the quality of the infrastructure;
- the type of industrial activity;
- the size of the companies;
- the number of companies (including joining and leaving parties);
- the economic balance of the companies and their budgetary means;
- disclosure parameters and various regulatory barriers.

This type of boundaries is case dependent and thus has to be considered case by case. It is accentuated that the constraints imply an indelible factor of uncertainty.

The third boundary –*the organisational structure*– focuses on the managerial context of the cluster activities (Van Eetvelde *et al.*, 2005 - legal). The outline below itemises some conditions and complications related to the organisation of IFC on industrial sites:

- type of umbrella structure;
- transparency and accountability;
- administrative costs;
- cost ventilation method;
- financial support;
- assistance of experts (structural or project based);
- communication network (nature and type of knowledge interaction);
- rise and fall of enthusiasm;
- decision-making process;
- free rider behaviour;
- stakeholder management;
- professional secrecy;
- timeline of the collaboration (exclusive, periodic, continual);
- ...

In reality this not-exhaustive list of organisational aspects only bears relevance when it is considered in relation to a specific cluster package and in particular to the wish, need or duty to create a business cluster.

Aware of the boundary settings and building on growing field experience, it was aimed at to develop a conceptual framework in order to analyse and evaluate joint projects of business clusters from a multidisciplinary perspective.

### *LESTS concept versus IFC*

In search for a tool to visualise the type of interfirm collaboration, the LESTS concept was established from a pentagonal academic perspective.

- (L) From experience it was learned that cooperative actions on industrial sites profit from a contract based commitment as opposed to an open (often personal) engagement. It was observed that repeatedly cooperative activities fail due to legal inconveniences that entail disagreement and dispute. Hence the *legal perspective* was instigated, extending to the study of formal partnerships that meet the basic requirements of interfirm collaboration. An umbrella structure is thought to offer a legal framework that provides companies with the assurance and transparency cluster actions ask for, especially concerning financial input, allocation of people and means and specification of tasks and responsibilities (Van Eetvelde *et al.*, 2005 - legal).
- (E) Basically, no joint activity is proven viable if it doesn't cause financial profit. The heave of a succesful cooperative action is precisely the win it creates in economic terms. Without discussion, the *economic perspective* is fundamental in the eco-industrial approach. Complementary is the economic rationale for neighbouring companies to participate in a cluster project (Van Eetvelde *et al.*, 2005 - economic).
- (S) Spatial care, either locally or from a regional planning point of view, is a main quality parameter of industrial sites. Leasing or selling land adds to sustainability debate since legal clauses are required to secure good property-keeping practices. Hence the *spatial perspective* of IFC and, even more, of EIP is proven valuable (Van Eetvelde *et al.*, 2005 - spatial).
- (T) No cluster project is set-up without a thorough analysis of its techn(olog)ical feasibility. Here BATNEEC principles are followed, thus contributing to the ecologic-economic balance of implementation measures. The *technical perspective* is therefore considered as a go / no go lever for cluster activities (Van Eetvelde *et al.*, 2005 - technical).
- (S) Finally, the stakeholders view is proven ponderous as concerned to individual versus collective business actions. The interaction with employees, local environment and

business partners represents the *social perspective* of interfirm collaboration. It is seized as an essential factor when engaging in collaboration projects. This fifth point of view is currently investigated by the University Ghent research group.

The above reasoning makes up the angular points of the (academic) scrutiny that for nearly five years nourish the multidisciplinary research of interfirm collaboration.

From the LESTS perspectives, a pentagonal inquiry is developed aiming at a SWOT-analysis of business clusters and eco-industrial sites. The investigation tool attempts at evaluating the organisational input of IFC, whilst examining contextual aspects too. The tool is managed as a multitheme checklist, rolled out in ca. 100 questions to be answered by the park developer or manager. The main themes and subthemes involve:

- (1) Identification of the cluster or site
- (2) General site information
  - a. Site history
  - b. Physical properties
  - c. Regional relevance
- (3) Land division
  - a. Spatial planning instruments
  - b. Interaction with sustainability parameters
- (4) Land issuing
  - a. Leasing or selling conditions
  - b. Building prescriptions
  - c. Interaction with sustainability parameters
- (5) Park management
  - a. Construction of partnerships
  - b. Managerial approach
  - c. Interaction with corporate social responsibility
- (6) Communication strategy
  - a. Interfirm networking
  - b. Stakeholder management
- (7) Cluster activities
  - a. Mobility management
  - b. Facility management
  - c. Utility management
  - d. Environmental, safety and quality management
  - e. Human resources management

Upon collection, the investigation results are transposed through a matrix system to proportional LESTS scores, yielding IFC-scans as shown below (figure 4).

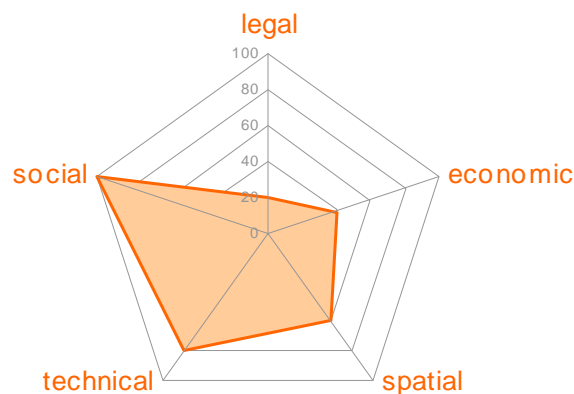


Figure 4: Example of the LESTS-IFC scan.

Depending on the surface area of the colored pentagon, an indication is gained of the interfirm collaboration on an industrial site. The higher the proportional score in one of the five research domains, the better a site performs in this area.

- A high legal score indicates a formal partnership, strong CSR clauses in the memorandum of the umbrella structure and settled dealings between the companies involved.
- A high economic score points to an established park management with a long-term strategy, a high participation rate, membership rules, a strong CSR orientation and numerous cluster activities with differing cost ventilation mechanisms.
- A high spatial score guarantees spatial care such as efficient land use, multipurpose facility usage, chaining and pooling business and personnel demands, green embedding, etc.
- A high technical score designates industrial ecology / eco-efficiency / safety and quality measures on a business park level through numerous clusters of varying interfirm collaboration activities with a supporting team of experts.
- A high social score signifies a strong and perspective stakeholder approach, diversity measures, interaction of personnel and neighbourhood support services, etc.

From the IFC-scan it can be derived which type of cluster activities demands further exploration and/or implementation in order to balance the overall score. In other words a SWOT-analysis is obtained, indicating strengths and weaknesses and thus inducing opportunities and, to al lesser extent, potential threats. Yet no clear view of the sustainability performance of the business clusters is obtained.

### *LESTS concept versus EIP*

Beside the listed themes and subthemes in the checklist, the inquiry is interlarded with self evaluation questions soliciting the wish, need or duty to cooperate in a certain IFC activity and seeking the PPP motivation behind the activity. Whereas the pure LESTS inquiry is primarily a pragmatic tool, the embedded self assessment questions yield valuable information on the sustainability inclination of the cluster activities and, in consequence, on the stage of the IFC-to-EIP process.

The evaluation method is based on the appreciation of a cluster activity towards the people-planet-profit benefit it yields. Pondering the ecology (environmental), quality and comfort (human) and business (economic) outcome on a time and space scale, an indicative sustainability scan is obtained. The PPP-pentagonal EIP-core that is obtained is likely to fall within the borders of the IFC-pentagon.

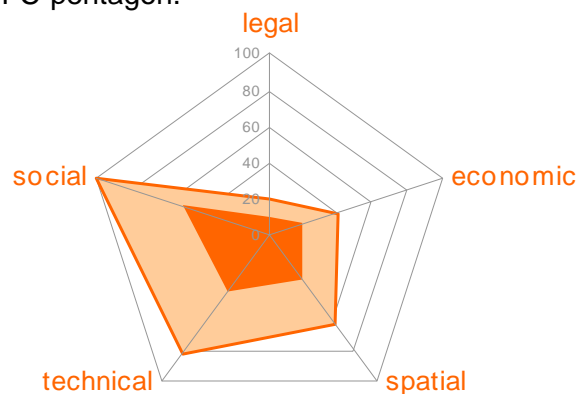


Figure 5: Example of the double LESTS-IFC-EIP scan.

As shown in figure 5 the double-scan demonstrates the momentaneous *potential* (light area) to corporate sustainability, bordered by the interfirm relations, as well as the *actual* (dark area) status of the sustainability process in all five discipline angles. This actual sustainability profile can be regarded as the genuine PPP heart of a business cluster.

The method is proven to be simple and accurate in revealing determinants, partly contingent in nature, that outline the double-scans. The intercept between potential and actual status indicates the prospective of business parks in their growth to sustainable terrains. By merging the determinant factors with the angular intercepts, the scope of future activities can be set out. Here, the strengths and weaknesses of the IFC SWOT-analysis are highlighted from a sustainability process point of view. Accordingly, the span of activities is either broadened in total number of cluster projects or is adequately dispersed over the five cluster poles, specifically focusing on sustainability oriented actions.

## Park management scanning

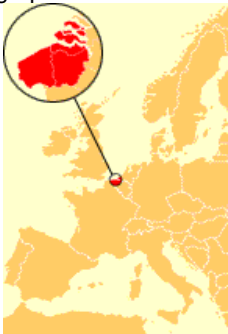


The scanning method is tested on a variety of industrial sites, from newly developed business parks over settled industrial clusters to harbour communities. From the research project 'Business park management' (BPM), examining business clusters and introducing park management on existing industrial sites in the Flemish-Dutch euregio, two sites were adopted for pilot testing of the LESTS scan concept.

### Profile of Drongen I and Zuid

The profile of the pilot sites is outlined in tables 1 and 2, focusing on their 2007 status. Figures 6 and 7 show the exact location of both pilot sites.

In table 1 Drongen I and Zuid are geographically and regionally situated; the establishment of an umbrella organisation is indicated and the focus on spatial planning and land issuing is marked; the presence of a vision and mission statement on a site-wide level is specified, whether or not embedded in the managerial structure.

Table 1: Situational and managerial context of the pilot sites.

|  | Drongen I (DI)   | Zuid (Z)   |
|--|--|--|
| <b>Situation</b><br>Geographical location<br> |  <p>Figure 6: Location of Drongen I (* entering Zeeland)<br/>DI is located next to the E40 highway, south-west of Ghent, East-Flanders, Belgium</p> |  <p>Figure 7: Location of Zuid (* entering Flanders)<br/>Z is located in Zierikzee, Schouwen Duiveland, Zeeland, the Netherlands</p> |
| Regional identification  | <ul style="list-style-type: none"> <li>- 55 ha, mixed regional site</li> <li>- 64 companies, ± 2000 employees</li> <li>- production plants, logistic enterprises and service firms</li> </ul>  | <ul style="list-style-type: none"> <li>- <b>x ha, mixed regional site</b></li> <li>- 85 companies, ±1000 employees</li> <li>- yacht building, construction companies, service firms, etc.</li> </ul>                     |
| Mobility policy  | - effect study performed   | - no studies performed   |
| <b>Management</b><br>Umbrella organisation   | <ul style="list-style-type: none"> <li>- since February 13th 2007</li> <li>- Drongen I: <a href="http://www.drongen1.be">www.drongen1.be</a></li> </ul>  | <ul style="list-style-type: none"> <li>- since March 17th 2006</li> <li>- vbz: <a href="http://www.bedrijvenparkzuid.nl">www.bedrijvenparkzuid.nl</a></li> </ul>   |
| Spatial planning   | - land division plan completed   | - construction rules, no spatial plan  |
| Land issuing   | - private land owners; sustainability clauses incorporated in sales contracts  | - no issuing clauses   |
| Site management  | - coordinated by Ghent city; park manager since July 2006  | - coordinated by the municipality Schouwen Duiveland; park manager since March 2006  |

In tabel 2 the main cluster activities per site, including their actual status, are itemised whilst indicating the PPP score and LESTS profile of each activity. A detailed overview of the pilot sites and the other industrial parks involved in the BPM project can be consulted on the (Dutch) website of the Ghent University research group ([www.dbt.ugent.be](http://www.dbt.ugent.be)).

Table 2: Situational and managerial context of the pilot sites.

|                           | Drongen I (DI)        |         |       | Zuid (Z)       |         |       |
|---------------------------|-----------------------|---------|-------|----------------|---------|-------|
|                           | status                | LESTS   | PPP   | status         | LESTS   | PPP   |
| Waste collection          | frame contract        | J,E,T   | 0/+/+ |                |         | +/0/+ |
| Signalisation             | central contact       | E,S,S   | +/0/+ |                | R,S,E   |       |
| Public lighting           | extending             | S,T,S   | +/-/+ |                |         |       |
| Road works and facilities | bus stops             | E,S,T,S | +/+0  |                |         |       |
| Mobility management       | commuting bus         | S       | +/+0  |                |         |       |
| Water management          | rain water collection | L,E,S,T | 0/+/+ |                |         |       |
| Societal integration      | multi-functional hall | E,S,S   | +/+0  |                |         | +/+0  |
| Green management          |                       |         |       | plantation     | J,R,S   | +/0/+ |
| ICT supply                |                       |         |       | broad band     | E,T,S   | +/0/+ |
| Security                  |                       |         |       | patrolling     | J,E,R,S | +/0/+ |
| Communication             |                       |         |       | new year event | S,E     |       |

### LESTS scan of Drongen I and Zuid

Both pilot sites didn't have the benefit of a park management structure prior to the start of the BPM project. Yet the regional actors involved in both sites indicated the wish to introduce park management as an instrument to facilitate interfirm collaboration with sustainability inclination.

At the project start an initial scan was drawn for both pilot sites, illustrated in figures 8 and 9. The LESTS inquiry only revealed the intention to start-up cluster activities, sooner or later anchored in an umbrella structure for each pilot site.

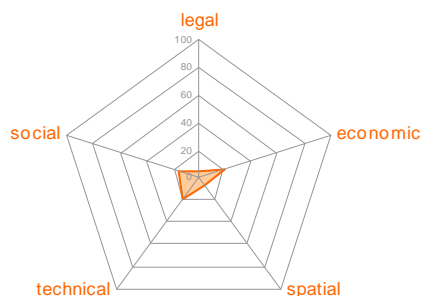


Figure 8: 2006 LESTS-IFC scan of DI.

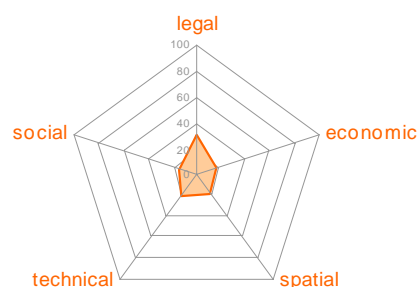


Figure 9: 2006 LESTS-IFC scan of Z.



Upon one year participation to the BPM project, the LESTS inquiry disclosed a remarkable progress in interfirm collaboration at DI and a slower but still suggestive growth at Z. The establishment (DI) and redirection (Z) of the umbrella partnership dedicated to park management is visualised, so as the careful choice of cluster activities with a long term and/or regional benefit for people, planet and profit.

Figures 10 and 11 highlight the growth of IFC, whereas scans 12 and 13 exemplify the sustainability core of the cluster activities.

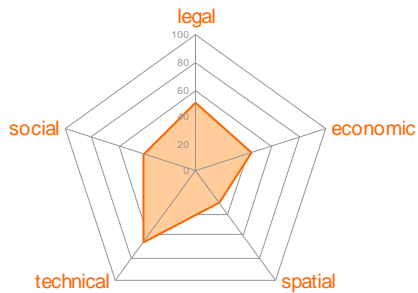


Figure 10: 2007 LESTS-IFC scan of DI

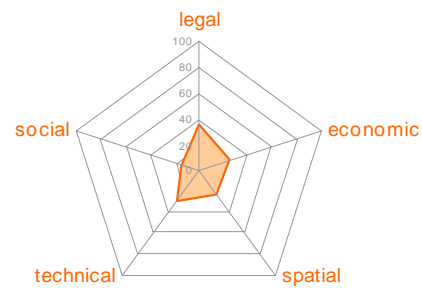


Figure 11: 2007 LESTS-IFC scan of Z

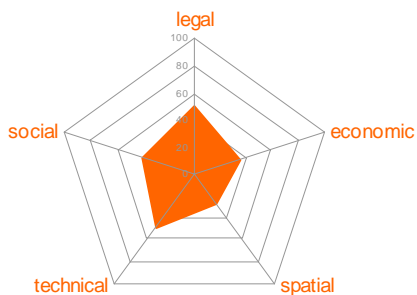


Figure 12: 2007 LESTS-EIP scan of DI

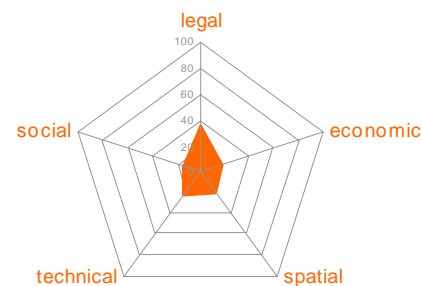


Figure 13: 2007 LESTS-IFC scan of Z

### *IFC-EIP discussion*

Comparing figures 8 and 9 to figures 10 and 11 respectively, the evolutive IFC effort on the pilot sites Drongen I and Zuid is observed, unraveled in five multidisciplinary assessment fields.

- DI demonstrates a significant effort in all five angular points; the balanced evolution is attributed to the newly established park management structure with a twofold working area: operational and commercial. Likewise DI profits from the support obtained from Ghent city, exemplifying the city policy to participate at the EIP-development of her business parks.
- Although the evolutive scan of Z is less expressed, this business park is advancing on the EIP-chain with a similar enthusiasm and a parallel support of the community Schouwen-Duiveland, as observed from the progress in the LESTS-domains.

Whereas figures 8 to 11 only display untainted time-based interfirm relations, figures 12 and 13 substantiate the high CRS-profile of the cluster activities at both pilot sites. The potential of both sites with regard to corporate sustainability is clearly demonstrated in figures 14 and 15.

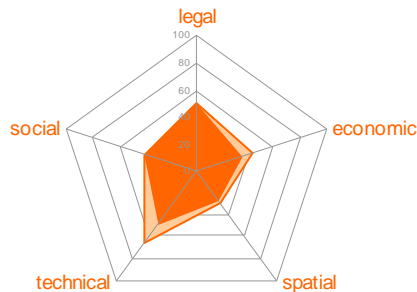


Figure 14: Double LESTS scan of DI

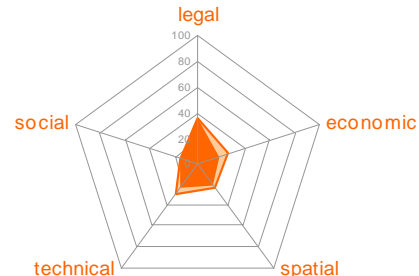


Figure 15: Double LESTS scan of Z

By combining scans 10 to 13 respectively, double-scans are obtained for both sites, emphasising the LESTS distances to be covered in the process from IFC to EIP. The intercept between the IFC and EIP status indicates the progress-to-make of business parks evolving to sustainable terrains, varying per LESTS domain.

From figures 14 and 15 is observed that twice the legal and social intercepts are zero. This signifies the legal and social measures taken are comprehensive with regard to their PPP-score. At both sites, the management structure is representative for the CSR inclination; yet it is acknowledged that the weight of the structure itself is decisive in the legal score and thus –with partial scores– depicts an IFC-EIP maximum.

In both cases, the economic, spatial and technical intercepts are short, indicating that the cluster activities set up are carefully chosen to exhibit a strong PPP-profile. With regard to the economic angle, a strong financial independence of the park management is observed at both sites, meaning that financial input of the companies involved is obtained.

Irrespective of the LESTS angles, the surface difference between DI and Z is mainly attributed to the lower participation rate of Zuid companies to the cluster activities. As an overall conclusion, the angular range at both sites indicates that the potential growth of CSR management is still distinctive. The scope of future corporate activities at Drogenen I can be socially and spatially oriented, whereas Zuid is encouraged to work on increasing their membership and hence make a large step forward in all five angles, particularly concerning social cluster activities.

## Perspectives

The LESTS concept is proven to be simple and accurate in revealing determinant scores, partly contingent in nature, that define the double-scans and hence indicate as well the IFC status of an industrial site as the EIP status. The IFC pentagon outlines the potential of the cluster activities to contribute to the sustainability, whereas the EIP core substantiates the actual sustainability profile of the business park concerned.

As stated before, interfirm clustering originates from a wish, need of duty to collaborate on a park theme, either with a preventive or a pro-active goal. It is perceived that a first series of business clusters often initiates in an organic way. In general, those forms of cooperation don't bear sustainability objectives; it concerns of untainted interfirm collaborations with a mere profit based goal. Yet these clusters are regarded as a matrix for synergetic effects, since they yield the opportunity to embark the hosted companies in new activities that entail planet and people benefits. Therefore, interfirm clustering is considered as a high potential concept, even an excellent lever for redirecting firms towards corporate social responsibility, if established within a strong and managerial umbrella organisation.

As to conclude, further research as well as study and implementation projects focusing on interfirm collaboration on industrial sites are encouraged. When applying the LESTS concept to denote the IFC and EIP status of a business park, it is advised to provide a frequent feedback with the participating terrain actors and spend time to reassess the IFC and EIP profile on a regular base. This approach is confirmed to enforce the cluster engagement and moreover unfolds the relation between personal preferences, economic choices, semantics and sustainability. Likewise it is stressed to discern the impact of the contextual factors when possible. Ultimately, the general framework of sustainable development should be made applicable to the existing (actual) and the emerging (potential) interfirm collaborative actions, embedded in the management structure.

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