



 **Green** Inland Ports

Good Practices

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A photograph of a harbor scene. In the foreground, a large container ship is docked, carrying several stacks of colorful shipping containers (red, orange, and yellow) on a blue hull. A green gantry crane stands on the pier behind the ship. In the background, a tall, modern blue skyscraper with a grid-like facade dominates the skyline. Other smaller buildings are visible to the right. The water in the foreground is blue with some ripples. The sky is a clear, pale blue.

Developing knowledge-
intensive business sites

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1.1 Description

Knowledge-intensive business sites are areas where knowledge-intensive business services (KIBS) play an important role. KIBS, such as consultancy services, primarily provide knowledge-driven inputs to the business processes of other organisations, including both private and public sector clients (Muller, E. & Doloreux, D., 2008). Zieba, M., (2013) conducted a literature review showing that many authors use different definitions of KIBS. However, a common thread across these definitions is that expertise and knowledge are central, and services are often highly personalised with a strong focus on application.

Whereas the industrial economy was mainly based on tangible assets in the form of products, machinery, factories, buildings, and assembly lines. The knowledge economy broadens horizons and increases valuation based on intangibles in the form of intellectual capital and intellectual property (de Pablos, P. O. & Edvinsson, L., 2020).

Port areas are typically a place for a lot of industrial activity, often involving multiple companies that can have a significant environmental impact. By sharing knowledge and collaborating, companies within the port can jointly tackle major problems in the port area.

Barriers

According to Pereira, A. & Vence, X., (2021), multiple barriers exist within circular-oriented innovation, which also apply to other environment-related issues. KIBS, especially consultancy services, can help to remove or minimise these barriers. These barriers and actions that consultancies can implement to remove/minimise these barriers for the companies (within the port) are shown in Table 1.

Table 1 – Consultancy actions aimed at lowering barriers for circular-oriented innovation (Pereira, A. & Vence, 2021)

Barriers	Associated consultancy actions
Lack of knowledge	<ul style="list-style-type: none"> • Training for staff within the organisation • Workshops and inspirational lectures
Immature market and lack of knowledge of business environment	<ul style="list-style-type: none"> • Sectoral studies
Lack of strategic vision	<ul style="list-style-type: none"> • Training for staff • Circularity diagnostics, information and workshops

Uncertainty about the revenue and cost structure of new business models	<ul style="list-style-type: none"> • Support through business model redesign and collaboration with financial advisors • Studies on real environmental costs
Legal framework	<ul style="list-style-type: none"> • Seeking mechanisms to adapt the existing regulatory framework
High upfront investment	<ul style="list-style-type: none"> • Search for funding opportunities

Many of the above barriers are also mentioned in the other good practices, like training port employees. This indicates that developing knowledge-intensive business sites can help make other good practices more attractive by removing/minimising barriers.

Examples

In Groningen Seaports in the Netherlands, the idea of “knowledge grows through sharing” is often applied. The aim is to boost learning, encourage collaboration, and leverage each other's expertise and creativity. With this in mind, Groningen Seaports is transforming the former village of Weiwerd into a knowledge-intensive business site.

The former village Weiwerd in the Netherlands is located near the chemical plant in north part of the Netherlands. People developed the village on a mound 2,000 years ago and in 1961 it has been officially acknowledged archaeological national monument. Mid 1970's inhabitants of the village had to resettle due to the plans for industrial activities in the vicinity of the village. However, the planned industry at never materialised and the area remained abandoned for decades. Beginning of early 2000s, plans were made to redevelop the area into a knowledge-intensive business site while maintaining the cultural historical values and the remains of 2,000 years settlement below ground. A promising new cluster can be created at the so-called *Brainwierde Weiwerd* business site. Assigning an economic function to the approximately seven-hectare site will secure a new future for this monument.

Another example comes from the survey conducted in 2024 as part of the Green Inland Port project. Several inland ports have indicated close cooperation with universities. The cooperation consists of universities providing advice and collaboration with ports in innovation projects. When universities have facilities within the port these locations can be seen as knowledge intensive business sites as well, as often there is a strong connection with the port sector.

1.2 The aim of knowledge-intensive business sites

The specific goal of a knowledge-intensive business site is to share knowledge and learn from each other so that the available knowledge, inventiveness and creativity can be put to the best use.

In the case of former village Weiwerd in the Netherlands, the intended outcomes are:

- Economic development of the area;
- Preservation of cultural heritage by investing while using the area for new business;
- Creating more job opportunities in rural areas.

1.3 Inland ports with knowledge-intensive business sites

- Port of Vienna
- Port of Brussels
- Port of Aalborg
- Port of Seville
- Groningen Seaports

1.4 Stakeholders

For the development of the knowledge-intensive business site at Weiwerd, the following stakeholders are involved:

- Groningen Seaports, which is transforming Weiwerd village into a knowledge-intensive business site;
- Municipality of Delfzijl the local authority who is responsible for the area;
- National Cultural Heritage Agency, to ensure protection of the archaeological site in that area;
- Foundation preservation Weiwerd, for protection of the Weiwerd area where the knowledge-intensive business site will be realised;
- A landscape architect firm; assisting with site development
- Wadden Fund which contributed to the project;
- Companies moving into the knowledge-intensive business site.

1.5 Voluntary or mandatory

This good practise is a voluntary measure.

1.6 Realised/potential impact

Although the impact is difficult to quantify, the main purpose of knowledge-intensive business sites is to promote knowledge exchange and collaboration, which would allow the full use of the available expertise, creativity, and innovation potential.

1.7 Possible obstacles

- The survey conducted as part of the Green Inland Ports project in 2024 shows that not many inland ports have yet implemented this good practice. A few ports that have worked on implementing knowledge-intensive business sites indicate that it is a relatively difficult good practice to implement. In addition, the extent to which inland ports are willing to implement this good practice varies greatly. This probably depends on the degree of industrialisation within a port.
- Most importantly for developing a knowledge-intensive business site will only succeed if there is a demand from the businesses within the port community. This demand can be initiated by the port authority or can originate directly from the business. Without any demand such an initiative will not work since strong involvement from the business is needed. This can also be seen at the plans in Groningen Seaport, although the site has been available since 2017, only one company has settled there.
- (Re)development of areas in or close to the port can have a consequence for people living in these areas as they might need to relocate, or it will result in more movements of goods or people which also impacts the livelihood. When plans are made for such developments resistance from inhabitants will come and need to be handled with care if the plans are to be realised.

1.8 Key learnings

Through collaboration and knowledge sharing between multiple organisations, more can be achieved than as an individual organisation.

1.9 Sources

de Pablos, P. O. & Edvinsson, L., 2020. Intellectual capital in the digital economy, London, Routledge.

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