

## D3.5 WP3 Executive summary

# Foldable Shipping Containers for Sustainable Blue Growth, ZboxBlueLogistics

*Blue Economy SME Window call*

*EMFF-BEW-2019*

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HISTORY OF CHANGES		
Version	Publication date	Change
1.0	24.12.2022	Initial version

## 1. Introduction & Objectives

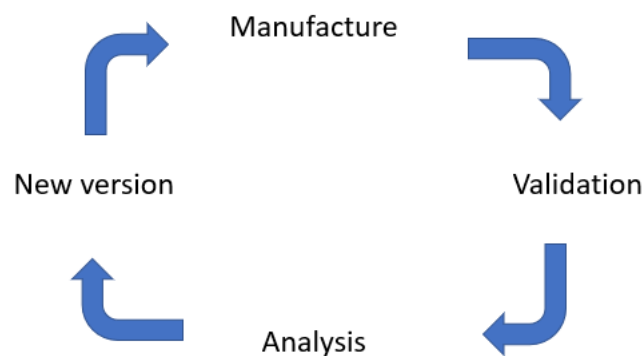
In view of the paramount need of efficient container fleet management, NAVLANDIS has redesigned the shipping container to the next level. Zbox is a patented ISO shipping container based on innovative Z-folding mechanism. Zbox easily folds to bundle a stack of 5 Zbox units and transport them in the space of 1 standard box (5 in 1). Robust as standard containers, Zbox has been designed to minimize empty containers travels towards changing the global logistics in a more efficient and sustainable supply chain. The project *ZboxBlueLogistics* will perform a thorough validation inland and on board of three routes with our early adopters. The global expansion, with +20.000 Zbox units, expects to generate relevant socioeconomic impacts, such job creation (around 80 new jobs) and environmental benefits (e.g. 30 Mton CO2 savings).

This deliverable summarizes the work performed and the conclusions extracted of the Work Package 3 of the project, entitled “Logistic validation”, whose purposes were to:

- Manufacture 75 units of Zbox v4
- Find routes in which validate these 75 units (logistic validation)
- Analyse Pay-As-You-Save business model

## 2. Manufacture of 75 units of Zbox v4

Most R&D projects use iterative processes in order to achieve marketable products. *ZboxBlueLogistics* project includes two iterations (Figure 1) where an industrial series of Zbox containers is manufactured, tested, inspected and with the conclusions of all the process, an enhanced version of Zbox is created.



*Figure 1. Iterative process followed in Zbox Blue Logistics project.*

The first turn to this loop corresponds to WP2 of the project, where an industrial series of 15 Zbox units was manufactured, tested on field, then inspected, and a new version prototype was designed and constructed (Zbox v4).

The second turn of the loop is WP3 of the project, which starts with the manufacturing of 75 units of Zbox v4, follows with its logistic validation on field, and ends up with the performance analysis of this new version.

Manufacturing of the units has been slower than expected, mainly due to reasons external to Navlandis, such as:

- The global logistics congestion, that produced delays on the delivery of the materials needed for the containers' construction.
- The general increase on prices of goods, transport and energy, associated with additional financing needed.

However, Navlandis' team worked hard to overcome these drawbacks, and the new units (Figure 2) are being delivered to customers at the moment of writing this deliverable.



Figure 2. Brand new Zbox v4 container to be delivered to customer.

### 3. Logistic validation

The Logistic validation to be performed on WP3 counted on the new Zbox containers to be manufactured. But given that the manufacturing was experiencing some delays, Navlandis and a demonstrator company agreed to perform a commercial route with a bundle of 5 containers manufactured in WP2.

This route took flour from Turkey to Equatorial Guinea, with perfect watertightness and overall performance. In Figure 3 a loaded container being steved at its arrival to Guinea can be seen:



*Figure 3. Unloading of container in Bata.*

Road transport to the importer and back to the port was performed without incidences.

Containers travelled to Turkey in folded status, and there they were unfolded in order to be loaded. When the bundle of 5 containers were at the port, Navlandis' technical team reached them out to train the customer's staff in the folding/unfolding and bundling/unbundling operations (Figure 4).



*Figure 4. Training at the Port of Istanbul.*

Travelling of the new Zbox units in commercial routes is due to start in January 2023, as the units are being delivered at the moment of writing this deliverable.

#### 4. Analysis of Pay-As-You-Save business model

For Zbox exploitation, the novel PAYS (Pay-As-You-Save) business model was selected. It consists of providing a customer with a good or service at a low price and to be remunerated by taking a commission on the savings made thanks to this product.

In the context of Zbox product, Pay-As-You-Save business model means that Navlandis rents bundles of 5 Zbox containers to its clients, in exchange for a part of the savings obtained, compared to the operation of 5 standard containers. This is summarized in Figure 5:

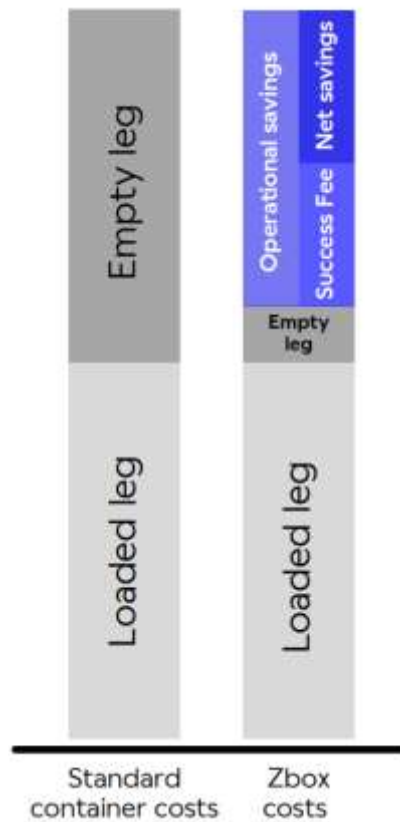


Figure 5. Cost comparison between the use of a standard container versus a Zbox container.

When explaining Zbox value proposition in meetings and events, the Pay-As-You-Save business is always introduced by Navlandis' staff, as it is considered one of Zbox main competitive advantages.

Generally, this business model is perceived as a novelty and as a way of 'sharing both the risks and the benefits' of implementing an innovative product, so it attracts attention and contributes to lower the market barrier of the costs of the container. Sharing responsibility and costs of eventual repairs of the container -under conditions specified in the contract- helps Zbox PAYS service to be perceived reliable and trustworthy.



So far, the implementation has been successful, as the current Zbox demonstrator contracts have been signed with PAYS model, and positive feedback has been obtained from other potential clients and interested stakeholders.

At the moment of writing this deliverable, the feasibility of the PAYS business model appears is positive. Navlandis will keep monitoring the performance of its containers on route beyond the end of the project, so more feedback will be collected in terms of implementation of the contracts.

## 5. Conclusions & Next Steps

Logistic validation work package of Zbox Blue Logistics project started with some drawbacks, but it is proceeding well and will produce the expected results and objectives by the end of the project.

Manufacture of the second industrial series of Zbox v4 containers is currently ongoing and delivering containers, that will be sent to the demonstrators as soon as they get ready.

In the meantime, logistic validation with the containers manufactured in WP2 has been carried out successfully, in a commercial route and with real customer cargo.

Demonstrator companies are working and will continue working under a PAYS contract with Navlandis.

Navlandis will monitor the performance of the containers and the PAYS contracts until the end of the project and beyond, to ensure not only significant conclusions for the project, but also the scale-up and stability of the company business.