NUMERICANAL

Investing in Opportunities
This project has received European Regional Development Funding through INTERREG IV B.
INTERREG IVB

## 1. Project Scope

The INTERREG IVB NorthWest Europe (NWE) project NUMERICANAL aims to connect the Regional and National strengths and experience of 6 partners active in the field of ICT and waterways management, to create a transnational strategy for the development of e-services, information and communications along smaller dimension waterways, and to use technology for the more efficient management of inland waterways.

The project - started in May 2011 and ending in September 2015 - will identify ways to reduce costs and increase efficiencies in the management these waterways in NWE through implementation of innovative ICT based approaches and tools.

The project partnership is drawn from 4 countries within the NorthWest Europe area: France, Belgium, Netherlands and UK. Three out of the 6 partners are involved in the management of the waterways at a national level: Canal & River Trust (CRT - former British Waterways), Voies Navigables de France (VNF) and Waterrecreatie Nederland (former Stichting Recreatietoervaart (SRN)).

The Work package structure is as follows:

- WP1 - Analyse existing good practices and identify potential new practices
- WP2 - Develop/ pilot use of mobile technology information for users (Smartphones/ lock op etc)
- WP3 - Develop/ pilot new technology approaches to safety, particularly conflicts between smaller leisure boats and freight/ commercial boats. (Congestion/ danger zones, training)
- WP4 - Develop/ pilot ICT waterway control & management systems (G&S/ Eindhoven Control Centres)
- WP5 - Evaluate these WP's and roll out results and lessons learned

## 2. Work scope

The county council Barnim, as representative of the Germany Finow Canal region (located NorthEast of Berlin in the Federal State Brandenburg ), was invited by the Lead partner Canal & River Trust to join the workshops at the midterm event on 03-04 September 2014 in Eijsden-Margraten followed by the Steering Group meeting in Amsterdam in order

- to give a professional German perspective/ input to the discussions,

- to increase the transnationality within the partnership, building on contributions made by Helmut Berends who explained the use of New Technologies in Germany at the Numericanal Steering Group Meeting in Toulouse in September 2013
- to provide a German contribution to the development and roll-out of diverse applications within WP2:
  - Action 3 (develop a model for a wifi based application) in France, by VNF,
  - Action 4 (Setting up a cross border WIFI based app system) in UK, by Midlands Regional Authority,
  - Action 6 (Roll out of the app developed in Action 3) in France, by VNF,
- and WP5:
  - Action 17 (roll out to other waterways within NW Europe), by Cetic,
- to give a feedback for a possible adaptation and transfer for use in Germany.

Furthermore the county council Barnim is just developing an application for canoeist guiding them along the local waterways but adaptable for any other waterway and would like to bring in their know-how in this respect.

More details about the Finow canal (location, history) can be found in **Annex 1** and information in brief about German inland waterways in **Annex 2**.

## 3. Course of action

The midterm event in Eijsden-Margraten started with introductory words by the Lead partner followed by two presentations about risk analysis and ICT innovations and further three workshops. The German representative attended the Workshop 1 (Use of mobile technology) lead by Alaric Blakeway, VNF, contributing input to the discussions and explaining the issues facing German boaters who may wish to make use of such technology in the future.

At the Steering Group meeting the Numericanal partners gave a brief overview of their work progress each followed by two group workshops (project WP review incl. critical path analysis of outputs and delivery action plan working back for September 2015). The elaborated action plans as well as the developed evaluation plans and approaches were critically assessed, discussed and further developed. The German representative took part in the discussions about the WPs review and contributed strongly with technical and practical comments and statements to the roll-out of the application (WP2, Action 6) developed by VNF, France, and the evaluation plan (WP5, Actions 14 to 17) to be executed by Cetic, Belgium.

## 4. Contribution to project work

At the workshop 1 in Eijsden-Margraten VNF presented their piloted use of mobile technology (application platform) which is aimed

- to inform recreational boaters about navigational relevant information (moorings, water points, waste disposal facilities, electricity availability, …),

- to show information useful for navigation, filtered according to the position of the mobile device, and
- to share observed navigational conditions in real-time.

The VNF application which is called "PoGo" (Petites ondes, Grandes ondes – Short wave, Long wave) looks fine for the foreseen use in France but won't be applicable to the envisaged application on the German waterways in the Finow Canal area. This because

- the provided data / information are intended for use for motorized waterways user only; from non-motorized user perspective a few missing information/ details/ data need to be complemented / integrated (e.g. lock opening times, turn boater infrastructure), and
- the used map isn't that precise as required for the German use case,
- the location of the POIs aren't that exact positioned; more precise GIS position indication need to be added to the database.

However the visual appearance of the VNF application is well designed/ layouted and it is clear structured and can be used intuitively.

Nevertheless from the technical discussions that took place it became clear that currently a German partner such as Finow Canal would not be able to test and check the VNF application due to the fact that there is a lack of GIS mapping of regional waterways in the North East of Germany. In addition the application can't be used to plan tours for non-motorized waterways users (e.g. canoeists, rowers, kayakers) and taking into consideration neither pre-bookings of mooring and affordable accommodation during the trip nor the reorganization of the original planned tour due to missing lock passage as a result of a high traffic demand.

## 5. Conclusions for further project work

The representative of the German Finow Canal region see a great potential in further collaboration with the Numericanal partners or any other European partners/ organisations to improve the use of recreational waterways by motorized and non-motorized recreational boaters in Germany as well as the rest of Europe. A brief overview of Communication systems & use of new technologies on German inland waterways can be found in **Annex 3**.

From the perspective of the German representative, based on the findings of the discussion at the midterm event and Steering Group meeting, there is a strong need

- to create both new standards and align existing ones in order to allow electronic exchange of information without difficulties with regard to the data format and thus allow for greater interoperability and cost saving in the future,
- to develop software and data which must be capable of easy migration through each generation or change,
- to take into consideration the short life span on ICT hardware and software whilst developing ICT applications,
- to adapt the POIs and provided information to country related behaviour and customer needs,

- to prepare a more detailed/precise map basis so that GIS related information can assigned accurately and related services (e.g. route planner) is reliable working,
- to develop common approaches to achieve greater operational efficiency and avoid 're-inventing the wheel',
- to ensure cross-border applicability (in the case of the Finow canal region there are waterways links between Germany and Poland), and
- to reduce design and development costs of application through a strong collaboration/ exchange of experience between navigation authorities/ organisations.

Report prepared by
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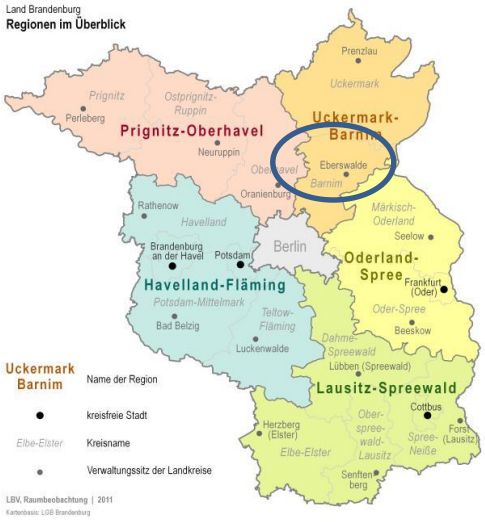
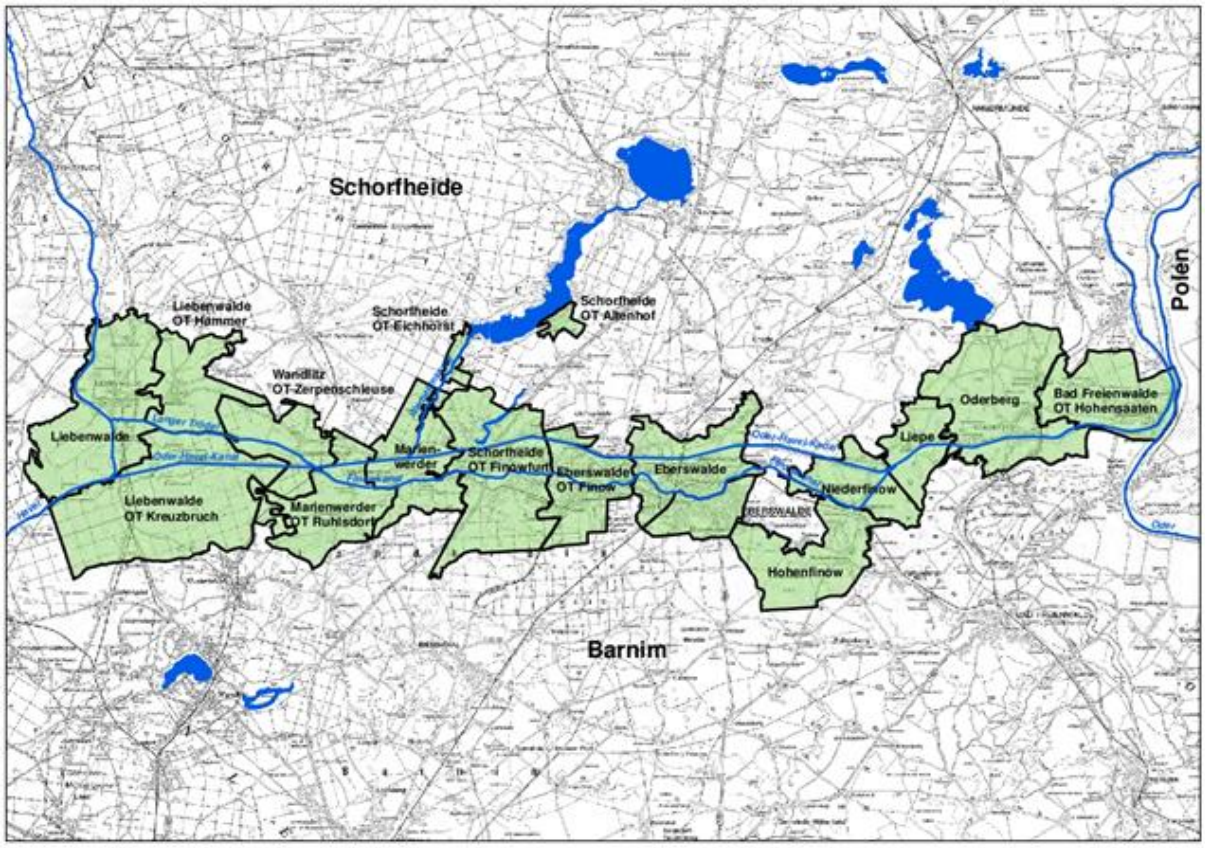
## Annex 1 – Location of the Finow Canal

Map of Germany
indicating Federal State Brandenburg




Map of Federal State Brandenburg
indicating the location of the Finow Canal




Stretch of Finow Canal indicating the municipalities flowing through and the border to Poland

## Annex 1 – History of the Finow Canal

The canal was built in the years 1605 - 1620 on the order of Joachim III Frederick (Elector of Brandenburg), though it was largely destroyed during the Thirty Years' War (1618 – 1648). Branching off from the Havel near Liebenwalde and flowing into the Oder at Niederfinow, the canal was 38.6 km long and equipped with 11 chamber locks.

In 1743, construction began again (this time on the order of Joachim Frederick's descendant, Frederick II of Prussia). This incarnation of the Finow Canal was completed in 1746, and connected the Oder and Havel rivers. The overall length of the canal was approx. 43 km, overcoming a difference in altitude of 38 m. The sites of the 10 initial locks were oriented primarily by the locations of the locks built between 1605 and 1620. Seven locks were added later.

Traffic on the Finow Canal grew continually. In the early 1840s, more than 13,000 barges and 48,000 logs passed through its locks annually. New, more efficient locks were soon required, since lockage times rose to up to 2 weeks due to the crush of ships.

In 1906, the Finow Canal reached the limits of its capacity as the transit of goods in both directions reached 2,760,767 tonnes. The growth in freight in the preceding years led to the decision to build a second modern northern connection between the Oder and the Havel. With the act of 1 April 1905 on the construction and expansion of waterways, Emperor Wilhelm II ordered, among other things, the "construction of a shipping lane for large ships from Berlin to Stettin" (Berlin-Hohensaaten waterway).

This canal, known today as the Oder-Havel Canal, was opened to traffic in 1914. It allowed the passage of ships of up to 600 tonnes (170 tonnes on the Finow Canal). Since that time, the Finow Canal has been used as a recreational waterway. Another serious advantage of the new canal was the reduction in the number of locks which had to be passed, from the former 17 between Spandau and Hohensaaten to just 5: one in Lehnitz and four at the so-called descent in Niederfinow. On 17 June 1914 the large navigation between Berlin and Stettin was opened. Near Niederfinow the difference in elevation was overcome using a staircase lock with four looks. About twenty years later, on 21 March 1934, the four locks were replaced by a boat lift overcoming an altitude difference of 36m.

Niederfinow boat lift

Aerial view

**Annex 2 – Figures about German watersport and inland waterways**

Map of German main inland waterways

Germany has a total waterway network with a length of about 10 000 km. The coastline is about 3 500 km long, while the inland water network is about 7 500 km, from which 5,100 km (68%) are Class IV waterways and higher. About 35 % of the inland network length is free-flowing, 40 % is regulated and 25 % are artificial waterways (canals). The longest waterways are Rhine, Elbe and Danube. By these and other bigger waterways (e.g. Mosel, Saar, Oder) a direct connection to the neighbouring countries Netherlands, France, Luxembourg, Switzerland, Austria, Czech Republic and Poland are possible.

Germany has more than 6 million people active within the water sports (diving, leisure boats, water ski etc). The total retail turn-over in the water sport market in Germany is approximately 1.7 billion Euros a year.

The private leisure boat park is estimated to some 500 000 boats, excluding boats like canoes, kayaks, inflatables, and boats used for charter, by unions and for practical matters (e.g. police, marinas). The total number of people enjoying leisure boats is estimated up to 1.8 million people when including boat crew and chartered boats. About 60 % of the 500 000 boats are motorized, and most boats in Germany are of medium size.

**Annex 3 – Communication systems & use of new technologies on German inland waterways**

A variety of initiatives have been introduced to better communication and clearness of signage systems , including certificates, labels, marketing campaigns and use of internet as well as social media.
The interactive map on www.toernplaner.net , Gelbe Welle (http://www.deutschertourismusverband.de/qualitaet/wassertourismus/gelbe-welle.html ) and the Blue Flag (http://www.blueflag.org/) are examples of such initiatives. Gelbe Welle is a unified federal welcoming sign and information system for water sport users in Germany. The Blue Flag works towards sustainable development at beaches and marinas through publicly awarding sites that meet strict criteria dealing with safety, water quality, and environment.

Map of Blue Flag marinas and beaches in Germany
Blue Flag marinas (in Blue colour), Blue Flag beaches (in Red colour)



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