

## MARKET CONSULTATION DOCUMENT

*Pre-commercial procurement (PCP) to buy R&D (research and development) services to obtain digital elevation models (DEMs) in coastal areas using an innovative sensor platform and advanced processing techniques'*

### 1. Introduction

This market consultation documents gives a brief explanation to the background and context of the Hydrography 2.0 pre-commercial procurement (PCP). This market consultation aims to validate the results of the market consultation carried on in 2013 and will be organized as an online survey.

### 2. The public procurer

The Department of Mobility and Public Works - Maritime Access manages the navigation channels to the Flemish Seaports, including the execution of dredging works to maintain the depth of the navigation channels. To evaluate environmental effects of dredging works monitoring activities are carried out, including hydrographic and topographic surveys of the Schelde estuary and the coastal area.

The Department of Economy, Science and Innovation runs a program on innovation procurement and supports other governmental organizations to develop demand-driven innovation using innovation procurement.

### 3. Background

Digital Elevation Models (DEMs) give a representation of the elevation of the earth's surface. The elevation on land (height) is described as topography and the elevation of the seafloor (depth) as bathymetry. Digital Elevation Models (DEMs) are used in a wide range of applications, f.i. nautical charts, dredging operations, morphological analysis, habitat maps and numerical modelling.

In coastal areas, where land and water meet, the elevation of the earth's surface cannot be measured with one single technique. The depth of the seafloor is measured using echosounding from a waterborne platform. In Flanders 5-6 vessels need to sail out every to fulfill the demand on seafloor elevation. The height on land is acquired using airborne laserscanning. These surveys are executed on average once a year in Flanders. Merging of data from both sources is needed to produce seamless Digital Elevation Models (DEMs) in coastal and estuarine areas.

The current practice described above has some limitations. Survey areas are limited by what is feasible within a single survey day. Consequently, large areas need multiple survey days (up to weeks) with eventually multiple survey vessels and certain areas have a low revisit frequency (up to multiple years). It is clear that data acquisition and processing are costly and labour intensive.

Even more efforts are needed to adequately cover the intertidal part of coastal areas. Bathymetric surveys need to be scheduled at high water, resulting in slower acquisition rates. Laserscanning surveys need optimal weather conditions and need to be scheduled at low water. Combining both survey results into a single map covering the area of interest is complex and adds to the costs of data acquisition.

Technological developments in different areas (space- and airborne techniques, novel acquisition platforms and advancements in signal processing) are expected, but may only deliver partial solutions or require R&D investments on the long term. A solution in which remote sensing data is linked with existing laserscanning and echosounding surveys and to advanced modeling techniques seems promising.

**Therefore, the goal is to design and develop an innovative technique to produce a DEM/DTM of entire coastal areas integrating (existing) multi-sensor data and making use of advanced signal processing methods.**

This is an ambitious goal aiming at a breakthrough innovation. We will need to reinvent the survey strategy and to develop novel processing techniques. It has already been assessed that a high level of R&D is needed. Even though considered very complex, there is a strong believe among stakeholders that a major leap forward can be made.

#### **4. The project**

The Department of Mobility and Public Works - Maritime Access intends to launch a 'Pre-commercial procurement (PCP) to buy R&D (research and development) services to obtain digital elevation models (DEMs) in coastal areas using an innovative sensor platform and advanced processing techniques'.

The Hydrography 2.0 pre-commercial procurement (PCP) targets the following challenges:

- to develop an innovative method to combine bathymetric survey in shallow turbid water and topographic survey on adjacent intertidal and supratidal areas, with
  - a large spatial extent (over 10 km<sup>2</sup>)
  - 'instantaneous' (with reference to the extent, to be interpreted as 'within the same survey effort')
  - with a similar spatial resolution of actual hydrographic and topographic survey methods
- and to process and deliver the resulting DEM as a web service to GIS applications within a week.

#### **5. The market consultation**

In preparation for this PCP, **all interested operators** are **invited** to take part in an **open market consultation** (regardless of their geographic location, the size or governance structure of their organisation). Interested parties may participate on a voluntary basis.

The open market consultation will provide you with relevant information about the project and the results of the market consultation carried on in 2013 with the intention to validate the findings of this last.

The open market consultation will be organised in the form of an online survey that can be filled in following this link: <https://ec.europa.eu/eusurvey/runner/PCPHydrography>, the survey will be available until **25 September 2017**.

You can also ask questions in English and Dutch to Frederik Roose ([Frederik.roose@mow.vlaanderen.be](mailto:Frederik.roose@mow.vlaanderen.be)).

## **6. Other documents attached to the PIN and market consultation document**

The results of the market consultation carried on in 2013 are summarised in an 'Innovation Memorandum' which is available on the project website: <http://www.ewi-vlaanderen.be/hydrographic-surveying>.

## **7. Disclaimers**

By participating in this market consultation, you will not necessarily be included, nor excluded, from a future procurement. Also the provided answers in this market consultation will not be used in to evaluate your future commercial proposals.

The survey (Q&A) is intended to explore the supplier market 'as-is', there can be no wrong or right answers. The answers you will provide will be used as input for our procurement strategy, which we will try to align with the market place as good as possible.

After the public procurer has processed the response of all suppliers, we will communicate the results widely. Our policy is that we will treat all provided supplier information as commercially sensitive and we will therefore not communicate any supplier specific details. Only the general findings will be communicated.

We would like respondents to answer our questions as good as possible or indicate that the questions do not apply to your competences or line of business. Any suppliers can be added to the list or be removed from it at any point in time, at their request. The suppliers on the list will be visible to all others by viewing the mailing list, along with the questions.

All questions will be published on the project's/public procurer's website: <http://www.ewi-vlaanderen.be/hydrographic-surveying>.

It should be noted that answers will not be shared with any other supplier. If, however, we consider that an answer needs to be shared for clarification purposes, we will discuss this with the responding supplier prior to the publication of the answer.

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