



EC H2020 - IW-NET project is funding a 2-year Post-Doc position starting in January 2021 at LAMIH-UPHF

Title: Revenue Management based Intermodal Transportation Systems Optimization and Decision-Making (RM-ITS-ODM)

Key-words: *Dynamic Capacity Allocation, Optimization, Revenue Management (RM), Decision-Making, Uncertainty, Simulation, Itermodality, Synchromodality, Inland Waterways Transport (IWT)*

Topic description:

Some of the critical elements needed to apply RM concepts and techniques to ITS-ODM are: i) a booking system enabling anticipated reservation of available capacities offered by the carrier(s); ii) offering diversified fare products based on differential pricing, associated with different types of demands (*e.g.*, late or early reservation, urgent or slow delivery, etc.); iii) considering different customer categories (*i.e.*, regular, spot) corresponding to the required conditions and contracting terms: applicable restrictions related to freight acceptance and transporting constraints, such as full volume, partial volume or possibility of denial for some transportation demands, penalties to be charged on carriers in case of non-compliance with the customer's requirements, discounts offered based on loyalty programs, etc. Optimization and decision-making methodologies based on RM concepts and techniques will be developed and deployed on practical case studies in order to assess their capability to settle up favorable conditions for an innovative structural service offer and a new balance of operations and interactions between IWT stakeholders.

Job description:

We are looking for a motivated postdoctoral researcher whose responsibilities would primarily include the design and implementation of RM based optimization models and tools for container/pallet transportation on inland waterways. The objective of this research work is to contribute to the design of innovative methodologies for booking, planning and execution of transportation activities, enabling synchromodality on IWT networks. The postdoctoral researcher will be given the opportunity to evolve in a dynamic international environment, within the context of the IW-NET project funded under H2020-EU3.4, gathering 26 industrial and academic partners from 9 different European countries (www.iw-net.eu).

We are inviting applications from candidates holding a PhD in Operational Research or in Computer Science and with experience and interest in:

- Mathematical modeling and solution techniques for computational optimization, including dynamic and/or stochastic aspects;
- Implementing simulation algorithms and optimization problems in C/C++ and CPLEX
- Practice in one or several of the following topics would be a plus: planning transportation systems, revenue management, intermodality, synchromodality, stochastic programming.

Strong skills in English scientific writing are a pre-requisite; knowledge of French, or willingness to learn, would make life in Valenciennes even more enjoyable.

The position is open to candidates of any nationality and selection will be based upon the candidate's research record and potential.

The position will be in the Computer Science Department of the LAMIH, at the Polytechnic University Hauts-de-France. The postdoctoral researcher will work closely with professors Ioana Bilegan, Igor Crevits and David Duvivier, in a multidisciplinary team environment.

This is a one-year position (with possible one-year extension) and the ideal starting date is mid-January 2021.

The application should be submitted by e-mail to ioana.bilegan@uphf.fr not later than **December 7th 2020**, and should include, in a single *PDF* file, the following elements:

- CV,
- list of publications,
- a cover letter,
- a research statement,
- two reference letters.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 861377.