

## TECHNOLOGY OFFER

### I. Details

1. **Title** : Bulgarian university is searching for a commercial partner to implement an optimization approach for new, undetermined or non-optimized technologies, which guarantees reaching certain targets
2. **Summary**: Bulgarian university is searching a commercial partner to implement a method developed as a service, by means of which it is possible to achieve certain benefits through initial design results under laboratory or production conditions. By using the initial information provided by the contracting company, a rational decision is made regarding the saving of energy and raw materials in achieving similar or exceeded levels of final quality parameters. The method is universal as a calculation algorithm and is now applied to materials processing and metallurgy technologies.
3. **Advantages and Innovations**: Improvement, through applied analysis, control and optimization of technologies, processes and systems characterized by very parametric connectivity and accessibility (internal and external).  
This objective is essentially linked to activities that involve rehabilitation, reconstruction, modernization, addressing different areas, in order to reach the desired conditions and parameters in their operation.  
The method is universal as a calculation algorithm and is now applied to materials processing and metallurgy technologies.

The ability to improve the complexity of desired properties, the ability to reduce production costs through optimization, the analysis of quality parameters, the choice of rational technological modes make the service unique.

#### **4. Stage of Development:**

- ☒ Already on the market
- ☒ Available for demonstration
- ☐ Concept stage
- ☐ Field tested/evaluated
- ☐ Project already started
- ☐ Project in negotiations – urgent



- ☐ Proposal under development
- ☐ Prototype available for demonstration
- ☐ Under development/lab tested

**5. Profile Origin \*:**

- ☐ CIP
- ☐ Eurostars
- ☐ FP4
- ☐ FP5
- ☐ FP6
- ☐ FP7
- ☐ National R&D programme
- ☐ Other
- ☐ Other European R&D programme
- ☒ Private (in-house) research
- ☐ Regional R&D programme

**6. Description:** The proposed optimization approach is used for modelling, optimization and automated design of technological processes, as well as for determination of the properties of the products under different conditions. This is achieved via a specially developed software, which is required to perform the necessary calculations.

The basis for these calculations can be experimental and simulation research, generalized to adequate regression models and models with artificial neuron networks. The software solution depicts the investigated output(s), depending on 2 to 10 input parameters. It is provided with several options, making the solution extremely user-friendly. The approach consist of improvement of existing or design of new, non-established technological processes, the parameters of which vary within a range, by which, after an experimental check, benefits are guaranteed achieved through a certain economic effect.

- A new non-established technological process or technology, for which a process of designing the processing mode is forthcoming.
- Non-optimized process, for which better quality indicators (set of indicators) through optimization may be offered or savings of used raw materials or energy are achieved by maintaining the levels of quality parameters.
- Optimization of simulation Computer Aided Engineering /CAE/ calculations to optimize and achieve a rational technological option.

**7. IPR status:**

- ☐ Copyright
- ☐ Design Rights



- ☐ Exclusive Rights
- ☐ Granted patent or patent application essential
- ☐ Other (registered design, plant variety, etc.)
- ☐ Patent(s) applied for but not yet granted
- ☐ Patents granted
- ☒ Secret know-how
- ☐ Trade Marks

#### 8. Comments Regarding IPR status:

The proposed approach is implemented through a specialized software, but without expert assistance for its use, the software is worthless for widespread use of the described goals.

## II. Dissemination

9. **Technology Keywords:** Process control (002003), Materials Technology (002007), Mathematics, Statistics (005004), Coatings (002002002).

10. **Market Keywords:** Manufacturing/industrial (002007011), Expert systems (002007017), Process control equipment and systems (008002003), Engineering services (009003001).

#### 11. NACE Keywords:

. 62.0.3 Computer facilities management activities, M. 70.2 Management consultancy activities, C. 24.1 Manufacture of basic iron and steel and of ferro-alloys, C. 24.5 Casting of metals.

#### 12. Restrict dissemination to specific countries:

Austria, Czech Republic, France, Germany, United Kingdom of Great Britain and Northern Ireland, China, Russia, Turkey and the United States.

#### 13. Languages Spoken:

English, Russian.

#### 14. Your Country:

Bulgaria

## III. Partner Sought

15. **Type and Role of Partner Sought:** All interested users are potential partners for the service. Employers' experts are the key decision makers in the process. They will provide



the database that is the basis for the study calculations. They will define the boundaries of parameter variation, manage and organize preliminary and final experiments, and finally implement the proposed solution. The assistance from the Bulgarian university experts includes choosing the parameters of the technological process that guarantee results that are relevant to the respective manufacturing company.

#### **16. Type and Size of Partner Sought:**

- ☐ Industry >500 (Enterprise with more than 500 employees)
- ☒ Industry MNE >500 (Multinational enterprise with more than 500 employees)
- ☒ Industry 250-499 (Enterprise with 250 – 499 employees)
- ☐ Industry SME ≤ 10 (Small to Medium sized enterprise – 10 or less employees)
- ☐ Industry SME 11-49 (Small to Medium sized enterprise – 11 to 49 employees)
- ☒ Industry SME 50 – 249 (Small to Medium sized enterprise – 50 to 249 employees)
- ☒ Inventor
- ☐ R&D institution (Research and Development institute)
- ☐ University (Accredited place of learning)

#### **17. Type of Partnership Considered :**

- ☐ Acquisition agreement
- ☐ Commercial agency agreement
- ☒ Commercial agreement with technical assistance
- ☐ Distribution services agreement
- ☐ Financial agreement
- ☐ Franchise agency agreement
- ☐ Joint venture agreement
- ☐ License agreement
- ☐ Manufacturing agreement
- ☐ Outsourcing agreement
- ☐ Reciprocal production
- ☐ Research cooperation agreement
- ☐ Services agreement
- ☐ Subcontracting
- ☐ Technical cooperation agreement

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