

Call for Partnerships:
The EIC is looking for partners
within the European Innovation Ecosystem

Open Call for Partnerships through the Ecosystem Partnerships and Co-Investment Support programme

Service Description Form

<p><i>The applicants should be organisations willing to become EIC Partners and providing Business Acceleration Service(s) to EIC Beneficiaries.</i></p>	
<p><i>Background information about the organisation (150-200 max words):</i></p>	<p><i>The Institute Mihajlo Pupin (IMP, www.pupin.rs) is a leading Serbian R&D institution in information and communication technologies, the largest and oldest in the whole South Eastern Europe. The institute was founded in 1946 and has 510 employees, 320 of them being researchers.</i></p> <p><i>At Pupin Institute, the projects of critical national importance have been conducted, combining systems engineering and information technology to develop innovative solutions in the area of environmental management, water resource management, traffic management, power systems management, innovation management, policy advisory, etc. For projects on a large scale, the “Mihajlo Pupin” Institute assembles a team with the best mixture of expertise appropriate to that specific engagement. ISO 9001, ISO 14001 and 18001 Quality Assurance Certificates that Pupin holds guaranties that it meets the value and quality expectations of its customers. Leading world companies such as Raytheon, BASF, NCR and Philips had benefited from Pupin’s solutions and services. The Mihajlo Pupin Institute is the most successful Serbian institution when it comes to internationally funded research, being involved in 84 international research projects since 2004. For a complete list of European R&D projects, please check the link http://www.pupin.rs/en/research-and-development-projects/european-rd-projects/.</i></p>
<p>Service(s) and activities to be provided by the applicant</p>	
<p>Service A: <i>Software / Hardware Development in different domains</i></p>	<p><i>R&D profile of the Institute Mihajlo Pupin represents a synthesis of scientific and expert knowledge in a wide variety of fields such as electronics, automation, computer engineering, telecommunications, information systems and software engineering. The Institute’s product range therefore consists of assortment of solutions intended for business systems, large public enterprises, institutions and state administration. In a much lesser extent Institute’s products and services are designed to meet demands of SME and individual customers.</i></p> <p><i>More references can be found at https://www.pupin.rs/en/references/</i></p> <p>Cost and budget for the service: <i>full payment expressed in Person/months needed to deliver the solution.</i></p>
<p>Service B: <i>Process Management Products (TRL-9)</i></p>	<p><i>Several generations of SCADA systems developed in the Institute were especially designed for large and geographically distributed managing facilities in electric power industry, water supply and irrigation, and others. Key issues for their success were knowledge, experience, diligence and enthusiasm of many Institute’s scientists, researchers and engineers working on the project. A special focus was</i></p>

	<p>paid to the high system operational reliability, which has been achieved through the redundancies of critical systems parts (RTU, communication channels, SCADA servers and MMI). More information at https://www.pupin.rs/en/products-services/process-management/scada/</p> <p>Cost and budget for the service: depends of the hardware components and Person/months needed to customize/deliver the solution.</p>
<p>Service C: Smart Energy Management - Non-Intrusive Load Monitoring (TRL5/TRL6)</p>	<p>Non-Intrusive Load Monitoring (NILM) entails disaggregation of the total aggregated power consumption on the individual appliance level. It is intended as the approach which encourages and helps users to decrease electrical energy wastes in an intrusive manner. Namely, it provides information about the individual electrical appliance consumption without installing numerous sensors. IMP offers a completely new approach for NILM known as Domain Adversarial Neural Networks (DANN). DANN is intended for problems where significant difference in distribution between the training and testing data exists, which is indeed this case.</p> <p>Cost and budget for the service: full payment expressed in Person/months needed to deliver the solution.</p>
<p>Service D: Smart Energy Management - Energy demand prediction algorithms (TRL5/TRL9)</p>	<p>Load forecasting topic is gaining more and more attention these days, due to increase of RES share on the production side. Depending on the particular forecasting horizon and forecaster's utilization, different approaches are used, and therefore, following categories could be defined:</p> <ul style="list-style-type: none"> • Very short-term forecasting covers forecasts with horizons from a few minutes to a few hours, and thus, is exploited for demand response applications; • Short-term forecasting covers forecasts from day to several days ahead and is utilized for scheduling and electricity market trading; • Medium-term forecasting covers horizons from week ahead to couple weeks ahead and is utilized for maintenance scheduling; • Long-term forecasting covers horizons up to couple of years and is used for invest planning purposes. <p>IMP offers a set of services for load forecasting, customization for the target beneficiary. Statistical approaches are TRL9, novel hybrid approach for short-term load forecasting (a combination of kNN and hybrid neural network) which improves the forecasting performances are TRL 5.</p> <p>Cost and budget for the service: full payment expressed in Person/months needed to deliver the solution.</p>
<p>Service E: Smart Energy Management - RES generation prediction algorithms (TRL5/TRL9)</p>	<p>With the increased share of the RES on the production side, necessity for precise production forecasting models increases, which is the main reason why the production forecasting modelling become highly popular amongst researches these days. There are numerous categorizations of the methodologies depending on the particular RES, horizon, availability of the data, etc.</p> <p>IMP offers a set of services for</p> <ul style="list-style-type: none"> • wind turbine production forecasting • PV production forecasting <p>Hybrid neural network approaches (TRL5) intend to provide improved estimation performances in comparison with other methods (TRL9).</p> <p>Cost and budget for the service: full payment expressed in Person/months needed to deliver the solution.</p>
<p>Service E: Smart Energy Management - Energy Efficiency User Benchmarking</p>	<p>Having in mind the variety of factors that contribute to the total energy consumption of both residential and commercial energy users, a need has been noted of providing a fair ranking of energy efficiency metrics for different energy users and prosumers. In order to aid in this regard, IMP provides a methodology and software tools capable of considering a set of different factors, while also being easily extendible to additional new metrics, in order to properly reflect energy consumption behavior. In order to achieve this, a non-parametric optimization is utilized in the form of data envelopment analysis in addition to a machine learning algorithm that considers demand estimation, as well as an analysis of production</p>

	<p>and demand profile matching, resulting in the required fair energy efficiency benchmark result.</p> <p>Cost and budget for the service: full payment expressed in Person/months needed to deliver the solution.</p>
<p>Service F: Smart Energy Management - Holistic energy dispatch optimization for improved asset scheduling</p>	<p>IMP offers an integrative approach for optimisation of energy asset (RES, storage, EVs) scheduling by considering the energy supply and demand side of target infrastructure. It leverages integrative energy optimizer based on the Energy Hub concept and take the energy assets and demand flexibility under the multi-objective optimisation, while considering their potential synergy and sector coupling (power-to-x) mechanisms. For the given production and demand profile as an, the optimisation will deliver an optimal energy mix at the supply side and optimised demand profile, while exploiting the energy dispatch alternatives and energy efficiency of underlying systems. The optimisation function will be executed to meet different objectives, considering energy and cost savings, operational costs, environmental impact, and enable improved energy self-sufficiency, VPP/VES effects, etc. Relevant parameters and constraints are needed (e.g. system topology, assumed demand flexibility, pricing schemes).</p> <p>Cost and budget for the service: full payment expressed in Person/months needed to deliver the solution.</p>
<p>The applicant is fully aware that the present Service Description Form is non-binding for either party and warrants further discussion with the contracting/project managing authority (EIC Contractor) and European Innovation Council (EIC) and European Innovation Council and SME Executive Agency (EISMEA).</p> <p>The applicant understands the content on the present document will be used as a basis for evaluation of its application and as the basis for negotiating, developing, and signing a Memorandum of Understanding between the applicant and the EIC Contractor, when and if the applicant's service offer is approved to be offered for EIC Beneficiaries.</p>	