ITEA 4

Project Profile

ELFMo

Business integration of large foundation models and generative AI

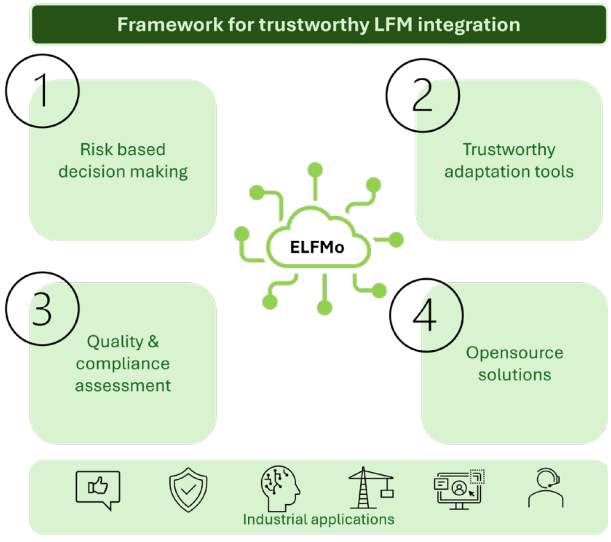
The integration of large foundation models (LFMs) and generative artificial intelligence (GenAI) into businesses presents significant opportunities but also brings costs, compliance challenges and technical complexities. The ITEA project ELFMo (Engineering Large Foundation Models) will address these challenges with a framework for effective integration while aligning with European regulations.

Addressing the challenge

The combination of GenAI (which produces content) and LFMs (large models with billions of parameters trained on huge datasets) has made AI applicable to areas previously challenging to automate. However, for effective use, the models must be adapted to specific problems in a tool/resource-intensive process that requires specific expertise; due to their size and lack of transparency, issues such as hallucinations are difficult to identify and eliminate. Legal or regulatory ambiguities and market concentration within the United States also negatively impact the competitiveness of European industry.

Proposed solutions

To support the adoption of GenAI and the use and integration of LFMs into enterprise applications, ELFMo will develop a framework to guide decision-making processes in LFM deployment, perform domain-specific adaptation of these models, and carry out rigid quality assessments over an LFM-based application's lifecycle. This will be based around four innovations. Firstly, a risk-based approach to decision-making will support the systematic development of proof-of-concept prototypes by providing selection procedures for models, algorithms, data and training/fine-tuning procedures, as well as domain-specific benchmarks for continuous evaluation. Secondly, ELFMo will develop tools, methods and infrastructures for the trustworthy adaptation and integration of LFMs to domain-specific tasks. Thirdly, evidence-based procedures will be created for the quality and compliance assessment of LFM-based applications and services, aligning with European AI regulations. Finally, the project will foster open-source/access solutions and European standards, including making certain results available as open source and promoting the use of open-source datasets and models as a basis for industrial applications.



Projected results and impact

In essence, ELFMo will empower enterprises to mitigate risk while integrating GenAI and LFMs into their software infrastructures and applications within the constraints of costs, resource allocation and compliance. In doing so, it aims for both efficiency and accuracy: the project's innovations are expected to reduce the resources required for LFM business adoption by 30% while aiming to lower the output hallucination rate from 15-20% to <5%. This positions ELFMo's consortium and users with a strong competitive position in technologies that are expanding rapidly across almost every market – such as e-commerce, where the number of enterprises using GenAI is expected to grow from 5% to 80% between 2023 and 2026. In total, the economic value of GenAI amounts to USD 6.1-7.9 trillion annually and, with its focus on open source and EU regulations, the project will also help the European market to capture a larger share of these benefits, which include enhanced productivity and problem-solving. ELFMo therefore expects to have a transformative impact on the entire market value chain, from production to customer service.

Project partners

ELFMo
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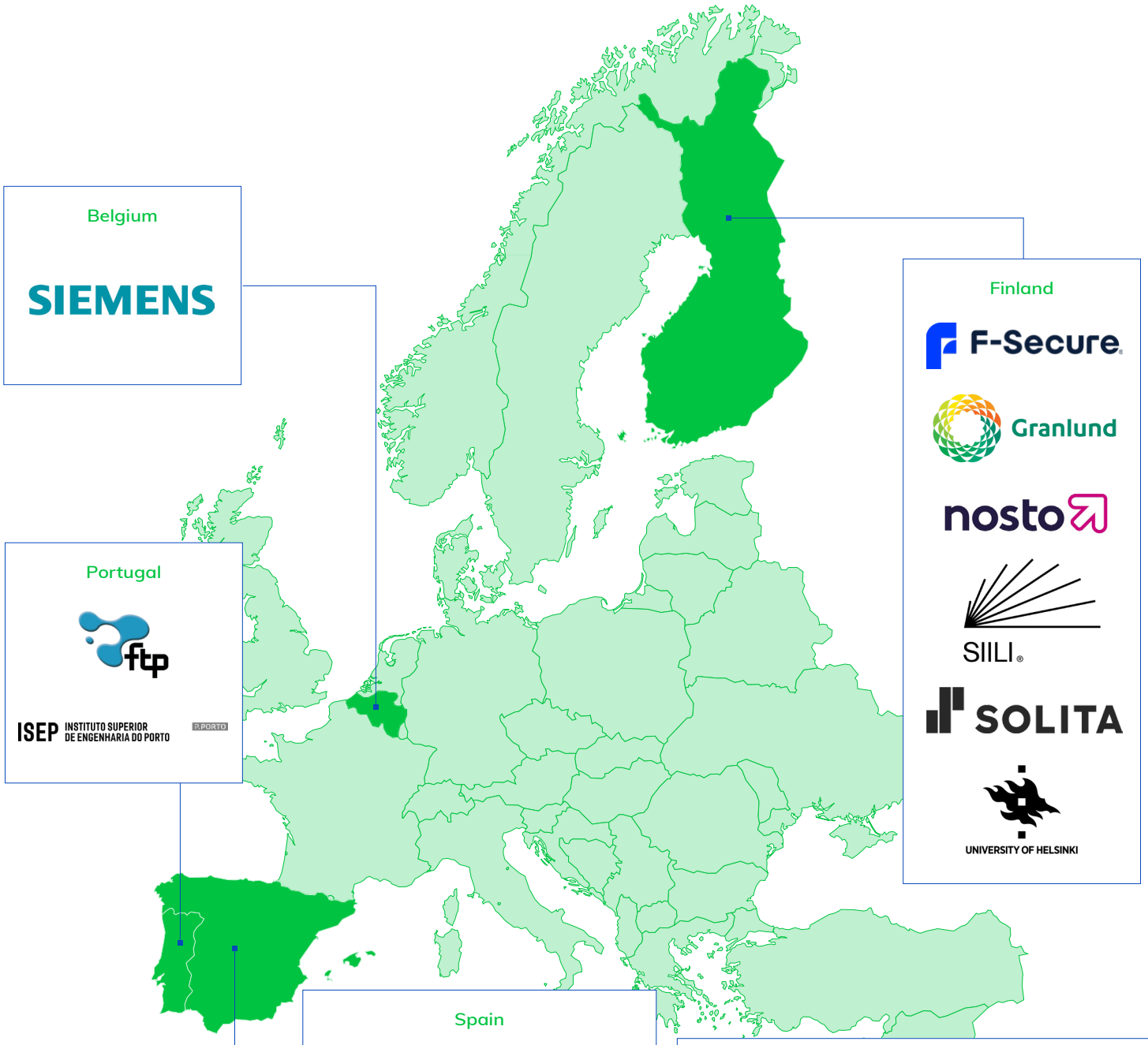

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October 2024

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September 2027

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