

Report on the outcomes of a Short-Term Scientific Mission¹

Action number: CA19130 - Fintech and Artificial Intelligence in Finance - Towards a transparent financial industry (FinAI)

Grantee name: COITA IOANA - FLORINA

Details of the STSM

Title: Evaluating sustainability goals at European level from spatial perspective using taxpayers' perception and sentiment analysis

Start and end date: 14/10/2022 to 23/10/2022

Description of the work carried out during the STSM

Description of the activities carried out during the STSM. Any deviations from the initial working plan shall also be described in this section.

During this STSM I worked together with researcher Stefana Cioban (Belbe).

The following activities were carried in order to achieve the proposed aim:

1. We reviewed the research literature and identified 2 new variables for expanding the survey:
 - a. Q1. How do you evaluate your level of trust in the European institutions?
 - b. Q2. What do you think of the European institutions? (open-ended)
2. We choose research question related to the fact: Are there any differences between what people really feel (sentiment) regarding EU institutions and trust countries report to EU. We have identified the hypothesis referring to the need to assess people's confidence on the European institutions using their perception and sentiment analysis.
3. As main objectives we have identified the following:
 - Analysing people's open responses when asked what they think about the social UN sustainability measure using sentiment analysis and exploratory spatial analysis
 - Assessing the relation between the UNs sustainability measure as proxied by the confidence in the European institutions and people's perception as declared in their answers to a questionnaire.
4. We extended the database by including the questions mentioned at 1st point and by applying the questionnaire to people from European Countries that did not previously answer and to

¹ This report is submitted by the grantee to the Action MC for approval and for claiming payment of the awarded grant. The Grant Awarding Coordinator coordinates the evaluation of this report on behalf of the Action MC and instructs the GH for payment of the Grant.

countries where we did not reach a good level of representativity. We are targeting a threshold of 200-300 range of responses from each EU country. We will achieve this by sending the online survey to the COST network and by sending it to officials of EU institutions that could help us in getting the representativity we need for the study to be valid.

5. We tested several research methodologies that could fit our objectives for the sentiment analysis score prediction for the open-ended questions' answers' corpora. We have designed the methodology and split it into two main sections: the sentiment analysis phase and the spatial analysis phase.

6. We have tested a spatial model specification for the assessment of interdependencies, factors, and spatial influences between the attitude towards national institutions and the UN sustainability measures. The scope of the spatial analysis phase is to assess the sentiment as expressed by people against the confidence in the European institutions as reported by Eurostat. Also, in this phase we evaluate how people's personal values and their opinion on each public service contributes to confidence in the European institutions.

7. We will interpret the model's results for two distinct trust measures: the score given in the questionnaire and the sentiment computed on top of the open-ended questions on people's opinion on the European Institutions. The latter will be interpreted as a robustness check for the attitude towards national institutions against the UN SDG goals as proxied by the sustainability measures.

As a deviation from the initial working plan, we settled to measure one pillar of sustainability and took out the Greenhouse gas emissions as initially proposed in the STSM - so that the focus will stand on assessing people's trust in the European institutions only.

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Description of the STSM main achievements and planned follow-up activities

Description and assessment of whether the STSM achieved its planned goals and expected outcomes, including specific contribution to Action objective and deliverables, or publications resulting from the STSM. Agreed plans for future follow-up collaborations shall also be described in this section.

The STSM achieved its planned goals and expected outcomes as described above. Its specific contribution to Action objective and deliverables refers to assessing sustainability at institutional level in the financial domain, using AI models that support transparency and help Authorities discover fraudulent in a more efficient manner. Our objective is to unveil discrepancies between what European countries report on trust and transparency perceived at EU institutions and what exactly happens in the reality by analysing people's perception using sentiment analysis. We will contribute to CA19130's strategy to engage stakeholders by evaluating their opinion on topic addressed and share it with the responsible decision bodies. Our data collected and models used will be shared on Github repository contributing to MoU objectives and deliverables and brings one step closer to improving transparency.

All these endeavours contribute to the achievement of the MoU objectives and deliverables of COST action CA19130 referring to objective no. 1 focusing on revealing fraudulent behaviour, contributing to objective no.8 bringing researchers together to collaborate and disseminate results, to objective no. 14 maximize job opportunities and 16 improve gender equality. This application also contributes to deliverables of the Action specifically to guidelines to improve

transparency and building a database for predicting fraud. Application's results were disseminated during past COST event at Twente University, Vasile Strat's COST Action podcast and also through writing a research paper for publishing in high quality ranked journals.

Planned follow-up activities of this STSM are:

1. Participation to at least one COST conference to disseminate the results of the analysis and engage the Action members to discuss on possible improvements
2. Writing at least one research paper on the outputs of this STSM and the analysis results and submitting it for publication, acknowledging the COST Action support for this research;
3. Continue collaboration with researchers from BFH on various projects, applications and research papers.

(max. 500 words)

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