Psychosocial comparative analysis using AI: 735-120 kV substation project

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735-120 kV substation project

Psychosocial comparative analysis using AI

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The project

- Electrical substation - 30 ha;

- Intercepts existing power lines;

- 20 private properties affected.

Similar electrical substation

Implantation area

The project

Artisanal sugar shack

Hunting Blinds

Psychosocial impacts

Definition

PSI are the effects of psychological and social factors on a person's mental health and well-being.

Key sources of these impacts include:

- Involuntary resettlement,

- Ongoing nuisances,

- Perceived health and safety risks,

- Loss of income and employment.

Reactions

Actions

Coping process

Psychosocial impacts

Method inspired by the transactional stress model[1]:

1

Primary appraisal

Threat, challenge or irrelevant

2

Secondary appraisal

Coping resources and coping potential

3

Coping strategies

Problem-focused or emotion-focused

Seeking, obtaining and using social support

4

Outcome

Anticipated PSI or

Favorable or neutral

[1] Lazarus, R., & Folkman, S. (1984). Stress, Appraisal, and Coping.

Gathering Data

Methods

- One-on-one meetings;
- Information and consultation sessions;
- Postal psychosocial survey.

Indicators

- Level and type of concerns;
- Perception (project and procurement process);
- Coping strategies;
- Ability to cope with the situation;
- Perception of the impact on daily life.

Concerns and reactions

Concerns:

- Potential loss of land use;

- Uncertainties regarding the acquisition process;

- Environmental impacts (such as deforestation).

Reactions:

- Positive and neutral;

- Negative-emotional (disappointment, anger, discouragement, sadness)

AI Analysis method

Analysis tools used:

- Copilot Pro GPT-4

- Inputs: Excel database – psychosocial survey.

Objectives:

- Human vs AI

- Process answers to open-ended questions:
  - Concerns;
  - Psychosocial reactions with predefined coding;
  - Cross-analysis (2 variables).

General findings on the use of AI

- Qualitative analysis – Reasonably effective on summarizing and categorizing data.

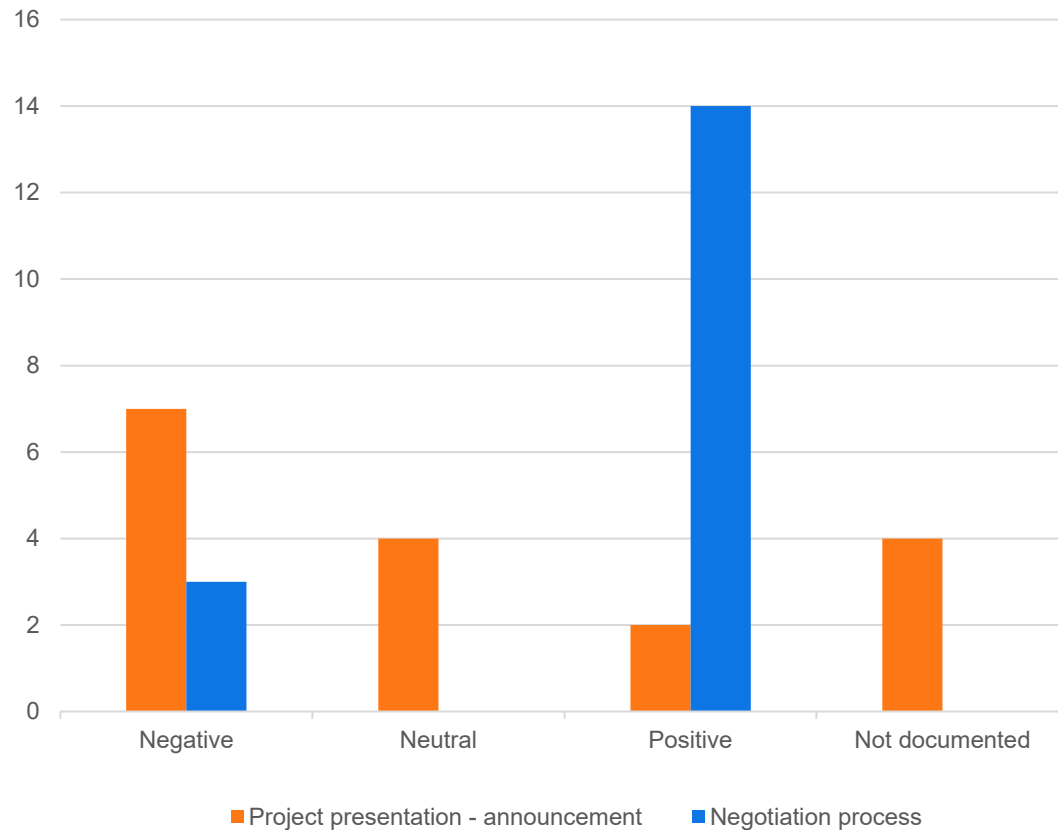- Quantitative analysis – Room for improvement.

General findings on the use of AI

- Risk of overrepresentation: answers with multiple reactions;

- Challenges processing complex reactions:
  - surprise, curiosity, search for information, interest (positive, negative or neutral?)

- Incorrect data interpretation – errors counting.

- Balance between AI efficiency and human interpretation.

How did reactions evolve over time?

Evolution of perceived psychosocial reactions

Those who initially rated their coping ability as "fair" or "poor" seem to view the situation more positively during negotiations.

Effective adaptation was achieved through positive coping strategies.

Conclusion

- Effective adaptation to the situation involved the use of positive coping strategies.

- The transactional stress model is a valuable framework to PSIA.

- Human insight is essential when using AI.

Merci !
Thank you !
Grazie !

Let's continue the conversation!

Message me your questions or comments in the IAIA25 app.

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