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Version 1

A risk-based exploration on the merits of re-orientating asset management towards the influence of and consequences for people at an individual and societal level: a systematic literature review protocol V.1

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Protocol status: Working

We use this protocol and it's working

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Abstract

The author has completed a systematic review which is intended as a protocol driven comprehensive review and synthesis of material focusing on the problem statement and resultant research questions. It was performed by the author with the additional input of a domain expert in the field of gas engineering and a highly experienced academic researcher. The first step was to formulate the problem statement and derive from that three research questions. From there the review commenced. This work acts as both the literature review methodology and protocol in that it contains a comprehensive description of the systematic literature review, including the rationale and the methods intended to follow. The protocol is used to pre-specify the objectives and methods for the systematic literature review. The intention of developing the protocol at this stage is to help decrease bias.

Literature review methodology and protocol

- 1 The author has completed a systematic review which is intended as a protocol driven comprehensive review and synthesis of material focusing on the problem statement and resultant research questions. It was performed by the author with the additional input of a domain expert in the field of gas engineering and a highly experienced academic researcher. The first step was to formulate the problem statement and derive from that three research questions. From there the review commenced as per the subsections below. This section acts as both the literature review methodology and protocol in that it contains a comprehensive description of the systematic literature review, including the rationale and the methods intended to follow. The protocol is used to pre-specify the objectives and methods for the systematic literature review. The intention of developing the protocol at this stage is to help decrease bias.

Bibliographic database searches

- 2 Two bibliographic databases were chosen for the systematic literature review, namely: Web of Science, Scopus. In addition, the academic search engine, Google Scholar, was utilised in the search for academic content.

Keyword search strategy

- 3 This subsection features the Boolean logic used in the keyword searches Web of Science, Scopus – there are separate search strings for each research question. With Google Scholar, it proved more effective to formulate search terms based on the three research questions and then apply additional logic to optimise the search results.

Web of Science

Research question 1

What are the people-based modes of interaction that can adversely affect the safe operation of a state-critical networked asset portfolio?

All fields search for:

state AND critical AND network AND assets AND people

OR

public AND critical AND network AND assets AND people

OR

country AND critical AND network AND assets AND people

Sensitivity analysis: Using 'or' function and public instead of state returned the same results.

Sensitivity analysis: Using 'or' function and country instead of state returned 30 results but the extra 7 were irrelevant.

Research question 2

What are the adverse impacts that an energy transmission network can have at an individual and societal level?

All fields search for:

individual AND societal AND energy AND transmission

OR

individual AND society AND energy AND transmission

Sensitivity analysis (checking first 200): Using 'or' function and society instead of societal returned 768 results but the extra results were irrelevant.

Research question 3

Is there an opportunity to hybridise asset and human reliability enhancement strategies?

All fields search for:

hybrid AND asset AND human AND reliability

OR

hybridise AND asset AND human AND reliability

OR

hybridize AND asset AND human AND reliability

Sensitivity analysis: Using 'or' function and hybridise / hybridize instead of hybrid returned the same results.

Scopus

Research question 1

What are the people-based modes of interaction that can adversely affect the safe operation of a state-critical networked asset portfolio?

Article title, Abstract, Keywords* search for:

state AND critical AND network AND assets AND people

OR

public AND critical AND network AND assets AND people

OR

country AND critical AND network AND assets AND people

Sensitivity analysis: Using 'or' function and public instead of state returned 64 results but the extra 22 were irrelevant.

Sensitivity analysis: Using 'or' function and country instead of state returned 53 results but the extra 11 were irrelevant.

* All fields searches return thousands of irrelevant results

Research question 2

What are the adverse impacts that an energy transmission network can have at an individual and societal level?

Article title, Abstract, Keywords search for:

individual AND societal AND energy AND transmission

OR

individual AND society AND energy AND transmission



Sensitivity analysis (checking first 200): Using 'or' function and society instead of societal returned 639 results but the extra results were irrelevant.

Research question 3

Is there an opportunity to hybridise asset and human reliability enhancement strategies?

Article title, Abstract, Keywords search for:

hybrid AND asset AND human AND reliability

OR

hybridise AND asset AND human AND reliability

OR

hybridize AND asset AND human AND reliability

Sensitivity analysis: Using 'or' function and hybridise / hybridize instead of hybrid returned the same results.

Google Scholar

Research questions

What are the people-based modes of interaction that can adversely affect the safe operation of a state-critical networked asset portfolio?

What are the adverse impacts that an energy transmission network can have at an individual and societal level?

Is there an opportunity to hybridise asset and human reliability enhancement strategies?

Search terms:

With all of the words (anywhere in the article):

gas transmission people incidents pipeline individual societal integrity

Return articles dated between 1994 and 2024

Without the words: distribution

The search returned ~18,000 results however on checking first 200, only the first 60 display any meaningful relevance to the search terms.

Screening approach

- 4 The systematic literature review featured three reviewers. Reviewer one outlined the research aims and performed the initial identification of studies. At this point records, that were deemed to be irrelevant were removed from the process. Reviewers one and two performed screening in a blind manner with two possible outcomes: include or exclude. Reasons for exclusion were drawn from a pre-defined list developed by reviewer one. A third reviewer was used as a tiebreaker where there existed conflicts between the decisions of reviewer one and reviewer two. Reviewer three had full sight of decisions and reasons for inclusion / exclusion entered by reviewers one and two.

Inclusion criteria

- 5 Inclusion criteria was based on the reviewers' expert opinion upon reading the title and abstract of the records chosen for screening. Reviewers assessed if the records aligned with input and potential answers from the research questions.

Grey literature

- 6 The systematic literature review includes studies which can be classed as grey literature. The studies include a sample of technical reports, web articles and engineering standards. The value in including grey literature stems from unpublished results reducing publication bias, which includes the tendency for studies that report a positive result being more likely to be published than those finding a negative result (Albert Einstein College of Medicine, 2024). Grey literature can also record findings from emerging research areas that may not be published by commercial entities who may have a more profit-based publishing strategy (University of Exeter, 2024).

Backward and forward citation analysis

- 7 The author employed a combination of backward and forward citation analysis as it is may be an effective way to complement electronic database searches and to broaden the scope of possible findings (Hirt, et al., 2020).

PRISMA diagram

- 8  PRISMA flow diagram 200125.pdf 57.1KB



The author employed usage of a Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) flow diagram to visually summarise the process and to increase the clarity, transparency, quality and value of the completed literature review (Page, et al., 2021). The PRISMA diagram is attached for viewing.