Systematic Literature Review in the Age of AI: New Tools, New Methods

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Section 1

Introduction

Context and Objectives

- **Context**: Growing interest in systematic literature reviews (SLR) within economics and management research.
- **Objectives of this Presentation**:
  - Introduce the theoretical background of SLR.
  - Present AI-driven and computational tools that facilitate SLR.
  - Demonstrate a real-world example using NLP in marketing research.

Outline of the Presentation

Section 2

1. Definition and Importance of Systematic Literature Reviews

What Is a Systematic Literature Review?

- **Systematic**: A structured, replicable, and transparent process for collecting and analyzing literature on a specific topic.
- **Literature Review**: Synthesis of existing research to identify:
  - Key themes
  - Research gaps
  - Future research directions

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Why Conduct a Systematic Literature Review?

- **Credibility and Transparency**: Minimizes bias, promotes replicability.
- **Comprehensive Coverage**: Ensures all relevant studies are included.
- **Guides Future Research**: Highlights gaps and emerging areas of study.

Section 3

2. SLR Process & PRISMA Framework

Standard Steps in an SLR

1. **Define Research Question** (PICO, PICOC, etc., in medical or social sciences)
2. **Search Strategy** (databases, keywords, boolean operators)
3. **Screening & Eligibility** (inclusion/exclusion criteria)
4. **Quality Assessment** (methodological soundness, relevance)
5. **Data Extraction** (collect relevant information)
6. **Synthesis & Analysis** (qualitative or quantitative/meta-analysis)
7. **Reporting** (PRISMA flow diagram, structured write-up)

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PRISMA Flow Diagram (Briefly)

- **Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)**:
  - Structured approach to document how many articles were found, screened, included, or excluded at each step.
  - Ensures transparency in the selection of articles.

Section 4

3. AI & NLP in Literature Reviews

Where Does AI/NLP Fit In?

- **Automated Text Mining**: Quickly processes large volumes of abstracts and full texts.
- **Topic Modeling** (e.g., BERTopic, LDA): Identifies thematic structures from textual data.
- **Clustering & Network Analysis**: Helps visualize relationships between authors, topics, and keywords.
- **Summarization**: AI-driven tools to extract key points, saving time on manual reading.

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Example: NLP in Marketing Research

- **Data Collection**:
  - Used Scopus API to retrieve all relevant abstracts and author information.
- **Data Processing**:
  - Cleaned text data (removing stopwords, punctuation).
  - Used graphing libraries to visualize co-authorship networks and keyword co-occurrences.
  - Applied **BERTopic** for advanced topic modeling.
- **Insights**:
  - Identified main research clusters, key authors, and emerging topics in marketing.

Section 5

4. Tools & Demonstration

Traditional vs. AI-Enhanced Tools

Traditional Tools - **R bibliometrix** - Free, open-source R package for bibliometric analysis. - Offers citation analysis, co-occurrence networks, and more. - **VOSviewer** - Free software tool for constructing and visualizing bibliometric networks. - Widely used in academic reviews.

AI-Enhanced Tools - **Artirev**, **Connected Papers**, **Elicit**, **AnswerThis**, **ResearchRabbit**, **LitMaps** - Provide intelligent recommendations. - Map out how papers connect based on citations or semantic similarity. - Some are free or freemium, some have advanced paid features.

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Quick Demonstration: R bibliometrix