

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

CRIISEA Methodological Workshop, UPJV (Amiens)

Olivier Caron

February 18, 2025

Summary of the Presentation

- ➊ Definition and Importance of Systematic Literature Reviews
- ➋ SLR Process & PRISMA Framework
- ➌ AI & NLP in Literature Reviews
- ➍ Tools & Demonstration
- ➎ Practical Tips & Conclusions

1. A Definition of Systematic Literature Review

What Is a Systematic Literature Review? (Lame 2019)

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

1. A Definition of Systematic Literature Review

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Why Conduct a Systematic Literature Review? (Petticrew and Roberts 2006)

- **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.

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)

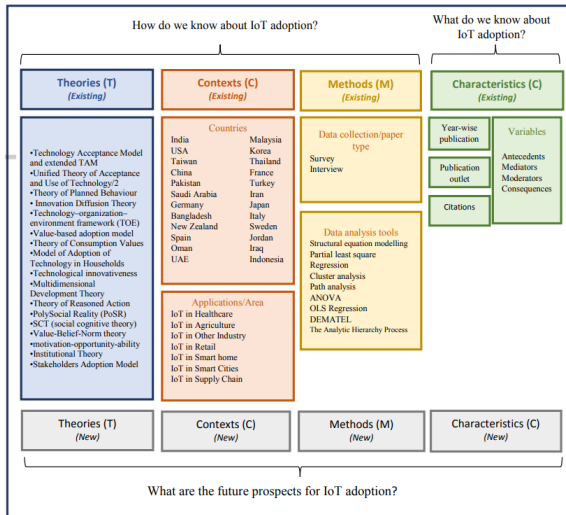
- **Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA):**
 - Structured approach to document how many articles were found, screened, included, or excluded at each step.
 - Ensures transparency in the selection of articles.

2.1 TCCM Framework (Paul and Rosado-Serrano 2019; Rosado-Serrano, Paul, and Dikova 2018)

- ① **Theory (T):** What theories have been used?
- ② **Context (C):** In which settings (industries, countries, samples) has the research been conducted?
- ③ **Characteristics (C):** What are the key variables and relationships studied?
- ④ **Methodology (M):** What research methods have been used (qualitative, quantitative, mixed methods)?


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2.2 Context

- **Context:** Growing interest in systematic literature reviews (SLR) in every field, including economics & management.



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... and **literature** that feature the application of AI within HRM. By utilizing a **systematic literature review** ... (T-HRIS) components are featured in **literature** and how each T-HRIS component is ...

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2.3 Additional PRISMA & SLR Illustrations

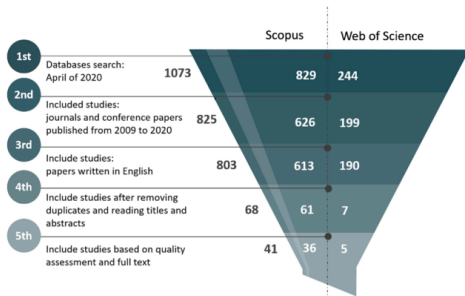


Fig. 3. Number of papers in each phase of the selection process.

Borges et al. (2021)

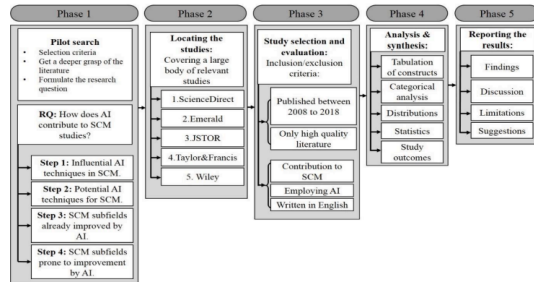


Fig. 1. Research process of systematic literature review.

Toorajipour et al. (2021)

2.4 Data evolution => Popularity

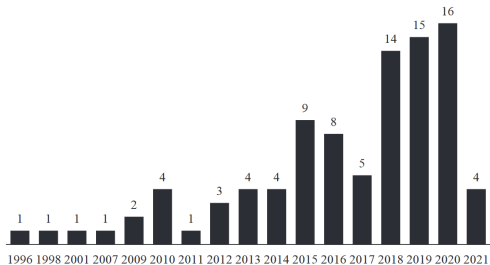


Fig. 3. Year-wise scientific production trend.

Chaudhary et al. (2021)

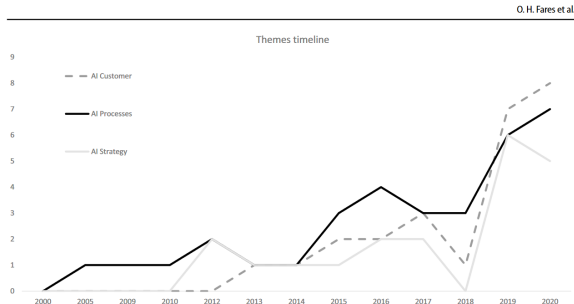


Fig. 2 Themes by timeline

Fares, Butt, and Lee (2022)

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:**
 - 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/references/methods/topics

4. Tools & Demonstration

Traditional vs. AI-Enhanced Tools

Traditional Tools

- **R bibliometrix**: R package for bibliometric analysis.
- **VOSviewer**: Tool for visualizing bibliometric networks.
- **R/Python** but it requires more time.

AI-Enhanced Tools

- **Artirev**: AI-powered literature review tool.
- **Connected Papers**: Visualizes connections between research papers.
- **Elicit**: Uses AI to summarize and analyze academic papers.
- **AnswerThis**: AI-assisted tool for answering research questions.
- **ResearchRabbit**: Creates dynamic citation and co-authorship maps.
- **LitMaps**: Helps visualize literature networks and track new papers.
- **NotebookLLM**: AI-powered literature review tool with summarization and analysis features.

Quick Demonstration: R bibliometrix

Bibliometrix

Bibliometrix Codes.R

Source on Save

Run

Source

```
1 ##### BIBLIOMETRIX CODES #####
2 # First Installation:
3 install.packages("bibliometrix")
4 library(bibliometrix)
5
6 # To Upgrade the Package with the Latest Version:
7 install.packages("remotes")
8 library(remotes)
9 remotes::install_github("massimoaria/bibliometrix")
10
11 # To Run Biblioshiny
12 library(bibliometrix)
13 biblioshiny()
```

16:1 BIBLIOMETRIX CODES R Script

Console

Terminal

Jobs

R 4.1.2 · ~/

> ?bibliometrix

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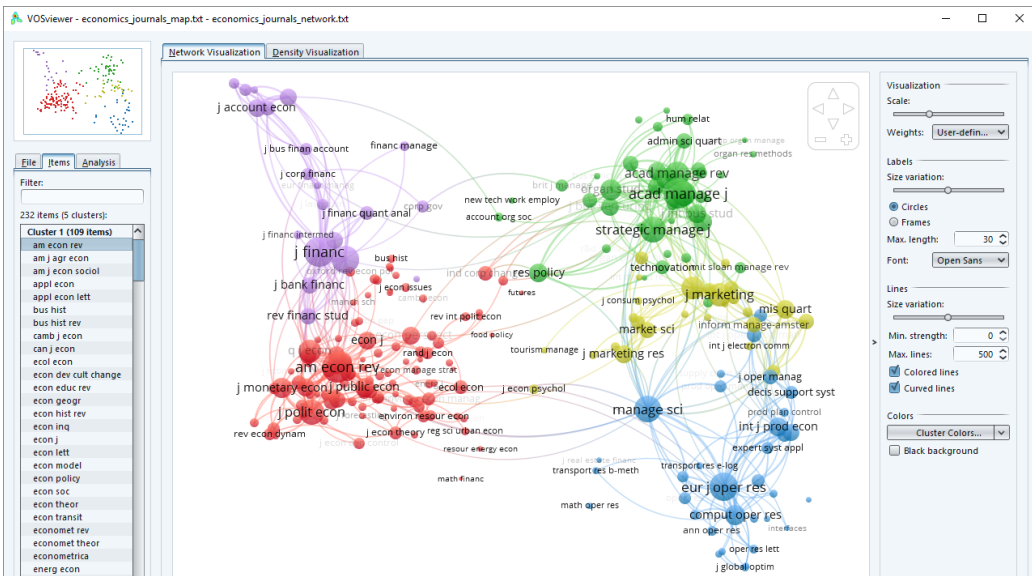
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2	★☆☆☆☆	Decoding digital engagement: a comparative analysis of English and Turkish brand post popularity dynamics on platform X A. Tanaltay, S. Ozturkcan, N. Kasap Journal of Research in Interactive Marketing	2024	MKT	0
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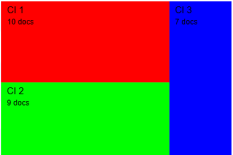
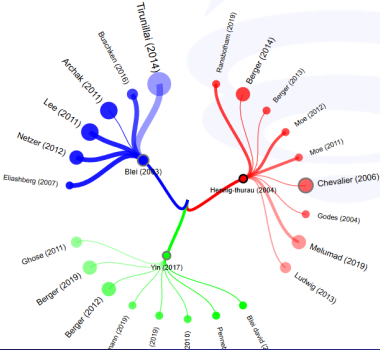
Research themes

Seminal texts

Texts that you must know to understand the research domain

map ☒ Network map

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internet?. journal of interactive marketing, 18(1), 38-52 doi:
10.1002/dir.10073

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Ashlee Humphreys, R. Wang 2018

Unstructured data in marketing

Bitly Balducci, Detelina Marinova 2018

Paralanguage Classifier (PARA): An Algorithm for Automatic Coding of Paralinguistic Nonverbal Parts of Speech in Text

A. Luangrath, Yixiang Xu, Tong Wang 2022

Comparing automated text classification methods

Jochen Hartmann, Juliana Huppertz, Christina Schamp, Mark... 2019

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Jochen Hartmann, O. Netzer 2023

Unveiling What Is Written in the Stars: Analyzing Explicit, Implicit, and Discourse Patterns of Sentiment in Social Media

F. V. Ordenes, S. Ludwig, K. Ruyter, Dhruv Grewal, Martin Wetzels 2017

When Words Sweat: Identifying Signals for Loan Default in the Text of Loan Applications

O. Netzer, A. Lemalre, M. Herzenstein 2019

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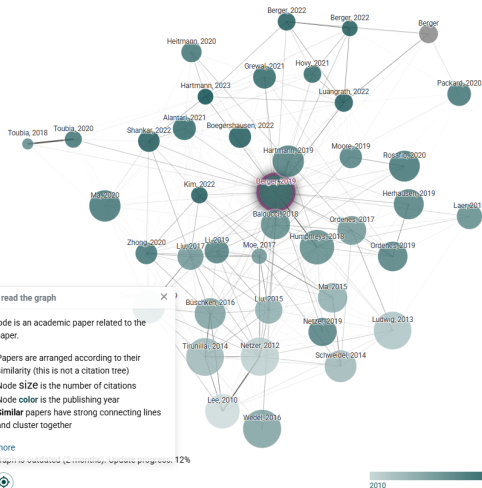
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Uniting the Tribes: Using Text for Marketing Insight

Jonah A. Berger + 4 authors David A. Schweidel

2019, Journal of Marketing

454 Citations

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Words are part of almost every marketplace interaction. Online reviews, customer service calls, press releases, marketing communications, and other interactions create a wealth of textual data. But how can marketers best use such data? This article provides an overview of automated textual analysis and details how it can be used to generate marketing insights. The authors discuss how text reflects qualities of the text producer (and the context in which the text was produced) and impacts the audience or text recipient. Next, they discuss how text can be a powerful tool both for prediction and for understanding (i.e., insights). Then, the authors overview methodologies and metrics used in text analysis, providing a set of guidelines and procedures. Finally, they further highlight some common metrics and challenges and discuss how researchers can address issues of internal and external validity. They conclude with a discussion of potential areas for future work. Along the way, the authors note how textual analysis can unite the tribes of marketing. While most marketing problems are interdisciplinary, the field is often fragmented. By involving skills and ideas from each of the subareas of marketing, text analysis has the potential to help unite the field with a common set of tools and approaches.

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Uniting the Tribes: Using Text for Marketing Insight	Jonah A. Berger, Ashlee Humphreys, S. Ludwig, Wendy W. Moe, O. Netzer, David A. Schweidel	2019	454	168	100
Automated Text Analysis for Consumer Research	Ashlee Humphreys, R. Wang	2018	425	246	32.1
Unstructured data in marketing	Bitty Balducci, Detelina Marinova	2018	199	238	22.7
Paralanguage Classifier (PARA): An Algorithm for Automatic Coding of Paralinguistic Nonverbal Parts of Speech in Text	A. Luangrath, Yixiang Xu, Tong Wang	2022	18	108	19.4
Comparing automated text classification methods	Jochen Hartmann, Juliana Huppertz, Christina Schamp, Mark Heitmann	2019	278	72	17.7
NATURAL LANGUAGE PROCESSING IN MARKETING	Jochen Hartmann, O. Netzer	2023	6	137	15.9
Unveiling What Is Written in the Stars: Analyzing Explicit, Implicit, and Discourse Patterns of Sentiment in Social Media	F. V. Ordenes, S. Ludwig, K. Ruyter, Dhruv Grewal, Martin Wetzels	2017	187	97	15.3
Social Media Analytics	Wendy W. Moe, O. Netzer, David A. Schweidel	2017	5	71	13.6
When Words Sweat: Identifying Signals for Loan Default in the Text of Loan Applications	O. Netzer, A. Lemaire, M. Herzenstein	2019	168	120	13.6
The future of digital communication research: Considering dynamics and multimodality	Dhruv Grewal, D. Herhausen, S. Ludwig, Francisco Villarroel Ordenes	2021	61	106	13.2
Detecting, Preventing, and Mitigating Online Firestorms in Brand Communities	D. Herhausen, S. Ludwig, Dhruv Grewal, Jochen Wulf, Marcus Schoegel	2019	226	79	12.2
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Discussion

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Diverses études explorent l'impact de l'intelligence artificielle (IA) dans des domaines variés. Elles examinent l'application de l'IA dans la gestion de la chaîne d'approvisionnement, les entreprises familiales, le marketing, la gestion des connaissances et la durabilité. Ces recherches analysent les techniques d'IA, les stratégies commerciales et les bénéfices potentiels de l'IA dans divers secteurs. Les articles mettent également en lumière les défis, les lacunes de la recherche et les opportunités futures liées à l'adoption de l'IA. Ils soulignent le rôle crucial de l'IA dans la transformation numérique et l'amélioration des performances organisationnelles. En résumé, ces sources offrent un aperçu complet du paysage actuel et futur de l'IA dans divers contextes commerciaux.

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Comment les outils d'IA transforment-ils les méthodologies de revue de littérature systématique?

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Systematic Literature Review in the Age of AI: New Too

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