Systematic literature search
Program

1. Introduction NSM Library team
2. Spot a systematic review
3. Stages of a (systematic) review
4. Search process
5. Four optional topics
Spot a systematic review

- different types of reviews -
Why do you think is the article you found a systematic review?
An overview of bankruptcy prediction models for corporate firms: A systematic literature review

Part of the abstract:

Design/methodology: A systematic literature review (SLR) has been conducted, using the Scopus database for identifying core international academic papers related to the established research topic from the year 1968 to 2017.

doi.org/10.3926/ic.1354
Septoplasty for nasal obstruction due to a deviated nasal septum in adults: a systematic review

Part of the abstract:

Methodology: Eligible for inclusion were randomised controlled trials and non-randomised designs comparing treatment strategies. Risk of bias was assessed using Cochrane’s tool. Standardised mean differences and risk differences with 95% confidence intervals were calculated. Substantial heterogeneity between included studies did not allow meta-analyse

https://doi.org/10.4193/Rhin18.016
Processes and measurement of knowledge management in supply chains: an integrative systematic literature review

Part of the abstract:

The current paper aims to build upon previous literature reviews focused on KM in supply chains (SCs) from an integrative perspective, particularly recognising the studies conducted by Bhosale (2016) [...] and Cerchione (2016) [...] as an effort to discuss the evolution of KM in the SC field. To this end, a systematic literature review including 210 papers is conducted over the period 2008–2017 from three positions previously not addressed jointly within the supply chain (SC) context: [...]
Systematic review in business and management research - Not clearly defined

It refers to all literature reviews that follow a systematic, transparent, and reproducible process for identifying academic literature about a clearly defined topic or research question.

# Review types

## Table 1 Main review types characterized by methods used

<table>
<thead>
<tr>
<th>Label</th>
<th>Description</th>
<th>Methods used (SALSA)</th>
<th>Appraisal</th>
<th>Synthesis</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical review</td>
<td>Aims to demonstrate writer has extensively researched literature and critically evaluated its quality. Goes beyond mere description to include degree of analysis and conceptual innovation. Typically results in hypothesis or model.</td>
<td>Seeks to identify most significant items in the field</td>
<td>No formal quality assessment. Attempts to evaluate according to contribution.</td>
<td>Typically narrative, perhaps conceptual or chronological.</td>
<td>Significant component: seeks to identify conceptual contribution to embody existing or derive new theory.</td>
</tr>
<tr>
<td>Literature review</td>
<td>Generic term: published materials that provide examination of recent or current literature. Can cover wide range of subjects at various levels of completeness and comprehensiveness. May include research findings.</td>
<td>May or may not include comprehensive searching.</td>
<td>May or may not include quality assessment.</td>
<td>Typically narrative.</td>
<td>Analysis may be chronological, conceptual, thematic, etc.</td>
</tr>
<tr>
<td>Mapping review/</td>
<td>Map out and categorize existing literature from which to commission further reviews and/or primary research by identifying gaps in research literature.</td>
<td>Completeness of searching determined by time/scope constraints.</td>
<td>No formal quality assessment.</td>
<td>May be graphical and tabular.</td>
<td>Characterizes quantity and quality of literature, perhaps by study design and other key features. May identify need for primary or secondary research. Numerical analysis of measures of effect assuming absence of heterogeneity.</td>
</tr>
<tr>
<td>systematic map</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meta-analysis</td>
<td>Technique that statistically combines the results of quantitative studies to provide a more precise effect of the results.</td>
<td>Aims for exhaustive, comprehensive searching. May use funnel plot to assess completeness.</td>
<td>Quality assessment may determine inclusion/exclusion and/or sensitivity analyses.</td>
<td>Graphical and tabular with narrative commentary.</td>
<td></td>
</tr>
<tr>
<td>Mixed studies</td>
<td>Refers to any combination of methods where one significant method review is involved. Methods review: review (1); review (2).</td>
<td>Requires either very</td>
<td>Quality assessment may determine inclusion/exclusion and/or sensitivity analyses.</td>
<td>Graphical and tabular with narrative commentary.</td>
<td>Analysis may characterize both literatures and look for correlations between.</td>
</tr>
</tbody>
</table>

## 14 review types and associated methodologies
<table>
<thead>
<tr>
<th><strong>Systematic review</strong></th>
<th><strong>Literature review</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Transparent</td>
<td>Cherry-picked</td>
</tr>
<tr>
<td>Reproducible</td>
<td>Variable</td>
</tr>
<tr>
<td>Explicit and <strong>systematic</strong></td>
<td>Implicit</td>
</tr>
<tr>
<td>Objective</td>
<td>Potential for bias</td>
</tr>
<tr>
<td>Exhaustive</td>
<td>Subjective</td>
</tr>
<tr>
<td>Comprehensive</td>
<td>Limited</td>
</tr>
<tr>
<td>Rigourously reported</td>
<td></td>
</tr>
</tbody>
</table>
Scope review

*The landscape, seminal studies (cities) and connections between them (main roads)*
Systematic review

All of the papers (towns) within a defined area and the connections between them (roads)

Based on the presentation:
Doing a literature review in business and management by prof. David Denyer

Norma Fötsch, Maarten Gubbels, Robin Burgers November 2019
Stages of a (systematic) review
Common aspects: the stages of conducting a (systematic) review

Stage I–Planning the review
Stage II–Conducting a review
Stage III–Reporting and dissemination

Stage I–Planning the review

• Phase 0 - Identification for the need for a review
• Phase 1 - Preparation of a proposal for a review
• Phase 2 - Development of a review protocol

Stage II–Conducting a review

• Phase 3 - Identification of research
• Phase 4 - Selection of studies
• Phase 5 - Study quality assessment
• Phase 6 - Data extraction and monitoring progress
• Phase 7 - Data synthesis

Stage III–Reporting and dissemination

• Phase 8 - The report and recommendations
• Phase 9 - Getting evidence into practice

Which kind of review?

Why do you want to conduct a (systematic) literature review?

to develop a research question
to present an introduction of the subject
to present an extensive detailed account of a body of literature

What is your field of interest?

Does a protocol/guidelines exist to conduct a (systematic) review in your discipline?

Stage I–Planning the review

- Phase 0 - Identification for the need for a review
- Phase 1 - Preparation of a proposal for a review
- Phase 2 - Development of a review protocol

Stage II–Conducting a review

- Phase 3 - Identification of research
- Phase 4 - Selection of studies
- Phase 5 - Study quality assessment
- Phase 6 - Data extraction and monitoring progress
- Phase 7 - Data synthesis

Stage III–Reporting and dissemination

- Phase 8 - The report and recommendations
- Phase 9 - Getting evidence into practice

Search process – step by step

Stage I—Planning the review

• Phase 0 - Identification for the need for a review
• Phase 1 - Preparation of a proposal for a review
• Phase 2 - Development of a review protocol

Stage II—Conducting a review

• Phase 3 - Identification of research
• Phase 4 - Selection of studies
• Phase 5 - Study quality assessment
• Phase 6 - Data extraction and monitoring progress
• Phase 7 - Data synthesis

Stage III—Reporting and dissemination

• Phase 8 - The report and recommendations
• Phase 9 - Getting evidence into practice

Conducting a systematic review: a real-life example

What is your topic?
Which kind of review are you conducting?
Which protocol or guideline are you using?
Which databases do you use?
How did you set up your search string?

Lonneke Frie
Search process

- Search step by step -
Feedback search activities

- Exchange the notes of your search process with another person
- Discuss experiences – successes, difficulties etc. think of:
  - Search strategies used
  - Experiences with databases
  - Try out the search query
Search process – step by step

1. Select your subject
2. Formulate your research question
3. Define your search terms
4. Publication type and search tools
5. Search techniques & search strategies
6. Reference management

(step 1-3 = optional topic 1)
(step 4 = optional topic 3)
(step 5 = optional topic 2)
(step 6 = optional topic 4)

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4 – optional topics
1. Translating your research topic to a search query
From topic to research question

- Research idea, broad topic
- Narrowing down the topic
  - More specific question
  - Main research question
    - Sub question
Literature helps to formulate and/or answer your research question

- Research idea, broad topic
- Narrowing down the topic
- More specific question
- Main research question
- Sub question

- Background information about your topic area/research field, e.g. handbooks
- More detailed information, e.g. overview articles of your topic
- Specific information, e.g. research articles, data & statistics
Methods to develop a research question

1. **Key elements**
2. **Brainstorm**
3. **5 W’s**
4. **Framework**

Narrowing down the topic

Sub question

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Use the methods to develop a search query to find literature

- **Brainstorm**
- **5 W’s**
- **Framework**
- **Subquestion**

**Key elements**

- Narrowing down the topic
- More specific question
- Main research question
- Subquestion

**Background information**
- Information about your topic
- Area/research field e.g. handbooks.

**More detailed information**
- Overview articles of your topic

**Specific information**
- Research articles
- Data & statistics

**Context**
- Innovations
- Mechanisms
- Outcome
1. Define the key elements

Situation

- choosing a topic
- orientation on the topic

Result of literature search

- impression of the existing published research
Topic: Urban heat islands and the changes of land use

Key elements: Urban heat island + land use
Key elements and search terms:

<table>
<thead>
<tr>
<th>Urban heat islands</th>
<th>Land use</th>
</tr>
</thead>
<tbody>
<tr>
<td>“urban heat islands”</td>
<td>“land use”</td>
</tr>
<tr>
<td>UHI</td>
<td>land-use</td>
</tr>
<tr>
<td>“urban climat*”...</td>
<td>“urban planning”...</td>
</tr>
</tbody>
</table>

Search query:

(“urban heat islands” OR UHI OR “urban climat*”) AND (“land use” OR land-use OR “urban planning”)
2. Brainstorm session

Situation

- understanding the topic
- clarifying the different aspects
- narrowing down the topic

Result of literature search

- overview of which aspects are analyzed in the literature
Topic: Women and politics

Brainstorm about the topic:
Collect possible aspects of your topic

Women & politics

Numbers of women
Levels of government
Differences from men

Voters
How they vote
Influence on voters

In different countries

Media coverage
Elections
Women in the media

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Choose an aspect and collect search terms:

Women politician at **national level** in the **Netherlands**

<table>
<thead>
<tr>
<th>Women</th>
<th>Politician</th>
<th>National level</th>
<th>Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>women</td>
<td>politician</td>
<td>national level</td>
<td>Netherlands</td>
</tr>
<tr>
<td>female</td>
<td>president</td>
<td>government</td>
<td>Dutch</td>
</tr>
<tr>
<td>gender...</td>
<td>legislator..</td>
<td>parliament...</td>
<td>The Hague</td>
</tr>
</tbody>
</table>

**Search query:**

(women OR female OR gender) **AND** (politician OR president OR legislator) **AND** (national level OR government OR parliament) **AND** (Netherlands OR Dutch OR The Hague)
3. Ask the 5 W’s – who, what, when, where, and why

Situation

- specifying your research question
- clarifying the aspects
- formulating searching and selecting criteria

Result of literature search

- most significant items in the published literature
Topic:

Integration of corporate sustainability

Ask the 5 W’s + H:

Who is involved?
What do you want to know?
When does this take place?
Where does this take place?
Why is this topic important?
How did it happen?
Who is involved? - firms (small, medium or big)

What do you want to know? - how to integrate corporate sustainability

When does this take place? - last ten years?

Where does this take place? - global, Europe or specific country?

Why is this topic important? - impact of companies on their context

How did it happen? - change management, change agents (internal or external), different approaches

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**Answers and search terms:**

<table>
<thead>
<tr>
<th>Who</th>
<th>What</th>
<th>How</th>
</tr>
</thead>
<tbody>
<tr>
<td>firms</td>
<td>corporate sustainability / CS</td>
<td>change management</td>
</tr>
<tr>
<td>companies</td>
<td>social responsibility</td>
<td>business strategy</td>
</tr>
<tr>
<td>enterprises</td>
<td>sustainable development</td>
<td>organizational change</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>
Search query:

(firm* OR compan* OR enterprise*) AND (“corporate sustainability” OR cs OR “social responsibility” OR “sustainable development”) AND (“change management” OR “business strateg*” OR “organizational change”)

Search filters and/or selecting criteria:
When (period) and Where (region)
4. Frame your question

Situation

- if the main research question is (more or less) clear
- clarifying the aspects
- formulating searching and selecting criteria

Result of literature search

- what is already known about the topic and
- existing evidence in published literature
Topic:

How do firms integrate corporate sustainability into their business activities with the help of external change agents?

Frameworks:

Brake down your question into manageable research topics. Different frameworks like PECO or CIMO give guidance on how to frame your research question.
<table>
<thead>
<tr>
<th>Context</th>
<th>Interventions</th>
<th>Mechanisms</th>
<th>Outcome</th>
</tr>
</thead>
</table>

**P** **Population**  
Statement of the groups to be considered (e.g. all those in employment, teachers self-employed etc.)

**E** **Exposure**  
Exposure category can be used to specify any interdependent variable that is not an intervention of some sort (e.g., leadership behaviours, attitudes, experience of HR practices)

**C** **Comparators**  
Against what is the intervention being compared (e.g. practice as usual, other interventions)

**O** **Outcome**  
Outcomes of interest (e.g. sickness absence, turnover, creativity)

<table>
<thead>
<tr>
<th>C</th>
<th>Context</th>
<th>Who are the individual of interest? Or Which aspects of the institutional setting are of interest? E.g. politics, power, technical system</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Intervention</td>
<td>What is the intervention of interest? e.g. leadership style, planning and control system, performance management etc.</td>
</tr>
<tr>
<td>M</td>
<td>Mechanism</td>
<td>What are the mechanisms of interest? What is it about interventions acting in a context that leads to the outcome?</td>
</tr>
<tr>
<td>O</td>
<td>Outcome</td>
<td>What are the relevant outcomes? What is the primary outcome and what are the secondary outcomes? Performance improvement, cost reduction, low error rates etc.</td>
</tr>
</tbody>
</table>

How do firms integrate corporate sustainability into their business activities with the help of external change agents?

CIMO Framework and search terms:

<table>
<thead>
<tr>
<th>Context</th>
<th>Intervention</th>
<th>Mechanism</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>firms</td>
<td>agents</td>
<td>change management</td>
<td>corporate sustainability</td>
</tr>
<tr>
<td>“small and medium sized enterprises”</td>
<td>consultant</td>
<td>business strategies</td>
<td>CS</td>
</tr>
<tr>
<td>SME</td>
<td>advisor</td>
<td>management approaches</td>
<td>sustainable development</td>
</tr>
<tr>
<td>...</td>
<td>....</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>
Search query:

(firm* OR sme OR “small and medium sized enterprise*”) AND
(agent* OR consultant* OR advisor*) AND (“change
management” OR “business strateg*” OR “organizational
change”) AND (“corporate sustainability” OR cs OR “social
responsibility” OR “sustainable development”)

Selecting criteria: CIMO
5. Formulate sub questions

Situation

- *if the main research question is clear*
- *answering the research question*
- *formulating searching and selecting criteria*

Result of literature search

- *evidence for / answer to the sub question*
Research question:

What are the reasons of poor compliance with rules on selling alcoholic beverages to minors in the Netherlands?

Sub questions and key elements:

- What are the rules on selling alcoholic beverages to young people in the Netherlands?
- What is known in public administration and social science literature about the reasons to observe rules?
- ...
### Key elements and search terms

(For each sub question separately):

<table>
<thead>
<tr>
<th>observe</th>
<th>rules</th>
</tr>
</thead>
<tbody>
<tr>
<td>observe</td>
<td>rules</td>
</tr>
<tr>
<td>comply</td>
<td>regulations</td>
</tr>
<tr>
<td>respect ...</td>
<td>law ...</td>
</tr>
</tbody>
</table>

**Search query:**

(observe OR comply OR respect) **AND** (rules OR regulations OR law)
2. Advanced search techniques and strategies
Search techniques – operators

**And-relation** → both terms must show in the results

**AND**

*e.g. crowdfunding AND investors*

**Or-relation** → one of the terms must show in the search results. You use this operator to search for synonyms etc.

**OR**

*e.g. stock OR equity*

**Not-relation** → one of the terms is excluded from the results

**NOT**

*bv. inflation NOT lungs*
Search techniques – tricks

**Combination of words** → the search terms must occur in this exact combination. Most databases use: “ ” → “investor behavior“

**Wildcards** (masking) → searching for variants.
Most databases use: #, ?, or $
Behavio#r returns: behavior, behaviour

**Wildcards** (truncation) → searches for part of the word
Most databases use: *
Econom* searches for economy, economic, economical

Tip: check the help of the database to see what characters you can use
Search strategies

- Snowball search
- Citation search
- Systematic ‘block’ search
- Growing method
**Block search**

Combine the blocks with AND and the search terms within the block with OR

(firm* OR compan* OR enterprise*) **AND** (CS OR “corporate sustainability” OR “social responsibility” OR “sustainable development”) **AND** (“change management” OR “business strateg*” OR “organizational change”)
3. Database tips & tricks

- WoS, BSC, RUQuest, Nexis Uni -
<table>
<thead>
<tr>
<th>News</th>
<th>Journal articles</th>
<th>(Hand)books</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Nexis Uni™" /></td>
<td><img src="image" alt="Web of Science" /></td>
<td><img src="image" alt="RUQUEST" /></td>
</tr>
<tr>
<td><img src="image" alt="Business Source Complete" /></td>
<td><img src="image" alt="EconLit" /></td>
<td><img src="image" alt="Routledge Handbooks Online" /></td>
</tr>
<tr>
<td><img src="image" alt="GreenFILE Environmental Database" /></td>
<td><img src="image" alt="BrowZine" /></td>
<td><img src="image" alt="Oxford Handbooks Online" /></td>
</tr>
<tr>
<td><img src="image" alt="Google Scholar" /></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
RUQuest – catalogue of the University Library (1)

- Use RUQuest mainly to find books
- Your campus card = your library card
- RUQuest = unsuitable for a systematic review
- Useful user guide: https://libguides.ru.nl/ruquestEN/home
RUQuest – catalogue of the University Library (2)

- Filter by e.g. format (ebook, article)

- Or search in libraries in The Netherlands/worldwide

- You can request (print) books & (digital) articles from other libraries through ILL (https://www.ru.nl/library/services/borrowing/requests-outside-ru-ill/)
RUQuest – catalogue of the University Library (3)

- Build a query through advanced search

- RUQuest uses search fields

- keyword (kw:) is the default and searches for all words

- When searching for authors include all name variants
  
e.g. au: "venner, gerard" OR au: "venner, g." OR au: "venner, G.H.A."

- You can search for subjects (su:), but not all publications have subjects assigned
Business Source Complete (1)

- Collection of business & economics journals, trade publications, case studies, company information etc.
- References & full-text
- Search e.g. for subject, author, journal, industry...
- Suitable for systematic reviews
- From the same provider: GreenFile (environmental sciences) & EconLit (bibliography JEL)
Business Source Complete (2)

- Use the thesaurus to search on business terms
  e.g. DE "SOCIAL responsibility of business" AND JN "academy of management journal"

- Combine searches in the search history
Web of Science (1)

- > 21,177 journals + books and conference proceedings & > 74 million records
- (practically) no full-text
- Strongest in natural sciences, medicine, but strong in social sciences as well
- Very suitable for systematic review
Web of Science (2)

- Combine search blocks in basic search in order to build a query
- Edit & combine searches in search history

- Many searchable fields;
  Topic (title, abstract, keywords, keywords plus) most commonly used
- All kinds of filters, like WoS categories

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Web of Science (3)

- Wildcards and Truncation: * can be applied left as well

- Automatic lemmatization and stemming:
  
  manage → managing, manager etc.  cannot be combined with wildcards & truncation!
  managing → manage & variants

- Search operators: use NEAR to indicate proximity of words (instead of “” or AND)
  
  e.g. “change management” NEAR/4 leader*  cannot be combined with AND
NexisUni (1)

- International news, newspapers, web news, (business) wires, legal documents, company information etc.
- Download full-text or headlines
- Limitations on bulk-download... (100 full-text articles; 250 headlines)
NexisUni (2)

- Choose specific sources in search bar
- Or browse available sources (through menu)

- Make an account to save searches & documents
- Exports to reference software, e.g. EndNote, are not very good
NexisUni (3)

- Advanced search useful to start with, use ‘add’ to build search string

- really powerful queries are built in basic search

e.g. subject("financial technology" OR "digital currency" OR blockchain) AND hlead((bitcoin NEAR/5 fraud) OR (bitcoin NEAR/7 guilt*) OR (bitcoin NEAR/7 sentence) OR (bitcoin NEAR/7 scheme*) OR (bitcoin NEAR/4 down) OR (bitcoin NEAR/4 bubble)) AND > 01/01/2017 and < 11/01/2019

- Check the help-function (or consult your library team) for advanced search options like search fields
4. Reference management software

- Mendeley, Zotero, EndNote -
REMEMBER

Different review types
Use different search strategies
Don’t hesitate to ask your librarian!
NSM Library team

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1st floor, next to the MSc
Thanks to:

- Lonneke Frie for sharing her experiences.
- Katerina Manevska and Jan Hendrik Valgaeren for their feedback.
- Ellen Mastenbroek for the topic selling alcoholic beverages to minors.
- Laurier Library (https://www.youtube.com/watch?v=1oJNO6PYZe4)