



Lisbon School
of Economics
& Management
Universidade de Lisboa

Programa de Doutoramento em Gestão

Zupic, I., & Čater, T. (2015). Bibliometric
Methods in Management and Organization.
Organizational Research Methods, 18(3).

UC: Metodologias de Investigação

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*Recommended Workflow for
Conducting Science Mapping Studies*

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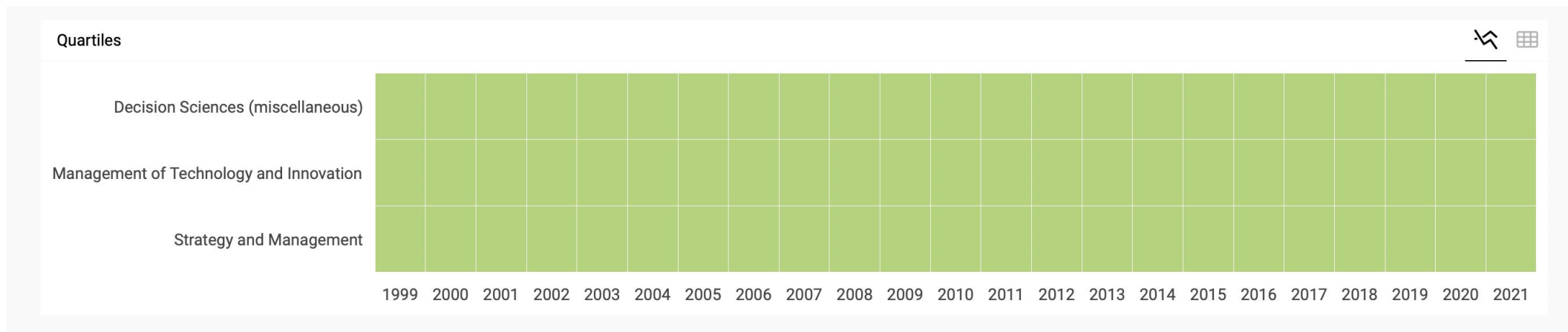
Bibliometric Methods

04

*The Intellectual Structure of
Organizational Research Methods*

01 Introdução

Organizational Research Methods



Fonte: Site SJR – Scimago Journal & Country Rank

01 Introdução



Ivan Zupic



Tomaž Čater

01 Introdução



Ivan Zupic

Doutorando em Gestão e Organização na Faculdade de Economia da *University of Ljubljana, Slovenia*

Tese de Doutoramento – Configurações estratégicas de empresas de elevado crescimento

Consultor na indústria IT
Jornalista/fotógrafo nos meios de comunicação social.

Fonte: SAGE journals

01 Introdução



Tomaž Čater

Professor de Gestão na Faculdade de Economia da
University of Ljubljana, Slovenia

Vantagens competitivas, estratégias empresariais e
estratégias ambientais.

*Industrial Marketing Management, Journal of Business
Economics and Management, e Personnel Review.*

Fonte: SAGE journals

01 Introdução



Análise bibliométrica tem ganhado importância nas investigações



Fonte de orientação



Análise bibliométrica ao
Organizational Research Methods
(ORM)

02

Bibliometric Methods



Dados bibliográficos de bases de dados de publicações



Objetividade na avaliação da literatura científica

Análises de desempenho
Elaborar um mapeamento científico

02

Bibliometric Methods

Table 1. Summary of Bibliometric Methods.

Method	Description	Units of Analysis	Pros	Cons
Citation	Estimates influence of documents, authors, or journals through citation rates.	Document Author Journal	Can quickly find the important works in the field,	Newer publications had less time to be cited, therefore citation count as a measure of influence is biased toward older publications,
Co-citation	Connects documents, authors, or journals on the basis of joint appearances in reference lists.	Document Author Journal	It is the most used and validated bibliometric method. Connecting documents, authors, or journals with co-citation has been shown to be reliable. Since citation is a measure of influence, it offers a method to filter the most important works.	Co-citation is performed on cited articles so it is not optimal for mapping research fronts. Citations take time to accumulate, so new publications cannot be connected directly but only through knowledge base clusters. Several citations are needed to map articles, so it is impossible to map articles that are not cited much. When performing author co-citation analysis on SSCI (WOS) data, only first-author information is available.
Bibliographic Coupling	Connects documents, authors, or journals on the basis of the number of shared references.	Document Author Journal	Immediately available: does not require citations to accumulate. Can be used for new publications that are not cited yet, emerging fields, and smaller subfields.	It can only be used for limited timeframe (up to a five-year interval). It does not inherently identify the most important works by citation counts as co-citation; it is difficult to know whether mapped publications are important or not.
Co-author	Connects authors when they co-author the paper.	Author	Can provide evidence of collaboration and produce the social structure of the field.	Collaboration is not always acknowledged with co-authorship.
Co-word	Connects keywords when they appear in the same title, abstract, or keyword list.	Word	It uses the actual content of documents for analysis (other methods only use bibliographic meta-data).	Words can appear in different forms and can have different meanings.

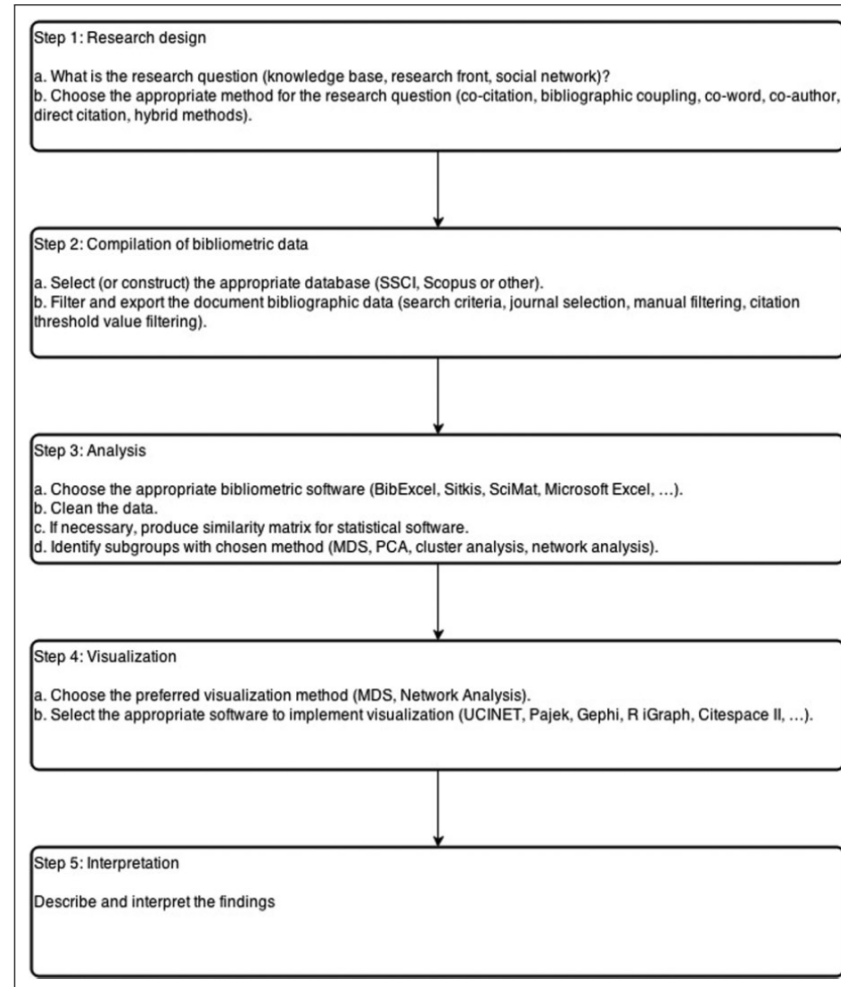
Fonte: Zupic & Čater (2015)

03

Recommended Workflow for Conducting Science Mapping Studies

Etapa 2: Compilação dos dados bibliométricos

Etapa 4: Visualização



Etapa 1: Desenho da Investigação

Etapa 3: Análise

Etapa 5: Interpretação

Fonte: Zupic & Čater (2015)

Figure 1. Workflow for conducting science mapping with bibliometric methods.

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Recommended Workflow for Conducting Science Mapping Studies

Step 1: Research Design

Definir a questão de investigação

Fonte: Zupic & Čater (2015)

Citation analysis

Which authors most influenced the research in a journal?
Which journals and disciplines had the most impact on a research stream?
What is the “balance of trade” between journals/disciplines?
Who are the experts in a given research field?
What is the recommended “reading list” for a specific area?

Co-citation analysis

What is the intellectual structure of literature X?
Who are the central, peripheral, or bridging researchers in this field?
How has the diffusion of the concept through research literature taken place?
What is the structure of the scientific community in a particular field?
How has the structure of this field developed over time?

Bibliographical coupling

What is the intellectual structure of recent/emerging literature?
How does the intellectual structure of the research stream reflect the richness of the theoretical approaches?
How has the intellectual structure of small niche X developed through time?

Co-author analysis

Are authors from different disciplinary backgrounds working together on a new research field, or do they remain within disciplinary boundaries?
Which factors determine co-authorship?
What is the effect of collaboration on the impact?
Are co-authored articles more cited?
Do more prolific authors collaborate more frequently?
Are internationally co-authored papers more cited?
What is the social structure of the field?

Co-word analysis

What are the dynamics of the conceptual structure of a field?
Uncover the conceptual building blocks of a literature.
What are the topics associated with a particular line of research?
Track the evolution of concept X.

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Recommended Workflow for Conducting Science Mapping Studies

Step 2: Compiling the Bibliometric Data

Limitar o âmbito do estudo



Pesquisa por palavras-chave



Limitar num único, ou num pequeno,
número de *journals*

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Recommended Workflow for Conducting Science Mapping Studies

Step 2: Compiling the Bibliometric Data

Pesquisa por palavras-chave



Incluir títulos de artigos e resumos



Consultar um painel de académicos para determinar as palavras-chave apropriadas

Aparecimento de estudos que não estão relacionados

Limitar num único, ou num pequeno, número de *journals*



Analisar as publicações de uma única revista



Publicações em revistas selecionadas conferem uma representação válida

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Recommended Workflow for Conducting Science Mapping Studies

Step 2: Compiling the Bibliometric Data

Bibliographic Databases

Índice de citação de Ciências Sociais (SSCI) → *Thomson Reuters Web of Science* → Publicações “*acabadas de lançar*”

Scopus → Cobertura mais ampla

Construção da própria base de dados → Diversas fontes

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Recommended Workflow for Conducting Science Mapping Studies

Step 3: Analysis

Pré-Processamento → Limpeza dos dados

“David Bruce Audretsch”



Audretsch, D.

Audretsch, D. B.

“Inovação”



Inovação (singular)

Inovações (plural)



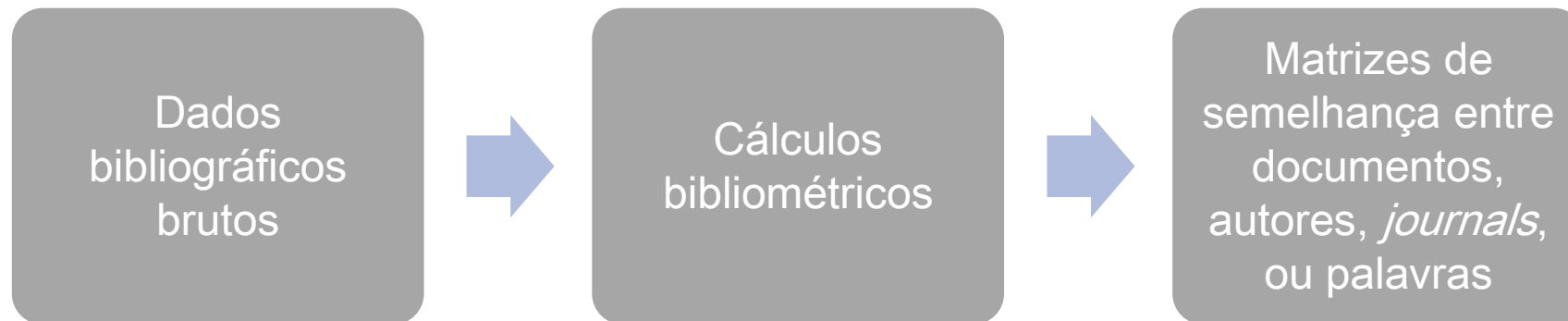
Palavra completa mais comum

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Recommended Workflow for Conducting Science Mapping Studies

Step 3: Analysis

Bibliometric Software



Fonte: Elaboração Própria)

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Recommended Workflow for Conducting Science Mapping Studies

Step 3: Analysis

Bibliometric Software

BibExcel

Realizar cálculos bibliométricos rápidos, limpar dados e realizar análise avançada noutros *softwares*.

Stitkis

Auxilio em revisões e cálculos bibliométricos

SciMAT

Todo o trabalho de mapeamento científico

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Recommended Workflow for Conducting Science Mapping Studies

Step 3: Analysis

Identifying Subfields

Técnicas de redução de dimensionalidade

Análise exploratória de fatores

Análise de *clusters*

Escala multidimensional (MDS)

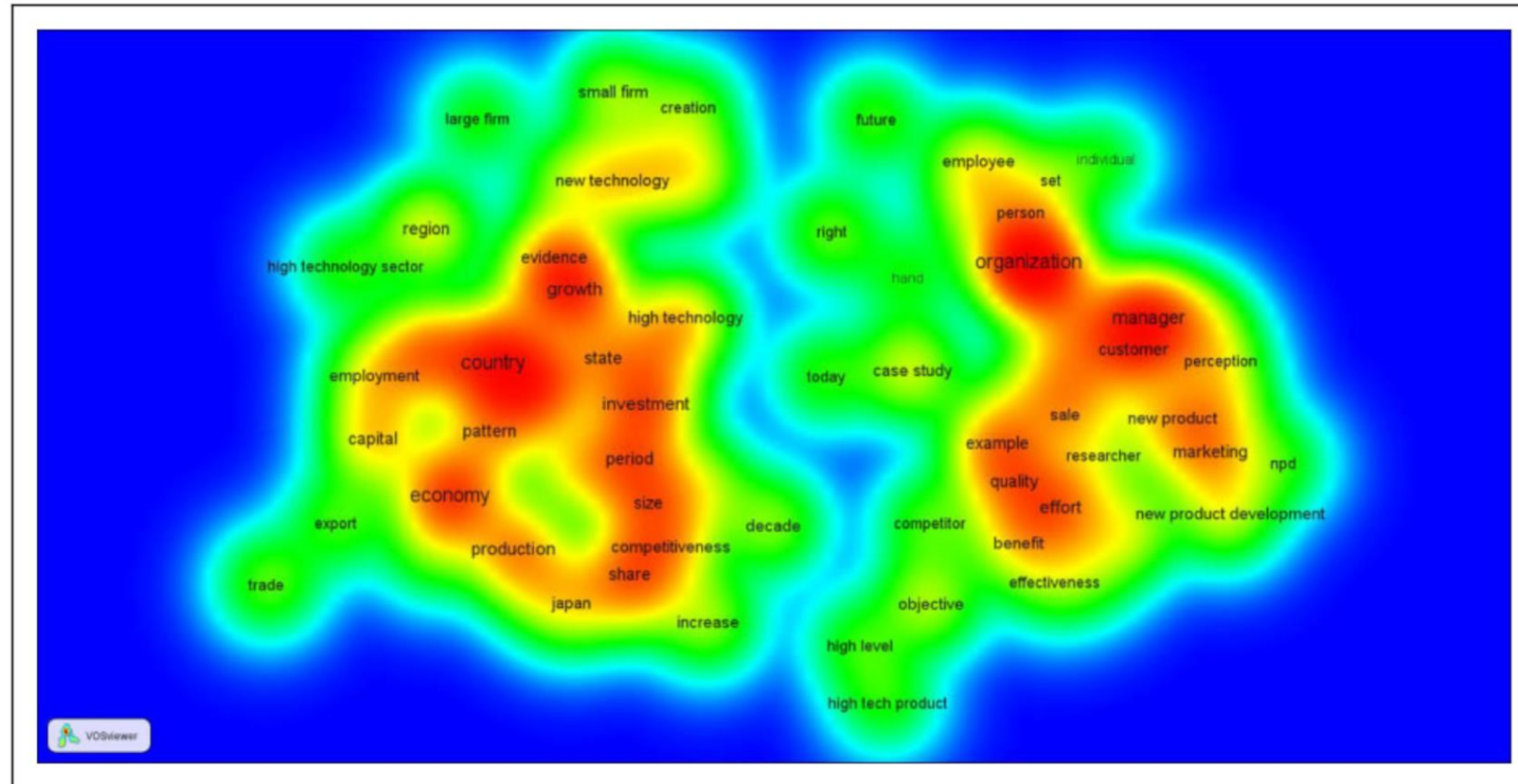
Algoritmos de análise de rede de descoberta

Vários métodos de agrupamento

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Recommended Workflow for Conducting Science Mapping Studies

Step 4: Visualization



Fonte: Zupic & Čater (2015)

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Recommended Workflow for Conducting Science Mapping Studies

Step 5: Interpretation



Os mapas científicos são o início do processo



Os investigadores devem manter-se imparciais

04

The Intellectual Structure of Organizational Research Methods

Step 1: Research Design

Análise bibliométrica ao *journal* ORM → Estrutura intelectual

Citação → Artigos mais influentes

Co-citação → Estrutura de base de conhecimentos

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The Intellectual Structure of Organizational Research Methods

Step 2: Compiling the Bibliometric Data



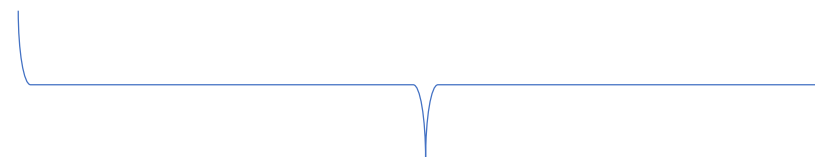
Web of Science



“Organizational Research Methods”

=

483 artigos



2001 a 2014

=



465 artigos

04

The Intellectual Structure of Organizational Research Methods

Step 3: Analysis



BibExcel



Calculou a lista dos documentos mais citados e revistas mais citadas



Limitação dos documentos para a análise de co-citação

→ 112 documentos

→ Citados 9 ou + vezes pelos artigos publicados na ORM

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The Intellectual Structure of Organizational Research Methods

Step 4: Visualization Análise de Citação

Citations	Document
31	Cohen J, 1988, <i>Stat Power Anal Beha</i>
27	Nunnally J, 1994, <i>Psychometric Theory</i>
27	Cohen J, 2003, <i>Appl Multiple Regres</i>
26	Bollen K. A, 1989, <i>Structural Equations</i>
24	Raudenbush S, 2002, <i>Hierarchical Linear</i>
23	Campbell D, 1959, V56, P81, <i>Psychol Bull</i>
22	Cohen J, 1983, <i>Appl Multiple Regres</i>
21	Vandenberg Robert J, 2000, V3, P4, <i>Organ Res Methods</i>
21	Chan D, 1998, V83, P234, <i>J Appl Psychol</i>
21	James L, 1984, V69, P85, <i>J Appl Psychol</i>
20	Nunnally J C, 1978, <i>Psychometric Theory</i>
20	Baron R, 1986, V51, P1173, <i>J Pers Soc Psychol</i>
20	Cook T D, 1979, <i>Quasiexperimentation</i>
20	Scandura T, 2000, V43, P1248, <i>Acad Manage J</i>
19	Bliese P D, 2000, P349, <i>Multilevel Theory Re</i>
19	Gephart R, 2004, V47, P454, <i>Acad Manage J</i>
19	Aiken L S, 1991, <i>Multiple Regression</i>
18	Kozlowski S, 2000, P3, <i>Multilevel Theory Re</i>
18	Glaser B G, 1967, <i>Discovery Grounded T</i>
18	Chan D, 1998, V1, P421, <i>Organ Res Methods</i>
18	Hu L, 1999, V6, P1, <i>Struct Equ Modeling</i>
18	Hunter J E, 2004, <i>Methods Metaanalysis</i>
16	Bryk A S, 1992, <i>Hierarchical Linear</i>
15	Aguinis H, 2005, V90, P94, <i>J Appl Psychol</i>
14	Podsakoff P, 2003, V88, P879, <i>J Appl Psychol</i>
14	Eisenhardt K, 1989, V14, P532, <i>Acad Manage Rev</i>
14	Lance C, 2006, V9, P202, <i>Organ Res Methods</i>

Fonte: Zupic & Čater (2015)

Citations	Journal
1,637	<i>Journal of Applied Psychology</i>
888	<i>Organizational Research Methods</i>
823	<i>Academy of Management Journal</i>
557	<i>Strategic Management Journal</i>
509	<i>Journal of Management</i>
490	<i>Psychological Bulletin</i>
478	<i>Personnel Psychology</i>
439	<i>Academy of Management Review</i>
354	<i>Administrative Science Quarterly</i>
337	<i>Psychological Methods</i>
223	<i>Journal of Personality and Social Psychology</i>
184	<i>Educational and Psychological Measurement</i>
184	<i>American Psychologist</i>
183	<i>Journal of Organizational Behavior</i>
182	<i>Applied Psychological Measurement</i>
175	<i>Psychometrika</i>
173	<i>Organization Science</i>
170	<i>Multivariate Behavioral Research</i>
156	<i>Structural Equation Modeling</i>
136	<i>Organizational Behavior and Human Decision Proc</i>
123	<i>Journal of International Business Studies</i>
113	<i>Psychological Review</i>
109	<i>Journal of Management Studies</i>

Fonte: Zupic & Čater (2015)

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The Intellectual Structure of Organizational Research Methods

Step 5: Interpretation Análise de Citação

Dominado por livros de teoria psicométrica, regressão linear e análise multinível

A revista mais citada é *Journal of Applied Psychology*



Apesar de se tratar de um *journal* de métodos, a maior parte da lista diz respeito a revistas de gestão

Indicador da amplitude disciplinar da ORM

Revistas mais numerosas serem de psicologia

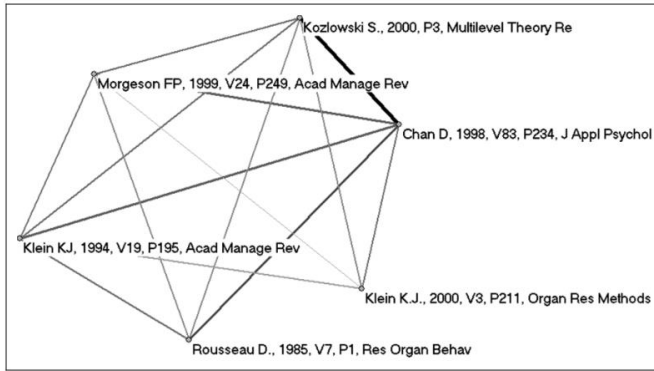


Micro-gestão está a dominar os tópicos da ORM

04

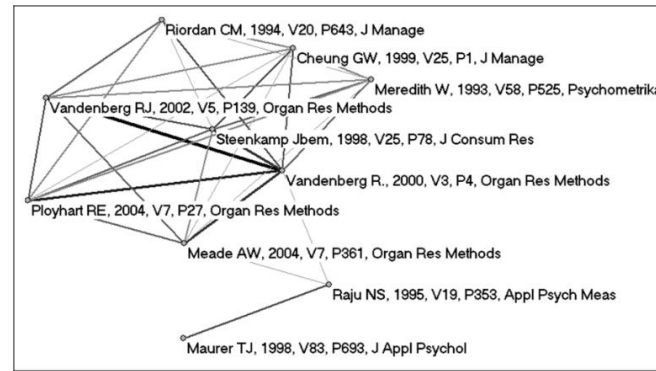
The Intellectual Structure of Organizational Research Methods

Step 4: Visualization Análise de Co-citação



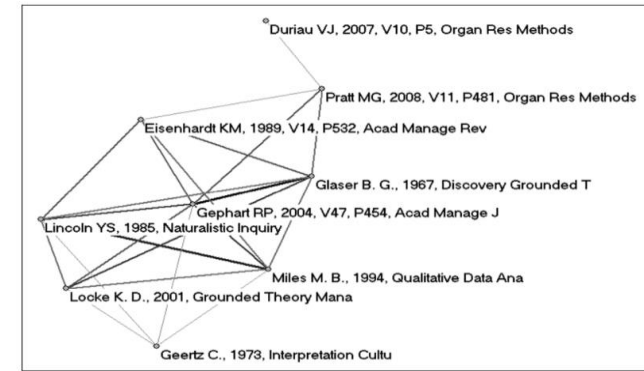
Multilevel theory.

Fonte: Zupic & Čater (2015)



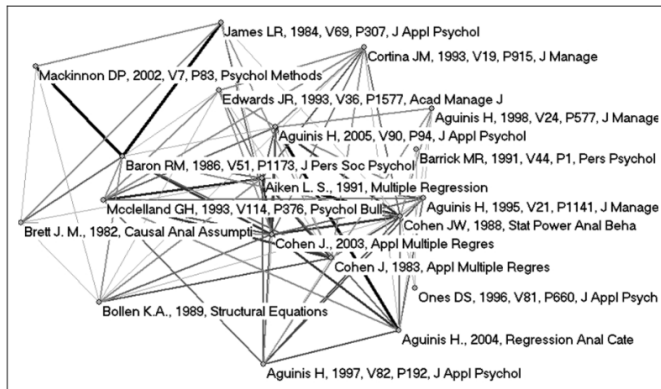
Measurement invariance.

Fonte: Zupic & Čater (2015)



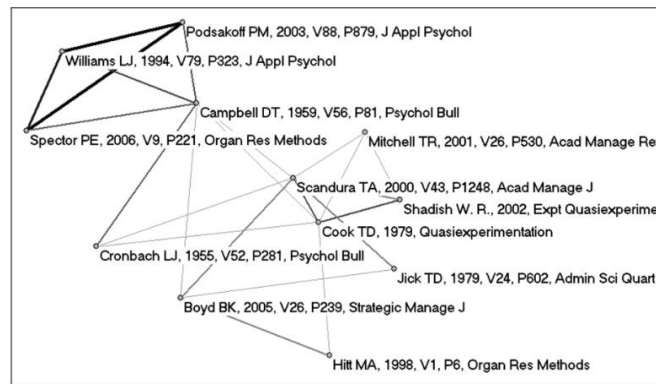
Qualitative methods.

Fonte: Zupic & Čater (2015)



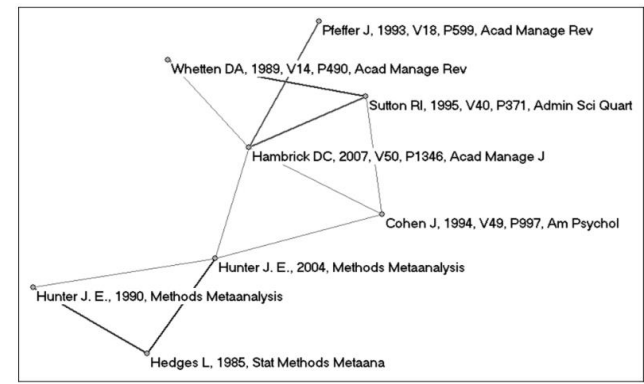
Multiple regression.

Fonte: Zupic & Čater (2015)



Validity and method variance.

Fonte: Zupic & Čater (2015)



Meta-analysis and management theory.

Fonte: Zupic & Čater (2015)

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The Intellectual Structure of Organizational Research Methods

Step 5: Interpretation Análise de Co-citação

11 subgrupos de publicações citadas que representa a estrutura intelectual da ORM



1 abordava a investigação qualitativa



Os métodos quantitativos continuam a ser os mais predominantes na investigação organizacional.

Os assuntos quantitativos abordam principalmente problemas de medição ou análise

Os resultados do estudo corroboraram com a análise do conteúdo referente à primeira década da ORM (Aguinis, et. al, 2009, citado por Zupic & Čater, 2015)

05

Conclusão

Identificar tendências e *gaps* na literatura

Evolução dos temas ao longo do tempo

Relação entre conceitos, autores, entre outros

Acompanhar a literatura publicada

Rigor quantitativo e objetivo

Referências Bibliográficas

Aguinis, H., Ramani, R., & Villamor, I. (2019). The First 18 Years of ORM: Journey, Impact, and Predictions for the Future. *Organizational Research Methods*, 22(2), 463–489. <https://doi.org/10.1177/1094428118786564>

Zupic, I., & Čater, T. (2015). Bibliometric Methods in Management and Organization. *Organizational Research Methods*, 18(3). <https://doi.org/10.1177/1094428114562629>



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