

# 16<sup>th</sup> INTERNATIONAL SYMPOSIUM ON THE ANALYTIC HIERARCHY PROCESS 2020

## BIBLIOMETRIC STUDY ON AHP AND URBAN MOBILITY

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### INTRODUCTION

In Brazil, due to the scarce resources of most cities, the demand for technological advances reveals great differences between them at the time of hiring and implementing technological systems to support local Governments management, even though being part of the same Metropolitan Region or neighboring cities with similar development index.

Decision makers often come up with complex problems involving intangible and conflicting criteria (SAATY; ERGU, 2015).

The possibility of evaluating cities using AHP method as an integration tool can contribute to the resolution of common demands among municipalities, "in view of the scarcity of studies focused on the analysis of Brazilian scientific production in the area of technology applied to Urban Mobility in a regionalized way" (WEISS, 2019).

### METHODOLOGY

The research was conducted from September to November 2020, addressing the period between 2015 and 2019, and it was systematized in four phases.

**1<sup>st</sup> Phase.** The main search terms and their occurrences were selected in the Scopus database: "AHP" (11,318), "Analytic Hierarchy Process" (9,150), "Governance" (65,342), "Public Management" (2,632) and "Urban Mobility" (1,855).

**2<sup>nd</sup> Phase.** It was carried out a verification, article by article, confirming the actual approximation of the selected articles with the related theme. At the conclusion of this phase, 107 articles were selected, and after compilation, the final selection was 104 articles.

**Table 1.** Number of selected documents by search terms.

Search Term	Articles	Search Term	Articles
AHP	15	Public Management	11
Analytic Hierarchy Process	17	Smart Cities	10
Governance	14	Sustainable Urban Mobility Plan (SUMP)	6
Local Productive Arrangement	4	Urban Mobility	18
Public Administration AHP	4	Urban Mobility Technology	8

Source: SCOPUS database.

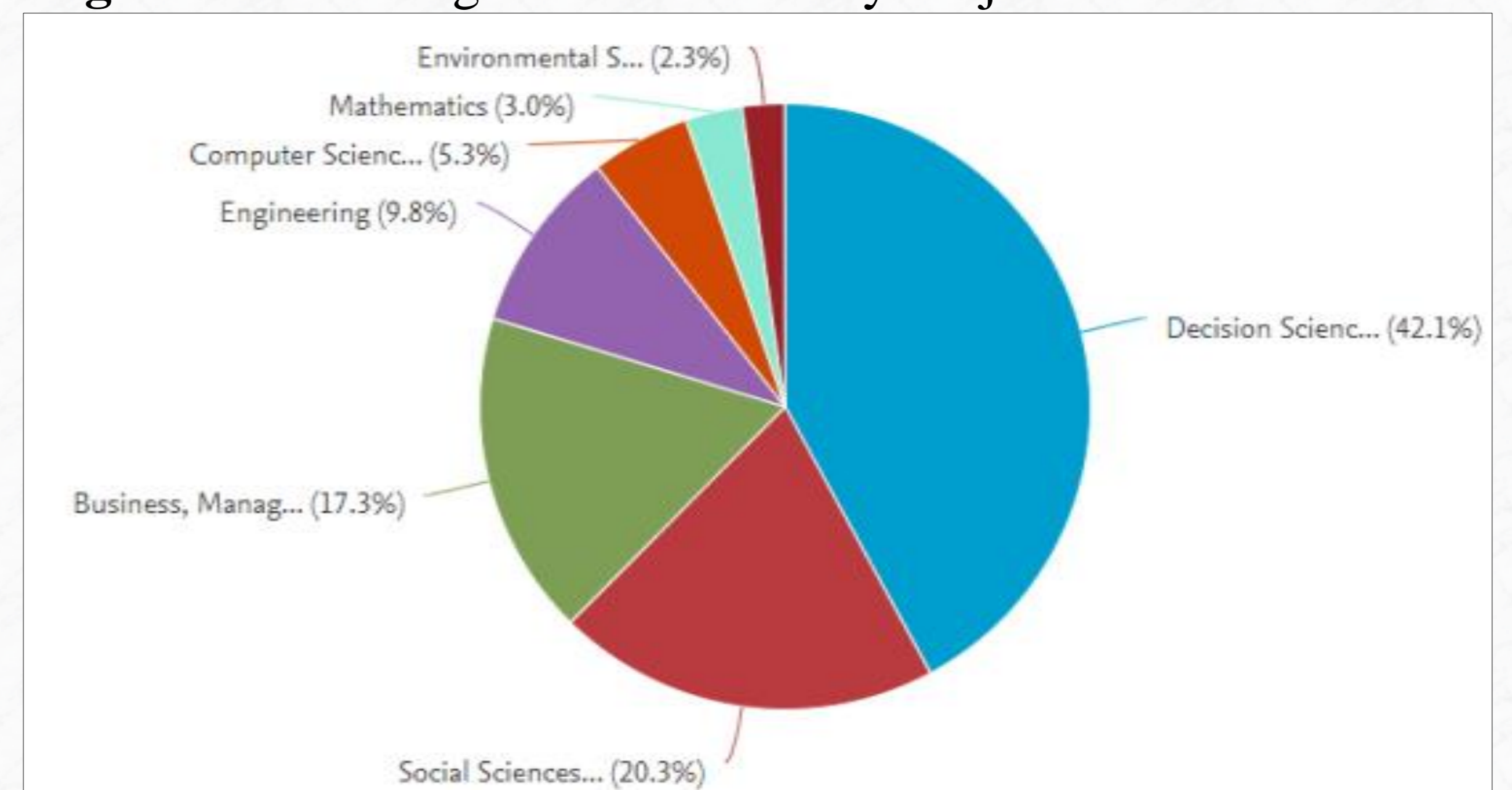
**3<sup>rd</sup> Phase.** A characterization of the archives was made, electing only those that related between different cities and their integration and generating the file in "CSV" format for network graph generation with VOSviewer tool.

### KEY REFERENCES

SAATY, T. L.; ERGU, D. (2015) When is a decision-making method trustworthy? Criteria for evaluating multi-criteria decision-making methods. *International Journal of Information Technology & Decision Making*, 14(6), 1171-1187.

WEISS, M. C. (2019) Posicionamento da indústria de TIC para a construção das cidades inteligentes no Brasil: resultados de um levantamento com sete gigantes do setor. *Revista Tecnologia e Sociedade*. Curitiba. 15(36), 165-189.

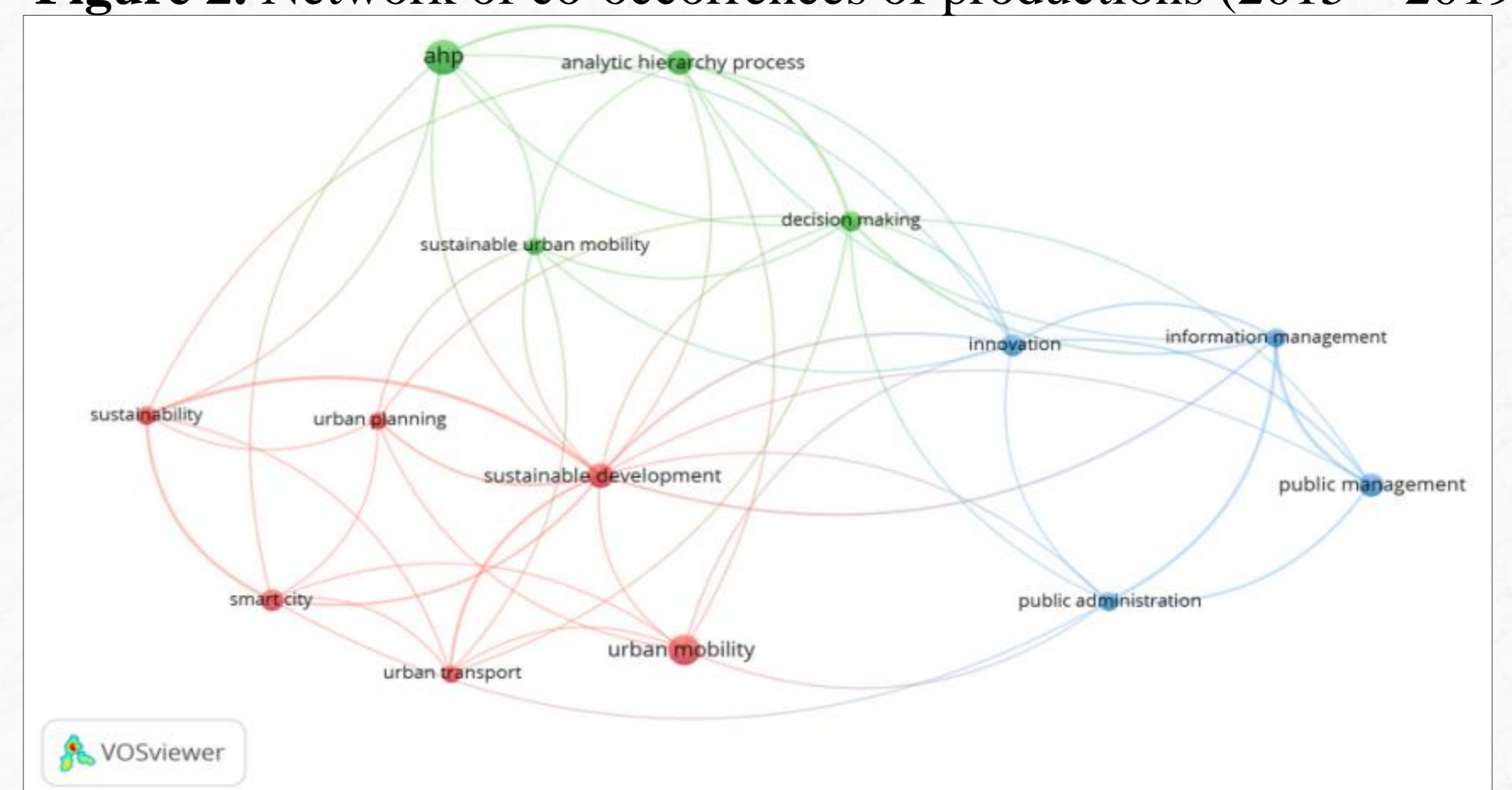
**Figure 1.** Percentage of documents by subject area.



Source: SCOPUS database.

**4<sup>th</sup> Phase.** The data with co-occurrences analysis between all keywords were mapped with the VOSviewer. It was detected 614 keywords with a minimum requirement of 5 occurrences to integrate the analysis, resulting in 14 connected cores. Graph creation considered the method "full counting".

**Figure 2.** Network of co-occurrences of productions (2015 – 2019).



Source: VOSviewer software.

### RESULTS

The network graph shows 3 Clusters distributed as follows: **Cluster 1** - focusing on physical space and its planning, having as axes urban mobility and sustainability; **Cluster 2** - focusing on AHP Multicriteria Decision Methodology and **Cluster 3** - focusing on public administration and innovation. The three clusters interrelate through 2 items: "sustainable development" and "innovation".

### CONCLUSIONS

Future studies may be based on the development of an integration model with collaboration between government - private initiative - academy for the implementation of management technologies for cities, through planning tools that help in the decision-making of local administrations, acting in a joint and regionalized manner and bringing economic and development benefits to the different regions.

### CONTACT

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