TeMA

Journal of
Land Use, Mobility and Environment

Conversations with TeMA is a new editorial initiative of the TeMA-Journal of Land Use, Mobility and Environment. This issue is divided into two parts. The first collects all the answers from seventeen professors of urban studies to the proposed questions are listed in sequence. The second part presents the results of a lexicometric analysis of the answers texts without leaving any evaluations and comments to TeMA Journal readers.

TeMA Journal offers papers with a unified approach to planning, mobility and environmental sustainability. With ANVUR resolution of April 2020, TeMA journal and the articles published from 2016 are included in the A category of scientific journals. From 2015, the articles published on TeMA are included in the Core Collection of Web of Science. It is included in Sparc Europe Seal of Open Access Journals, and the Directory of Open Access Journals.

urbanìstica s. f. [femm. sostantivato dell'agg. urban

senso stretto, attività di creazione e sistemazione dei centri

antica, classica, medievale, rinascimentale, barocca; co

ampio e attuale, disciplina (sorta come scienza autonoma

Settecento, in seguito alla rivoluzione industriale) che ha

Conversations with TeMA 1.2023

For the evolution of spatial planning

print ISSN 1970-9889 e-ISSN 1970-9870
University of Naples Federico II

TeMA Journal of
Land Use, Mobility and Environment

Conversations with TeMA 1.2023

FOR THE EVOLUTION OF SPATIAL PLANNING

Published by
Laboratory of Land Use Mobility and Environment
DICEA - Department of Civil, Architectural and Environmental Engineering
University of Naples "Federico II"

TeMA is realized by CAB - Center for Libraries at “Federico II” University of Naples using Open Journal System

Editor-in-chief: Rocco Papa
print ISSN 1970-9889 | online ISSN 1970-9870
Licence: Cancelleria del Tribunale di Napoli, n° 6 of 29/01/2008

Editorial correspondence
Laboratory of Land Use Mobility and Environment
DICEA - Department of Civil, Architectural and Environmental Engineering
University of Naples "Federico II"
Piazzale Tecchio, 80
80125 Naples
web: www.tema.unina.it
e-mail: redazione.tema@unina.it

The TeMA Journal editorial staff edited the cover image, retrieving it from a frame of the movie "Le mani sulla Città" directed by Francesco Rosi, which won the Golden Lion Award at the XXIV Venice Film Festival in 1963.

TeMA. Journal of Land Use, Mobility and Environment offers researches, applications and contributions with a unified approach to planning and mobility and publishes original inter-disciplinary papers on the interaction of transport, land use and environment. Domains include: engineering, planning, modeling, behavior, economics, geography, regional science, sociology, architecture and design, network science and complex systems.
With ANVUR resolution of April 2020, TeMA Journal and the articles published from 2016 are included in A category of scientific journals. From 2015, the articles published on TeMA are included in the Core Collection of Web of Science. TeMA Journal has also received the *Sparc Europe Seal* for Open Access Journals released by *Scholarly Publishing and Academic Resources Coalition* (SPARC Europe) and the *Directory of Open Access Journals* (DOAJ). TeMA is published under a Creative Commons Attribution 4.0 License and is blind peer reviewed at least by two referees selected among high-profile scientists. TeMA has been published since 2007 and is indexed in the main bibliographical databases and it is present in the catalogues of hundreds of academic and research libraries worldwide.

TeMA Journal of Land Use, Mobility and Environment

Conversations with TeMA 1.2023

FOR THE EVOLUTION OF SPATIAL PLANNING

Contents

3 EDITORIAL PREFACE
Rocco Papa

Docenti presso Università Italiane
Lecturers at Italian Universities

5 **Il divenire della disciplina urbanistica: il contributo di Dino Borri**
The becoming of spatial planning: the contribution of Dino Borri
Dino Borri

9 **Il divenire della disciplina urbanistica: il contributo di Roberto Busi**
The becoming of spatial planning: the contribution of Roberto Busi
Roberto Busi

37 **Il divenire della disciplina urbanistica: il contributo di Arnaldo Cecchini**
The becoming of spatial planning: the contribution of Arnaldo Cecchini
Arnaldo Cecchini

61 **Il divenire della disciplina urbanistica: il contributo di Donatella Cialdea**
The becoming of spatial planning: the contribution of Donatella Cialdea
Donatella Cialdea

85 **Il divenire della disciplina urbanistica: il contributo di Valerio Cutini**
The becoming of spatial planning: the contribution of Valerio Cutini
Valerio Cutini

97 **Il divenire della disciplina urbanistica: il contributo di Giovanna Fossa**
The becoming of spatial planning: the contribution of Giovanna Fossa
Giovanna Fossa

107 **Il divenire della disciplina urbanistica: il contributo di Paolo La Greca**
The becoming of spatial planning: the contribution of Paolo La Greca
Paolo La Greca

119 **Il divenire della disciplina urbanistica: il contributo di Giuseppe Las Casas**
The becoming of spatial planning: the contribution of Giuseppe Las Casas
Giuseppe Las Casas

125 **Il divenire della disciplina urbanistica: il contributo di Carlo Monti**
The becoming of spatial planning: the contribution of Carlo Monti
Carlo Monti

135 **Il divenire della disciplina urbanistica: il contributo di Michelangelo Savino**
The becoming of spatial planning: the contribution of Michelangelo Savino
Michelangelo Savino

145 **Il divenire della disciplina urbanistica: il contributo di Maurizio Tira**
The becoming of spatial planning: the contribution of Maurizio Tira
Maurizio Tira

149 **Il divenire della disciplina urbanistica: il contributo di Simona Tondelli**
The becoming of spatial planning: the contribution of Simona Tondelli
Simona Tondelli

155 **Il divenire della disciplina urbanistica: il contributo di Corrado Zoppi**
The becoming of spatial planning: the contribution of Corrado Zoppi
Corrado Zoppi

Docenti presso Università non Italiane
Lecturers at non-Italian Universities

171 **Il divenire della disciplina urbanistica: il contributo di Alessandro Aurigi**
The becoming of spatial planning: the contribution of Alessandro Aurigi
Alessandro Aurigi

177 **Il divenire della disciplina urbanistica: il contributo di Luca Bertolini**
The becoming of spatial planning: the contribution of Luca Bertolini
Luca Bertolini

181 **Il divenire della disciplina urbanistica: il contributo di Matteo Caglioni**
The becoming of spatial planning: the contribution of Matteo Caglioni
Matteo Caglioni

189 **Il divenire della disciplina urbanistica: il contributo di Houshmand E. Masoumi**
The becoming of spatial planning: the contribution of Houshmand E. Masoumi
Houshmand E. Masoumi

APPENDIX

197 **Textometric analysis on the ongoing academic spatial planning debate**
Gerardo Carpentieri, Carmen Guida, Sabrina Sgambati

TeMA Journal of
Land Use, Mobility and Environment

Conversations with TeMA 1.2023 197-223
print ISSN 1970-9889, e-ISSN 1970-9870
DOI: 10.6092/1970-9870/9782
Received 25th January 2023, Available online 30th January 2023

www.tema.unina.it

Textometric analysis on the ongoing academic spatial planning debate

Gerardo Carpentieri [a], Carmen Guida [b*], Sabrina Sgambati [c]

[a] Department of Civil, Architectural and Environmental Engineering, University of Naples Federico II, Naples, Italy
e-mail: gerardo.carpentieri@unina.it
ORCID: https://orcid.org/0000-0002-2111-650X

[b] Department of Civil, Architectural and Environmental Engineering, University of Naples Federico II, Naples, Italy
e-mail: carmen.guida@unina.it
ORCID: https://orcid.org/0000-0002-8379-7793
* Corresponding author

[c] Department of Civil, Architectural and Environmental Engineering, University of Naples Federico II, Naples, Italy
e-mail: sabrina.sgambati@unina.it
ORCID: https://orcid.org/0000-0001-8900-278X

Abstract
This paper presents the results of a textometric analysis carried out on the contents of the volume "Conversations with TeMA 1.2023" which collects, in the form of interviews, the reflections of 17 experts on the topic of spatial planning, through their responses to seven open-ended questions. Textometric analysis enables the systematic extraction of quantitative information from a textual corpus through the identification of words, text segments and conceptual connections that are significant due to their frequency and textual relationships. The analysis provides quantitative and statistical insights into some topics that the TeMA Journal Editorial Board considers essential for the definition of a shared and adequately updated strategy for the advancement of the discipline. The purpose of this analysis, which prescinds from any form of judgements or interpretation on the content of the single answers, is to provide an overview of the opinions collected, highlighting commonalities and focuses that may provide fruitful points for reflection for the evolution of spatial planning.

Keywords
Textometric analysis; Interviews; Spatial planning.

How to cite item in APA format
Carpentieri, G., Guida, C. & Sgambati, S. (2023). Textometric analysis on the ongoing academic spatial planning debate. *Tema. Journal of Land Use, Mobility and Environment*, Conversations with TeMA, 1.2023 197-223. http://dx.doi.org/10.6092/1970-9870/9782

1. Introduction

This paper presents the results of a textometric analysis carried out on the contents of the volume "Conversations with TeMA 1.2023", which gathers the reflections of 17 faculty members of both Italian and foreign universities, on the evolution of spatial planning in these current years of great change, in the academic sphere (teaching and research) in and in the technical-professional fields. The 17 contributions are articulated in the form of an interview on topics that the TeMA Journal Editorial Board considers essential in defining a shared and updated strategy for the future of the discipline. The questionnaire submitted to each expert was composed of seven open-ended questions:

1. What is, in your opinion, a synthetic and organic definition of Town and country planning?
2. What is your assessment of the development of urban planning and what is the condition of today's discipline in your country?
3. In your opinion, does town and country planning have its own effective ability to manage city and territorial transformations, considering the challenges that cities will face in the future; or is it necessary to review and update strategies, methods and techniques to develop new forms of organisation, structure, and offer of activities/services inside the city?
4. What type of content and role should university teaching of urban planning take on in the future?
5. What are, in your opinion, the new strategies of urban planning research when taking into account the rapid changes in city context induced by climate change, socio-economic evolutions, ecological transition, and digital transition?
6. Considering your studies and specific expertise, can you summarise what is your vision for the future of urban planning?
7. In your opinion, what could be the role of scientific journals in advancing research into urban and territorial phenomena, and which initiatives are possible in order to give greater weight to the analysis, and scientific results?

The paper is structured in two sections. The first provides a theoretical illustration of the selected textometric analyses. The second section proposes a cross-reading of the interviewee answers, with identification of the most recurrent keywords and thematic connections. The analyses, which prescind any form of judgement or interpretation on the content of individual answers, aim at providing an overview on the opinions collected, highlighting commonalities and focuses that could provide fruitful avenues of reflection on the future of the spatial planning disciplines. The graphs and tables of results from the statistical and quantitative analyses offer a key to reading on the identified issues.

2. Textometric analysis

The textometric analysis of a written corpus provides a systematic extraction of quantitative information, in particular by identifying words and text segments showing significant frequencies and relationships (Illia et al., 2014; Sarrica et al., 2020). These analytical techniques have been used in various disciplinary and professional fields for the quantitative identification of the main thematic connections within texts, both singly and in groups (Helme-Guizon and Gavard-Perret, 2004; Abhayawansa, 2011). The analysis of textual files allows practitioners to identify the frequency of word repetition and measure their inter-relations (Chanel et al., 2014). Textometric techniques have been used in many disciplines for the rapid identification of themes and concepts present in different textual collections of interest (Mandják et al., 2019; Sarrica et al., 2020), but has rarely been applied in the field of spatial planning. Buhler et al. (2018) analysed the urban policy discussion from 2000-2015 on the theme of urban transport plans in France. Bueno et al. (2021) conducted a systematic review supported by textometric analysis considering over 2,900 manuscripts published from 2019 to 2020, on the general phenomenon of "urban resilience". In 2022, Carpentieri and Guida (2022) proposed a

textometric analysis of titles of articles published in the Italian-language scientiric journal *Urbanistica* from 1949 to 2022, for better understanding of the evolution of discipline, its research and practical themes.

2.1 Similarity analysis

First, we conduct a statistical textual analysis that allows understanding of how words associate with each other within a text or corpus of texts. The analysis calculates the "proximity" between words, considering both more and less recurrent words, according to centrality values (Mandják et al., 2019). In particular, the technique distinguishes the most recurrent and connected words from the peripherical (less recurrent and connected) ones. The analysis examines the frequency of single words, but also takes into account the direct links between words in terms of proximity within the sentences composing the analysed text (Gonçalves Júnior et al., 2021). The frequencies and proximity links can be illustrated using a tree diagram, whose branches represent the connections between different words. These branches or "segments" take shape on the basis of the distribution of words in the text; the proximity and proximity recurrency indicate the existence of an encompassing conceptual framework: the closer the words are situated, the stronger is the indication of their inclusion in a conceptual framework. Moreover, although two concepts may seemingly pertain to different lexical fields, a high frequency of occurrence in the same connection segment indicates that they share a conceptual link.

2.2 Cluster analysis

While the similarity analysis provides a representation of the organisation of a textual corpus, Reinert (1990) recommends the use of cluster analysis (Hirschfeld, 1935) for detailed identification of the main relationship clusters. Using a process of hierarchical clustering of the words into segments for definition of the principal clusters, the analysis yields a dendrogram. Subsequently, a factorial correspondence analysis provides a graphic representation of the word clusters along two main factorial axes, allowing identification of their connections. The distribution of the clusters in the graph is based on chi-square values, which determine the significance associated with each variable. This analysis is useful in synthesising large amount of data, and supports the explanation of the relationships between words and word clusters throughout the entire lexical corpus.

3. Methodology

Textometric analysis is a quantitative methodology that serves in understanding the articulation of debates on specific issues at specific times. For the current application we use the Iramuteq software, which enables measurement of the frequency of occurrence of individual words with in a textual corpus, and the statistical relationship between different words, leading to the identification of the specific thematic models present in the corpus. The software builds a representation of these conceptual fields by measuring the distribution of words in segments. The methodology involves five steps, according to Lavissière et al. (2020):

1. The software lemmatises content words such as nouns, verbs, adjectives and adverbs. This means that grammatical information, such as the plural or verb tense, is removed from the corpus.
2. The software divides the corpus into segments. These segments become the basic unit of context used in the statistical analyses.
3. The software performs a basic statistical analysis for calculation of the following information: (i) the number of texts in the corpus; (ii) the number of words in the corpus; (iii) the number of active forms in the corpus; (iv) the number of hapaxes in the corpus; (v) the average number of words per text. In addition, at this step, the software creates four tables:
   - active forms ranked from most to least frequent;

- supplementary forms include grammatical words such as "a", "the", and "for". These forms are not counted in the active forms category;
- hapaxes, i.e. words that occur only once in the corpus;
- totals of words including both active and supplementary forms.

4. The software performs a similarity analysis based on graph theory (Flament, 1962). It creates a graph of co-occurrences of forms in the segments and the strengths of their associations (Longhi, 2018). In this manner the graphic analysis represents the local connections made by authors between forms, and so the concepts they apply in discussing the specific subject. More details about graph theory and the similarity analysis algorithm used in Iramuteq are given in Marchand & Ratinaud (2012).
5. The software performs the Reinert analysis, which is a descending hierarchical classification (DHC) based on a correspondence analysis technique (Marchand & Ratinaud, 2012). Using the frequency tables created at the lemmatisation stage (step 1) and the segments into which the text was initially divided (step 2), the algorithm repeatedly divides the corpus into homogenous sections according to the chi-squared correlation between the segments and the frequency with which the active forms appear in similar segments (Bart, 2011).

4. Results

The textometric analysis extracts quantitative information through the systematic identification of words, or word networks, significant for their frequency and textual relationships (Illia et al., 2014; Sarrica et al., 2020). The present work presents the results from the analyses of the collected opinions of 17 faculty Italian and foreign faculty members, with the aim of better understanding the emerging topics in the Italian and international scientific debate on spatial planning, without entering into any judgement or other interpretation of the individual comments.

The questionnaire provided to the experts was structured so that each question would extract answers focusing on specific aspects of the discipline and its current trajectory. The division of this report follows the structure of the questions. We gather the answers to each one in a single textual corpus, operate the analyses, and - in the seven subsections that follow - provided the results. The analysis aims at extracting the most relevant conceptualisations, of the 17 participants, in addressing each of the aspects in question. The concepts are presented in the manner of "textometric mapping".

Table 1 reports some data on the occurrences (total words), forms (unique words) and hapax legomena (analysed words) of the text analysed, for each question.

Question	Occurrences	Forms	Hapax legomena
1	8,051	1,817	1,022
2	9,084	2,235	1,286
3	7,514	1,821	1,044
4	5,092	1,407	840
5	5,191	1,540	954
6	4,315	1,218	723
7	6,499	1,717	1,041

Table 1. Summary data on text analysed, per question

4.1 Question 1

The experts answered the question, *"What is, in your opinion, a summary and systematic definition of urban and territorial planning?"*. The responses contain a total of 8,051 word occurrences, 1817 forms, and 1,022 hapax legomena (12.69% in relation to number of occurrences, 56.25% in relation to number of forms).
Figure 1 shows the word cloud for this question, considering the occurrence of each word, and Table 2 reports the ten most frequent active forms used by the experts in answering the question.

Figure 1. Word cloud for answers to question 1

The occurrences of the ten most frequent words comprise over 14.00% of the total occurrences in the experts' answers to question 1. The most frequent word is *settore* (sector), with 2.68%, followed by the words *urbanistico* (urban planning) with 1.86% and *pianificazione* (planning) with 1.83%. The percentages of occurrence fall below the value of 1.00% beginning with the word *progettazione* (design).

Rank	Word		Occurrence
	Italian	English	
1	*settore*	sector	82
2	*urbanistico*	urban planning	58
3	*pianificazione*	planning	57
4	*disciplinare*	disciplinary	48
5	*scientifico*	scientific	41
6	*declaratoria*	declaratory	39
7	*urbano*	urban	35
8	*progettazione*	design	28
9	*territoriale*	territorial	26
10	*tecnica|tecnico*	technical	26

Table 2. The ten most frequent words in answers to question 1

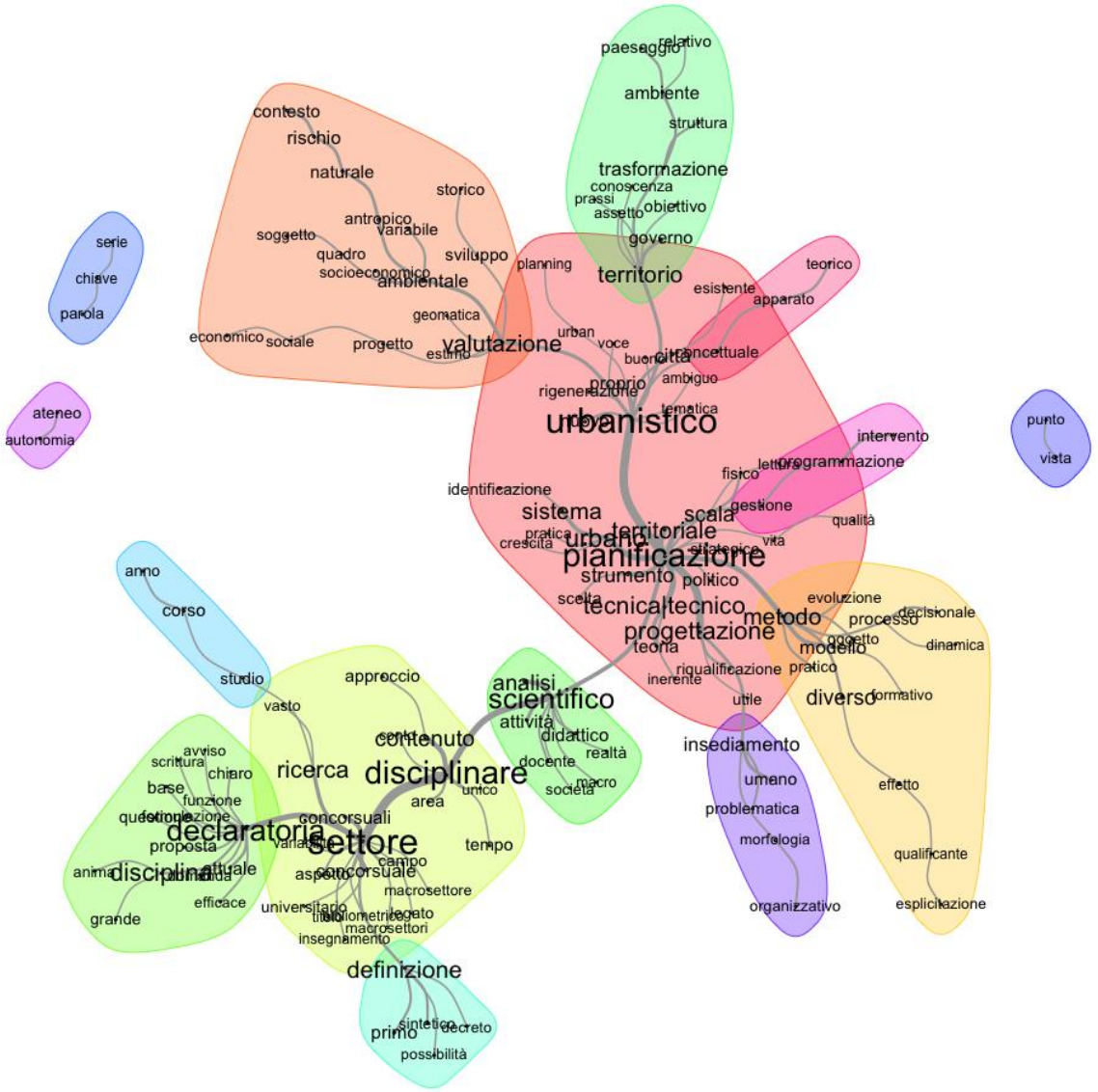

Figure 2. Dendrogram of similarity analysis for answers to question 1

The similarity analysis for this question divided the text into 15 groups (12 linked and three isolated) of interrelated forms, as shown in Figure 2. The main multibranched groups are three and develop around the words: *urbanistico* (urban planning) – *pianificazione* (planning); *scientifico* (scientific); *settore* (sector) – *disciplina* (discipline). The group *urbanistico* (urban planning) – *pianificazione* (planning) is linked to the four multibranched sub-groups: *valutazione* (assessment); *territorio* (territory); *metodo* (method); *insediamento* (settlement) and the two linear sub-group: *concettuale* (conceptual); *gestione* (management). The group *settore* (sector) – *disciplina* (discipline) is linked to two multibranched sub-groups: *declaratoria* (declaratory); *definizione* (definition), and one linear sub-group *studio* (study).

From the 8,051 words, the descending hierarchical classification identified 134 significant text segments divided into four clusters. In the Figure 3, the numerical value indicates the percentage of text segments in each cluster. The dendrogram shows two main categories, each of these containing two clusters. The first category includes clusters 4 and 2, with over 51% of text segments. The second category includes clusters 1 and 3, with over 46% of text segments.

The diagram of correspondence analysis (Figure 4) shows the distribution of word clusters along two main factorial axes depending on the co-occurrences of words in segments. Factors 1 and 2 have a cumulative percentage of variance of over 73%.

This representation confirms the distinction between the two branches of the dendrogram, with clusters 4 and 2 located in the left part of the diagram and clusters 1 and 3 in the right part. In the left part of the diagram (Figure 4), the words are most densely located across the horizontal axis (Factor 1), which suggests that the words of two clusters (1 and 3) are significantly interconnected. On the other hand, the words included in clusters 4 and 2, in the left part of the diagram, are widely distributed. The different distribution of the words in the diagram evidences that the words used by the experts and positioning on the right have a high level of interconnection, while those positioning the left side have a low level of interconnection.

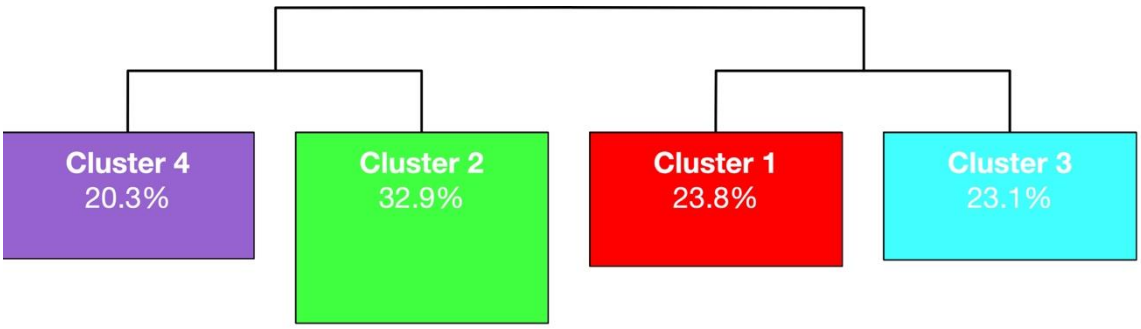

Figure 3. Dendrogram of the descending hierarchical classification of words in answers to question 1

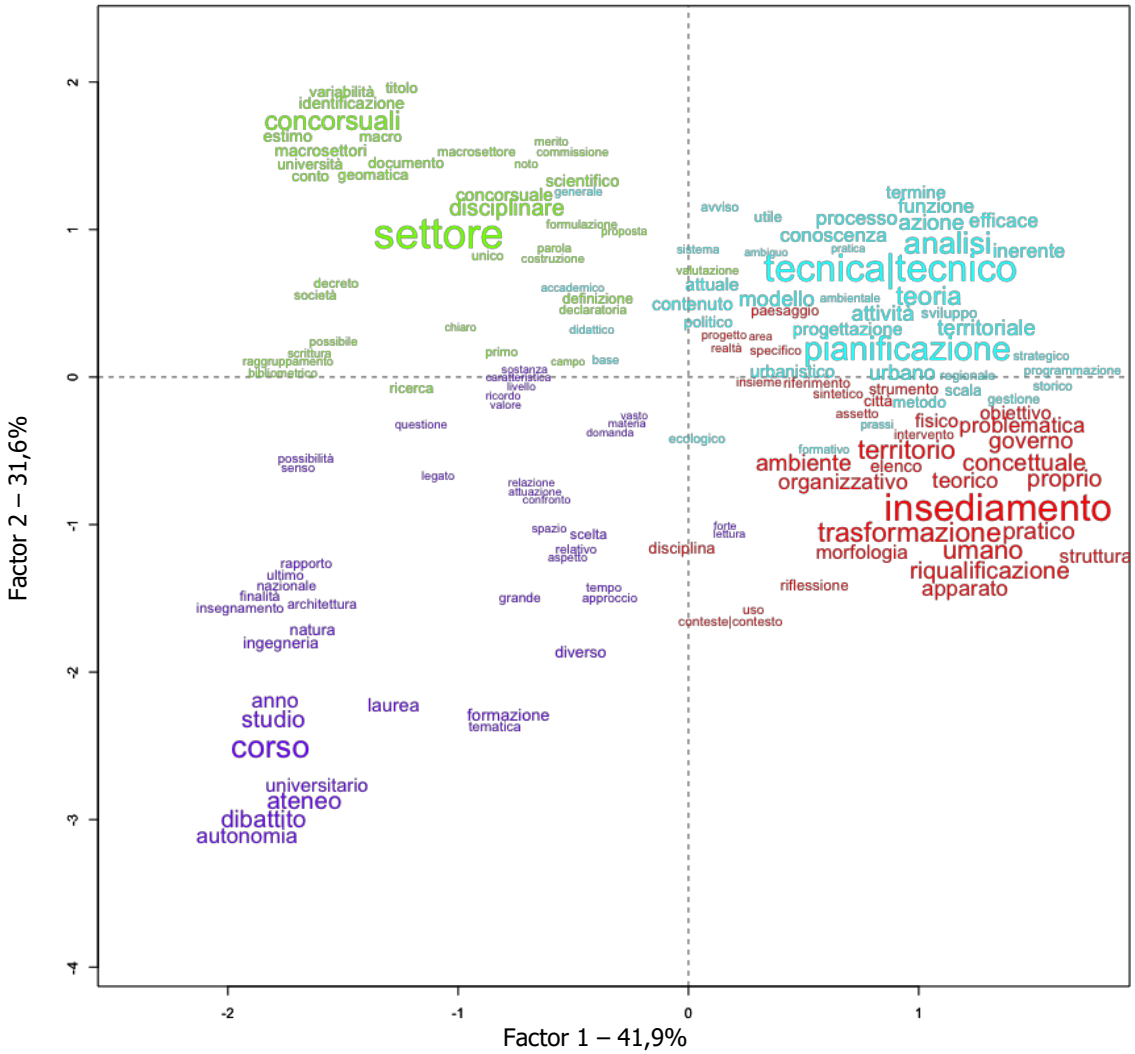

Figure 4. Diagram of factorial analysis of correspondences for answers to question 1

4.2 Question 2

Question 2 is *"What is your assessment of the future of urban planning in Italy, and how would you judge The Italian situation (regulatory, technical-disciplinary) in reference to what is happening in other countries?"*. The analysis refers to a total of 9,084 word occurrences, 2,235 forms, and 1,286 hapax legomena (14.16% of occurrences and 57.54% of forms). Figure 5 shows the word cloud for this question, considering the occurrence of each word, and Table 3 reports the ten most frequent active forms used by the experts in answering the question.

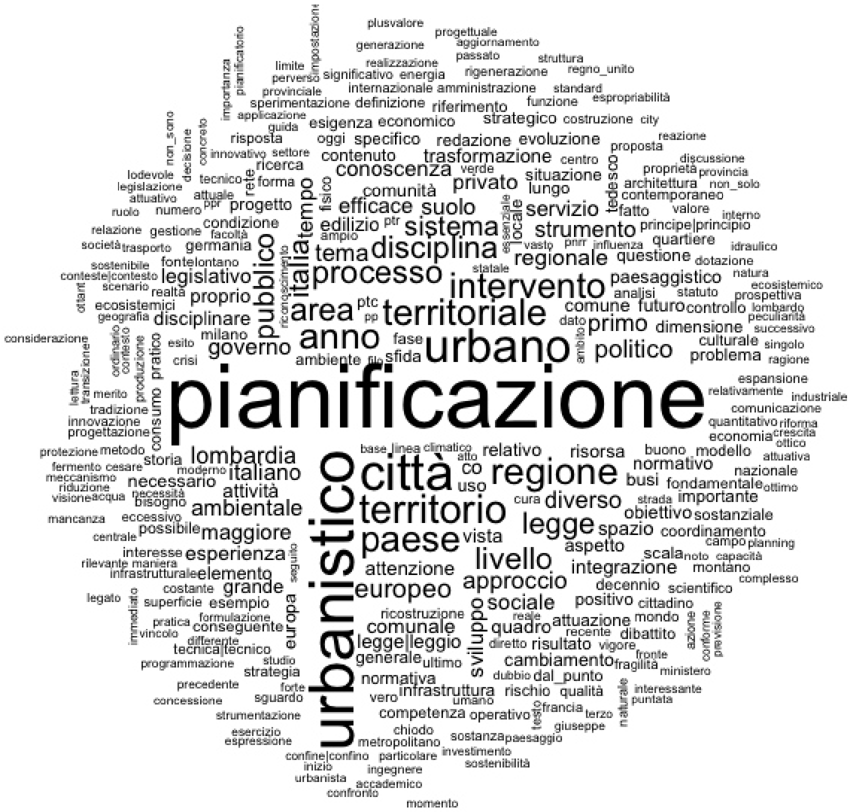

Figure 5. Word cloud for answers to question 2

The occurrences of the ten most frequent words comprise less than 10.00% of the total occurrences in the experts' answers to this question. The most frequent word is *pianificazione* (planning) with 1.96%, followed by the words *urbanistico* (urban planning) with 1.31% and *città* (città) with 1.05%. The percentages of occurrence fall below the value of 1.00% beginning with the word *urbano* (urban).

Rank	Word		Occurrence
	Italian	English	
1	*pianificazione*	planning	69
2	*urbanistico*	urban planning	46
3	*città*	city	37
4	*urbano*	urban	33
5	*territorio*	territory	27
6	*regione*	region	25
7	*territoriale*	territorial	24
8	*paese*	country	24
9	*anno*	year	24
10	*intervento*	intervention	23

Table 3. The ten most frequent words in answers to question 2

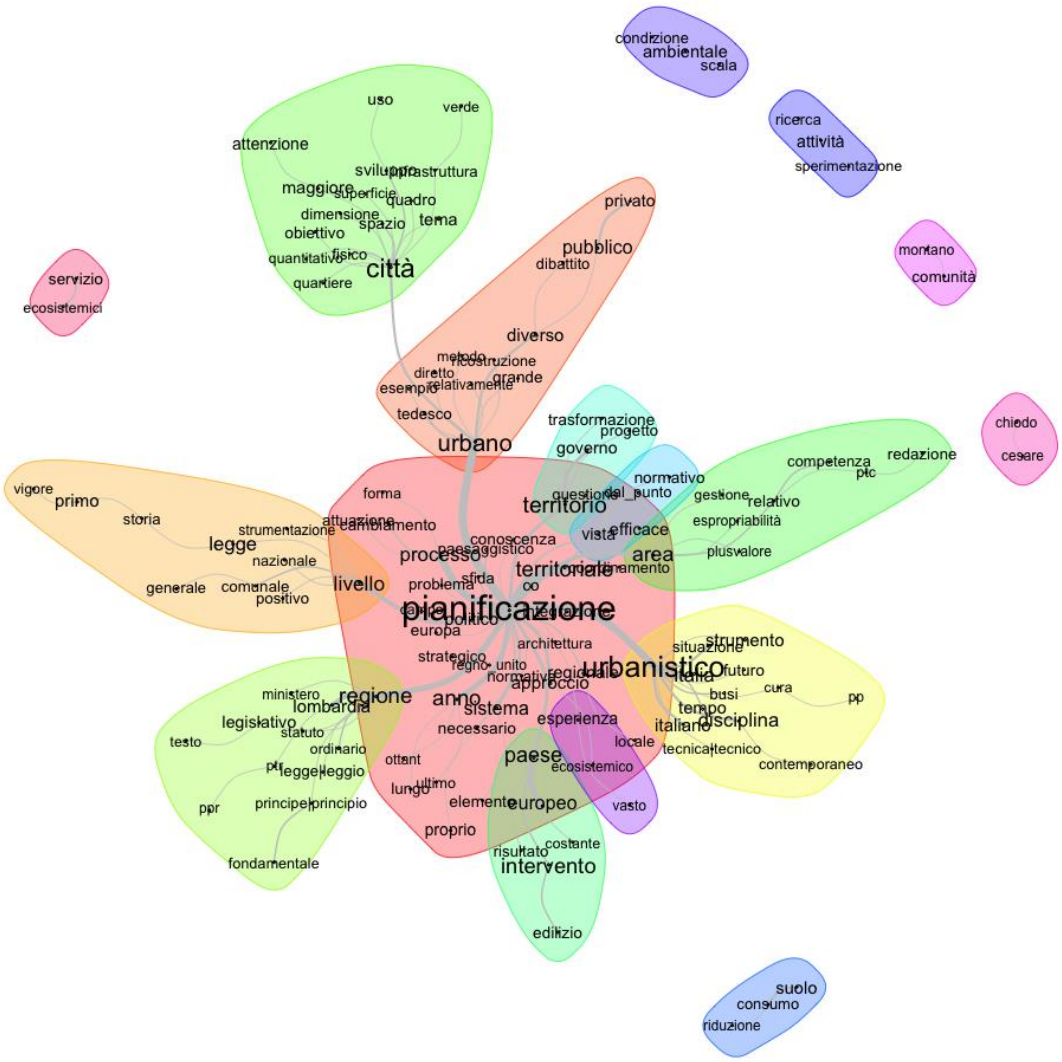

Figure 6. Dendrogram of similarity analysis for answers to question 2

The similarity analysis for this question divided the text into 18 groups (12 linked and six isolated) of interrelated forms, as shown in Figure 6. The main multibranched groups are three and develop around the words *pianificazione* (planning) and *urbano* (urban). The group *pianificazione* (planning) is linked to the eight multibranched sub-groups: *livello* (level); *regione* (region); *paese* (country); *esperienza* (experience); *urbanistico* (urban planning); *area* (area); *vista* (view) and *territorio* (territory). The group *urbano* (urban) is linked to multibranched sub-group *città* (city).

From the 9,084 words, the descending hierarchical classification identified 178 significant text segments divided in four clusters. In Figure 7, the numerical value indicates the percentage of text segments for each cluster. The dendrogram shows two macro-categories of clusters. The first includes clusters 1, 4 and 3, with over 68% of text segments. The second group includes cluster 2, representing over 31% of text segments.

The diagram of correspondence analysis (Figure 8) shows the distribution of word clusters along the two main factorial axes. Factors 1 and 2 have a cumulative percentage of variance of over 73%. The words of different cluster with high values of chi-square are located far from the intersection of factor 1 and 2 axes. The diagram evidences a prevalent distribution of words in three quadrants (first, third and fourth). Clusters 4 and 3 are prevalently located in the fourth quadrant, cluster 2 is mainly located in quadrant three, and cluster 1 is located in the first quadrant. In the right part of the diagram (Figure 8), the words of clouds 1,3 and 4 are mainly located parallel to the vertical axis with a high level of density and interconnection.

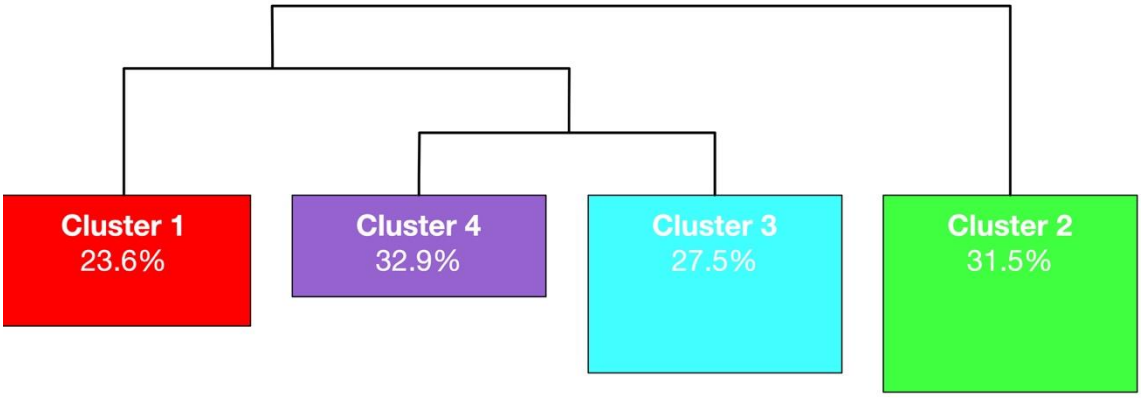

Figure 7. Dendrogram of the descending hierarchical classification of words in answers to question 2

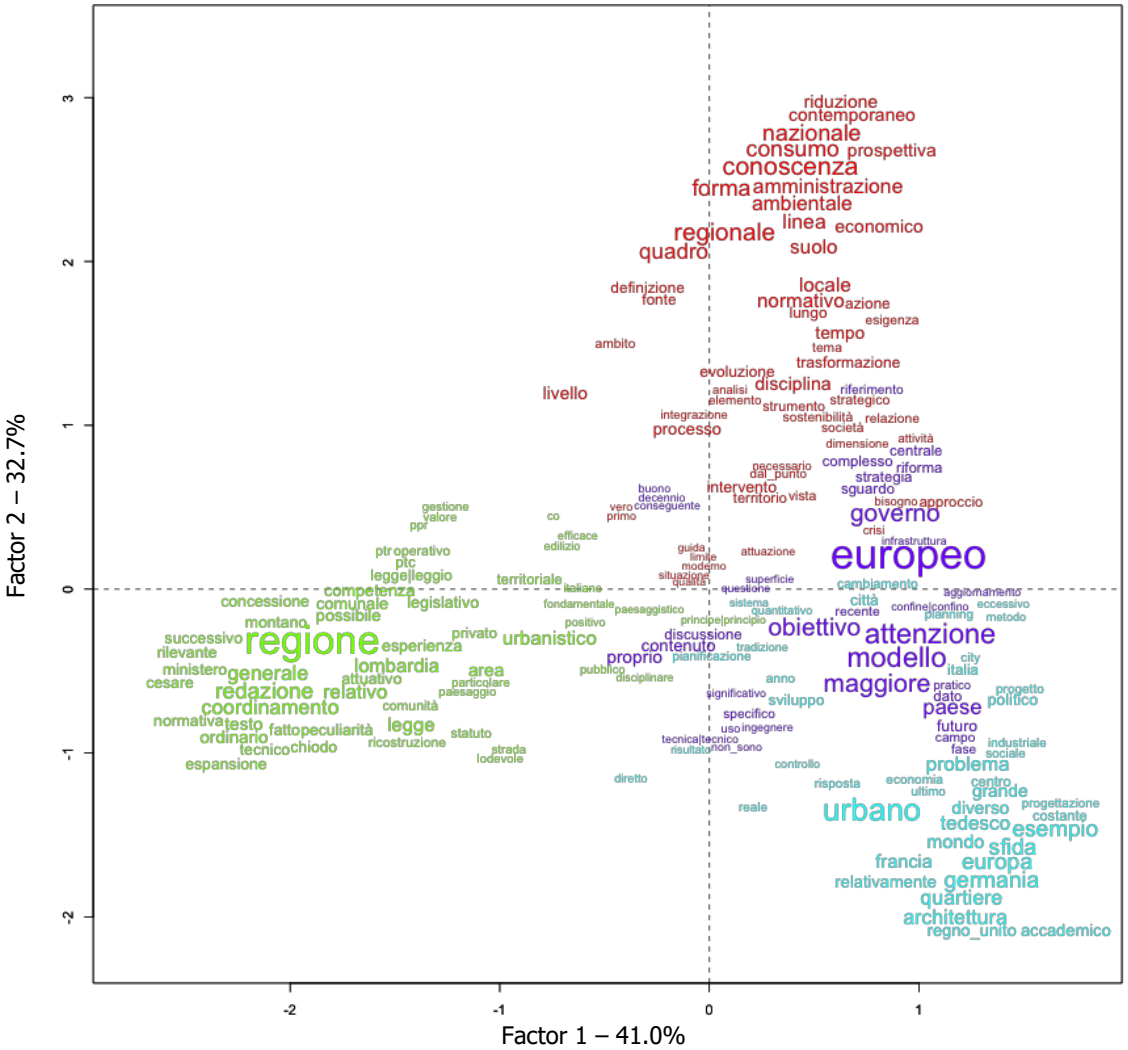

Figure 8. Diagram of factorial analysis of correspondences for answers to question 2

4.3 Question 3

The experts answered the question, *"In your opinion, does town and territorial planning retain its* raison d'etre *and the effective capacities for managing urban and territorial transformations, considering the future challenges facing cities; or is it necessary to review and update strategies, methods and techniques to develop new forms of organisation, structure, and provision of services within the city?"*. The analysis refers to a total of 7,514 word occurrences, 1,821 forms, and 1,044 hapax legomena (13.89% of occurrences, 57.33% of forms). Figure 9 shows the word cloud for this question, considering the occurrence of each word, and Table 4 reports the ten most frequent active forms used by the experts in answering the question.

Figure 9. Word cloud for answers to question 3

The occurrences of the ten most frequent words comprise over 10.00% of the total occurrences in the experts' answers to this question. The most frequent word is *città* (city) with 1.56%, followed by the words *urbanistico* (urban planning) with 1.34% and *strumento* (tool) with 1.31%. The percentages of occurrence fall below the value of 1.00% beginning with the word *urbano* (urban).

Rank	Word		Occurrence
	Italian	**English**	
1	città	city	44
2	urbanistico	urban planning	38
3	strumento	tool	37
4	pianificazione	planning	37
5	urbano	urban	28
6	territorio	territorial	23
7	programma	program	22
8	processo	procedure	22
9	legge	low	19
10	anno	year	19

Table 4. The ten most frequent words in answers to question 3

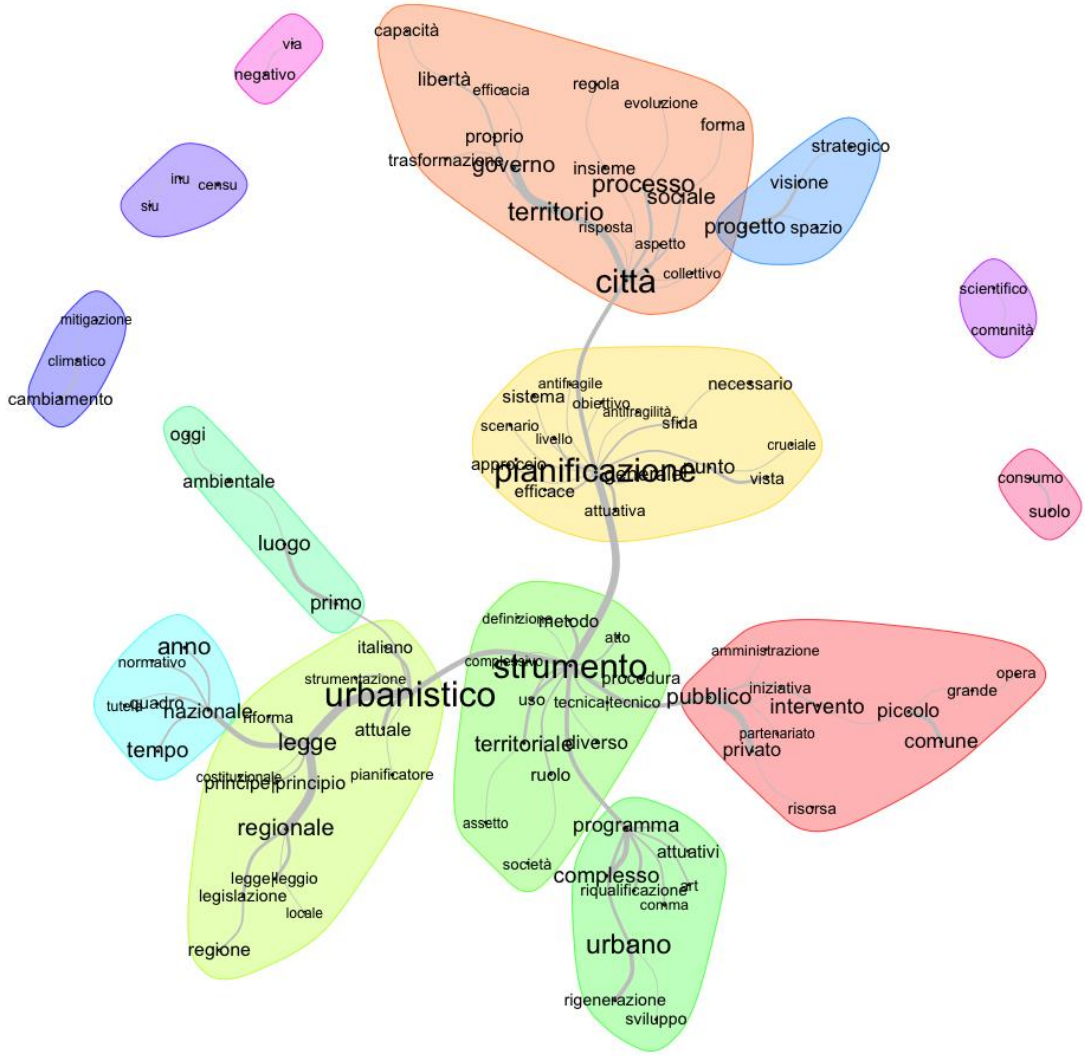

Figure 10. Dendrogram of similarity analysis for answers to question 3

The similarity analysis for this question divided the text into 18 clusters (12 linked and six isolated) of interrelated forms, as shown in Figure 10. The main multibranched groups develop around the words *urbanistico* (urban planning); *strumento* (tool); *pianificazione* (planning) and *città* (city). The group *urbanistico* (urban planning) is linked to the a multibranched sub-group *nazionale* (national) and a linear sub-group *primo* (first). The cluster *strumento* (tool) is linked to the two multibranched sub-groups *programma* (program) and *pubblico* (public). The cluster *pianificazione* (planning) is not linked to other sub-groups. The group *città* (city) is linked to one linear sub-cluster *progetto* (project).

From the 7,514 words, the descending hierarchical classification identified 143 significant text segments divided in five clusters. The dendrogram (Figure 11) shows two main categories. The first category includes groups 2 and 5, with 40% of text segments. The second macro-category includes category 3, 1 and 4, with 60% of text segments.

The diagram of correspondence analysis (Figure 12) shows the distribution of word clusters along two main factorial axes depending on the co-occurrences of words in segments. Factors 1 and 2 have a cumulative percentage of variance of over 57%.

The words of cluster 4 are distributed around the intersection of factor 1 and 2 axes. The graphic results confirm the distinction between the two branches of the dendrogram, with clusters 2 and 5 located in the left

part of the diagram and clusters 1, 3 and 4 in the right part. In the left part of the diagram, the words are not very close, which suggests that the words of two clusters (2 and 5) are poorly interconnected. The words included in the other clusters (1, 3 and 4) are widely distributed in the left part of the diagram. The different distribution of the words in the diagram evidences that the words used by the experts and positioning on the right side have a greater level of interconnection than those on left side. In particular, the words in the first quadrant have a significant level of connection and many words with high chi-square values.

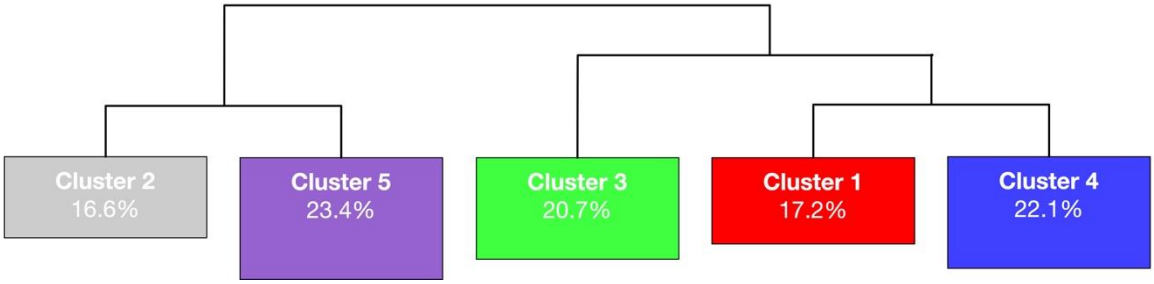

Figure 11. Dendrogram of the descending hierarchical classification of words in answers to question 3

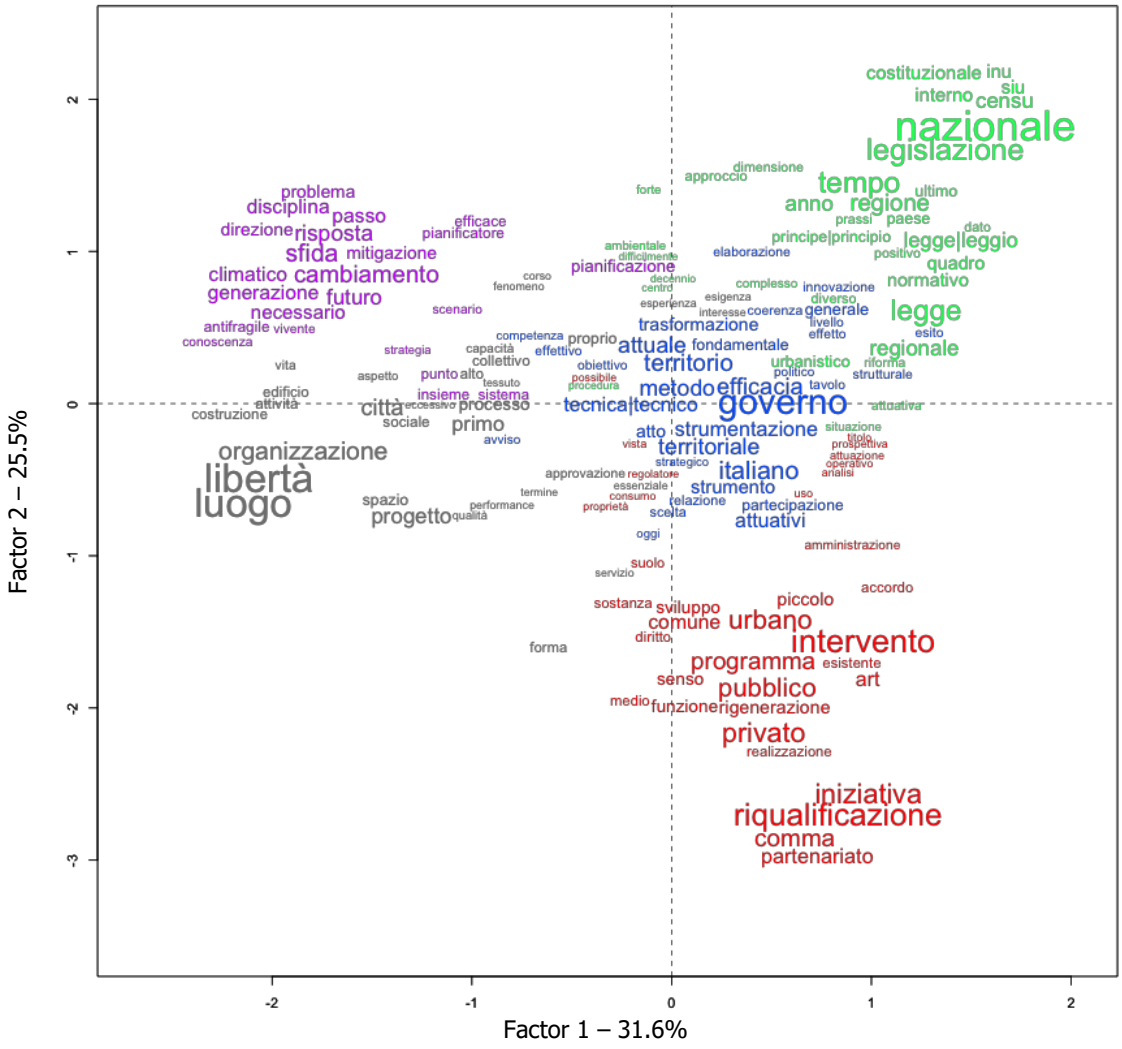

Figure 12. Diagram of factorial analysis of correspondences for question 3

4.4 Question 4

The experts answered the question, *"Within the framework defined in the previous question, in the areas of urban and spatial planning, what content and role should university teaching take on in the areas of urban and spatial planning?"*. The analysis refers to a total of 5,092 word occurrences, 1407 forms, and 840 hapax legomena (16.50% of occurrences, 59.70% of forms). Figure 13 shows the word cloud for this question, considering the occurrence of each word, and Table 5 reports the ten most frequent active forms used by the experts in answering the question.

Figure 13. Word cloud for answers to question 4

The occurrences of the ten most frequent words comprise 10.79% of the total occurrences in the experts' answers to question 4. The most frequent word is *urbanistico* (urban planning) with 1.97%, followed by the words *corso* (course) with 1.92% and *città* (city) with 1.03%. The percentages of occurrence fall below the value of 1.00% beginning with the word *insegnamento* (teaching).

Rank	Word		Occurrence
	Italian	**English**	
1	urbanistico	urban planning	40
2	corso	course	39
3	città	city	21
4	insegnamento	teaching	19
5	ingegneria	engineering	18
6	urbano	urban	17
7	laurea	degree	17
8	territorio	territory	16
9	proprio	own	16
10	diverso	different	16

Table 5. The ten most frequent words in answers to question 4

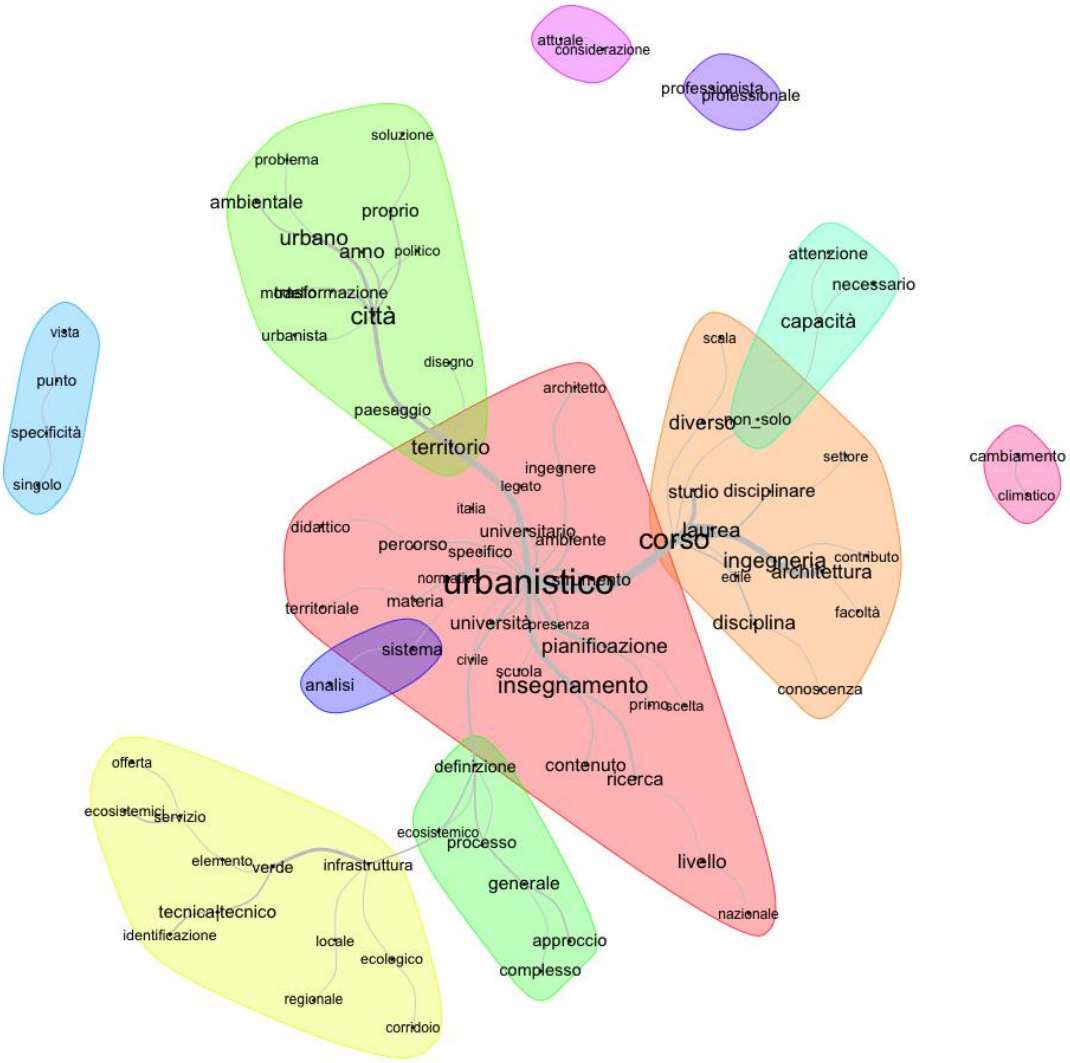

Figure 14. Dendrogram of similarity analysis for answers to question 4

The similarity analysis for this question divided the text into 11 groups (seven linked and four isolated) of interrelated forms, as shown in Figure 14. The three principal multibranched groups develop around the words *urbanistico* (urban planning), *corso* (course) and *definizione* (planning). The group *pianificazione* (planning) is linked to eight multibranched sub-groups. The group *urbanistico* (urban planning) is linked to a multibranched sub-group territorio (territory) and a linear group *sistema* (system). The group *corso* (course) is linked to a multibranched sub-group *capacità* (capability).

From the 5,092 words, the descending hierarchical classification identified 113 significant text segments divided into six clusters. In Figure 15, the numerical value indicates the percentage of text segments in each cluster. The dendrogram shows two macro-categories. The first macro-category includes clusters 1, 3, 5 and 6, with over 65% of text segments. The second macro-category includes clusters 2 and 4, with less 35% of significant text segments.

The diagram of correspondence analysis (Figure 16) shows the distribution of six clusters along two main factorial axes depending on the co-occurrences of words in segments. Factors 1 and 2 have a cumulative percentage of variance of over 46%. The word *territorio* (territory) has a higher value of chi-square and is located close to the intersection of factor 1 and 2 axes. In accordance with the Dendrogram representation, the distribution of words in the diagram evidences a high level of connection, in the second quadrant of diagram, between the words of the clusters 1, 3 and 5. These three clusters could be considered a unique

macro-category, within which clusters 1 and 3 have a higher level of connection between the words in the segments selected by the software.

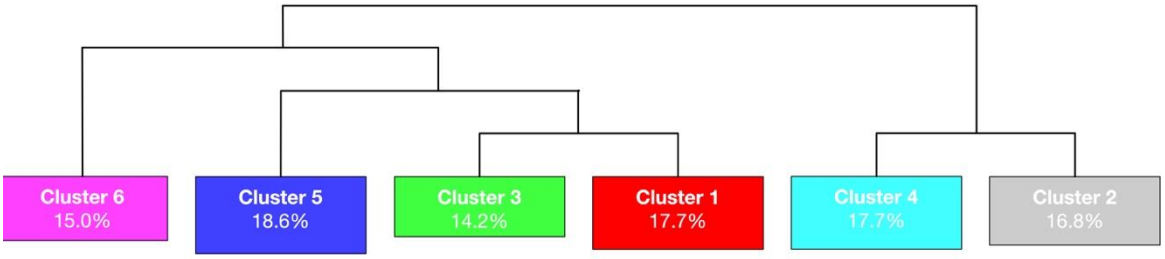

Figure 15. Dendrogram of the hierarchical clustering of the words in answers to question 4

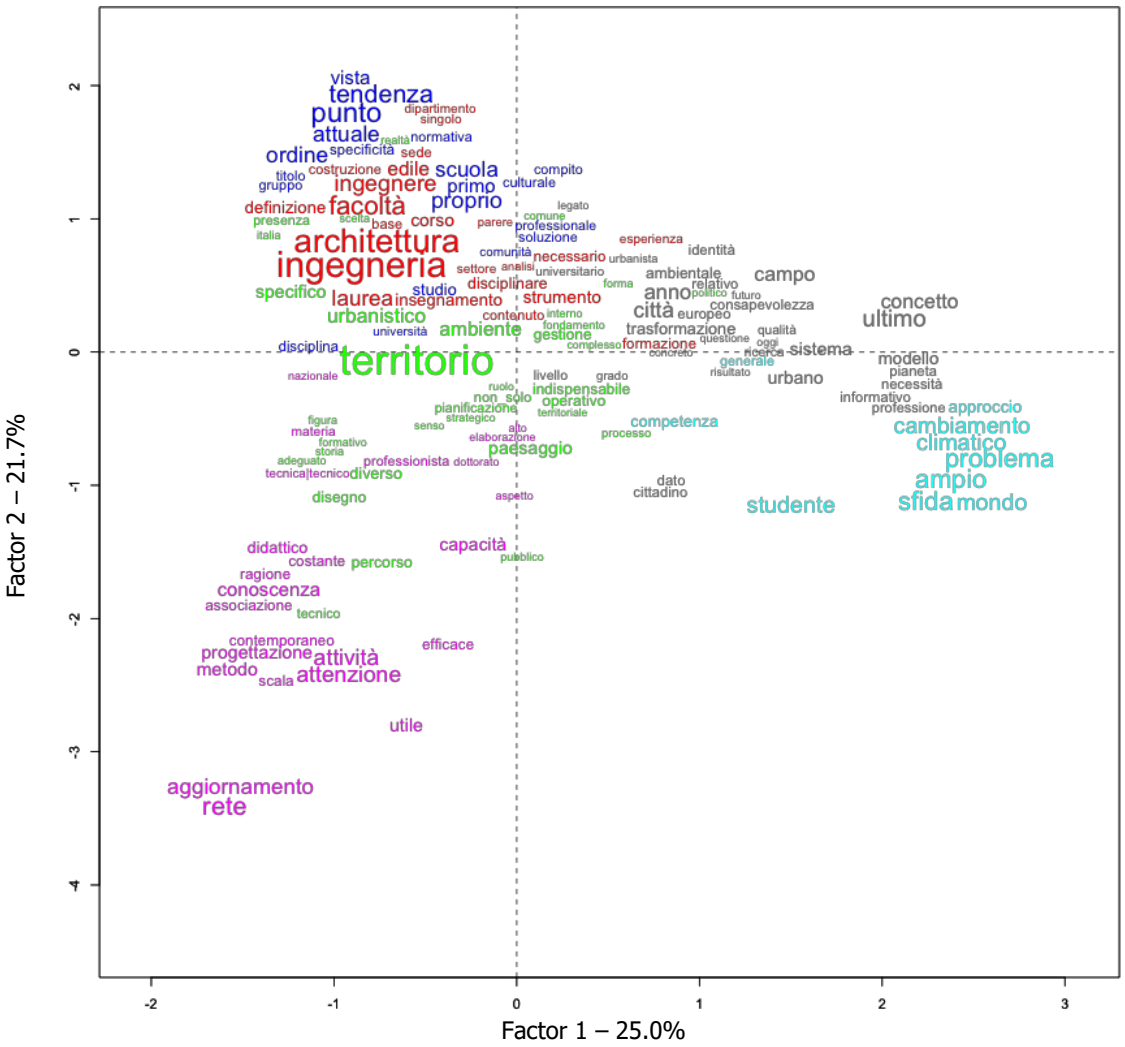

Figure 16. Diagram of factorial analysis of correspondences for question 4

4.5 Question 5

The experts answered the question, *"Taking account of the rapid changes in urban contexts arising from climate change, socio-economic evolution, ecological transition and the digital transition, what new strategies should be pursued in urban planning research?"*. The total amount of occurrences analysed are 5,191, the forms are 1,540, and the hapax legomena are 954 (18.38% of occurrences and 61.95% of forms).
Figure 7 shows the word cloud for this question, considering the occurrence of each word, and Table6 reports the ten most frequent active forms used by the experts in answering the question.

Figure 17. Word cloud for question 5

The ten most frequent words comprise less than 10,00% of the total occurrences included in the experts' answers to this question. The most frequent word is *ricerca* (research) with 1.84%, followed by the words *urbanistico* (urban planning) with 1.02% and *cambiamento* (change) with 1.02%. The percentages of occurrence fall below the value of 1.00% beginning with the word *nuovo* (new),

Rank	Word		Occurrence
	Italian	English	
1	ricerca	research	38
2	urbanistico	urban planning	21
3	cambiamento	change	21
4	nuovo	new	19
5	urbano	urban	17
6	territoriale	territorial	17
7	sistema	system	17
8	climatico	climate	16
9	pianificazione	planning	15
10	città	city	15

Table 6. The ten most frequent words in answers to question 5

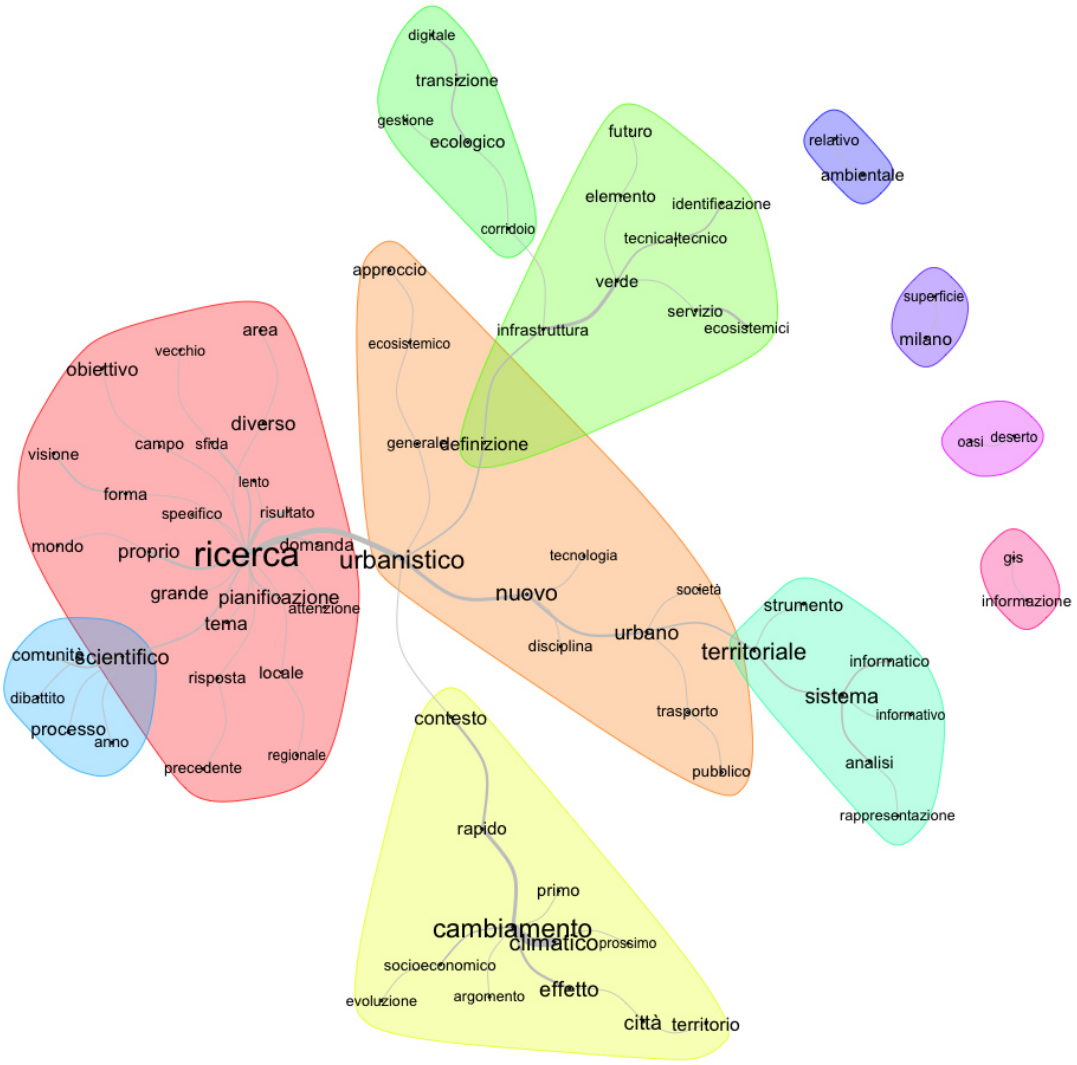

Figure 18. Dendrogram of similarity analysis for question 5

The similarity analysis for this question divided the text into 11 groups (seven linked and four isolated) of interrelated forms, as shown in Figure 18. The three main multibranched clusters are developed around the words: *ricerca* (research); *urbanistico* (urban planning); *definizione* (definition). The group *ricerca* (research) is linked to a multibranched sub-group *scientifico* (scientific). The group *urbanistico* (urban planning) is linked to two multibranched sub-groups *cambiamento* (change); *territoriale* (territorial). The group *urbano* (urban) is linked to a multibranched sub-cluster *ecologico* (ecological).

From the 5,191 words, the descending hierarchical classification identified 107 significant text segments divided into five clusters. In Figure 19, the numerical value indicates the percentage of text segments in each cluster. From the dendrogram is not possible to identify specific main categories of clusters. The cluster 1, 2 and 3 have a value of percentage of text segments over the 62% of text segments.

The diagram of correspondence analysis (Figure 20) shows the distribution of word clusters along two main factorial axes depending on the co-occurrences of words in segments. Factors 1 and 2 have a cumulative percentage of variance of over 46%. The diagram evidences the concentration of words with high chi-square values in three specific areas.

The first area of grouping words is at the top between the first and second quadrants, including the words of clusters 1, 2 and 3, evidencing a high level of connection between the words of these clusters. The second

area of grouping words is in the lower part of the third quadrant and includes the words of cluster four. The third area of grouping words is in the lower part of the fourth quadrant and includes the words of cluster 5. The results of factorial correspondence analysis for cluster 5 evidence a very low level of connection with the words of other clusters.

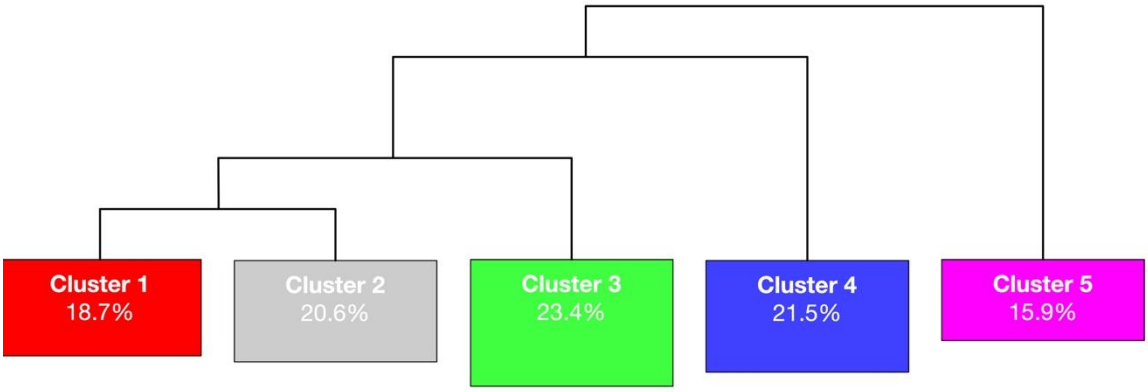

Figure 19. Dendrogram of the descending hierarchical classification for question 5

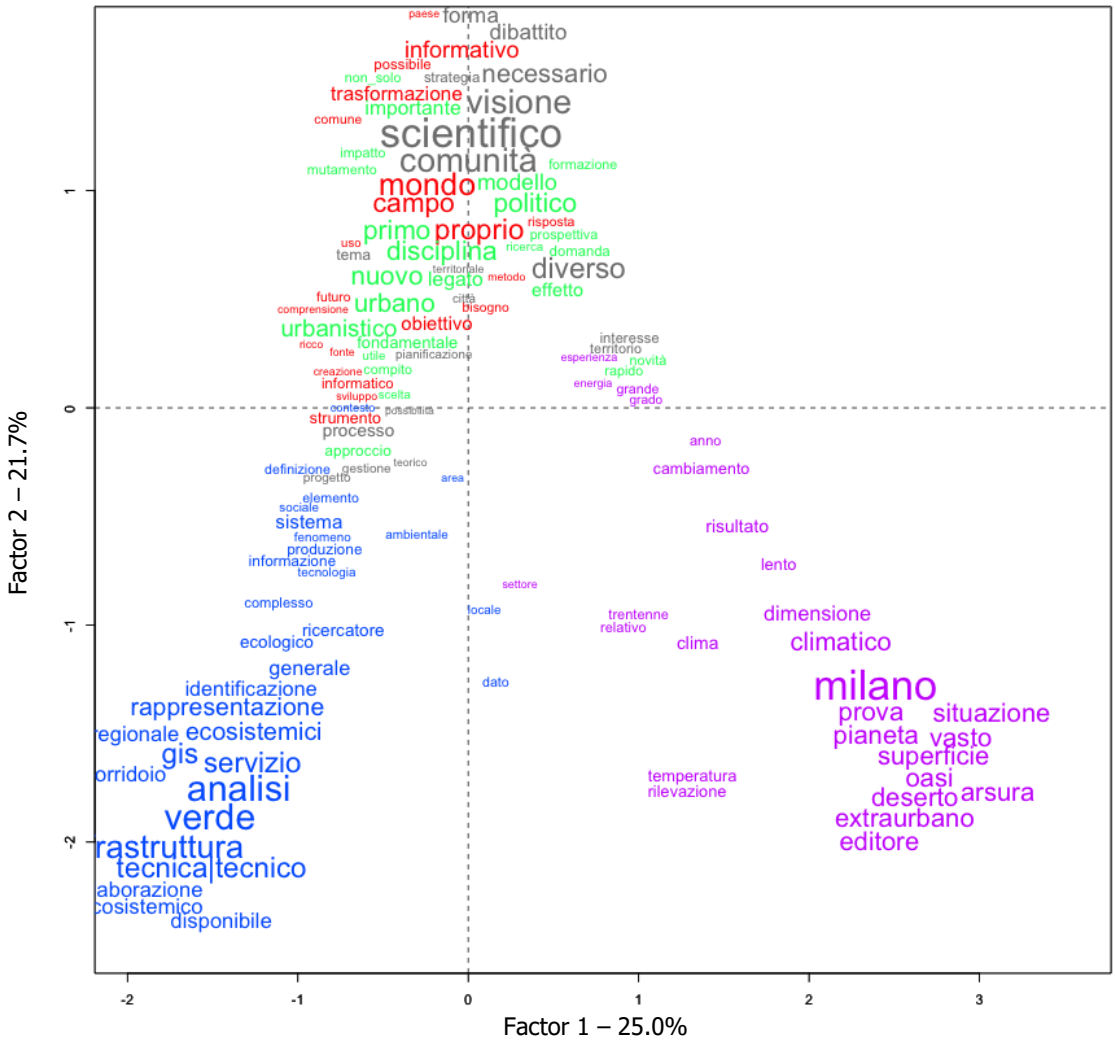

Figure 20. Diagram of factorial analysis of correspondences for question 5

4.6 Question 6

The experts answered the question, *"In light of your own research and specific experience, please summarise your vision for the future of urban planning."* The responses contain a total of 4,315 word occurrences, 1218 forms, and 723 hapax legomena (16.76% of occurrences and 59.36% of forms). Figure 21 shows the word cloud for this question, considering the occurrence of each word, and Table7 reports the ten most frequent active forms used by the experts in answering the question.

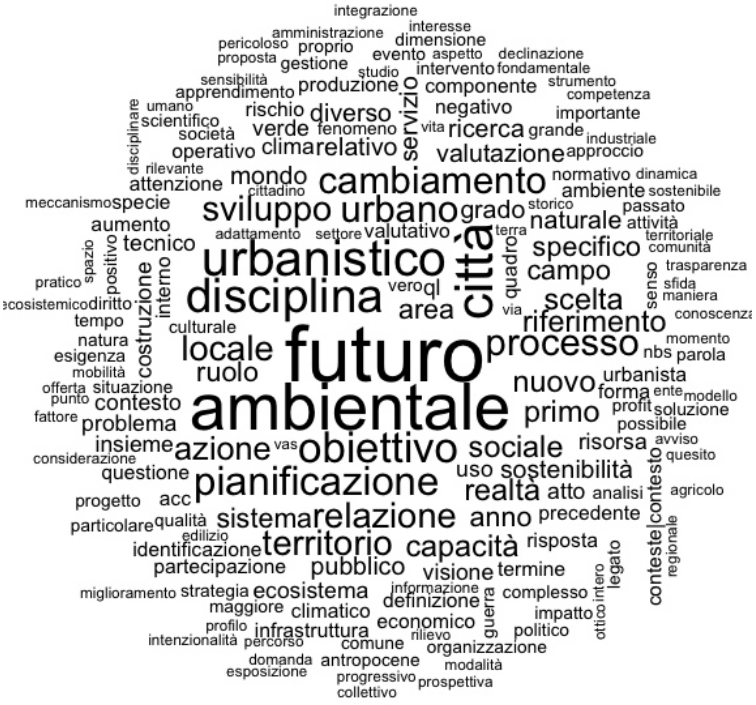

Figure 21. Word cloud for answers to question 6

The ten most frequent words comprise less 10,00% of the total occurrences included in the experts' answers to this question. The most frequent word is *futuro* (future) with 1.66%, followed by the words *ambientale* (environmental) with 1.37% and *città* (city) with 1.07%. The percentages of occurrence fall below the value of 1.00% beginning with the word *disciplina* (discipline),

Rank	Word		Occurrence
	Italian	English	
1	futuro	future	28
2	ambientale	environmental	23
3	città	city	18
4	urbanistico	urban planning	17
5	disciplina	discipline	16
6	obiettivo	objective	14
7	pianificazione	planning	13
8	urbano	urban	12
9	processo	process	12
10	cambiamento	change	12

Table 7. The ten most frequent words in answers to question 6

Figure 22. Dendrogram of similarity analysis for question 6

The similarity analysis for this question divided the text into 12 groups (seven linked and five isolated) of interrelated forms, as shown in Figure 22. The four main multibranched groups are developed around the words *futuro* (future), *ambientale* (environmental), *obiettivo* (objective) and *sviluppo* (development). The group *futuro* (future) is linked to a multibranched sub-group *città* (city). The group *obiettivo* (objective) is linked to a multibranched sub-group *servizio* (service). The cluster *sviluppo* (development) is linked to a multibranched sub-group *processo* (process).

From the 4,315 words, the descending hierarchical classification identified 104 significant text segments divided into six clusters. In Figure 23, the numerical value indicates the percentage of text segments in each cluster. The dendrogram shows three macro-categories of clusters. The first macro-category includes clusters 1 and 5, with over 33% of text segments. The second macro-category includes clusters 3, 4 and 6, with over 47% of text segments. The last macro-category includes only cluster 2 with a percentage of text segments of 19.2%.

The diagram of correspondence analysis (Figure 24) shows a correspondence analysis of the six clusters along the two main factorial axes. Factors 1 and 2 have a cumulative percentage of the variance of over 49%. The words with high value of chi-square values are located far away from the intersection of factor 1 and 2 axes and the concentration of significant words in three specific areas of diagram.

The first area of grouping is in the first quadrants and includes the words of cluster 2. The second area of grouping is in the second quadrant and includes the words of clusters 1, 3, 4 and 6. The high value of chi-square values and the closeness of words evidence a high level of connection between the words of these clusters. The third grouping area is across the negative part of factor 2 axis and includes the words of cluster 5. The results of factorial correspondence analysis for cluster 2 evidence a very low level of connection with the words of other clusters.

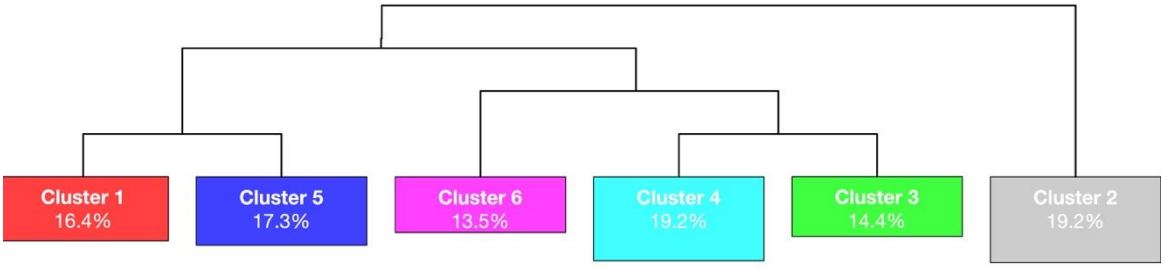

Figure 23. Dendrogram of the descending hierarchical classification for question 6

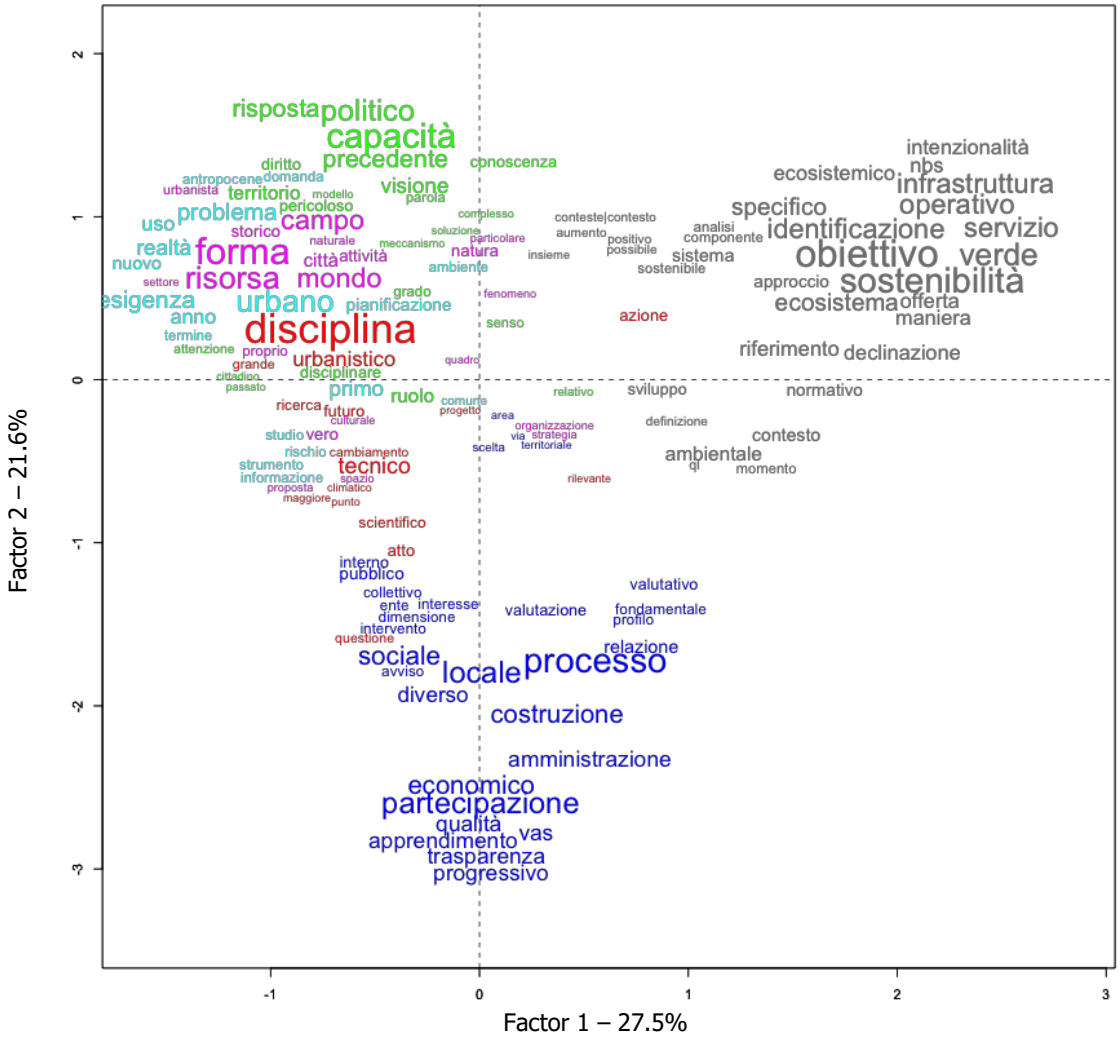

Figure 24. Diagram of factorial analysis of correspondences for question 6

4.7 Question 7

The experts answered the question, *"What could be the role of scientific journals in advancing research into urban and territorial phenomena, and, in the current context, which initiatives could achieve more useful effects from their publication of articles and scientific results?*". The analysis refers to a total of 6,499 word occurrences, 1,7171 forms, and 1,041 hapax legomena (16.02% of occurrences and 60.63% of forms). Figure 25 shows the word cloud for this question, considering the occurrence of each word, and Table 8 reports the ten most frequent active forms used by the experts in answering the question.

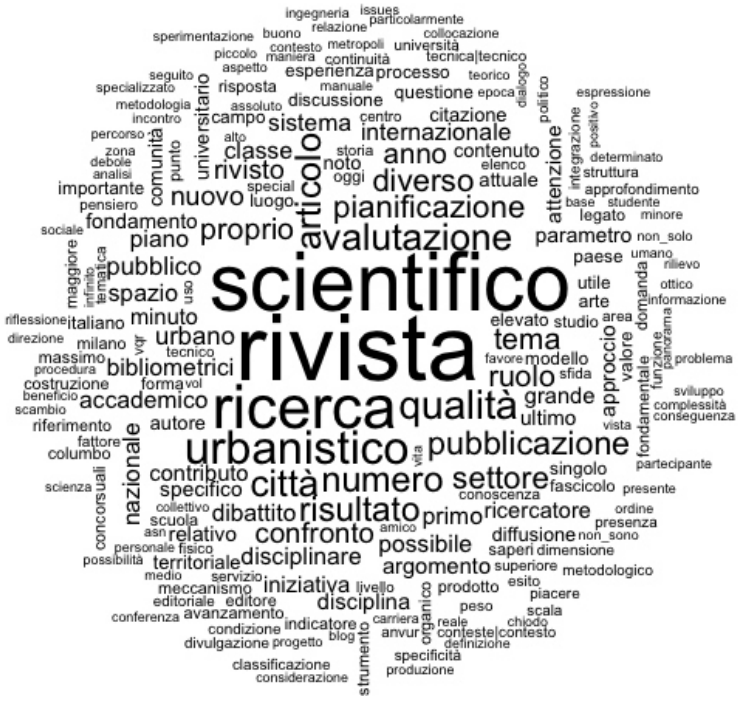

Figure 25. Word cloud for answers to question 7

The occurrences of the ten most frequent words comprise over 11.00% of the total occurrences included in the experts' answers to this question. The most frequent word is *rivista* (journal) with 2.31%, followed by the words *scientifico* (scentific) with 2.02% and *ricerca* (research) with 1.44%. The percentages of occurrence fall below the value of 1.00% beginning with the word *qualità* (quality).

Rank	Word		Occurrence
	Italian	English	
1	rivista	journal	56
2	scientifico	scientific	49
3	ricerca	research	35
4	urbanistico	urban planning	25
5	qualità	quality	21
6	valutazione	assessment	19
7	città	city	19
8	numero	number	18
9	articolo	article	18
10	risultato	result	17

Table 8. The ten most frequent words in the answers to question 7

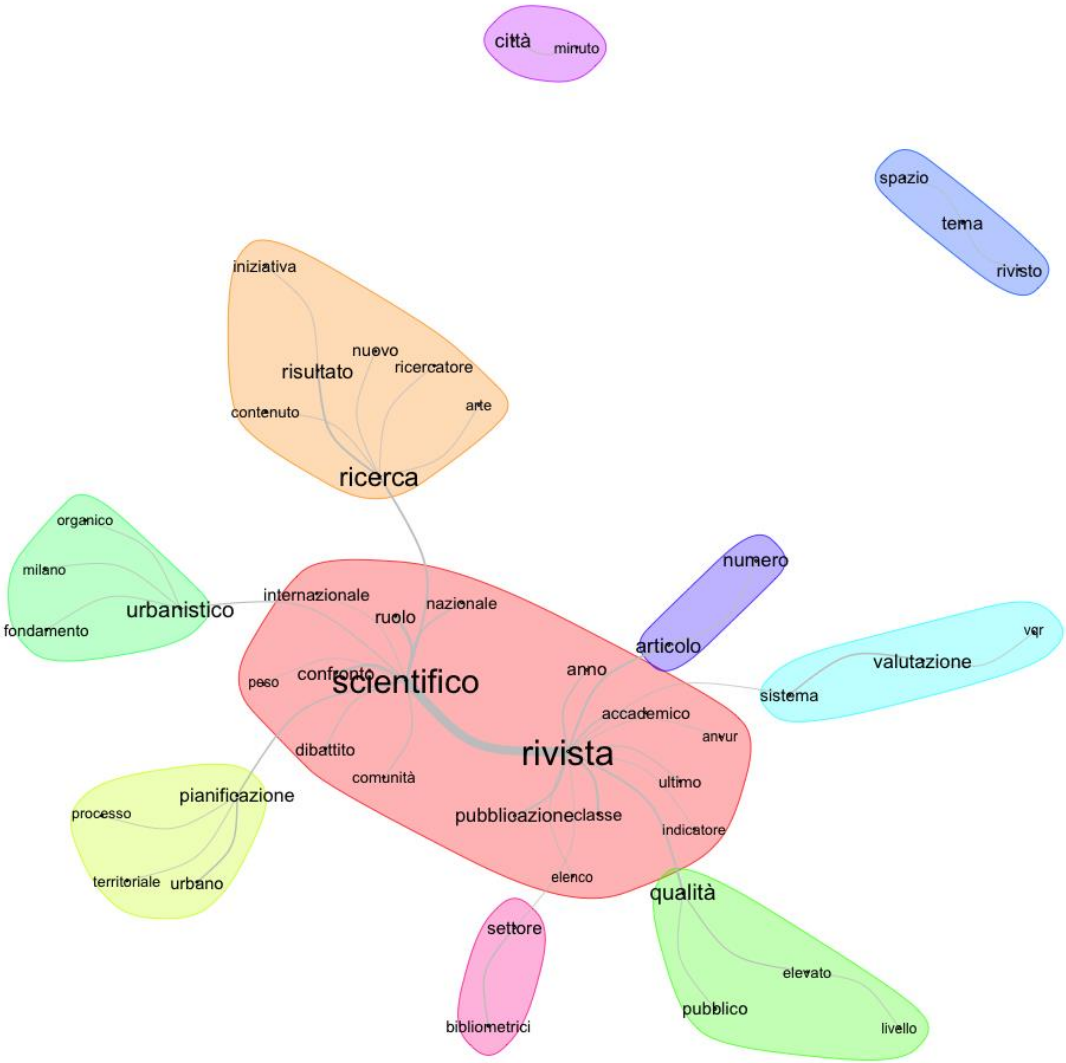

Figure 26. Dendrogram of similarity analysis for answers to question 7

The similarity analysis for this question divided the text into 18 clusters (12 linked and six isolated) of interrelated forms, as shown in Figure 26. The one main multibranched cluster develop around the words *scientifico* (scentifico) – *rivista* (journal) and it is linked to four multibranched sub-clusters: *ricerca* (research); *urbanistico* (urban planning); *pianificazione* (planning); *qualità* (quality) and three linear sub-clusters: articolo (article); sistema (system); settore (sector).

From the 6,499 words, the descending hierarchical classification identified 129 significant text segments divided into five clusters. In the Figure 27, the numerical value indicates the percentage of text segments in each cluster. The dendrogram shows three macro-categories of clusters. The first macro-category includes clusters 1 and 4, with over 37% of text segments. The second macro-category includes clusters 2 and 3, with over 43% of text segments. The last macro-category consists solely of cluster 5, with a percentage of text segments of 19.4%.

The diagram of correspondence analysis (Figure 28) shows the distribution of word clusters along two main factorial axes, depending on the co-occurrences of words in segments. Factors 1 and 2 have a cumulative percentage of variance of over 61%. The distribution of clusters in the diagram shows significant concentration of the words on the left side (negative part of factor 1 axe) with clusters 1, 2, 3 and 4. Cluster 5 is the only one placing on the right side of the diagram. This distribution evidences a level of connection between the

words of cluster 5 and the words of the other clusters. The first macro-category of clusters is located in the third quadrant of the diagram, and the second macro-category in the second quadrant. The distribution of clusters in the diagram is coherent with what is indicated in the dendrogram (Figure 27).

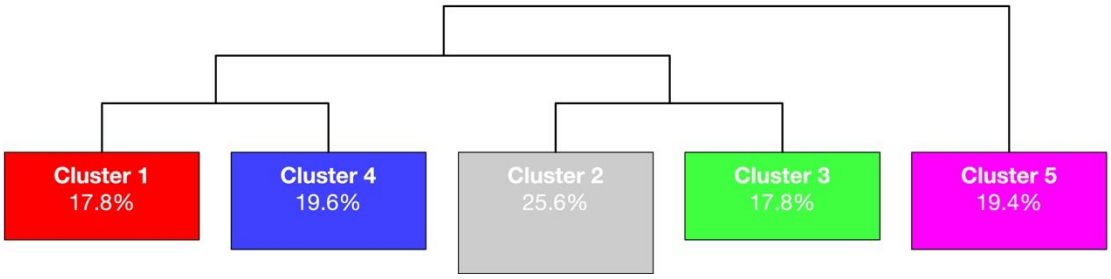

Figure 27. Dendrogram of the hierarchical clustering of the words in answers to question 7

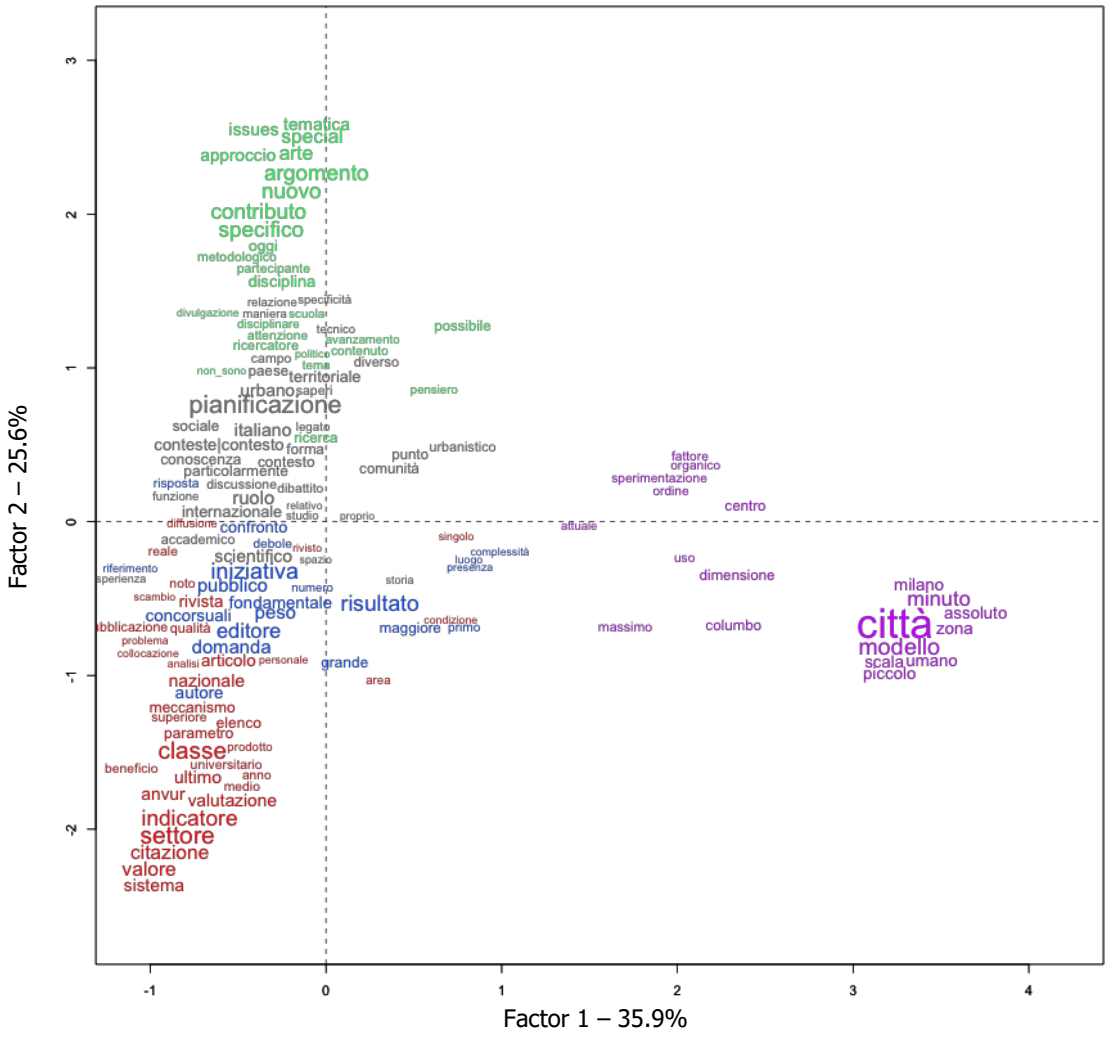

Figure 28. Diagram of factorial analysis of correspondences for question 7

5. Conclusions

Conversations with TeMA opens a new and original editorial line for the Journal, aimed at fostering discussion on the evolution of the urban and spatial planning discipline among experts with diverse backgrounds and research and teaching contexts, in regard to different aspects and issues such as, by way of example: higher

education, national regulatory laws, research topics and publishing activities. The current contribution is based on interviews with a large number of scholars who respond to a series of questions on the current status and future of the discipline. Applying a textometric method, the study systematically analyses the contents of the answers and identifies the main topics and concepts present with the corpus of answers, in this way enabling future developments.

We have chosen to use the methods and techniques of textometric analysis (word cloud, similarity and cluster analyses) suggested by scientific literature, for detection of the topics and concepts present at significant level within the current debate. From the reading of this contribution, many points of reflection emerge on the type of words used, their frequency of occurrence, the distance between recurring pairs of words within the texts. So as to avoid imposing any bias on the assessment of others, we entrust our readers with the responsibility of using the analytical results to identify the points of reflection of specific interest.

To sum up, this present study aims at improving the reading of *Conversations with TeMA* on the field of spatial planning, and, first of all, given the results from the analyses, confirms the multidisciplinary nature of the discipline. However, this research is not without limitations: although the analysis is conducted on written input from a wide range of experts, in response to structured questions, it may not lead to robust conclusions. Any lack of robustness could arise in part from the nature of collecting the analysed texts, as a corollary to *Conversations with TeMA*, thus internally referential in reading the future of spatial planning. Moreover, although the responses to the questions are from 18 experts, this is still a small sample size relative to the entire population of professionals, considering Italy alone, and finally some of the questions received less response than others. For this reason, we look forward to the opportunity of organising future discussions and debates. The limitations noted can also be seen as an opportunity for further research, for example in the exploration of particular word clusters.

References

Abhayawansa, S. (2011). A methodology for investigating intellectual capital information in analyst reports. *Journal of Intellectual capital*. https://doi.org/10.1108/14691931111154733

Bart, D. (2011). L'analyse de données textuelles avec le logiciel Alceste. Recherches en didactiques, 12(2), 173-184. https://doi.org/10.3917/rdid.012.0173

Bueno, S., Banuls, V. A., & Gallego, M. D. (2021). Is urban resilience a phenomenon on the rise? A systematic literature review for the years 2019 and 2020 using textometry. *International Journal of Disaster Risk Reduction*, *66*, 102588. https://doi.org/10.1016/j.ijdrr.2021.102588

Buhler, T., Bendinelli, M., Lethier, V., & He, Y. (2018). La textométrie pour révéler évolutions et oppositions dans les discours des politiques urbaines. Le cas des PDU français (2000-2015). *Flux, (3)*, 93-110. https://doi.org/10.3917/flux1.113.0093

Chanel, O., Delattre, L., & Napoléone, C. (2014). Determinants of local public policies for farmland preservation and urban expansion: A French illustration. *Land Economics*, *90* (3), 411-433. https://doi.org/10.3368/le.90.3.411

Flament, C., 1962. L'analyse de similitude. Cahiers du centre de recherche op´erationnelle 4, 63–97.

Greenacre, M. (2017). *Correspondence analysis in practice*. chapman and hall/crc.

Gonçalves Júnior, J., Sales, J. P. D., Moreno, M. M., & Rolim-Neto, M. L. (2021). The impacts of SARS-CoV-2 pandemic on suicide: a lexical analysis. *Frontiers in psychiatry*, *12*, 40. https://doi.org/10.3389/fpsyt.2021.593918

Carpentieri, G., Guida, C. (2022). Per un'analisi lessicometrica della rivista Urbanistica (1949-2021). Urbanistica N. 165-166, 126-132. ISBN: 0042-1022

Hirschfeld, H. O. (1935, October). A connection between correlation and contingency. In *Mathematical Proceedings of the Cambridge Philosophical Society* 31(4), 520-524. Cambridge University Press. https://doi.org/10.1017/S0305004100013517

Helme-Guizon, A., & Gavard-Perret, M. L. (2004). L'analyse automatisée de données textuelles en marketing: comparaison de trois logiciels. *Décisions Marketing*, 75-90. http://www.jstor.org/stable/40593002.

Illia, L., Sonpar, K., & Bauer, M. W. (2014). Applying co-occurrence text analysis with ALCESTE to studies of impression management. *British Journal of Management*, *25*(2), 352-372. https://doi.org/10.1111/j.1467-8551.2012.00842.x

Lavissière, A., Sohier, R., & Lavissière, M. C. (2020). Transportation systems in the Arctic: A systematic literature review using textometry. Transportation Research Part A: Policy and Practice, 141, 130-146.

https://doi.org/10.1016/j.tra.2020.09.003

Marchand, P., & Ratinaud, P. (2012). L'analyse de similitude appliquée aux corpus textuels: les primaires socialistes pour l'élection présidentielle française (septembre-octobre 2011). *Actes des 11eme Journées internationales d'Analyse statistique des Données Textuelles. JADT*, *2012*, 687-699.

Mandják, T., Lavissière, A., Hofmann, J., Bouchery, Y., Lavissière, M. C., Faury, O., & Sohier, R. (2019). Port marketing from a multidisciplinary perspective: A systematic literature review and lexicometric analysis. *Transport Policy*, *84*, 50-72. https://doi.org/10.1016/j.tranpol.2018.11.011

Reinert, M. (1990). Alceste une méthodologie d'analyse des données textuelles et une application: Aurelia De Gerard De Nerval. *Bulletin of Sociological Methodology/Bulletin de méthodologie sociologique*, *26* (1), 24-54. https://doi.org/10.1177/075910639002600103

Sarrica, M., Rimano, A., Rizzoli, V., & Passafaro, P. (2020). Are e-bikes changing the social representation of cycling? An exploration of articles on cycling in Italian online publications. *Sustainability: Science, Practice and Policy*, *16* (1), 155-168. https://doi.org/10.1080/15487733.2020.1794148

Image Sources

All figures were edited by authors by using Iramuteq software

Author's profile

Gerardo Carpentieri

He is an engineer, Ph.D. in Civil Systems Engineering at the University of Naples Federico II and Lecture of Land Use Planning at the Department of Civil, Architectural and Environmental Engineering of the University of Naples Federico II. From 2020, he is a member of Unina research group for the ERASMUS+ Key Action2: Project "Development of a Master Programme in the Management of Industrial Entrepreneurship for Transition Countries" (MIETC). From 2023, he coordinate of Unina research group for the research project "STEP UP- Walkability for Women in Milan" financed by Fondazione Cariplo.

Carmen Guida

She is an engineer, PhD in Civil Systems Engineering and Postdoctoral Researcher at the Department of Civil, Architectural and Environmental Engineering of the University of Naples Federico II. Her research activities concern adapting the urban environment to climate change-related hazards and accessibility to urban services for older adults to minimise social exclusion and inequalities within urban areas.

Sabrina Sgambati

She is an engineer, Ph.D. student in Civil Systems Engineering at Department of Civil, Architectural and Environmental Engineering of University of Naples Federico II. Her research activities concern the competitiveness of urban areas.