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.

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For the evolution of spatial planning

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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.

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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 on seven open-ended questions questions. Textometric analysis enables for the systematic extraction of quantitative information from a textual corpus throughout 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 to define a shared and adequately updated strategy to boost the discipline. The purpose of this analysis, which prescinds from any form of judgements or interpretation about the content of the single answers, is to give an overview on 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.

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1. Introduction

This paper presents the results of a textometric analysis carried out on the contents of the volume "Conversations with TeMA 1.2023". The volume recollects 17 experts' reflections – both from Italian and foreign Universities – about the becoming of spatial planning, in these years of great change in the academic (teaching and research) and technical-professional fields. The 17 contributions are articulated in the form of an interview on some topics that the TeMA Journal Editorial Board considers essential to define a shared and adequately updated strategy to boost the discipline. The questionnaire submitted to each expert is made up of 7 open-ended questions, which are listed below:

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?

This paper is structured in two sections: in the first section, there is a theoretical illustration of the different selected textometric analysis; the second section proposes a cross-reading of the interview's answers, with the identification of the most recurrent keywords and thematic connections. The purpose of this analysis, which prescinds from any form of judgements or interpretation about the content of the single answers, is to give an overview on the opinions collected, highlighting commonalities and focuses that may provide fruitful points for reflection for the future of spatial planning discipline. The outcome graphs and tables obtained from the textometric analysis are suggested to be an interesting key to reading based on quantitative and statistical implications.

2. Textometric analysis

Performing textometric analysis on a textual corpus enables for the systematic extraction of quantitative information throughout the identification of words or text segments that are significant due to their frequency and textual relationships (Illia et al., 2014; Sarrica et al., 2020). These techniques are frequently used in various disciplinary and professional fields since they allow for the quantitative identification of the main thematic connections within a text or a group of texts (Helme-Guizon and Gavard-Perret, 2004; Abhayawansa, 2011). Specifically, the implementation of statistical analysis on textual files enables technicians to understand how much and where words are repeated and how and in what measure they relate to each other (Chanel et al., 2014). Although this method is not widely used in the field of spatial planning, studies from other disciplines have used these techniques to rapidly identify themes and concepts present in a textual corpus under analysis (Mandják et al., 2019; Sarrica et al., 2020). Some example of the application textometric analysis in the spatial planning discipline is provided by Buhler et al. (2018) that analysed the urban policy discussion from 2000-2015 on the theme of France urban transport plans. Bueno et al. (2021) published a systematic literature

review, from 2019 to 2020, with the support of textometric analysis on the rise of urban resilience, considering over 2,900 manuscripts. In the 2022, Carpentieri and Guida (2022) proposes a textometric analysis of titles of articles published on the Urbanistica journal from 1949 to 2022 to understand the evolution of discipline and the themes considering the point of view of scientific journal.

2.1 Similarity analysis

Firstly, we set a statistical textual analysis that allows understanding how words associate with each other within a text. This kind of textometric analysis calculates the proximity between words – considering both most recurrent and less recurrent words – according to centrality values (Mandják et al., 2019). In other words, this technique distinguishes the most recurrent and connected words from the peripherical (less recurrent and connected) ones. This method not only analyses the frequency of the word but also takes into account the direct links between words in terms of proximity within the sentences that make up the text analysed (Gonçalves Júnior et al., 2021). In order to show these frequency and proximity links, we built 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, whilst proximity and proximity recurrency indicate the existence of a common conceptual framework: the closer the words locate to each other, the stronger is the indication of the existence of a conceptual framework that includes them. Although two concepts may belong to different lexical fields, a high frequency of occurrence in the same connection segment indicates that there is a conceptual link containing both.

2.2 Cluster analysis

While the similarity analysis displays an interesting representation of the textual corpus organization, Reinert (1990) recommends the use of a cluster analysis (Hirschfeld, 1935) which has the potential to identify in detail the main relationship clusters in the text. The hierarchical classification analysis provides a dendrogram built on the basis of the hierarchical clustering of words into segments. Subsequently, a factorial correspondence analysis provides a graphic visualization of groups of words along two main factorial axes. The hierarchical classification analysis defines the principal clusters of text segments. With the representation of factorial correspondence analysis results on two factorial axes, it is possible to identify the connections between clusters. 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 to synthesize a large amount of data and, therefore, to support the explanation of the relationships between the whole lexical corpus and the words.

3. Methodology

Textometric analysis investigates textual contents by using a quantitative approach in order to understand how the debate on a specific issue is articulated. For this application, we have used the software Iramuteq which enables us to measure the frequency of occurrence of a certain word in a textual corpus, the statistical relationship between different words, and the specific thematic models of the text. The software measures the distribution of words in segments in order to build a representation of these conceptual fields. The methodology is divided into five steps, according to Lavissière et al. (2020):

1. The software lemmatizes 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 that calculates 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 frequent to less frequent;
- Supplementary forms include grammatical words such as "a", "the", and "for". These forms are not counted in the active forms category;
- Hapaxes that include words that occur only once in the corpus;
- Total that includes both active forms and supplementary forms.

4. The software performed a similarity analysis. It is based on graph theory (Flament, 1962). It creates a graph using the co-occurrences of forms in the segments and the strength of their association (Longhi, 2018). This graph, therefore, represents the local connections that authors make between forms and therefore, concepts, used to speak about Arctic transportation. 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. The Reinert analysis is a Descending Hierarchical Classification (DHC). It is based on a correspondence analysis technique (Marchand & Ratinaud, 2012).

Using the frequency tables created at the lemmatization 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

Performing textometric analyses on a textual corpus enables quantitative information to be extracted systematically through the identification of words, or word networks, that are significant due to their frequency and textual relationships (Illia et al., 2014; Sarrica et al., 2020). The results of these analyses are intended to present, in a free of judgment and methodical way, the emerging topics of the Italian and international scientific debate on spatial planning, resulting from the recollected experts' opinions.

To this end, the following seven paragraphs refer to the seven questions submitted to the interviewed experts. For each question, we have recollected all the answers in a unique textual corpus to run the analysis. It is worth dividing the work into seven sub-sections since each question concerns a specific aspect of the discipline (teaching, research, and professional/technical fields) that should be analysed separately in order to extrapolate the most relevant topics addressed by the participants for each aspect. What we obtained is a "textometric mapping" of the most recurrent concepts of the 17 contributions considered.

In Tab.1, we report some data related to the occurrences (total words), forms (unique words) and hapax legomenon (analysed words) of analysed text for each question.

Question	Occurrences	Forms	Hapax legomenon
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

Tab.1 The synthetic data related the analysed text

4.1 First question

The experts answered the question, *"What is, in your opinion, a synthetic and organic definition of Town and country planning?"*. The total amount of occurrences analyzed are 8,051, the forms are 1,817, and the hapax legomenon are 1,022 (12.69% of occurrences and 56.25% of forms).

Fig.1 shows the cloud words for this question, considering the occurrence of each word, and Tab.2 reports the ten most frequent active forms used by the experts in answering the question.

Fig.1 Cloud words for the first question

The first ten most frequent words comprise over 14.00% of the total occurrences included in the experts' answers to the first question. 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%. From the word *progettazione* (design), the percentage of occurrence falls below the value of 1.00%.

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

Tab.2 The ten frequent words for the first question

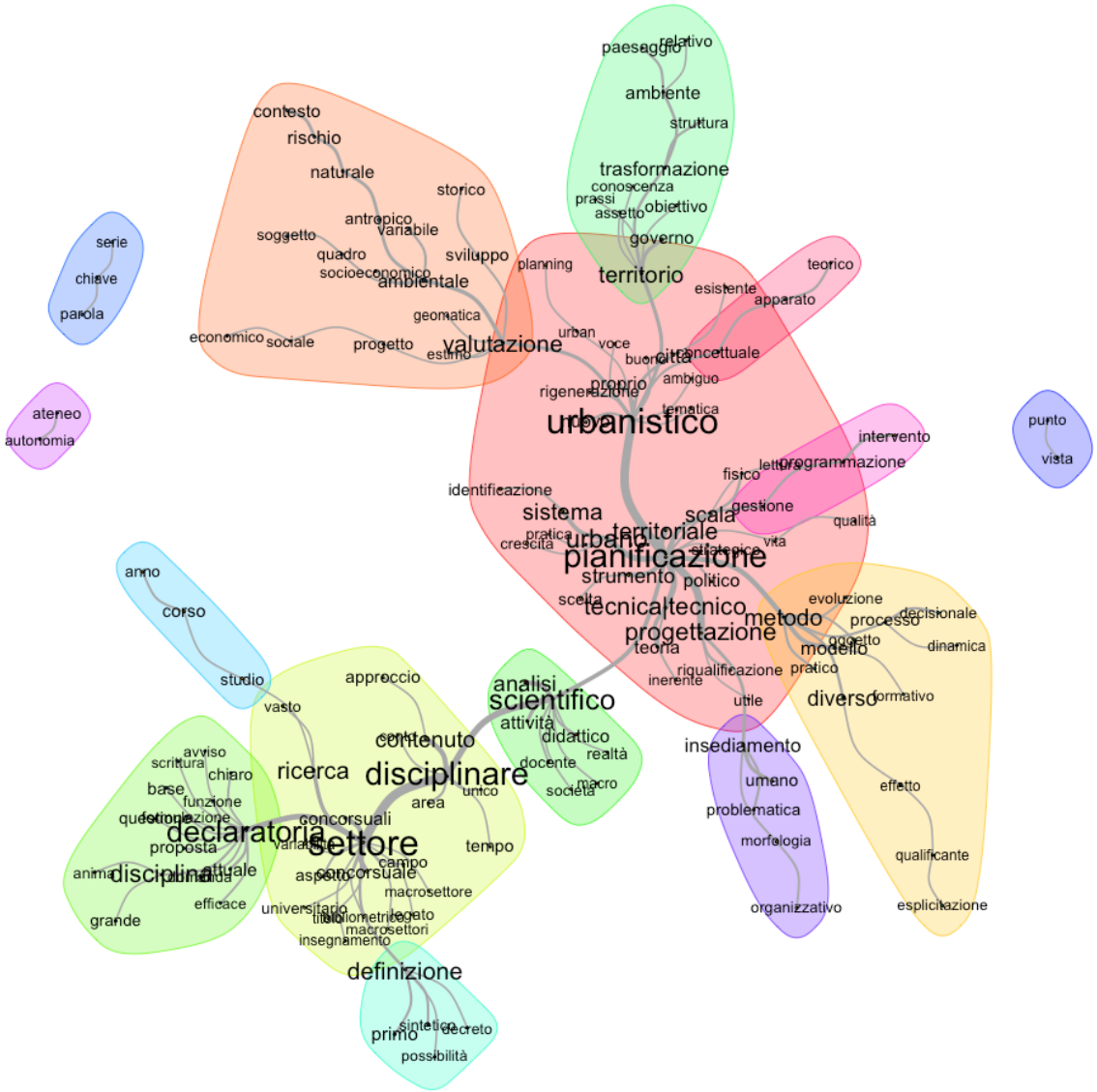

Fig.2 Tree representation of similarity analysis of the first question

The similarity analysis for this question divided the text into fifteen groups (twelve linked and three isolated) of interrelated forms, as shown in Fig.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 Fig.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 (Fig.4) shows the distribution of word clusters along two main factorial axes depending on the cooccurrences 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 (Fig.4), the words are most densely located across the horizontal axe (Factor 1), which suggests that the words of two clusters (1 and 3) are significantly interconnected. The words included in clusters 4 and 2 are widely distributed in the left part of the diagram. The different distribution of the words in the diagram highlights that on the right side of the diagram, the words used by experts have a high level of interconnection, on the left side of the diagram, the words used by experts have a low level of interconnection.

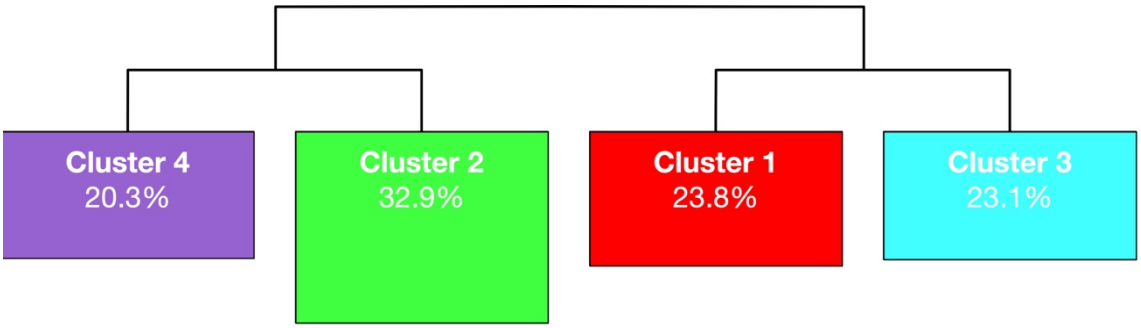

Fig.3 Dendrogram of the descending hierarchical classification of the first question

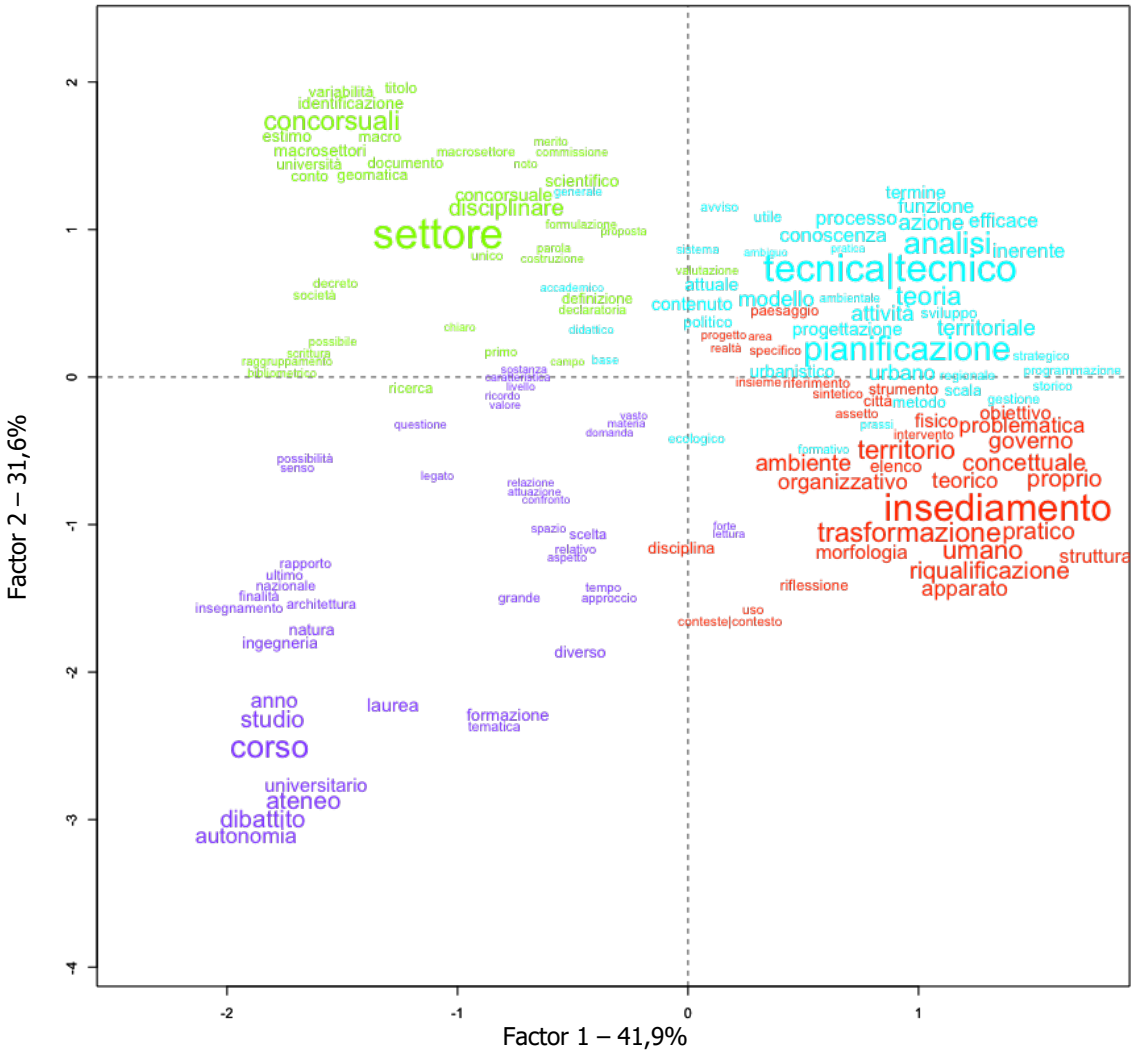

Fig.4 Diagram of factorial analysis of correspondences for the first question

4.2 Second question

The second question is *"What is your assessment of the development of urban planning and what is the condition of today's discipline in your country?"*. The total amount of occurrences analyzed are 9,084, the forms are 2,235, and the hapax legomenon are 1,286 (14.16% of occurrences and 57.54% of forms).
Fig.5 shows the cloud words for this question, considering the occurrence of each word, and Tab.3 reports the ten most frequent active forms used by the experts in answering the question.

Fig.5 Cloud words of the second question

The first 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 *pianificazione* (planning) with 1.96%, followed by the words *urbanistico* (urban planning) with 1.31% and *città* (città) with 1.05%. From the word *urbano* (urban), the percentage of occurrence falls below the value of 1.00%.

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

Tab.3 The ten frequent words for the second question

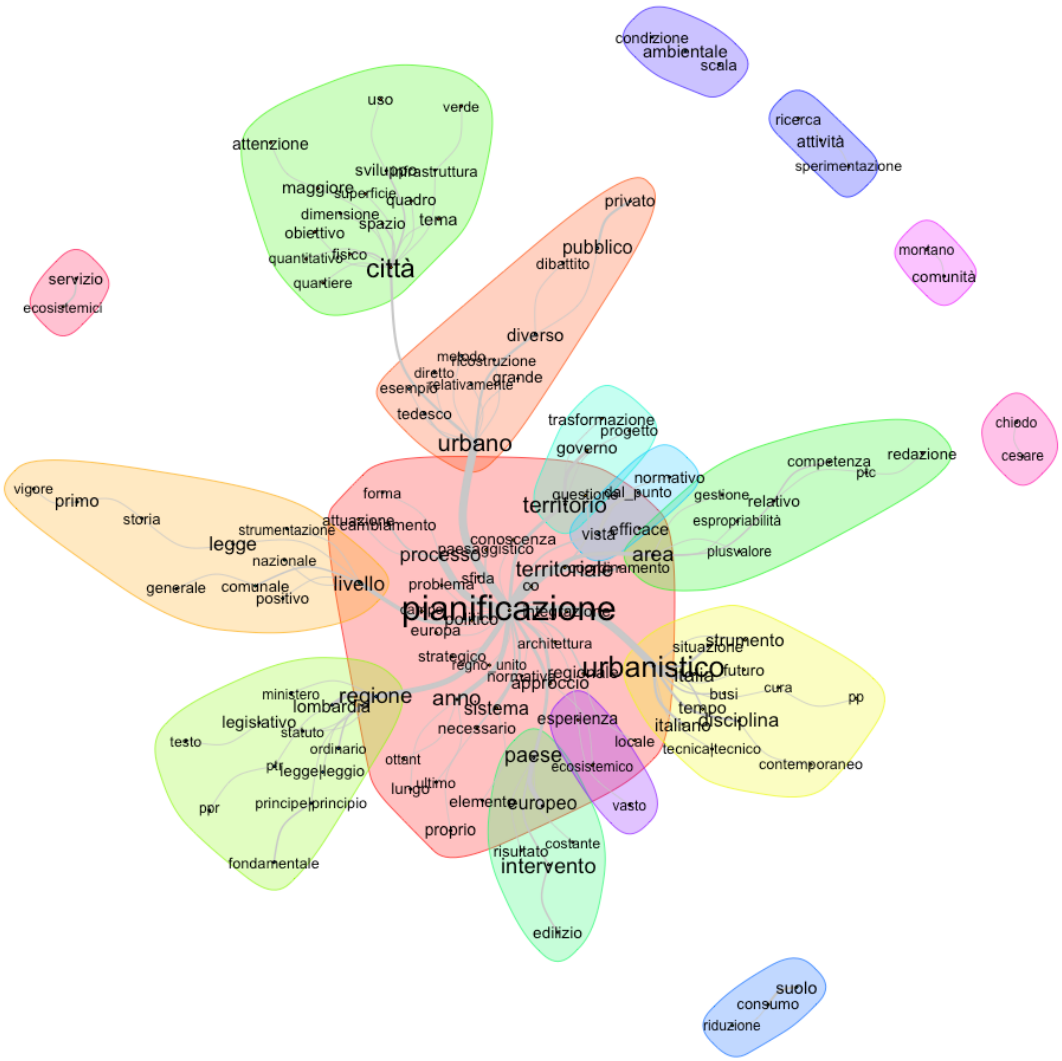

Fig.6 Tree representation of similarity analysis for the second question

The similarity analysis for this question divided the text into eighteen groups (twelve linked and six isolated) of interrelated forms, as shown in Fig.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 Fig.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, with over 31% of text segments.

The diagram of correspondence analysis (Fig.8) shows the distribution of words clusters along the two main factorial axes. The factors 1 and 2 have a cumulative percentage of variance of over 73%. The words of different cluster with high value of chi-square values are located far away from the cross 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 (Fig.8), the words of clouds 1,3

and 4 are mainly located parallel to the vertical axe, with a high level of density and interconnection, according to the results shown in the dendrogram (Fig.7).

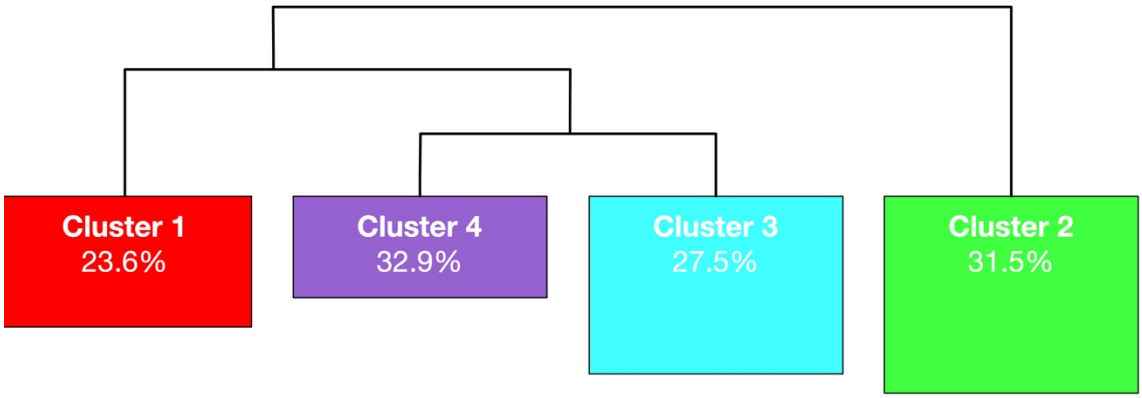

Fig.7 Dendrogram of the descending hierarchical classification of the second question

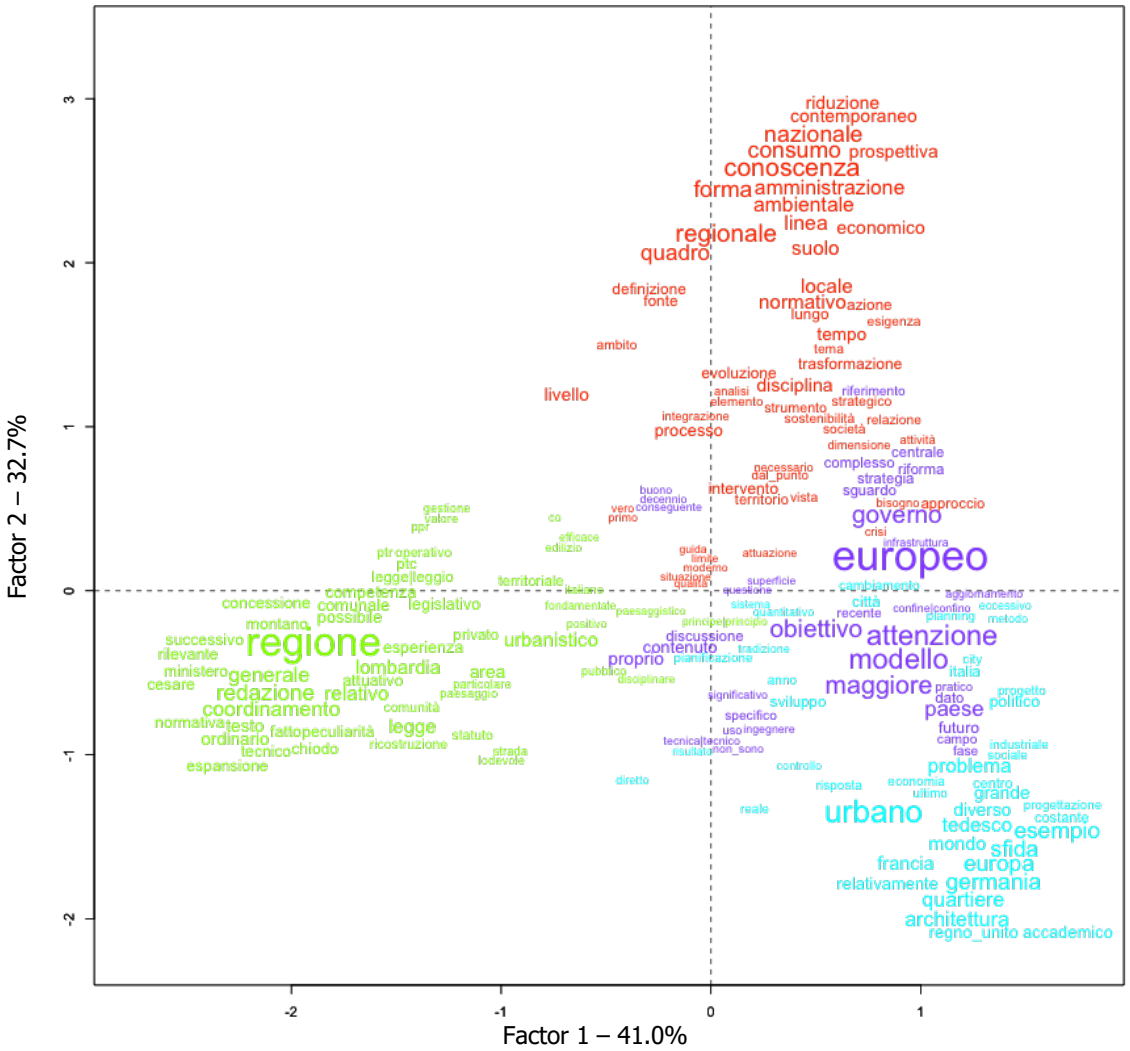

Fig.8 Diagram of factorial analysis of correspondences for the second question

4.3 Third question

The experts answered the question, *"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?".* The total amount of occurrences analyzed are 7,514, the forms are 1,821, and the hapax legomenon are 1,044 (13.89% of occurrences and 57.33% of forms). Fig.9 shows the cloud words for this question, considering the occurrence of each word, and Tab.4 reports the ten most frequent active forms used by the experts in answering the question.

Fig.9 Cloud words of the answers at the third question

The first ten most frequent words comprise over 10.00% of the total occurrences included 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%. From the word *urbano* (urban), the percentage of occurrence falls below the value of 1.00%.

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

Tab.4 The ten frequent words within the third question

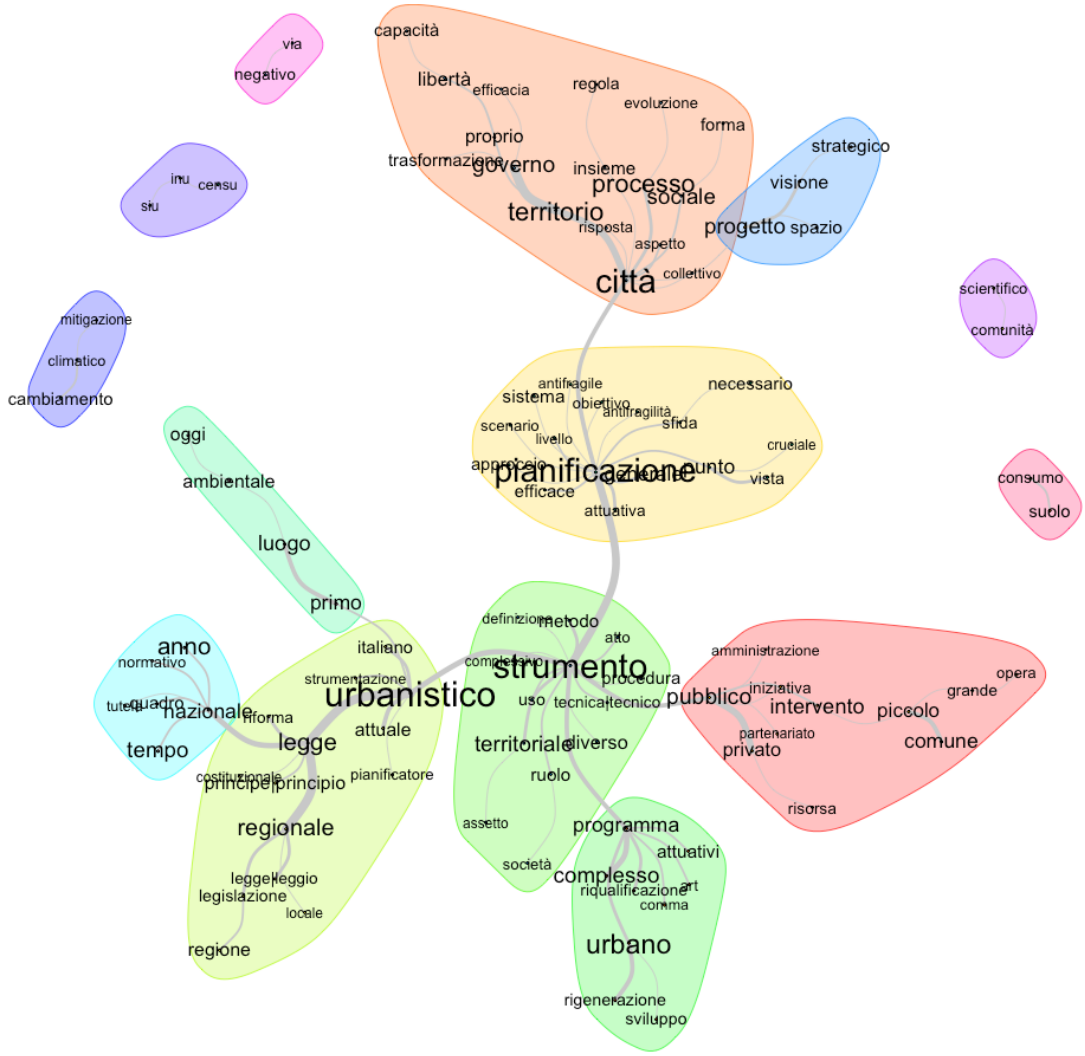

Fig.10 Tree representation of similarity analysis for the third question

The similarity analysis for this question divided the text into eighteen clusters (twelve linked and six isolated) of interrelated forms, as shown in Fig.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 (Fig.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 (Fig.12) shows the distribution of word clusters along two main factorial axes depending on the cooccurrences of words in segments. The factors 1 and 2 have a cumulative percentage of the variance of over 57%.

The words of cluster 4 are distributed around the cross of factor 1 and 2 axes. The graphical 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 highlights that on the right side of the diagram, the words used by experts have a greater level of interconnection than left side. In particular, the words in the first quadrant have a significant level of connection and many words with high chi-square values.

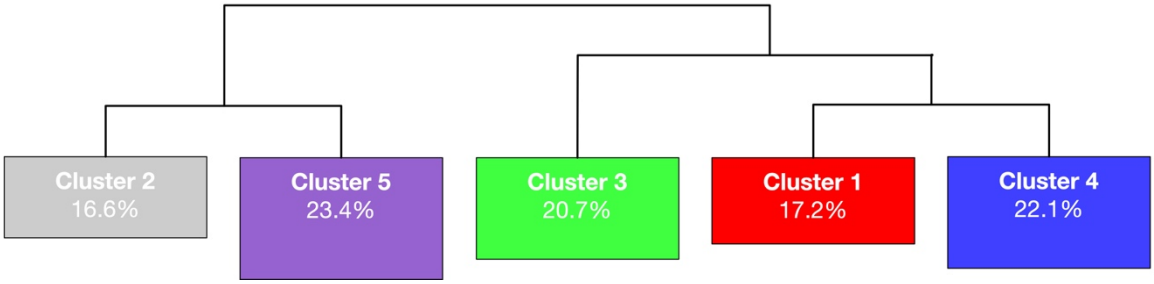

Fig.11 Dendrogram of the descending hierarchical classification of the second question

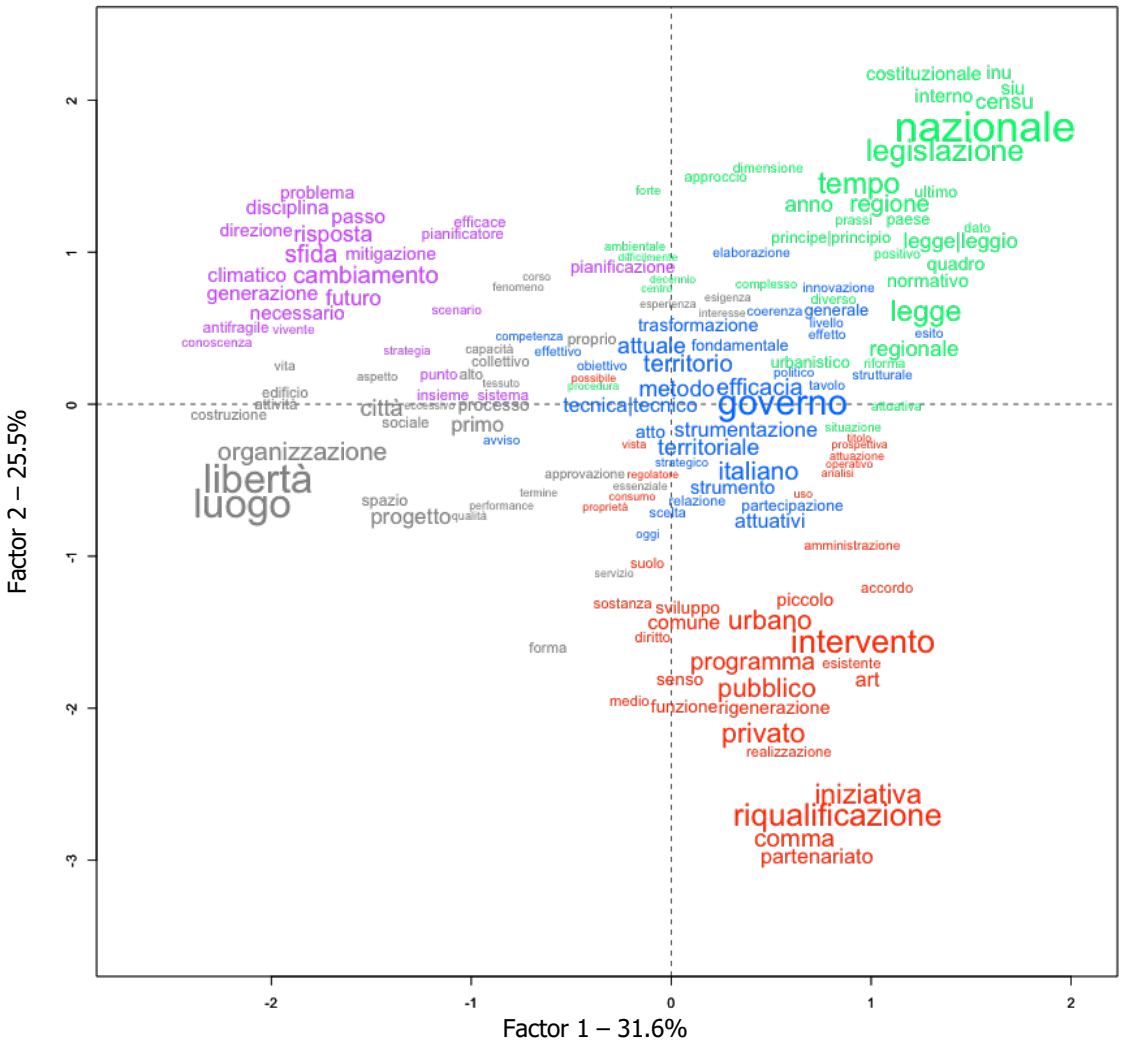

Fig.12 Diagram of factorial analysis of correspondences for the third question

4.4 Fourth question

The experts answered the question, *"What type of content and role should university teaching of urban planning take on in the future?"*. The total amount of occurrences analyzed are 5,092, the forms are 1,407, and the hapax legomenon are 840 (16.50% of occurrences and 59.70% of forms).

Fig.13 shows the cloud words for this question, considering the occurrence of each word, and Tab.5 reports the ten most frequent active forms used by the experts in answering the question.

Fig.13 Cloud words for the fourth question

The first ten most frequent words comprise the 10.79% of the total occurrences included in the experts' answers to this question. 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%. From the word *insegnamento* (teaching), the percentage of occurrence falls below the value of 1.00%.

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

Tab.5 The ten frequent words for the fourth question

Fig.14 Tree representation of similarity analysis of the fourth question

The similarity analysis for this question divided the text into eleven groups (seven linked and four isolated) of interrelated forms, as shown in Fig.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 the eight multibranched sub-groups: *livello* (level); 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 the Fig.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 (Fig.16) shows the distribution of six clusters along two main factorial axes depending on the cooccurrences of words in segments. The factors 1 and 2 have a cumulative percentage of the variance of over 46%. The word *territorio* (territory) has a higher value of chi-square and is located close to the cross of factor 1 and 2 axes. The distribution of words in diagram evidences a high level of connection, in the second quadrant of diagram, between the words of the clusters 1, 3 and 5 according with the results showed in the dendrogram representation. These three clusters could be considered a unique

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

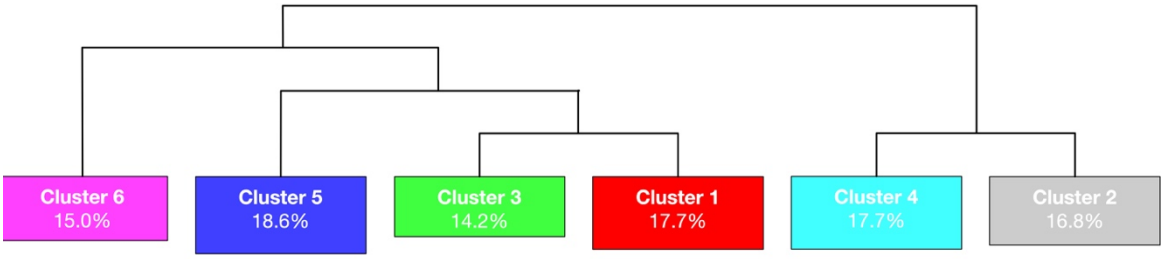

Fig.15 Dendrogram of the hierarchical clustering of the words for the fourth question

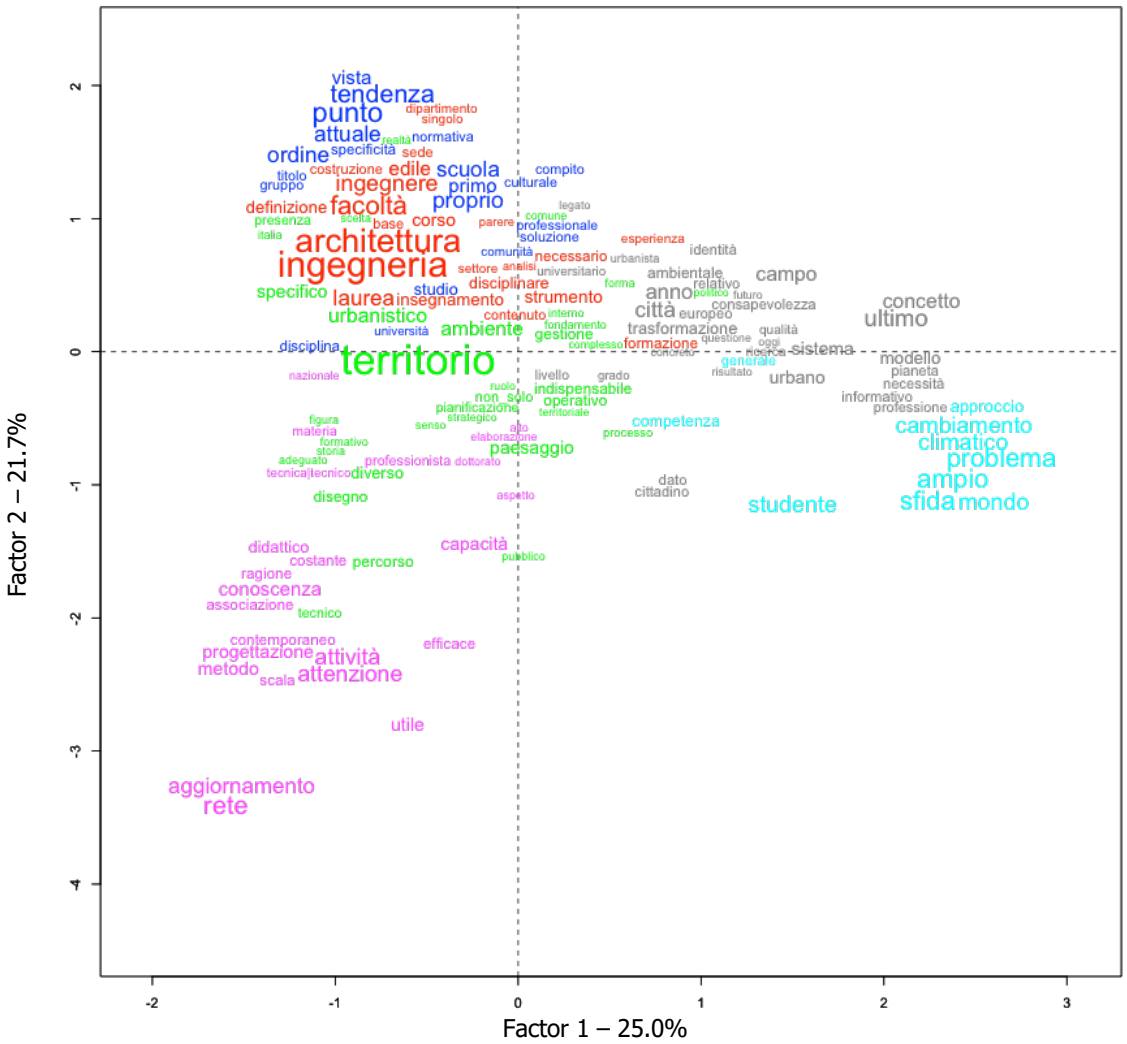

Fig.16 Diagram of factorial analysis of correspondences for the fourth question

4.5 Fifth question

The experts answered the question, *"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?"*. The total amount of occurrences analyzed are 5,191, the forms are 1,540, and the hapax legomenon are 954 (18.38% of occurrences and 61.95% of forms).
Fig.7 shows the cloud words for this question, considering the occurrence of each word, and Tab.6 reports the ten most frequent active forms used by the experts in answering the question.

Fig.17 Cloud words for the fifth question

The first 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 *ricerca* (research) with 1.84%, followed by the words *urbanistico* (urban planning) with 1.02% and *cambiamento* (change) with 1.02%. From the word *nuovo* (new), the percentage of occurrence falls below the value of 1.00%.

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

Tab.6 The ten frequent words for the fifth question

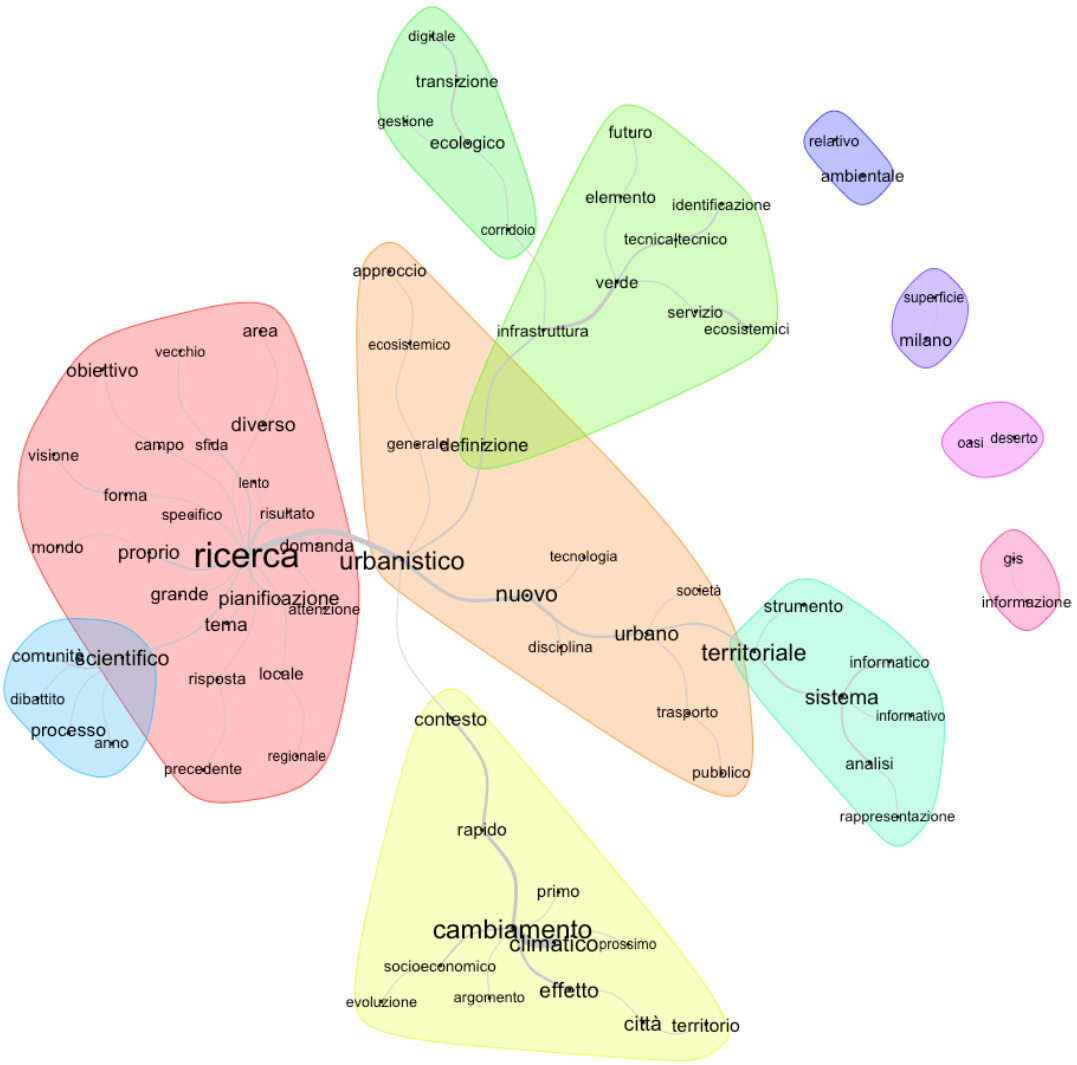

Fig.18 Tree representation of similarity analysis of the fifth question

The similarity analysis for this question divided the text into eleven groups (seven linked and four isolated) of interrelated forms, as shown in Fig.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 the Fig.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 (Fig.20) shows the distribution of word clusters along two main factorial axes depending on the cooccurrences of words in segments. Factors 1 and 2 have a cumulative percentage of the variance of over 46%. The diagram representation 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 and includes the words of clusters 1, 2 and 3. This evidence a high level of connection between the words of these clusters. The

second area of grouping words is in the down part of the third quadrant and includes the words of cluster four. The third area of grouping words is in the down 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.

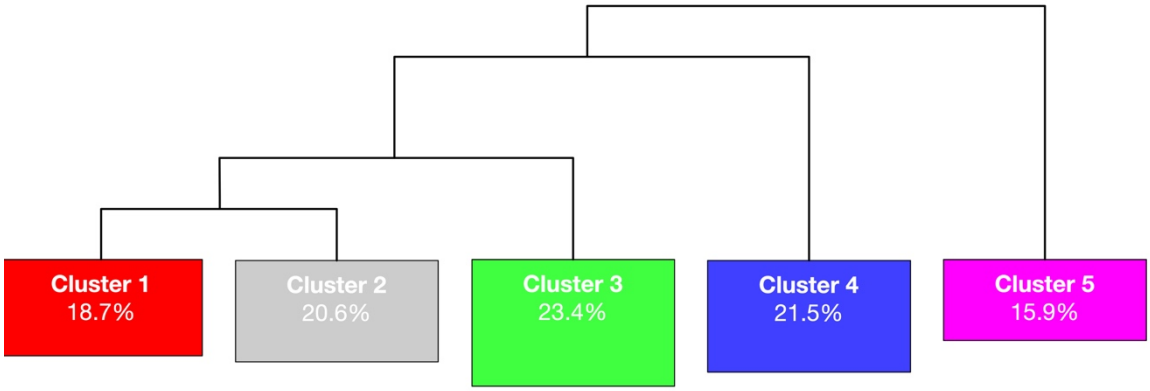

Fig.19 Dendrogram of the descending hierarchical classification of the fifth question

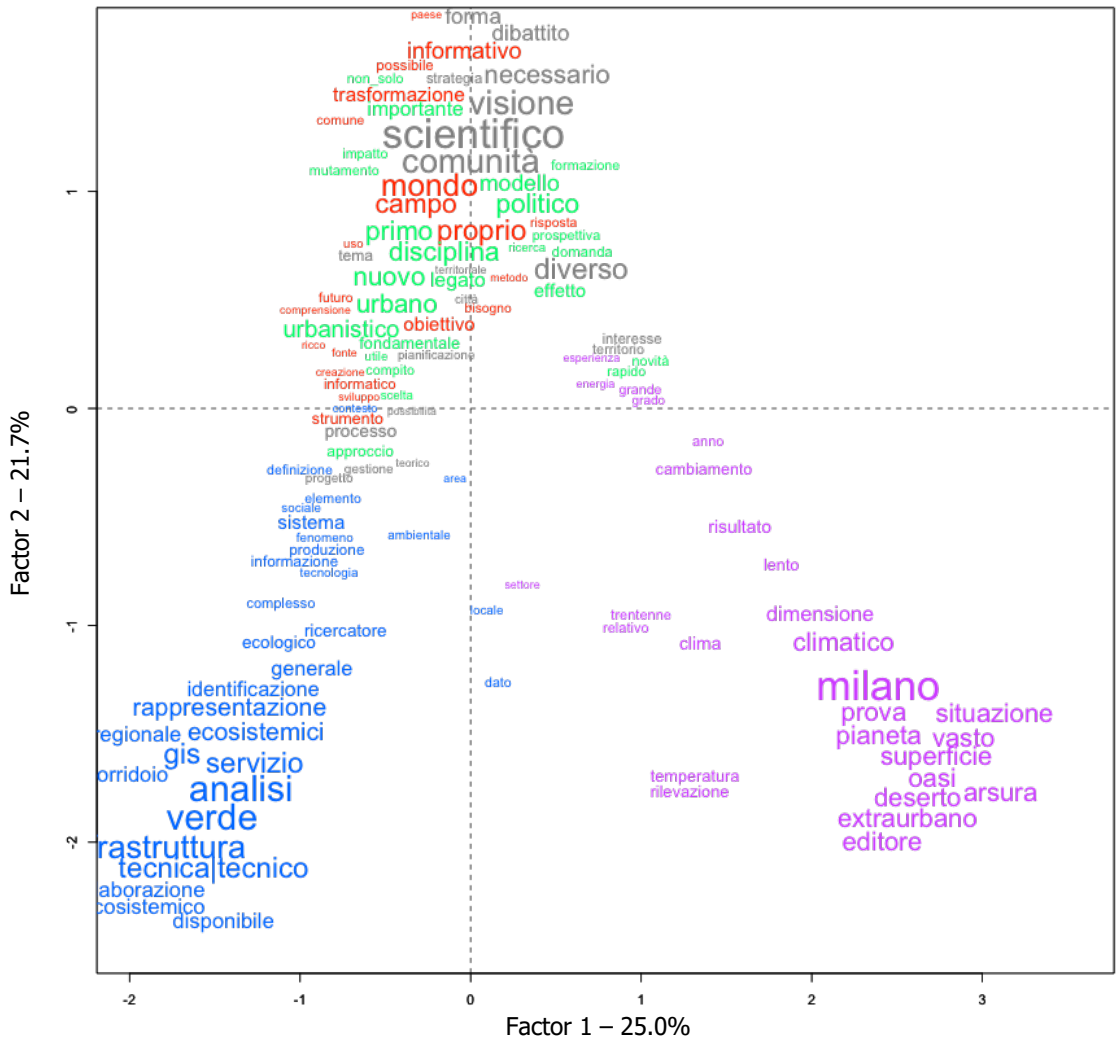

Fig.20 Diagram of factorial analysis of correspondences for the fifth question

4.6 Sixth question

The experts answered the question, *"Considering your studies and specific expertise, can you summarise what is your vision for the future of urban planning?"*. The total amount of occurrences analyzed are 4,315, the forms are 1,218, and the hapax legomenon are 723 (16.76% of occurrences and 59.36% of forms).
Fig.21 shows the cloud words for this question, considering the occurrence of each word, and Tab.7 reports the ten most frequent active forms used by the experts in answering the question.

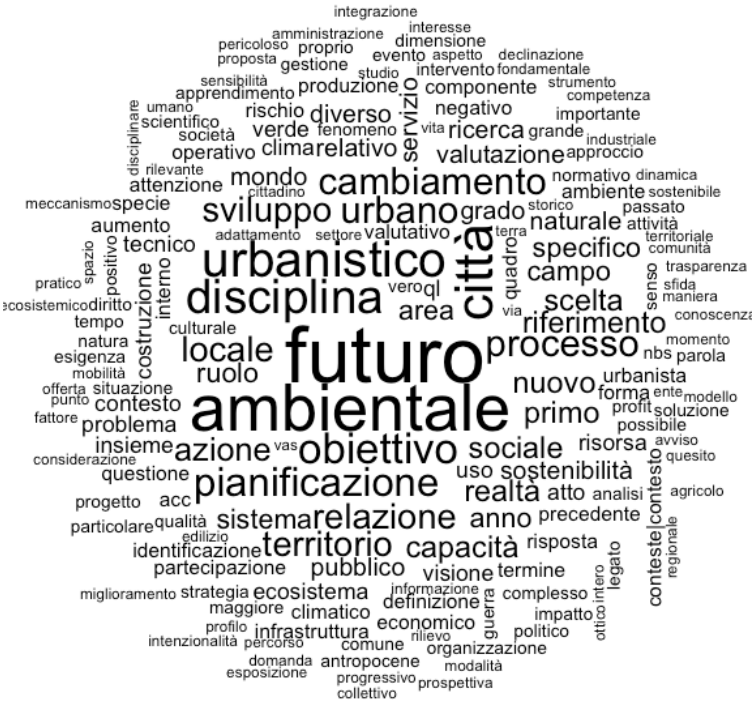

Fig.21 Cloud words for the sixth question

The first 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%. From the word *disciplina* (discipline), the percentage of occurrence falls below the value of 1.00%.

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

Tab.7 The ten frequent words for the sixth question

Fig.22 Tree representation of similarity analysis of the fifth question

The similarity analysis for this question divided the text into twelve groups (seven linked and five isolated) of interrelated forms, as shown in Fig.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 Fig.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 (Fig.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 cross 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 axe 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.

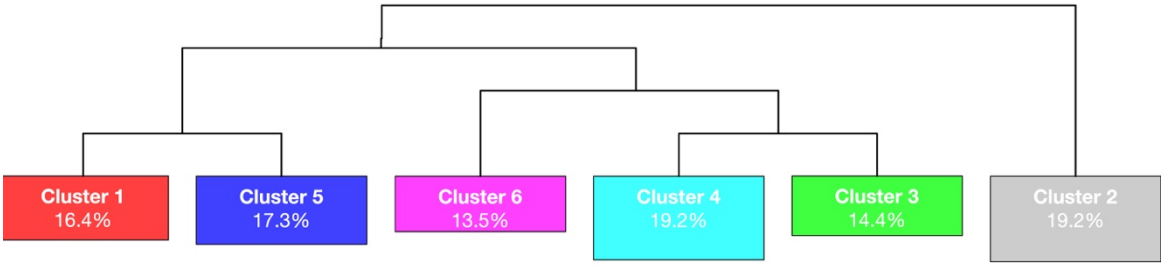

Fig.23 Dendrogram of the descending hierarchical classification of the sixth question

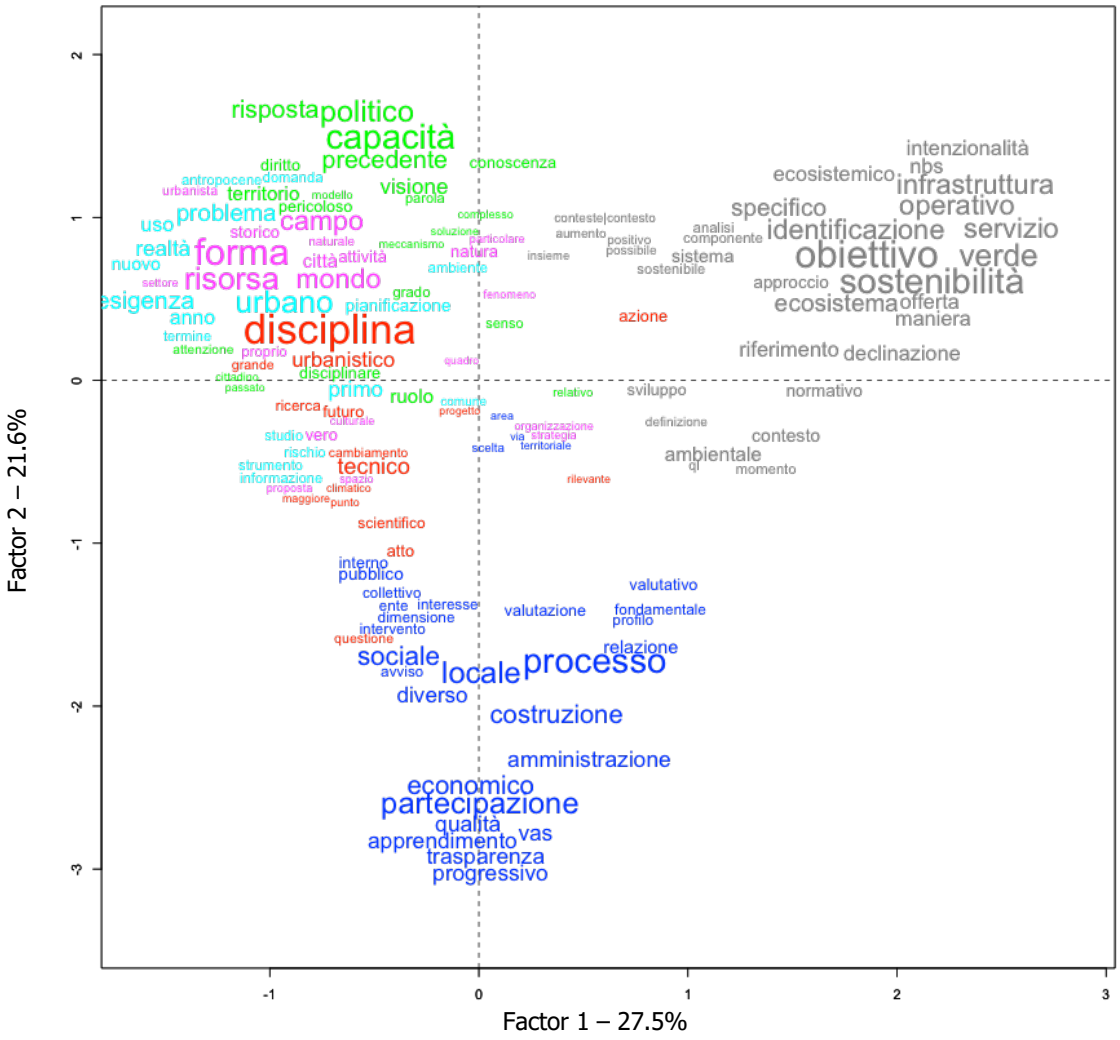

Fig.24 Diagram of factorial analysis of correspondences for the sixth question

4.7 Seventh question

The experts answered the question, *"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 total amount of occurrences analyzed are 6,499, the forms are 1,717, and the hapax legomenon are 1,041 (16.02% of occurrences and 60.63% of forms).
Fig.25 shows the cloud words for this question, considering the occurrence of each word, and Tab.8 reports the ten most frequent active forms used by the experts in answering the question.

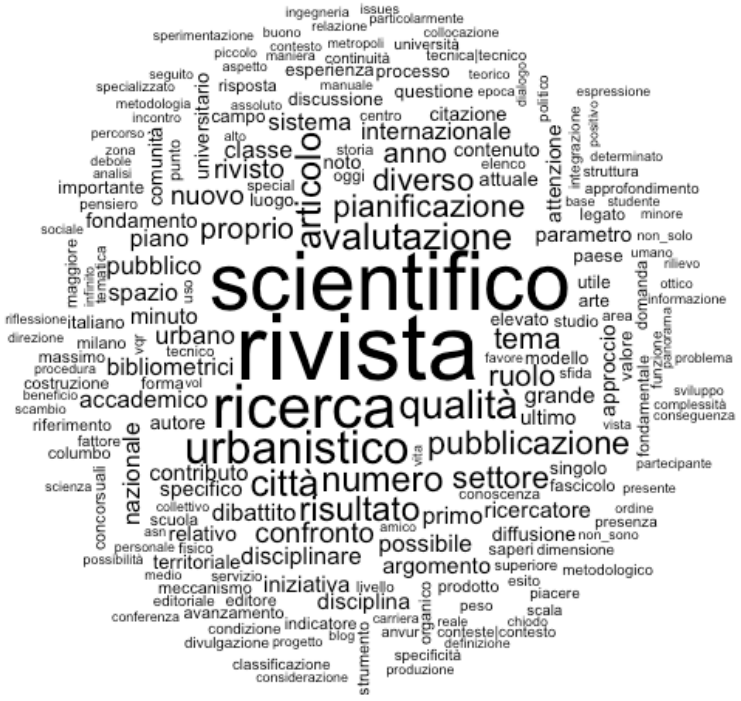

Fig.25 Cloud words of the seventh question

The first 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%. From the word *qualità* (quality), the percentage of occurrence falls below the value of 1.00%.

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

Tab.8 The ten frequent words for the seventh question

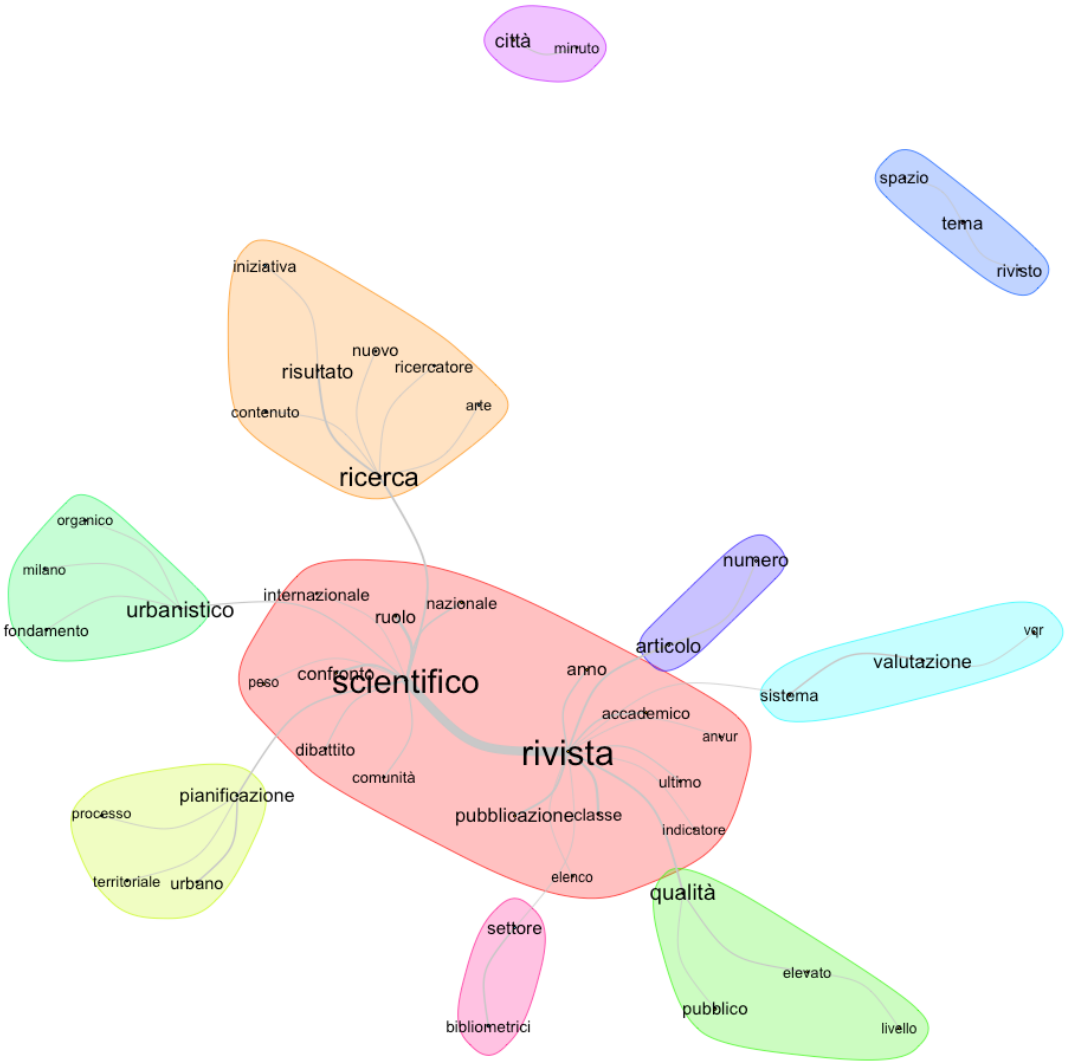

Fig.26 Tree representation of similarity analysis for the second question

The similarity analysis for this question divided the text into eighteen clusters (twelve linked and six isolated) of interrelated forms, as shown in Fig.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 Fig.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 includes only cluster 5 with a percentage of text segments of 19.4%.

The diagram of correspondence analysis (Fig.28) the distribution of word clusters along two main factorial axes depending on the cooccurrences 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 concertation of the words on the left side (negative part of factor 1 axe) with clusters 1, 2, 3 and 4. The only cluster located on the right side of the diagram is cluster 5. 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 of clusters is located in the second quadrant of the diagram. The distribution of clusters in the diagram is coherent when indicated by the dendrogram (Fig.27).

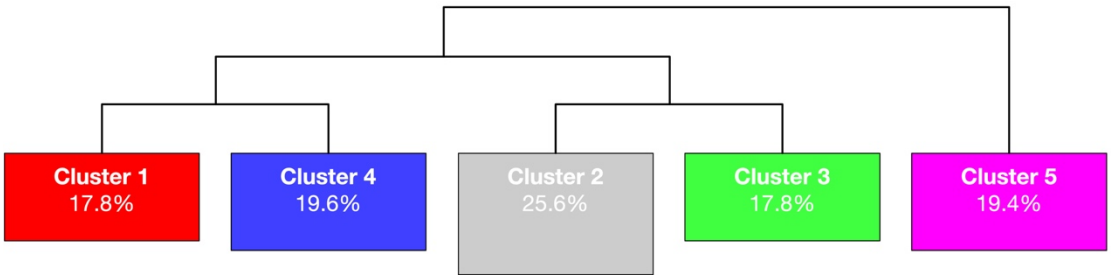

Fig.27 Dendrogram of the hierarchical clustering of the words for the seventh question

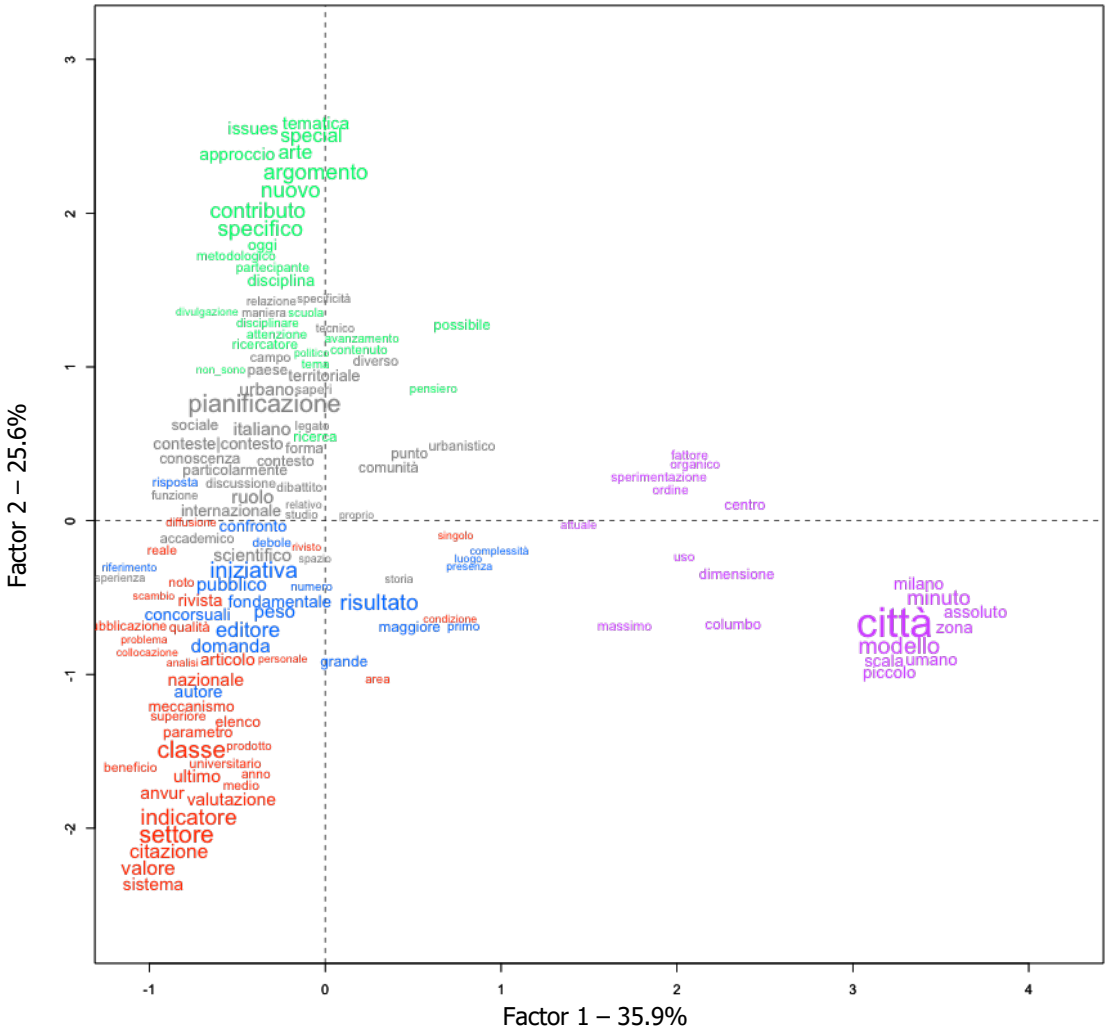

Fig.28 Diagram of factorial analysis of correspondences for the seventh question

5. Conclusions

Conversations with TeMA opens a new and original editorial line for the Journal in order to foster the discussion among experts on urban and spatial planning, with diverse backgrounds and research and teaching settings, on the evolution of our discipline, through several points of view: from higher education to national regulatory

laws, from research topics to editorial activities. Given the large number of interviewed scholars, this contribution aims at offering a preliminary in-depth study of a general nature that will allow future developments, by systematically analyse the contents and main topics highlighted by the answers.

We have chosen to use the methods and techniques of textometric analysis (particularly, word clouds, similarity and cluster analyses) suggested by scientific literature, in order to detect significative topics emerging from the debate. From the reading of this contribution, many points of reflection emerge on the type of words used (in Italian), the frequency with which these words occur, the distance between pairs of words that recur within a text and so on. Points which we have decided not to report here so as not to bias anyone's assessments and which we entrust to the analysis of our readers.

To sum up, this present study aims at improving the reading of *Conversations with TeMA* on the field and has confirmed the multidisciplinary of spatial planning, given the results of analyses. However, this research is not without limitations. In this respect, although this paper is based on literature review, it may lack of robust conclusions. This is also due to the main purpose of the paper which aims at being a corollary to *Conversations with TeMA*, thus self-consistent for reading the becoming of spatial planning. Moreover, due to the low available sample size, especially for some of the answers, we look forward to future debating opportunities. These issues represent a limitation of the work as well as an opportunity to explore some of the clusters in greater depth through future research.

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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.