Edited by Michael C. Gizzi, Stefan Rädiker

The Practice of Qualitative Data Analysis

Research Examples Using MAXQDA



This book provides ten case studies with concise real-world examples illustrating how MAXQDA is used in practice. In each research example, the authors present their way of using MAXQDA, addressing a variety of practical questions, such as how the coding system was developed, how coded documents were analyzed, what tools were used, and how those tools informed the results.

Embedded in the context of each research example, readers can follow analytical processes step-by-step and gain insights into efficient ways to use MAXQDA.

Readers can benefit from this book in several ways:

- Get inspirations and solutions for their own projects
- Avoid pitfalls by considering the lessons learned from each author presented at the end of each chapter
- Use the examples in teaching

Audience

- All researchers who want to get to learn the potential of qualitative data analysis with MAXQDA
- All users of MAXQDA who want to expand their knowledge and skills, no matter if they are novices or experts

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Contents

Int	troduction	9
Mi	chael C. Gizzi, Stefan Rädiker	
1	Using MAXQDA in Ethnographic Research: An Example with Coding, Analyzing, and Writing <i>Danielle N. Jacques</i>	17
2	Using MAXQDA in Qualitative Content Analysis: An Example Comparing Single-Person and Focus Group Interviews <i>Natalie Santos, Vera Monteiro, Lourdes Mata</i>	35
3	Using MAXQDA's Visual Tools: An Example with Historical Legal Documents <i>Andreas W. Müller</i>	55
4	Using MAXQDA from Literature Review to Analyzing Coded Data: Following a Systematic Process in Student Research <i>Michael C. Gizzi, Alena Harm</i>	71
5	Using MAXQDA for Analyzing Focus Groups: An Example from Healthcare Research <i>Matthew H. Loxton</i>	89

6	Using MAXQDA for Analyzing Documents: An Example of Prioritization Research Design in Urban Development <i>Temur Gugushvili, Gvantsa Salukvadze</i>	107
7	Using MAXQDA for Identifying Frames in Discourse Analysis: Coding and Evaluating Presidential Speeches and Media Samples <i>Betsy Leimbigler</i>	121
8	Using MAXQDA's Summary Features: Developing Social Types in Migrant Integration Studies <i>Aikokul Maksutova</i>	135
9	Using MAXQDA for Bibliographic Documentary Analysis: Combining Automatic and Manual Procedures Within a Literature Review Antoni Casasempere-Satorres, Marisa Vercher-Ferrándiz	149
10	Using MAXQDA in Teams and Work Groups: An Example from Institutional Evaluation and Organizational Data Analysis <i>Christian Schmieder, Joel Drevlow, Josset Gauley</i>	169

Using MAXQDA for Analyzing Documents: An Example of Prioritization Research Design in Urban Development

Temur Gugushvili, Gvantsa Salukvadze

Abstract

Prioritization research design is an approach to identify priorities in development strategies on various areas using MAXQDA. The design incorporates a combination of different methodological approaches, including systematic literature review, evaluative qualitative text analysis, and transformative mixed methods research. This chapter provides an example of an urban development issue in the city of Gori, Georgia. We highlight the usage of four MAXQDA tools, the Smart Coding Tool, Complex Code Configurations, Document Portrait, and MAXMaps. The Smart Coding Tool was used to re-check the codes and coded segments for consistency in coding according to the methodology and to create and apply evaluative codes in addition to thematic codes. Complex Code Configurations was used to illustrate the distribution and frequencies of the combination of thematic and evaluative codes. MAXQDA's visual tools (MAXMaps and Document Portrait) enabled us to present the links between the urban development dimensions and evaluative codes. The Document Portrait was used to depict the proportion of text segments dedicated to each urban development issue in the analyzed documents. MAXQDA made it possible to synthesize and quantify document variables and thematic and evaluative codes. Ultimately, it enabled us to examine urban development issues in a way that brought together globally-promoted principles, while considering local peculiarities.

Key MAXQDA features covered

- ✓ Import Document Variables
- ✓ Coding
- ✓ Memos
- ✓ Smart Coding Tool

- ✓ Code Configurations
- ✓ MAXMaps
- ✓ Document Portrait

1 Introduction

The 21st Century era has raised unique challenges for urban settlements and the development of many cities around the world still hinges on outdated urban planning approaches. Urban planning is often hindered by low planning trends, which serve as barriers to development and divorce global goals from accurate localization. Even though many international policy documents¹ outlined guidelines for inclusive and sustainable development, the real obstacle of how to execute global or national objects on the local level remains. Every settlement is a dynamic organism, shaped by centuries of events that create distinctive characteristics and form vibrant destination-specific identities. These historical details make the transformation of global principles into local solutions even more difficult.

This study is part of the urban planning project related to the completion of a "Basic Plan" for the city of Gori, which will serve as a strong foundation for the city's forthcoming "Master Plan" for land usage. The project was implemented by the City Institute Georgia (CIG), a non-profit organization focused on sustainable urban development. Gori is located in eastern Georgia and serves as a connecting highway between the country's western and eastern regions, and was a focal point in the five-day Russian-Georgian war in 2008, causing displacement of the local population. As a result, war has bought fundamental changes and new challenges for the future development of Gori. A particularly important issue on the city's urban development plan was to integrate large-scale new settlements, which were constructed both in the city and in its surrounding area after the resettlement of internally displaced persons during the war.

After a thorough analysis of possible methodological approaches to achieve the stated aim of developing a land use master plan for Gori, we realized there was no one approach that could solve the problem of matching globally promoted urban principles with the needs of a specific locality or region. To fill that gap, we devised an approach that we call "prioritization research design," which draws on the tools of qualitative and mixed methods data analysis including systematic literature review, evaluative qualitative text analysis, and transformative mixed methods. MAXQDA has provided a valuable platform to integrate all of these different forms of analysis to execute this new approach. The research design was developed in a way to handle information appearing from different sources (policy documents, articles, research reports, expert interviews, participatory workshops). As a result, the analyzed data integrates both, globally-promoted principles (e.g., international development strategies, agendas) and local characteristics of the case study area.

See, e.g., such as the Sustainable Development Goals (Goal 11 – Sustainable Cities and Communities), https://www.globalgoals.org/11-sustainable-cities-and-communities; New Urban Agenda (Habitat III), http://habitat3.org/the-new-urban-agenda/; and the EU/Georgia Association Agreement, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2014:261:FULL&from=EN.

2 Data collection

The first phase of our research design utilizes principles of systematic literature review (Petticrew & Roberts, 2006). A comprehensive literature search was conducted based on the following inclusion criteria: latest international policy documents promoting sustainable urban development principles, local, regional strategic vision documents, primary research findings related to urban issues of targeted city Gori, etc. After collecting the relevant literature materials, the files were imported into MAXQDA and distributed in the predefined document groups created in the Document System. The documents were grouped according to the following thematic sub-groups, such as International Urban Development Agenda, Urban Development Agenda, National Policy, Regional Development/Strategic Vision, Research Findings. As a result, up to 10 documents were included into the five different thematic categories (Fig. 1).



Fig. 1: Literature organized in the thematic folders

3 Including document variables as background information on the documents

It was necessary to collect additional variables that would provide essential background information about each document being studied. Four variables were added:

1. *type of document* differentiated three kinds of documents (urban development plan, policy, research findings). It was used to determine what type of documents were most prevalent and, conversely, what kind of documents were in short supply;

- 2. *document-level* grouped documents by international, European, and national levels. The information obtained from this indicator was finally considered when allocating priorities of the urban development priorities through counting points;
- 3. *subject* variable aggregates information about what issue the document served to address (e.g., general and specific, such as cultural, environmental). Accordingly, it was used to determine whether the paper focused on a particular issue(s) or was general. With the help of this, it became clear how diversified the selected, and existing documents were;
- 4. *publication date* provided us with information about the time of publication of the paper, which was important in terms of timing as the latest documents were required for the study.

It should be noted that in the first stage, the attribute information about documents was collected in Microsoft Excel format, and then imported into MAXQDA via Variables > Import Document Variables (Fig. 2 and 3).

	A	В	с	D	E	F
1	Document group	Document name	type of document	document level	subject	publication date
2	National Policy	National Policy of Heritage Sector	policy	national	cultural heritage	2014
3	Regional Development/Strategic Vision	Regional Development Strategy of Shida Kartli	policy	national	General	2013
4	EU-Georgia Agreement (Urban Developmen	EU-Georgia Association Agreement	urban development agenda	EU	General	2015
5	International Urban Development Agenda	Habitat III	urban development agenda	international	General	2016
6	National Policy	Third National Environmental Action Programme	policy	national	enviromental protection	2017
7	International Urban Development Agenda	SDG	urban development agenda	international	General	2015
8	National Policy	Fifth National Report to CBD	research findings	national	enviromental protection	2017
9	National Policy	Second National Action Program to Combat Deser	policy	national	enviromental protection	2014

Fig. 2: Attribute information in Excel file (before importing)

Occument Variables						
Data editor - All documents						8 Documents
						🛿 🌑 🗗 🚯
	Document group	Document name	type of document	document level	subject	publication date
) 	nternational Urban	Habitat III	urban development agenda	international	General	2016
	nternational Urban	SDG	urban development agenda	international	General	2015
🕨 E	EU-Georgia Agreem	EU-Georgia Association Agreement	urban development agenda	EU	General	2015
<u> </u>	National Policy	National Policy of Heritage Sector	policy	national	cultural heritage	2014
<u> </u>	National Policy	Third National Environmental Action	policy	national	enviromental protection	2017
<u> </u>	National Policy	Fifth National Report to CBD	research findings	national	enviromental protection	2017
<u> </u>	National Policy	Second National Action Program to	policy	national	envaromental protection	2014
🖌 F	Regional Developm	Regional Development Strategy of	policy	national	General	2013

Fig. 3: Attribute information in MAXQDA file (after importing)

4 Building the coding frame for (evaluative) qualitative text analysis

The initial code system was developed integrating basic concepts of evaluative qualitative text analysis (Kuckartz, 2014). A hybrid approach was applied in which several text segments were assigned to the initially developed codes/sub-codes. First, pre-set thematic codes have been defined with other teammates of the urban development project group at CIG, including *Internally Displaced Persons (IDP) Settlements, Tourism, Urban-rural Interconnection, Public Transport,* etc. Besides, various additional "emergent" data-based thematic codes were created and defined according to the visions and strategies reflected in the sampled documents.

The code system, alongside thematic codes, consisted of evaluative categories such as the *Scale of Discussion, Significance of Multiple Effects*, and *Validation of Discussion* (Fig. 4):

Scale of Discussion

During the coding process, it was apparent that there was a wide range in the documents in terms of how acute the problems are in the settlement and which should be considered in the urban development process. Based on this, the evaluative code *Scale of Discussion* was created, which assessed the addressed area of the debate through the above-mentioned indicator. The sub-codes reflected the different scale levels:

- Gori level (settlement Gori, municipality)
- Region level (Shida Kartli)
- Urban Settlements level (Georgia)
- National level (Georgia)

A code memo containing this description was attached to each sub-code.

Significance of Multiple Effects

The code *Significance of Multiple Effects* was created to capture if one particular problem had an impact on causing other issues. If such a cause was mentioned in the document, this part of the text was coded according to the following three evaluative sub-codes:

- high
- ✤ medium
- ✤ low

Each sub-code had a description in the form of a code memo containing the following information: high -3 problems and more; medium -1 or 2; low -0.

Validation of Discussion

Finally, a *Validation of Discussion* code was created to distinguish the quality of evidence on which the thematically coded passages relied because, in the documents, some provided arguments that were not clearly reasoned and therefore not evidence-based. The following evaluative sub-codes were developed:

- without proof/argumentation [no sources cited, no evidence]
- with weak proof/argumentation [descriptive statistics, international examples]
- with strong proof/argumentation [the author refers to research results, target-effect analysis]

The principle of assigning codes, as explained in the brackets, had been included in code memos (Fig. 4).



Fig. 4: Memo of the evaluative sub-code "Without Proof/Argumentation"

5 Coding the data

As the documents were coded, it became apparent that additional codes needed to be added to the thematic codes, when the existing coding system didn't clearly capture all of the aspects of the themes. This ensured that all segments of the text could be coded. We chose the segment boundaries in such a way that the coded text segments were understandable outside their context, i.e., without the surrounding text. We ensured that code names very clearly reflected the content in the text. In the second stage, the created codes were revised, by shortening their names, writing them in a consistent style, and organizing them.

The revision process also included insuring that evaluative categories (*Scale of Discussion* and *Validation of Discussion*) were added to thematic ones. While many of these were done during the initial coding, it was not always possible, as some of the evaluative codes were developed in the middle of the coding process, and occasionally they were omitted by human error.

When working in a team, it is possible to divide coding responsibilities based on specific codes or on specific topics. We decided to divide the documents among the researchers to ensure that each document is read and evaluated as a whole, eliminating the possibility that only certain aspects are considered.

To check and to ensure that each thematically coded segment has been coded with the evaluative codes, too, we used the Smart Coding Tool (available in the **Analysis** menu). As shown in Fig. 5., the thematic code *Cultural Heritage* is selected in the left code tree and all its segments are listed in the right window. Here, the column "Codes" shows which additionally added evaluative codes have been assigned to each segment. The Smart Coding Tool was also used to apply the sub-codes of *Significance of Multiple Effects* to each thematically coded segment. Displaying all segments of one thematic category in the tabular form with all additionally assigned codes in an own column, immensely helped to assess the levels (high, medium, low) of the multiple effects of each urban development issue.

Smart Coding Tool						
Cultural Heritage 6 coded segments from 3 documents						
× Quit 🗣 🖓 🕅 ち ペ 牧 ア 🕄 🗣						
✓ ● G Code System		229	Document	Coded Segments	Codes	
 Irban Development Dimensions Soil Protection/Degradation - Enr Soil Protection / Protection - Environ Climate Change - Environment Pr Water Resources - Environment P Water Resources - Environment P Watet Management - Environme Natural Disaster Risk - Environme Cultural Heritage Cersons with Disabilities 	. 12 11 . 10 . 8 . 7 . 7 . 1 6 . 5		Habitat III, P. 9: 1142	We commit ourselves to the sustainable leveraging of natural and cultural heritage, both tangible and intangible, in cities and human settlements, as appropriate, through integrated urban and territorial policies and adequate investments at the national, subnational and local levels, to safeguard and promote cultural infrastructures and sites, museums, indigenous cultures and languages, as well as traditional knowledge and the arts. highlighting the role that these play in rehabilitating and revitalizing urban areas, and in strengthening social participation and the exercise of citizenship.	🚭 Urban Settlements - Georgia	
+ c₀ Ecosystem + c₀ Tourism		4 4	SDG, Pos. 215	11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage	Urban Settlements - Ge	eorgia
 ■ Management of Chemicals - Envir ■ Natural Resources ■ Forest Protection ■ Public Space ■ DP Settlements - Integration ■ UPD Public Transport ■ Local Community Participation ■ Urban-Rural Interaction ■ Urban-Rural Interaction 		3 3 3 2 2 2 2 2 2 2 2 2	National Policy of	კულტურული მემკვიდრეობა ამოუწურავი რესურსია საქართველოს ეკონომიკური და სოცია- ლური განვითარებისთვის;	Calificational - Georgia	ntation
			National Policy of	კულტუ- რული მემკვიდრეობა განუყოფელი ნაწილია გარემოსდაცვითი პოლიტიკისა, რომლის გარეშე შუუძლებელია ქვეყნის სიცოცხლისუნარიანი განვითარება	CNational - Georgia	ntation
		2 1 0 45 27 11 2 2 0 16 14	National Policy of	მემკვიდრეობის დაცვის ეკონომიკის წარმატებული საერთაშირისო მაგალითებინ მოუთითებს, რომ იგი ხელს უწყობს ახლი ბაზნესის ფორმირებას, ტურიზმის სტიმულირებას, უძრავი კონე- ბის ფასის გარძლაც, ცხიკოტისის ხარისხის ამაღლებას, საღარობის დაძლეკას, საზოგადიუბის მოუთითებენ ისეთ სპეციფიკურ უპირატესობაზე, როგორიცაა, ისტორიულ გარვმოში ქონების მეპატრონის უფრო დაკულიას აკერანიმკური კრი- ზისების დრის დაც განსაკუთრები კრი- ზისების დრის დაც განსაკუთრებულ რილს ანიჭებენ მექკვიდრეობს დაცავს პოტენცილას, განა- ვითაროს მცირე და საშუალო ბიზნესი მამინ, როცა	Galational - Georgia Galational - Georgia Galational - Georgia Galational - Georgia Galational - Georgia Galational - Georgia	nentation
→ @ With strong Proof/Argumentation		6		ლავი 1970-იანი წლიბიდან გაიროს განვითარიბის	National - Georgia	

Fig. 5: Usage of Smart Coding Tool for assigning evaluative sub-codes to segments coded with thematic codes

6 Analyzing the coded segments

Coding the data prepared a baseline for the analysis of the coded segments. To assist in this process, we used several MAXQDA tools. These included Complex Code Configurations, MAXMaps, and Document Portrait.

6.1 Complex Code Configurations: Analyzing the co-occurrence of thematic and evaluative codes

Since prioritization research design puts great emphasis on both thematic codes and evaluative categories, Complex Code Configurations (Analysis > Code Configurations) were used to reveal percentages and frequencies of coded segments that were assigned both a sub-code of *Urban Development Dimensions* and a sub-code of *Scale of the Discussion* (Fig. 6). For example, in the highlighted row of the results table, we could see that the area of "National - Georgia" has been assigned to the same segment as "Atmospheric Air//Air Pollution - Environment Protection" twice.

•	Complex Code Configurations			
		44 (of 115 the	eoretically possibl	e) combinations
	Y Y 🏾 🖬 C		X	6 🗗 🚺
	Urban Development Dimensions	Scale of the Discussion	Segments	Percent
•	Atmospheric Air//Air Pollution - Environment Protection	Urban Settlements - Georgia	4	3.74
•	Atmospheric Air//Air Pollution - Environment Protection	National - Georgia	2	1.87
٠	Atmospheric Air//Air Pollution - Environment Protection	Region - Shida Qartli	1	0.93
٠	Biodiversity Protection - Environment Protection	National - Georgia	8	7.48
٠	Biodiversity Protection - Environment Protection	Urban Settlements - Georgia	4	3.74
٠	Climate Change - Environment Protection	National - Georgia	7	6.54
٠	Climate Change - Environment Protection	Urban Settlements - Georgia	3	2.80
٠	Cultural Heritage	National - Georgia	4	3.74
٠	Cultural Heritage	Urban Settlements - Georgia	2	1.87
٠	Ecology	National - Georgia	1	0.93
•	Ecology	Region - Shida Qartli	1	0.93

Fig. 6: Complex Code Configurations for multidimensional analysis: Number of co-occurrences of thematic sub-codes (directions of urban development) with evaluative sub-codes (scale of discussion).

By checking the co-occurrence of the thematic code *Urban Development Dimensions* with the evaluative sub-codes of *Validation of Discussion*, the analysis revealed that substantial evidence is rarely presented when naming urban development issues. Insufficient information/evidence indicates, on the one hand, the need for additional research and, on the other hand, the fact that the provisions presented in the main strategies are not reliable.

6.2 MAXMaps: Creating concept maps showing the relations between the analyzed aspects

Data displayed in MAXMaps (Visual Tools > MAXMaps) proved to be the best way to portray information succinctly and efficiently, illustrating details provided in more comprehensive textual information. Fig. 7 shows a concept map illustrating the co-occurrences of the main thematic codes (in the center) with the three evaluative codes from our study (in the outer circle). The map was built based on the Code Co-occurrence Model (Code Intersection), which shows the code links by which same text segments were coded. The type of lines varies according to the codes and indicates family codes, whereas colors differ through different sub-codes.

The concept map added life to the coded qualitative data. It successfully depicted the research findings for analysis and presentation, and allows both researchers and readers to gain insights in a more effective way than just textual material. It clearly shows that tourism is mentioned in the context of the municipality, regional and urban development contexts without proof of argumentation, and it has a high impact on other urban development dominations.



Fig. 7: MAXMaps for visual analysis and presentation

6.3 Document Portrait: Visually comparing across documents and analyzing single documents

The utilization of the Document Portrait (Visual Tools > Document Portrait) has revealed several valuable insights of the analyzed documents, which were hidden throughout the whole analysis process. Each sub-code of *Urban Development Dimensions* was assigned different code colors, to be able to show the scale of discussion of each topic in MAXQDA's Document Portrait. Fig. 8 shows two Document Portraits with the option Ordered by color frequency switched on to illustrate which urban development issues are addressed in the analyzed documents. For the Shida Kartli Development Strategy document (A), tourism development, soil protection and degradation, IDP settlements (identified by the first three colors in the Document Portrait) are the most discussed topics. While a relatively big part of the text segments of the Urban Development Agenda/SDG (B) is also dedicated to the importance of tourism development in the urban context, followed by climate change and biodiversity protection (respectively the first three colors in the Document Portrait).



Fig. 8: Document Portraits for cross-case comparison and single-case analysis

The Document Portrait clearly showed that most of the analyzed documents were devoted to the information provided about Gori Municipality (green color in Fig. 8) rather than the city of Gori (purple color in Fig. 8). At the same time, as for the city of Gori, it occupies a tiny part of the text/narrative in the text. Fig. 9 shows the proportional distribution of the scale of thematic codes (urban development directions) in the Shida Kartli Regional Development Strategy document. The MAXQDA option **Ordered by color** has been switched on for this purpose.

Fig. 9: Proportional distribution of the scale of discussion of thematic codes (directions of urban development) in the Shida Kartli Development Strategy document. Yellow: region/Shida Karli; Green: municipality/Gori; Purple: city of Gori

6.4 Quantification of coded segments to rank priorities

Transformative mixed method research design (Driscoll, Salib, & Rupert, 2007; Tashakkori & Teddlie, 1998) has been employed to prioritize the urban development dimensions for the target city of Gori. Techniques for converting textual information, in particular, the quantification of qualitatively coded segments allowed us to use quantitative parameters for localization of global goals. The analysis included a description of qualitative and quantitative characteristics. Quantification was used to describe the quantitative parameters.

Each sub-code of the Urban Development Dimension was given a score according two crucial components:

- Document-level (international -> regional): The quantifying of the document level was carried out using the following principle: in the document group (e.g., international) one point is awarded in case of one code, and two points in case of two or more codes; this could be accomplished by using the Code Matrix Browser (Visual Tools > Code Matrix Browser).
- The scale of discussion (national -> settlement): According to the scale of the debate, points were awarded according to the following principle: Georgia 1 point; Urban settlement 2 points; Shida Kartli 3 points; Gori Municipality 4 points; City of Gori 5 points.

As a result of the use of the prioritization research design, the areas of urban development were given appropriate weights to identify priority issues for the city of Gori in the urban planning process. Tab. 1 illustrates the calculated scores for each *Urban Development Dimension* using *Tourism* dimension as an example: Tourism was mentioned in all types of documents, particularly two times on international, European and regional level, whereas only one time on the national level. Therefore, in total, seven points were assigned to the tourism dimension for the document-level component.

Document-level	Number of mentions in the document	Point
International	2	2
European	2	2
National	1	1
Regional	2	2
SUM		7

Tab. 1: Calculation of points based on the document-level (example of dimension Tourism)

In the case of tourism, the scale of discussion was on the municipal level, which assigned four points to tourism issue. As a result, the sum of the seven points on the document-level and the four points from the scale of discussion amounted to a total of eleven points, which made tourism one of the top Urban development dimension for the city of Gori. The same principle of weight calculation was applied to other urban issues (see Tab. 2).

7 Lessons learned

This chapter highlighted how MAXQDA can be used for conducting a prioritization research design in urban development, focused on the Smart Coding Tool, Document Portrait, and Code Configurations. The smart coding tool proved particularly useful in dealing with the problem that coding rules that call for the assignment of multiple codes to one segment of text can often result in differences in coding among researchers and the need to refine the coding rules after initial coding. The Smart Coding Tool enabled us to easily review the segments we coded and adapt them to the updated rules/protocols. It can be used to revise, verify, and correct codes and code assignments simultaneously. More specifically, one of the coding protocols involved modifying a segment of the same text to determine whether it is encoded with different codes (e.g., thematic and evaluative). The Smart Coding Tool allows creating new codes by merging, splitting, or modifying existing codes. In our case, too, one of the evaluative categories was created entirely in the Smart Coding Tool.

Tab. 2: Prioritization of urban development dimensions

Urban Development Dimensions	Weight
Tourism	11
Climate change	11
Atmospheric air/air pollution	10
Biodiversity protection	10
Education	10
Soil protection/soil degradation	10
IDP settlement	9
Waste management	9
Water resources	9
Healthcare	9
Housing stock	8
Forest protection	8
People with disabilities	8
Cultural heritage	7
Community participation	7
Public transport	7
Urban Engineering	7
Natural Hazard Risk Management	6
Public and recreational spaces	6
Natural resources	5
Convenient transportation location	5
Cultural landscapes	4
Urban-rural connection	4
Chemical Substance Management	4

MAXQDA makes it easy to quantify the descriptive results of codes through Subcode Statistics. Code Configurations is an extremely valuable tool in going in greater depth to see not only the frequency of one code, but the frequencies of combinations of two or more codes. This made it much easier for us to evaluate the overall data we examined. MAXQDA offers the researcher with a wide range of analysis and visual tools. These can be used to visualize data in ways that just reading documents can't. The Document Portrait was particularly helpful to see the ways that documents covered the thematic areas being studied. The grouping of the documents in combination with the assigned codes per document can be used to apply priority scores to which can be used as a basis to rank priorities.

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