Ghazaie M. et al.
June 2027
Urban Economics and Planning
Volume 8, Issue 3

A Critical review of SWOT in city planning from a critical realism perspective

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Theoretical and fundamental

Received: 2026/07/14
Revised: 2026/10/01
Accepted: 2026/10/06

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HOW TO CITE THIS ARTICLE

Ghazaie M. Panahi N. A Critical review of SWOT in city planning from a critical realism perspective. *Urban Economics and Planning* 8(3):4-26.

DOI: 10.22034/uep.2026.591817.1956

Abstract

The SWOT matrix is one of the most widely used frameworks in city planning theory and practice. However, a lack of shared understanding of its nature and constituent components can lead to inconsistent analyses and conflicting strategies. This study critically reexamines the conceptual logic of SWOT through a qualitative approach informed by critical realism. Semi-structured questionnaires were distributed by email to academics and professionals in city planning, yielding 30 completed responses. The data were examined using qualitative content analysis and retroductive interpretation. The findings identify three sources of conceptual ambiguity: the nature of SWOT points and their relationship to reality and actors' perceptions; the criteria for distinguishing between internal and external environments; and the understanding of SWOT as a tool for examining and analyzing existing conditions. The study argues that SWOT does not generate initial knowledge but organizes existing knowledge to support decision-making and strategy formulation. A point should represent a specific, identifiable element of the system or its surrounding environment, while the internal–external distinction should be based on the element's relationship to the system and the possibility of intervention. Moreover, strengths, weaknesses, opportunities, and threats are not intrinsic attributes of elements but reflect their relationships to planning objectives. By reconstructing the logical relationships among these concepts, the study develops a checklist to guide the classification of planning elements within the SWOT matrix and reduce conceptual ambiguities in its application.

Keywords

City and regional planning
critical realism
four components of SWOT
internal and external environments
SWOT matrix

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1. Introduction

Comprehensive planning and instrumental rationality have gradually faced challenges, at least at the theoretical level, since the early 1970s, following the emergence of a crisis in planning. This shift paved the way for alternative approaches, particularly strategic rationality and planning. In this regard, Malekpour Asl and Tighsaz Zadeh (2020: 291) also demonstrate that planners have increasingly shifted away from comprehensive and linear planning toward strategic planning, to clarify and manage turbulent and complex decision-making environments (Nedae Tousi, 2018: 26). In Iran, this transition began in the late 1980s with the preparation of county (regional) development plans and continued in the mid-1990s with the introduction of structural–strategic plans as alternatives to comprehensive plans (Majedi, 2012: 20–21).

Shifts in planning paradigms also necessitated changes in the tools used to understand planning contexts and formulate strategies. Consequently, strategic thinking and analytical tools attracted considerable attention. Among these, the internal–external matrix, commonly known as SWOT, gained particular prominence as one of the most widely used tools in strategic analysis and formulation. By distinguishing between internal factors (strengths and weaknesses) and external factors (opportunities and threats) within the planning environment, this matrix provides a framework for organizing and integrating these factors to derive strategies (Lurati & Zamparini, 2018: 1; Mintzberg, 1994: 10). Despite more than half a century of application and substantial criticism expressed in studies with titles such as "SWOT analysis: It's time for a product recall" (Hill & Westbrook, 1997: 46), "Away with SWOT analysis" (Valentin, 2005: 91), and "Beating up SWOT" (Meyer et al., 2016) (Puyt et al., 2023: 1), SWOT has remained relevant. Researchers such as Srinivasan (2010: 1) and Lohrke et al. (2021: 1–4) have also emphasized the importance of its continued application. However, given that SWOT originated in the social sciences, business management, and organizational planning (Kalafsky & Sonnichsen, 2014: 2), translating its underlying concepts and constituent elements – namely, internal and external environments and the four categories of strengths, weaknesses, opportunities, and threats – into the context of city and regional planning is particularly important, as this context differs substantially from organizational and managerial settings. In other words, applying SWOT in a different context does not necessarily imply that its original definitions and distinctions are adequate for that context; rather, it may require reconsidering its foundational concepts. Given the need for such conceptual translation and adaptation, an important question arises: to what extent have SWOT itself and its underlying concepts been critically reconsidered in the city planning literature?

A review of Iranian studies in city planning indicates that, with few exceptions, the SWOT matrix and its constituent elements have rarely been examined as subjects of inquiry in their own right. Most of these studies follow two main approaches. The first accepts the SWOT matrix and the original definitions of its components as given and subsequently employs it as an analytical tool. The second integrates SWOT with other methods or quantifies its components, in response to criticisms concerning the lack of factor prioritization (Al-Araki, 2013: 618; Ghanbari & Sardari, 2018: 190). In the first approach, the suitability of SWOT's foundational concepts and distinctions for the city planning context is not examined. In the second, efforts are primarily directed toward improving how factors are processed and prioritized rather than reconsidering the meaning of the factors themselves or the environments to which they are assigned. Thus, a substantial portion of the existing literature has focused on the question of "how to use SWOT more effectively," while paying relatively little attention to the more fundamental question of "how SWOT and its constituent elements should be understood in the context of city planning." Among the few exceptions, Golkar (2006: 60; 2011: 375) sought to adapt the SWOT matrix to urban design by reconsidering and redefining its foundational concepts. Golkar's principal distinction concerns the actuality of phenomena, using potentiality and actuality to differentiate between external and internal environments. Furthermore, Akbari et al. (2015: 92), in adapting the SWOT matrix and proposing a comprehensive model for urban issues, reconsidered the internal relationships between strengths and weaknesses, the external relationships between opportunities and threats, and the relationships between internal and external environments, offering a new perspective on how these dimensions should be addressed. Like Nadimi (2005: 133), they also distinguish among three environments: general, operational, and internal. Nevertheless, these efforts have largely remained confined to case studies or the specific context of urban design, addressing the needs of those settings without establishing a shared conceptual framework

for reconsidering SWOT across the broader field of city planning. Consequently, many planning studies apply the concepts and boundaries of internal and external environments, as well as the four SWOT categories, without independent conceptual reconsideration, relying instead on definitions and interpretations specific to individual studies.

This gap in conceptual reconsideration can be better understood in light of theoretical and methodological criticisms of the SWOT matrix, particularly given that its seemingly straightforward yet deceptively complex application can be highly problematic (Pickton & Wright, 1998: 101). A substantial proportion of these criticisms concerns not the fundamental idea of distinguishing among factors, but rather ambiguities in the concepts themselves and in the processes through which factors are identified and classified. For example, Ghazinoory et al. (2011: 43) note that many applications of the SWOT matrix amount to little more than an unstructured, generic, and hurried exercise, producing unreliable, ambiguous, and inconsistent lists of internal and external factors that undermine their validation. They further argue that the common problems associated with SWOT stem from misuse and conceptual ambiguities rather than from the inherent nature of the framework. Other key criticisms include overly general or ambiguous terminology and lengthy statements to describe factors within the matrix. Another major criticism is the absence of a systematic method for distinguishing between internal and external environments and subsequently assigning factors to the four SWOT categories. This methodological deficiency generates ambiguity and multiple interpretations because, in the absence of clear criteria, identifying and classifying factors as internal or external becomes dependent on the individual analyst's interpretation. Consequently, similar factors may be assigned to different categories across different analyses (Leigh, 2009: 120; Pickton & Wright, 1998: 105). Ambiguity in SWOT, therefore, is not merely an operational issue encountered when completing the matrix; it may originate in how its foundational concepts are defined and understood. The less clearly defined the conceptual boundaries between internal and external environments, or the criteria for identifying strengths, weaknesses, opportunities, and threats, the greater the likelihood that different lists of factors will be generated for the same situation, ultimately leading to different strategies. Under such circumstances, what is presented as a "SWOT analysis" may reflect divergent and sometimes biased interpretations of foundational concepts and the study context rather than a coherent analytical framework. This can also create ambiguities in the processes of learning and applying the tool (Lohrke et al., 2021: 21; Chermack & Kasshanna, 2007: 393; Gürel & Tat, 2017: 1004–1005). Petrauskas et al. (2018: 307) likewise demonstrate that SWOT analysis largely draws on subjective linguistic evaluations of the situation under consideration and may therefore be susceptible to bias and multiple interpretations of existing conditions. As Hill and Westbrook (1997: 50) also observe, these shortcomings can reduce the application of SWOT to a general discussion with little connection to practical implementation.

Taken together, these criticisms, including the absence of systematic criteria for identifying and classifying factors, ambiguity in distinguishing between internal and external environments, and dependence on users' individual interpretations, indicate that, despite its widespread application, conceptual uncertainties persist regarding the SWOT matrix and its constituent elements. From this perspective, improving SWOT cannot be achieved solely by introducing quantitative methods, prioritizing factors, or integrating it with other analytical tools. Before any processing or prioritization can take place, it is necessary to establish what belongs to the internal or external environment and on what basis a phenomenon is classified as a strength, weakness, opportunity, or threat. Accordingly, this study addresses the research gap of a coherent conceptual reappraisal of the SWOT matrix and its constituent elements tailored to the context of city planning. Recognizing SWOT as a strategic thinking tool, this study therefore seeks to critically reconsider the matrix and its components to avoid oversimplifying its application and to adapt it to urban and regional contexts. The study consequently addresses the following research question: "How can SWOT and its constituent elements be redefined in a less contentious manner within the city planning literature?" This redefinition aims to reduce ambiguity and divergent interpretations, limit the influence of analysts' biases, and ultimately provide a foundation for developing a more shared understanding among users of SWOT in city planning. Rather than introducing another technique into the SWOT analysis process, the present study steps back to critically examine the underlying conceptual assumptions that precede the application of this tool in city and regional planning.

2. Theoretical framework

As noted earlier, the shortcomings of planning theory and practice during the first half of the twentieth century prompted theorists to develop more effective approaches to decision-making and policymaking. Strategic planning emerged as one of the approaches resulting from this critical reassessment of planning theories during that period. It helps leaders, managers, and staff analyze existing conditions by identifying the root causes of problems and drawing on available resources, establish long-term objectives, and plan for the future by developing strategies (Wait & Govender, 2018: 3). Within this framework, SWOT analysis is one of the most widely used strategic planning tools. SWOT analysis appears to have been first introduced in 1950 by two graduates of Harvard Business School, Albert Smith and Roland Christensen. Its most notable success reportedly occurred when Jack Welch of General Electric employed it in 1980 to improve organizational productivity (Khojir, 2019: 2).

SWOT's primary function is to identify and integrate internal factors (strengths and weaknesses) and external factors (opportunities and threats), enabling the planning system to align its internal actions with external realities to achieve successful outcomes (Gürel & Tat, 2017: 1001; Lee, 2013: 572). Another function of SWOT is the assessment of internal and external environments (Sharifzadegan & Malekpour Asl, 2013: 66). Wait and Govender (2013: 3) state that the first step in strategic planning is situational analysis. By using SWOT to assess internal and external environments, leaders and managers can gain an overall understanding of areas requiring improvement. Thus, SWOT helps managers understand the factors that contribute to achieving or failing to achieve organizational objectives (Chermack & Kasshanna, 2007: 386). SWOT also helps reduce information complexity. This can be described as information simplification or organization (Wait & Govender, 2019: 3). Golkar (2011: 374) similarly argues that the SWOT technique can effectively improve the quality of environmental decision-making by introducing order, structure, objectivity, clarity, and purposeful focus into discussions. Beyond these functions, supporting decision-making and strategy formulation can be regarded as the principal function of the SWOT matrix (Lurati & Zamparini, 2018: 1; Leigh, 2010: 115). Hosseini and Shahanghi (2016: 61) explain that SWOT facilitates the formulation of various strategies for the planning environment by identifying, categorizing, and integrating strengths, weaknesses, opportunities, and threats.

The preceding discussion of SWOT's functions indicates that identification, integration, assessment, simplification, classification, and organization all contribute to the broader objective of strategy formulation. Researchers have shown that the elements to be identified – commonly referred to as "factors" or "points" in the SWOT literature – are, before being evaluated and labeled as strengths, weaknesses, opportunities, or threats, resources, capabilities, environmental conditions, economic and social trends, or spatial characteristics that describe existing conditions. These elements are subsequently classified into one of the four SWOT categories according to their nature and effects (Khojir, 2019: 4–5; Ahmadi, 2008: 6; Leigh, 2010: 115–116). This is essentially why some sources describe the SWOT matrix as a resource-based matrix. Valentin (2001: 55) demonstrates that resources are the fundamental building blocks of capabilities, although rigid distinctions between resources and capabilities are unnecessary. Instead, it is sufficient to recognize a hierarchy in which relatively complex, higher-order capabilities emerge through combinations of resources and lower-order capabilities (Sammut-Bonnici & Galea, 2015: 1). For example, if a region has the capacity to attract tourists, or if an area within that region has the potential for cultivating saltwater aquaculture species, these capabilities arise from the presence of resources such as archaeological, architectural, and cultural assets or saline water resources.

Accordingly, the placement of these resources depends on their relationship to the system under study and the planning objectives, a relationship that assigns factors to either the internal or external environment. However, the literature does not use a single criterion for determining whether factors belong to the internal or external environment; instead, several criteria have been proposed. One such criterion is controllability. Unlike internal factors, which are considered controllable, external factors are generally beyond the system's control or subject to only limited control (Lurati & Zamparini, 2018: 5; Ghazinoory et al., 2011: 25; Ahmadi, 2008: 4–5). Another criterion concerns the factor's relationship to the system: elements located within the system are classified as internal factors, whereas those located outside it are considered external factors (Gürel & Tat, 2017: 996–

998; Lee, 2013: 572). Some sources also distinguish between internal and external environments based on whether a factor is actual or potential. Given this distinction, factors that currently exist and are actualized belong to the internal environment, while those associated with future possibilities and potential conditions are assigned to the external environment (Golkar, 2011: 387; Vonk et al., 2007: 1700).

On this basis, strengths are internal resources, capabilities, and other assets of the planning environment that can be utilized to achieve planning objectives and may, under certain conditions, contribute to a relative spatial advantage or locational superiority emerging from comparisons with neighboring or comparable areas. Such strengths include competencies, valuable resources, distinctive characteristics, loyalty, precision, and operational discipline that differentiate one environment from others and facilitate the achievement of objectives (Kalafsky & Sonnichsen, 2014: 3; Leigh, 2010: 126). In contrast, weaknesses are internal vulnerabilities arising from internal decisions that constitute obstacles to success. Weaknesses may include resource shortages, inefficiencies relative to competitors, or structural deficiencies that constrain regional development (Gürel & Tat, 2017: 996). Both strengths and weaknesses refer to the current conditions of the planning environment (Vonk et al., 2007: 1700).

Opportunities refer to external factors that can facilitate regional growth and development. These factors are generally beyond internal actors' control but, if used appropriately, can create conditions for improved performance and the development of advantages. Opportunities are therefore favorable conditions in the external environment that provide possibilities for gaining benefits and achieving progress (Wait & Govender, 2018: 6). Threats, by contrast, comprise factors that may hinder growth or place development processes at risk. These threats are also external in nature and generally arise from constraints, unstable trends, or environmental changes that may adversely affect the viability and sustainability of a region in the short or long term (Hosseini & Shahanghi, 2016: 63). Hosseini and Shahanghi (2016: 61) further emphasize that the assessment of opportunities and threats should incorporate a forward-looking perspective and an analysis of future environmental conditions. It is important to recognize that most existing definitions of the four SWOT categories were originally developed in organizational and business contexts. Consequently, when applying these definitions to city and regional planning, their specific manifestations must be redefined in accordance with the spatial, institutional, and social characteristics of the area under study.

Despite its apparent simplicity, the practical application of this framework has consistently encountered challenges. A review of the literature indicates that many of these challenges arise not merely from implementation shortcomings but also from conceptual ambiguities and the absence of a coherent framework for defining and classifying factors. For example, Clark (2011: 288, 297) notes that producing stereotypical lists of the four SWOT categories and lacking an in-depth mechanism for identifying strengths, weaknesses, opportunities, and threats prevent the SWOT matrix from effectively contributing to strategy formulation and the development of courses of action. Clark further emphasizes that difficulties in applying SWOT may stem not only from the gap between education and practice but also from instructors' misconceptions or inadequate training they themselves received in the past (Kalafsky & Sonnichsen, 2015: 2). Similarly, Lohrke et al. (2021: 21) demonstrate that SWOT and the identification of its components involve a highly complex process that presents challenges for students seeking to fully understand and successfully apply the framework.

Coman and Ronen (2009: 5677) also identify several shortcomings of SWOT, including the absence of a systematic method for identifying the four SWOT categories, excessive emphasis on lengthy lists rather than key factors, and an inability to demonstrate causal relationships among factors. According to Leigh (2010: 123), other criticisms include ambiguity in distinguishing between internal and external factors, failure to recognize the contradictory aspects of individual factors (such as weaknesses that also have positive dimensions or situations in which a single factor may simultaneously constitute both a strength and a weakness), and the absence of cost–benefit calculations. These shortcomings result in the production of general and ambiguous statements that reduce the ability of SWOT analysis to guide action (Leigh, 2010: 120; Ghazinoory et al., 2015: 43). Such ambiguity prevents researchers from clearly identifying the specific resource or asset that could be utilized or the deficiency for which corrective measures should be developed. Under these circumstances, it may also be difficult to reach a consensus on assigning a particular factor to one of the four SWOT categories. Furthermore, multiple interpretations and the absence

of a systematic framework for establishing a consistent procedure create conditions in which cognitive biases can influence the definitions used to identify internal and external environments and the four SWOT categories (Pickton & Wright, 1998: 106; Gürel & Tat, 2017: 1004–1005). Overall, these criticisms can be understood as interconnected at three levels: first, ambiguity in identifying and conceptualizing what constitutes a factor to be included in the matrix; second, the absence of clear and shared criteria for assigning factors to internal and external environments and subsequently to the four SWOT categories; and third, the predominance of description over explanation, resulting in a weak connection between identified factors and strategy formulation.

Based on the preceding discussion of SWOT's functions, the inputs to the matrix, internal and external environments, the four SWOT categories, and the criticisms directed at the framework, it appears that some of the challenges associated with SWOT arise not from the absence of real factors and conditions in the planning environment but from how these realities are understood, conceptualized, and classified within the matrix. In other words, a gap may emerge between what actually exists in the planning environment and how users represent it through factors, internal and external environments, and the four SWOT categories. This raises the question of how well what is observed empirically as SWOT represents the underlying realities that generate it. Addressing this question requires moving from experience toward reality and developing a renewed interpretation of the matrix and its principal components. By establishing a systematic mechanism, we can minimize the gap between experience and reality and thereby improve SWOT's effectiveness. Among existing intellectual traditions, the ontology of critical realism offers a basis for facilitating this transition. On the one hand, this tradition provides a foundation for uncovering the underlying realities embedded within structures and for critically examining and reforming them. On the other hand, its ontology distinguishes three domains of reality. The first is the empirical domain, which encompasses events that we experience directly or indirectly. At this level, events or phenomena can be measured and explained empirically, often through shared understandings. The second is the actual domain, where events occur regardless of whether they are experienced. The third is the real domain, where objects possess intrinsic properties that operate as causal powers capable of generating events (Bhaskar, 1975/2008: 46–52; Dadashpoor & Rostami, 2019: 114–115).

The theoretical discussion indicates that SWOT is not merely a framework for listing strengths, weaknesses, opportunities, and threats. Rather, it involves a process in which the realities of the planning environment are first identified and conceptualized as factors or points, then assigned to internal or external environments according to their relationships with the system under study and the criteria employed, and finally integrated into the four SWOT categories to support strategy formulation. From this perspective, SWOT's effectiveness depends not only on identifying appropriate factors but also on how those factors are understood, conceptualized, and classified. Nevertheless, the literature review reveals ambiguities and divergent interpretations at each stage, particularly in determining what enters the matrix as a factor, how internal and external environments are distinguished, and how factors are assigned to the four SWOT categories. These ambiguities may create a gap between the realities of the planning environment and their representation within the matrix, thereby affecting SWOT's capacity to support decision-making and strategy formulation. Accordingly, a critical reappraisal of SWOT can be understood as an attempt to reconsider this process of understanding and representation. By drawing on the distinction among the empirical, actual, and real domains, such a reappraisal seeks to establish a clearer basis for identifying factors, determining their placement within internal and external environments, and classifying them into the four SWOT categories.

3. Research methodology

As discussed earlier, the SWOT matrix's continued relevance depends on its appropriate application and a critical reconsideration of the matrix and its constituent elements in relation to urban and regional contexts. Accordingly, the present study reexamines the SWOT matrix and its components to establish a more shared, less contentious understanding, reduce divergent interpretations, and address existing confusion, ambiguity, and inconsistency. The underlying premise is that researchers' current understandings of the SWOT matrix are, to some extent, shaped by their individual perspectives and prior training, contributing to these ambiguities and divergent interpretations. However, if the subject under investigation – namely, the conceptual

relationships, distinctions, and mechanisms underlying the SWOT matrix – is assumed not to be merely a product of users' perceptions, but to have an existence independent of individual interpretations, a more systematic and shared understanding of the matrix and its constituent elements may be attainable. The study is therefore situated within the critical realism approach, drawing on the ontology of deep realism and the epistemology of neorealism (Mohammadpour, 2018: 201–214). Unlike positivists, who regard reality as limited to empirical reality and therefore rely exclusively on empirical knowledge to identify it, critical realism conceptualizes reality as comprising three domains: the empirical, the actual, and the real (Bhaskar, 1975/2008: 46–52). From a critical realism perspective, science seeks to identify underlying social structures and institutions, including entities, causal powers, and generative mechanisms. Accordingly, the analytical process in this study is structured around the six-stage logic of critical realism proposed by Danermark et al. (2002) (Table 1). This process begins with a description of empirical reality, proceeds through analytical resolution and abduction, and employs retroduction to explain underlying generative mechanisms. The resulting explanation is then reconsidered and formulated within the study context through comparison, abstraction, concretization, and contextualization. Within this framework, retroduction is not merely a technique for generating concepts but rather a mode of reasoning that connects empirical data to the potential underlying generative mechanisms responsible for them (Blaikie, 2000: 144–152; Goleij & Sharifzadegan, 2022: 132; Danermark et al., 2002: 109–111; Ehsani Moghadam et al., 2020: 7).

Table 1. Analytical process based on the six-stage critical realism framework proposed by Danermark et al.

No.	Stage	Domain of reality	Analytical activity
1	Description	Empirical	Recording participants' responses
2	Analytical Resolution	Empirical–actual	Coding and categorizing themes
3	Abduction	Actual	Identifying contradictions and ambiguities
4	Retroduction	Real	Identifying generative mechanisms (e.g., "points as elements" and "controllability")
5	Comparison	Real–actual	Comparing findings with the existing literature
6	Concretization	Actual–empirical	Redefining SWOT within the urban planning context

Given the fallibility and revisability of knowledge within the critical realism framework, the first step was to collect experts' understandings and interpretations of the SWOT matrix and its constituent elements. Accordingly, research data were collected using a semi-structured questionnaire with open-ended questions[1] and purposive sampling. Although in-depth interviews are commonly used in critical realism research, the limited availability of faculty members, on the one hand, and the emphasis on identifying the underlying conceptual mechanisms generating ambiguity in SWOT rather than exploring participants' lived experiences, on the other, justified using a semi-structured questionnaire with open-ended questions. This instrument enabled the collection of a broad range of interpretations, which were subsequently examined through retroduction to identify their underlying generative mechanisms. The questionnaire was designed around SWOT and its constituent elements, with questions intended to explore how city planning academics understood these concepts. Before distributing the questionnaires, the two authors, both faculty members, reviewed the questions and shared them with several academic colleagues to assess clarity, relevance, and conceptual adequacy. After revising the wording and simplifying the questions based on the feedback received, the questionnaire was administered to two eligible individuals. In addition to answering the open-ended questions, these individuals were encouraged to raise any questions or uncertainties that could help the authors further improve the clarity of the instrument. Within the methodological logic proposed by Danermark et al. (2002), this stage can be situated at the level of "description," involving the recording and conceptual organization of participants' statements about SWOT without treating their perceptions as direct equivalents of the reality under investigation. Accordingly, participants' responses were used not as definitive descriptions of SWOT but as existing empirical and epistemic representations of the framework.

The study population consisted of faculty members at Iranian public universities offering city planning programs. This population was selected for two main reasons. First, through their involvement in professional projects, these academics directly contribute to interpreting the realities of planning environments and representing them within the SWOT matrix. Second, through their educational responsibilities and their role in training future academics and practitioners, they indirectly contribute to this process of interpretation and representation. Their perspectives were therefore considered not as definitive judgments about the nature of SWOT but as part of the empirical and epistemic domain that needed to be critically examined and transcended through analysis.

A review of relevant institutional websites identified 29 universities and 176 faculty members. Because conducting face-to-face interviews with all these academics was not feasible, data were collected via email. The websites of the 29 universities were consulted, faculty members' email addresses were obtained, and the questionnaire was distributed along with an invitation letter explaining the study and requesting participation. Given the typically low response rates associated with this data collection method, there was no sampling, and the invitation and questionnaire were sent to all of them. Approximately six weeks after the initial distribution, a reminder email was sent. Following these two rounds of questionnaire distribution and invitations to participate, 19 responses were received. Some respondents referred to one or more published articles to clarify their perspectives, considering these publications representative of their views. Others provided telephone numbers or expressed their willingness to participate in face-to-face interviews with the authors. In addition to responses from faculty members at public universities, several other specialists, academics, and researchers in the field were purposively invited to participate. During the researchers' preliminary examination of the responses, no new concepts or codes emerged that would expand the existing set of identified concepts. Given the study's objective of identifying and conceptualizing the diversity of perspectives on SWOT concepts, this indicated conceptual data adequacy, and data collection concluded with 30 participants. Of these participants, 13% held master's degrees and 87% held doctoral degrees in city planning. Furthermore, 60% were men and 40% were women. Participants were affiliated with Tarbiat Modares University, the University of Tehran, Iran University of Science and Technology, Isfahan University of Art, Persian Gulf University, Shiraz University, Yazd University, Hakim Sabzevari University, the University of Bojnord, and the University of Zabol.

Following data collection, the textual responses were analyzed using qualitative content analysis informed by an abductive approach. At this stage, the objective was not merely to describe the frequency or convergence of participants' perspectives but to uncover the concepts, distinctions, relationships, and ambiguities underlying their understandings of SWOT. The analysis therefore moved beyond the question of "what was said?" toward "what conceptual assumptions and distinctions do these statements reveal?" To this end, responses were first organized by questionnaire question. After both researchers repeatedly reviewed the responses, they conducted initial coding. The researchers coded independently and in parallel, then shared and compared their results to assess coding consistency. Once coding was completed, the extracted codes were compared, and where similarities, differences, or ambiguities were identified, the original responses were reexamined. The researchers discussed the naming, boundaries, and interpretation of the codes until agreement was reached. In the next stage, related codes were organized into themes and conceptual categories. At this stage, the emphasis was on inclusiveness rather than commonality. In other words, rather than adopting a statistical perspective, the analysis sought to identify and present the full range of understandings expressed by participants. Consequently, efforts were made to ensure that no perspective was excluded merely because it had been expressed by fewer participants. A perspective mentioned by only one participant was therefore considered equally valuable to one expressed by several participants. From this standpoint, differences and even isolated responses were not treated merely as variations in opinion. Instead, where they contained meaningful conceptual distinctions or insights, they were retained as potential clues for investigating the mechanisms that might generate divergent interpretations of SWOT.

To strengthen the trustworthiness of the analysis, the relationships between the codes, themes, and original responses were continuously examined throughout the analytical process to ensure the final themes remained grounded in the collected data. Furthermore, as noted earlier, independent coding by the two researchers, comparison of their results, and agreement through discussion and joint review helped

reduce the influence of individual researcher interpretations. In addition, efforts were made to preserve the diversity of participants' perspectives throughout the analysis, ensuring that differing or contradictory viewpoints were incorporated into the development of conceptual categories when relevant to the research questions.

Subsequently, retroductive analysis was conducted in three stages. First, the extracted themes and distinctions were compared with existing concepts and definitions in the SWOT and city and regional planning literature to identify areas of convergence, divergence, and inconsistency between participants' empirical interpretations and established theoretical formulations. Second, moving beyond a descriptive account of these differences, the analysis sought to derive more abstract concepts concerning the relationships among "factors," "internal and external environments," and the four SWOT categories. The purpose was to develop concepts that did not merely reproduce participants' terminology but could explain the underlying relationships and conditions shaping their interpretations. Third, the abstracted concepts and relationships were recontextualized within city and regional planning and evaluated by their capacity to explain and provide a more coherent conceptualization of SWOT's constituent elements. This process enabled the analysis to move from the empirical level of "what participants say about SWOT" to the conceptual level of "how these interpretations are generated," and subsequently to the applied level of "how SWOT can be conceptualized within city and regional planning."

4. Research findings

Consistent with the expected functions and constituent elements of the SWOT matrix, as well as the questions posed to participants, qualitative content analysis of the responses identified four main categories: "Functions of the SWOT matrix," "Nature of points in the SWOT matrix," "Nature of internal and external environments in the SWOT matrix," and "The four SWOT categories" (Table 2). These four categories encompass participants' understandings and interpretations of SWOT. This section presents the findings at the empirical level, based on the perspectives expressed in their responses. Each category is discussed below, highlighting the areas of convergence and divergence among participants' responses.

Table 2. Open, secondary, and axial coding of textual data extracted from the questionnaires

Open codes	Secondary codes	Axial codes
Understanding existing conditions; analyzing existing conditions; identifying	Understanding and analyzing existing conditions	Functions of the SWOT Matrix
Showing; presenting; depicting; listing	Representation of information	
Differentiating; organizing; categorizing; interpreting; redefining; deriving the four SWOT categories from the identification stage; combining	Structuring and organizing data	
Evaluating; assessing in relation to objectives	Assessment of conditions	
Identifying strategies; developing strategies; formulating strategies; deriving strategies; selecting strategies; developing courses of action; making decisions; optimizing resource utilization	Strategy formulation	
Resources; capacities; components themselves; elements; available resources; assets of the planning area; potentials of a given entity; capabilities of a given entity; assets; advantages; competencies; deficiencies; obstacles; urban constraints; system elements; potential and actual capacities; potential facilities; unavailable resources	Entities and assets	Nature of "Points" in the SWOT Matrix
Internal problems; structural constraints; characteristics existing within the area; actual characteristics or conditions; attributes assigned to phenomena; attributes of elements across different dimensions of the planning area; intrinsic characteristics; acquired characteristics; quantitative and qualitative characteristics of the system; conditions; capacity	Characteristics and states	

Open codes	Secondary codes	Axial codes
External factors; factors influencing urban conditions and development; forces; contextual factors; drivers of development or obstacles to development; capacities and barriers to urban development	Influential factors and forces	Nature of "Points" in the SWOT Matrix
Processes influencing the future; trends or transformations	Dynamics and processes	
Hopes; prerequisites for exercising control	Abstract concepts	
Boundaries of the planning area; geographical perspective; forces within the city or region; forces outside the city or region; geographical and perceived boundaries	Spatial–geographical	Nature of Internal and External Environments in the SWOT Matrix
Capacity for intervention and change; capacity for alignment; regulations; areas where direct action is possible versus areas where it is not; possibility of control; under direct control versus beyond direct control; scope of authority; being under the control and management of planners and local authorities; availability or lack of control; the extent to which a phenomenon can exercise control at a particular scale; within or beyond the city's capabilities or authority; organizational perspective: within or outside the urban or regional management system; being explained within the system under assessment or by a system other than the one under assessment	Institutional–control-related	
Direct effects on different dimensions of the city or region versus indirect effects; arising from internal or external capacities	Causal–influence-related	
Actuality and potentiality; temporal perspective; future-oriented and present-oriented perspectives; existing conditions and possible future situations; duration or lifespan: shorter duration and rapid emergence and disappearance (external), longer duration and greater controllability (internal)	Temporal–situational	
Project-oriented and issue-oriented characteristics; fluidity; absence of clear guidelines for distinguishing internal and external environments	Relative/context- and scale-dependent	
Capacities; assets; positive internal characteristics; reliability; stability; usability; being under the relative control of management; supportive leverage for achieving objectives; facilitating the advancement of objectives; enabling role	Definition and nature of strengths	Four SWOT categories
Relativity; comparison with objectives; comparison with standards; dependence on planning scale; dependence on planning objectives	Criteria for identifying strengths	Strengths
Objectivity; declarative wording; being based on an influential factor; "existence;" "having;" high; rich; higher; stable; cohesion; appropriate; compatible; high-quality; good; efficient	Formulation and wording of strengths	
Constraints; inadequacies; shortages; internal deficiencies; being observable under existing conditions; disruption of system functioning; hindering development; obstructing the achievement of objectives or strategies	Definition and nature of weaknesses	Weaknesses
Comparison with standards; comparison with desirable models; distinguishing weaknesses from the intrinsic characteristics of the area; possibility of change or prevention; negative effects on achieving objectives	Criteria for identifying weaknesses	
Absence; lack; weakness; nonexistence; inappropriate; shortage; low; inefficient; inconsistent; distant; unequal	Formulation and wording of weaknesses	
Favorable external conditions; positive external factors; positive external trends; beyond the control of the internal system; potentiality; probability; contribution to development; possibility of utilization through internal capacities	Definition and nature of opportunities	Opportunities
Favorability in relation to development objectives; external origin; potential for utilization; relationship with internal strengths and capacities; potential to become a strategic opportunity	Criteria for identifying opportunities	
Clear identification of the external factor; identification of the factor's origin; explanation of its relationship to development objectives; investment; support; tendency; cooperation; possibility of establishment	Formulation and wording of opportunities	

Open codes	Secondary codes	Axial codes
Negative external factors; negative external trends; imposed conditions; uncontrollability; potentiality; restriction of development opportunities; disruption of objective achievement	Definition and nature of threats	Four SWOT categories: Threats
Relativity; assessment against objectives; assessment against needs; external origin; negative direction of influence; constraints on achieving development objectives	Criteria for identifying threats	
Clear identification of the negative external factor; identification of the factor's type; crisis; absence; lack; existence; increase; decrease; weakening	Formulation and wording of threats	

4.1. Functions of the SWOT matrix

Coding and categorizing responses about the functions of the SWOT matrix indicate that participants attributed a range of diverse yet interconnected functions to the matrix, from understanding and analyzing existing conditions to representing information, structuring and organizing data, assessing conditions, and ultimately formulating strategies (Table 2).

In some responses, the SWOT matrix was described as a tool for "understanding and analyzing existing conditions." These responses identified activities such as "understanding existing conditions" and "analyzing existing conditions" as functions of SWOT. One respondent (P9) stated: "Its function is to better analyze existing conditions and select appropriate strategies, with the use of the SWOT map ultimately contributing to the proposed project plan." In contrast, another group of responses emphasized the function of "information representation." In these responses, respondents characterized the matrix using verbs such as "showing," "presenting," "depicting," and "listing." For example, one respondent (P4) described the function of SWOT as "depicting the study area based on its available resources, potentials, and factors constraining development."

Participants also emphasized the function "structuring and organizing data." Respondents in this category used terms such as "differentiating," "categorizing," "organizing," "interpreting," and "combining." In some responses, this structuring referred to integrating and categorizing information from previous planning analyses into the four categories of strengths, weaknesses, opportunities, and threats. For example, respondent P25 stated: "A structure for integrating thematic analyses derived from different study systems to enable a multidimensional and interactive analysis of all issues and generate 'feasible' strategies." In addition, some responses highlighted the matrix's "evaluative function." In these responses, SWOT-based evaluation was not limited to describing existing conditions but also concerned how those conditions were conceptualized in relation to planning objectives. A substantial proportion of responses also emphasized the matrix's role in "strategy formulation." Participants in this category used expressions such as "identifying strategies," "formulating strategies," and "deriving strategies."

The empirical description of the responses revealed that participants attributed multiple functions to SWOT. From their perspective, SWOT was therefore not a single-purpose tool but a sequence of activities encompassing understanding, structuring, evaluation, and ultimately strategy formulation. However, a retroductive examination of this diversity reveals an underlying generative mechanism: reducing the organizing function to understanding existing conditions. At the empirical level, participants equated "understanding existing conditions" with the "function of SWOT." At the real level, however, understanding existing conditions is a prerequisite for applying the matrix rather than a function of the matrix itself. At the structural level, this generative mechanism is rooted in the tendency in city planning literature to characterize SWOT as an "analytical tool" rather than a "framework for organizing previously analyzed knowledge." Thus, the diversity of functions reported at the empirical level can be traced, at the real level, to a common reduction: SWOT has been reduced to a tool for generating an initial understanding of existing conditions, whereas its distinctive function lies in structuring previously analyzed knowledge to support strategy formulation.

4.2. Nature of "points" in the SWOT matrix

Five distinct interpretations were identified in the data in response to the question of what "points" refer to in expressions such as "strength point," "weakness point," "opportunity point," and "threat point": entities and assets, characteristics and states,

influential factors and forces, dynamics and processes, and abstract concepts (Table 2).

In some responses, a "point" was understood as a tangible or partially tangible entity, referring to resources, assets, possessions, capacities, potentials, and facilities, or, conversely, to unavailable resources, deficiencies, and constraints. Respondent P16 explained: These points are precisely the available resources, assets, or holdings of the planning area and should be represented as such in the SWOT matrix. For example, if an assessment reveals that the literacy rate in the planning area is high, the matrix sometimes includes "high literacy rate." However, the literacy rate itself is by no means an asset of the planning area. The area actually possesses a "literate population." Another interpretation suggested that "points" do not refer to entities or phenomena themselves but rather to their characteristics, attributes, or states. From this perspective, existing characteristics, intrinsic or acquired attributes, actual conditions, and a system's quantitative and qualitative characteristics were regarded as examples of "points."

Another notable interpretation among participants was that "points" refer to factors and forces that influence the conditions and development of the planning area, including influences originating beyond its boundaries. Within this interpretation, factors operating at different scales, from micro to macro, as well as forces, contextual factors, and drivers or barriers to development, were identified as examples of "points." Furthermore, some responses associated "points" not with static conditions but with dynamics and changes over time. Accordingly, trends, transformations, and processes influencing future conditions were considered examples of "points." Finally, a limited number of responses associated "points" with abstract concepts or mental constructs, including hopes and prerequisites for exercising control.

Thus, at the empirical data level, participants' interpretations of a "point" were not confined to a specific type of entity or phenomenon but encompassed entities and assets, characteristics, factors, processes, and even abstract concepts. However, retroductive analysis indicates that, at the real level, these different interpretations can be traced to a common generative mechanism: failing to distinguish between an "environmental element" and the "evaluation of that element." Rather than identifying a specific, identifiable element (such as "historical monuments," "vacant land," or "the transportation network"), participants frequently incorporated evaluative attributes (such as "high," "low," or "inadequate") into the matrix as points. At the real level, this substitution stems from the fact that, in practice, element analysis – that is, decomposing a phenomenon into its constituent elements and examining their functions – is not undertaken before developing the matrix. Consequently, the ambiguity surrounding the nature of "points" is not merely a terminological issue but arises from a structural generative mechanism: the absence of an element analysis stage before applying the matrix. Redefining a "point" as an "identifiable environmental element" therefore represents an attempt to address this underlying generative mechanism.

4.3. Nature of internal and external environments in the SWOT matrix

In response to the question concerning the meaning of internal and external environments and how the boundary between them should be determined, five principal criteria were identified in participants' responses: spatial–geographical, institutional–control-related, causal–influence-related, temporal–situational, and relative/issue- and scale-dependent criteria (Table 2).

The first, and one of the dominant approaches, distinguished between internal and external environments on a spatial–geographical basis. In these responses, the boundaries of the planning area, whether physical or perceived, served as the basis for distinguishing internal and external environments. Accordingly, phenomena within the planning area were considered internal, whereas those located beyond its boundaries were regarded as external. In contrast, a substantial proportion of responses indicated that this distinction was defined in terms of the degree of control, authority, and capacity for intervention. In these responses, factors falling within the authority or control of managers, planners, or the planning system were classified as internal, whereas those beyond their control were classified as external. Respondent P7 explained this distinction as follows: "The internal environment includes factors that are under the control of the system being examined. For example, in an urban system, urban infrastructure, population, human capital, and similar elements are considered part of the system's internal environment.

The external environment includes factors beyond the system's direct control but influence it. For example, in an urban system, factors such as national policies, economic developments at the national level, political developments, climate change, and similar phenomena can be considered part of the external environment."

Other responses conceptualized the distinction between internal and external environments not in terms of spatial location or degree of control but according to the position of phenomena within causal networks and how they influence the conditions and development of the planning area. Participants in this category referred to forces and factors operating at different levels, contextual factors, and drivers and barriers to development, emphasizing their direct or indirect effects. Another group of responses regarded time and the actual or potential status of phenomena as the basis to distinguish the two environments. From this perspective, phenomena that had already materialized, existed, or were available were more likely to be classified as internal, whereas those considered potential, future-oriented, or not yet realized were associated with the external environment. Another group of participants adopted a different interpretation, arguing that this distinction was neither fixed nor predetermined but depended on the subject, scale, and nature of the problem under consideration. In these responses, classifying a factor as internal or external was considered contingent on the subject and scale of analysis and the planning objectives. Consequently, the boundary between the two environments was not regarded as fixed or universally applicable across different contexts. Emphasizing this boundary's relative nature, respondent P12 stated: "It should, of course, be recognized that the boundary between internal and external environments is always relative."

Thus, at the empirical level, no single criterion for distinguishing internal and external environments emerged from the data. Instead, participants employed spatial, control-related, causal, temporal, and relative criteria to make this distinction. Beyond these differences, some responses simultaneously applied more than one criterion when determining whether a factor belonged to the internal or external environment. Nevertheless, retroductive analysis traces this diversity to an underlying generative mechanism: substituting a single criterion for a composite criterion. At the empirical level, some respondents emphasized only "geographical boundaries" (everything within the planning area is internal), some focused exclusively on "controllability" (everything subject to intervention is internal), while others relied solely on "actuality versus potentiality" (everything actual is internal). At the real level, this fragmentation of criteria produces conceptual misclassifications within the matrix. The generative mechanism underlying this situation is the absence of a relational definition of internal and external environments. In other words, internal and external environments are not defined as two distinct relationships among an element, the system under investigation, and the capacity for intervention, rather than as two independent domains. The proposed reconceptualization (internal environment = an element belonging to the system that can be utilized or modified; external environment = an influential element that lies beyond the scope of direct intervention) therefore seeks to address this underlying generative mechanism.

4.4. The four SWOT categories

Participants' responses concerning the four SWOT categories were examined under four subcategories: strengths, weaknesses, opportunities, and threats. For each component, three distinct dimensions were identified in the responses: definition and nature, identification criteria, and formulation and wording (Table 2).

Participants primarily associated strengths with a city or region's capacities, assets, and positive internal characteristics. Characteristics such as reliability, stability, relativity, and usability were mentioned in the responses. Some participants also referred to the relationship between strengths and the management and planning system, describing a strength as a factor within the scope of management's relative control or capacity for intervention. To explain the role and function of strengths in planning, some participants used expressions such as "supportive leverage for achieving objectives," "a basis for advancing objectives," and "a facilitating role." Regarding the criteria and basis for assessing strengths, most participants emphasized that strengths are relative and gain meaning through comparison with objectives and standards. According to participants, the definition of strengths follows similar principles across different planning scales, although their specific manifestations and identification methods vary by scale and planning objectives. Regarding the formulation of strengths, some participants emphasized that statements should

be objective, declarative, and refer to an existing factor. One respondent (P3) stated: “I am particularly sensitive to the word ‘existence’; whenever I hear it, I think of a strength.” Participants also employed different, although partly overlapping, terms to describe examples of strengths and how they should be expressed in the matrix. As noted, “existence” and “having” were among the most frequently used expressions. In addition, participants used adjectives and terms with positive connotations, including “high,” “rich,” “higher,” “stable,” “cohesion,” “appropriate,” “compatible,” “high-quality,” “accuracy,” “good,” and “efficient.”

In participants’ responses, weaknesses were primarily associated with internal constraints, inadequacies, shortages, and deficiencies within a city or region. These factors were described in relation to existing conditions and, in some responses, were associated with disruptions to system functioning, impediments to development, or difficulties in achieving objectives. As with strengths, comparisons with standards and desirable models were also mentioned as criteria for identifying weaknesses. However, one respondent (P16) emphasized the distinction between an “intrinsic characteristic of an area” and a “weakness”: “One of the most common mistakes I have repeatedly encountered in the classroom is treating the intrinsic characteristics of an area as weaknesses. In my view, the intrinsic characteristics of an area may constitute strengths and may be utilized, but they cannot, under any circumstances, be considered weaknesses.” Regarding specific examples, participants frequently used the terms “absence,” “lack,” “weakness,” and “nonexistence.” They also employed adjectives such as “inappropriate,” “shortage,” “low,” “inefficient,” “inconsistent,” “distant,” and “unequal,” as well as expressions describing processes or actions, such as “migration” and “demolition,” all of which carried negative connotations when used to formulate weaknesses.

In participants’ responses, opportunities primarily referred to favorable conditions, factors, and trends in the external environment that could contribute to the development of a city or region. These responses also highlighted characteristics such as being beyond the internal system’s control and having a potential or probabilistic nature. Some participants distinguished between an “opportunity” and a “strategic opportunity,” noting that the ability to capitalize on an external opportunity also depends on the system’s internal capacities. In this regard, respondent P17 stated: “An external phenomenon can only be considered a strategic opportunity when the system, by drawing on its assets or addressing its deficiencies, is capable of positioning itself to benefit from that phenomenon and harnessing it to advance its objectives.” Regarding the opportunities formulation, some participants emphasized the need to clearly identify the external factor, its origin, and its relationship to development objectives. The opportunities examples provided in the responses varied considerably. At the regional scale, participants referred to possibilities such as establishing national transportation corridors, large-scale investments, and interregional cooperation. At the urban scale, government support policies and urban economic and technological trends were mentioned. At the urban design scale, participants identified public participation in improving public spaces, emerging human-centered design approaches, and the inclination of urban management toward creating public spaces and pedestrian-oriented environments.

Participants primarily associated threats with negative factors and trends in the external environment that could disrupt the achievement of development objectives. Terms such as “imposed,” “uncontrollable,” and “potential” frequently appeared in descriptions of these factors. Threats were characterized, on the one hand, as factors that could restrict development opportunities and, on the other, as factors that could impede the achievement of planning objectives. Regarding the criteria and basis for assessing threats, participants emphasized their relative nature and the importance of evaluating them in relation to objectives and needs. Some participants also stressed that the negative external factor and its type should be clearly specified when formulating threats. As with opportunities, the threats examples varied across planning scales, although terms such as “crisis,” “absence,” “nonexistence,” and “existence” appeared particularly frequently. At the regional scale, examples included national political or economic crises, climate change, economic competition among regions, and spatial inequality. At the urban scale, participants mentioned the presence of active faults, increasing migration, and environmental pollution. At the urban design scale, examples included the non-allocation of municipal budgets, declining quality of public spaces, and weakening urban identity. In this regard, respondent P17 stated: “In urban planning, identifying

threats is primarily concerned with macroeconomic trends, higher-level policies, demographic pressures, and environmental problems. In urban design, attention is directed toward factors that undermine the quality of urban spaces and environmental identity, whereas regional planning focuses on natural hazards, interregional competition, large-scale economic changes, and spatial inequalities."

Thus, at the empirical level, participants referred to criteria such as "intrinsic characteristics," "comparison with standards," "existence/absence," "positive/negative characteristics," and "internal/external location" to define strengths, weaknesses, opportunities, and threats. However, retroductive analysis reveals that, at the real level, these criteria reflect a common generative mechanism: the essentialization of the four SWOT categories. Participants frequently regarded strengths, weaknesses, opportunities, and threats as intrinsic attributes of elements (for example, "this characteristic is inherently a strength"), whereas, at the real level, these four categories represent the relational position of an element with respect to planning objectives. In other words, the same element may be considered a strength in one context and a weakness in another, depending on the planning objective. The generative mechanism underlying this essentialization is the failure to distinguish between the stage of determining an element's position within the internal or external environment and the stage of evaluating its relationship to planning objectives. In practice, these two stages become conflated, leading evaluative attributes (such as "high," "low," "good," and "bad") to be incorporated directly into the matrix as points. The proposed reconceptualization (strength = a favorable internal element that can be utilized in relation to an objective; weakness = an unfavorable internal element that can be modified in relation to an objective; opportunity = a favorable external element that can be utilized in relation to an objective; and threat = an unfavorable external element that constrains the achievement of an objective) therefore seeks to distinguish these two stages and address the underlying generative mechanism.

5. Discussion

The findings indicate that academic and professional practitioners' understanding and application of the SWOT matrix are not uniform, but show conceptual fluidity and shifts in meaning across different levels. As observed in the two categories concerning the nature of "points" and the distinction between internal and external environments, this fluidity has given rise to multiple, and sometimes contradictory, interpretations of the fundamental components of the matrix (Kalafsky & Sonnichsen, 2015; Leigh, 2009; Pickton & Wright, 1998). In many cases, these interpretations blur the boundary between reality and perceptions of reality. At first, this finding merely reflects what was observed at the empirical level of the study: participants provided different conceptualizations of the same concepts. From a critical realism perspective, however, describing this heterogeneity does not constitute the endpoint of analysis. Rather, it is necessary to investigate which mechanisms and relationships at deeper levels may generate such conceptual diversity and shifts in meaning. Retroduction from the empirical findings reveals four underlying generative mechanisms, each contributing to this conceptual fluidity: 1) the reduction of the organizing function to the function of analyzing and understanding existing conditions; 2) the failure to distinguish between an "environmental element" and the "evaluation of that element"; 3) the substitution of a composite-relational criterion for a single criterion when distinguishing internal and external environments; and 4) the essentialization of the relational positions represented by the four SWOT categories. At the real level, these four mechanisms are rooted in the lack of a coherent conceptual framework for SWOT in city planning. Accordingly, the present reappraisal is not merely a terminological refinement but an effort to address these generative mechanisms. In light of these mechanisms, the data obtained from participants' responses should not be regarded as equivalent to the reality of SWOT itself, but rather as empirical evidence of how SWOT is understood and represented. Under these circumstances, what is represented in the matrix does not necessarily reflect the actual mechanisms influencing the phenomenon under investigation; instead, it may be a product of practitioners' varying interpretations of those mechanisms. From this perspective, this study's central concern is not simply to identify differences in viewpoints but to move beyond these empirical and perceptual differences toward a definition that exhibits greater logical coherence, independently of variations in individual interpretations.

One of the most important, and perhaps most fundamental, manifestations of this issue concerns how the function of the SWOT matrix is understood. A common interpretation regards SWOT as a tool for

understanding and analyzing existing conditions. Although this interpretation may appear reasonable, it is conceptually imprecise. SWOT is not, in itself, a tool for generating initial knowledge or conducting the analyses required to produce such knowledge. Rather, it provides a logical framework for organizing and structuring previously analyzed knowledge that serves as input to the SWOT matrix. If SWOT were a tool for generating initial knowledge, it would have to be able to identify a "point," determine its nature, establish its position within the internal or external environment, and assess its positive or negative implications without relying on prior analyses. Yet each of these activities requires knowledge developed before applying the matrix. Therefore, SWOT's fundamental function is not to generate initial knowledge but to organize and structure previously analyzed knowledge to support decision-making and strategy formulation (Lurati & Zamparini, 2018; Hosseini & Shahanghi, 2016; Golkar, 2011; Sharifzadegan & Malekpour Asl, 2013).

A retroductive examination of this finding reveals the first generative mechanism: reducing the organizing function to analyzing and understanding function. At the empirical level, participants equated "analyzing and understanding existing conditions" with the "function of SWOT." At the real level, however, understanding existing conditions is a prerequisite for applying the matrix rather than a function of the matrix itself. At the structural level, this generative mechanism is rooted in the tendency in city planning literature to present SWOT as an "analytical tool" rather than a "framework for organizing previously analyzed knowledge." Thus, the diversity of functions reported at the empirical level can be traced, at the real level, to a common reduction: SWOT has been reduced to a tool for generating initial knowledge, whereas its distinctive function lies in structuring previously analyzed knowledge to support strategy formulation. Reducing SWOT's function to understanding or analysis oversimplifies the analytical process and risks overlooking or underestimating the crucial stage of causal analysis. Within a sound analytical framework, however, planners must develop an analytical understanding before applying the matrix by decomposing phenomena into their constituent parts, examining their functions, and explaining the causes of their effectiveness or ineffectiveness. This stage can be understood as an attempt to move beyond observed events and experiences to identify underlying relationships and generative mechanisms. Only under these conditions can SWOT move beyond a merely descriptive level and fulfill its actual role: classifying this knowledge within a strategy-oriented framework, a function that also received broad agreement among participants. Accordingly, the empirical findings on SWOT's different functions should not simply be treated as a set of competing functions. Through comparison and critical reflection, a distinction can be drawn between "preliminary or enabling functions" and the "intrinsic function of the matrix." Understanding, analysis, evaluation, and information organization may all form part of the broader strategic planning process. However, the SWOT matrix's distinctive function is to structure previously analyzed knowledge within the four SWOT categories and provide a basis for strategy formulation. This issue is directly related to the ambiguity surrounding the nature of "points." The findings revealed that participants understood points in various ways, including as objects, characteristics, factors, processes, and even abstract concepts. Although this diversity reflects rich interpretations, it may, from an analytical perspective, lead to inconsistencies in the formulation and interpretation of SWOT. At this stage, comparing the different forms of participants' responses enables a further step in the retroductive analysis. As illustrated in Figure 1, which provides an example of the process of reinterpreting SWOT components from a critical realism perspective, if a "point" can simultaneously refer to an object, characteristic, process, force, or abstract concept, the term "point" alone cannot provide a sufficient basis for defining a unit of strategic analysis. The subsequent abductive question is whether these apparently different forms can be traced to a common underlying foundation. A retroductive examination of this finding reveals the second generative mechanism: the failure to distinguish between an "environmental element" and the "evaluation of that element." Rather than referring to a specific, identifiable element, participants frequently incorporated evaluative attributes into the matrix as points. At the real level, this substitution stems from the fact that, in practice, element analysis, that is, decomposing a phenomenon into its constituent parts and examining their functions, is not conducted before the matrix is developed. Consequently, the ambiguity surrounding the nature of points arises from the absence of an element analysis stage before applying the matrix. From a reality-oriented perspective, points fundamentally

refer to elements of the internal and external planning environments. These elements may have objective or socially constructed existence, while their characteristics and functions determine whether they are evaluated positively or negatively. Accordingly, a "point" in SWOT should be understood not as an evaluative attribute, a generalized judgment, or an analytical conclusion, but as an identifiable element of the system and its surrounding environment. Such an element may take the form of an entity, resource, capability, condition, or process, whether objectively existing or socially constructed. In all cases, however, it must be possible to identify the specific referent to which the statement relates (Valentin, 2001; Sammut-Bonnici & Galea, 2015). In other words, what is recorded in the matrix should consist of identifiable "entities" or "elements" associated with the planning area, rather than merely disconnected attributes or generalized judgments. The importance of this distinction should also be recognized when operationalizing strategies. Once strategies have been formulated, these elements, or, in SWOT terminology, these very points, must be mobilized to translate strategies into operational actions. Failure to refer directly to these elements may result in operational plans that are disconnected from the actual assets and resources of the planning area.

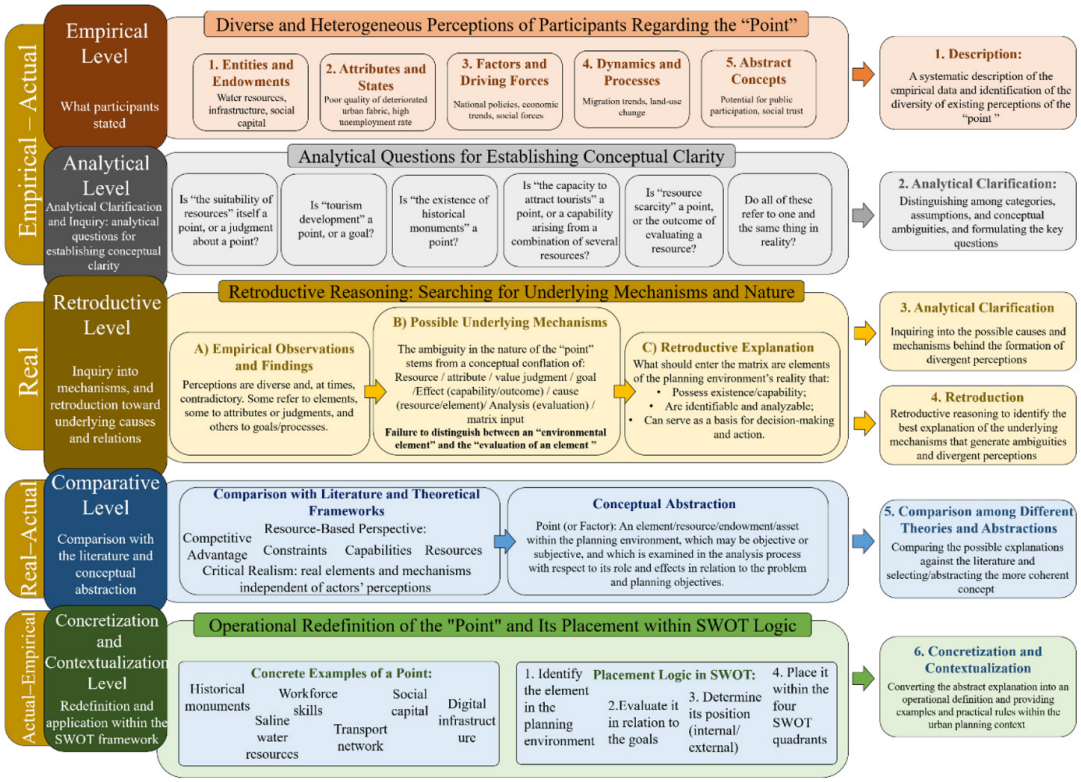


Figure 1. Retroduction process based on critical realism: moving from the empirical level to generative mechanisms in redefining a "point"

Regarding the distinction between internal and external environments, the findings also indicate the multidimensional nature of this concept, while suggesting that some dimensions require critical reconsideration. Among the criteria identified (spatial, control-related, causal, temporal, and relative), two appear to play a more decisive role than the others: spatial–geographical considerations and the degree of control, authority, and capacity for intervention. Whereas purely geographical approaches reduce the distinction between internal and external environments to spatial boundaries, the evidence indicates that many phenomena located within geographical boundaries are, in practice, beyond the scope of control, and vice versa (Ghazinoory et al., 2011; Gürel & Tat, 2017). Hence, to avoid replacing existing ambiguity with a new form of reductionism, the findings on these two criteria must be compared and interpreted in relation to SWOT's underlying logic. Internal elements should serve as the assets and

resources of the planning area that support strategies derived from SWOT. Strategies should also provide the prerequisites to address deficiencies or improve elements' qualities toward desired standards. Accordingly, the retroductive analysis of the findings reveals the third generative mechanism: substituting a composite relational criterion for a single criterion. This means that the distinction between internal and external environments cannot be understood solely in terms of geographical or institutional boundaries. Rather, it must be defined through the relationship between an element, the system under investigation, and the capacity for intervention. On this basis, the internal environment encompasses elements that belong to the system under investigation and can be utilized or modified, directly or indirectly, within the framework of its strategies. In contrast, the external environment encompasses elements and conditions that may influence the system but lie beyond its scope of direct intervention.

Among these interpretations, one of the most challenging is the temporal interpretation of internal and external environments, which draws on the distinction between actuality and potentiality (Golkar, 2011). Although this interpretation is common in certain fields, particularly urban design, it requires critical reconsideration from an analytical perspective. The potential nature of an element does not necessarily mean it belongs to the external environment. Anything that exists within the planning domain and can be utilized, directly or indirectly, constitutes part of the internal environment, even if its potential has not yet been realized. For example, an unexploited natural resource within the planning area remains an internal asset and should be regarded as a potential strength rather than an external opportunity (Valentin, 2001). This example demonstrates that "potentiality" is a temporal characteristic of an element, not a criterion for determining its position within the internal or external environment. In other words, an element may belong to the internal environment and remain potential, just as an external factor may already be actual and exerting an influence. Accordingly, this reconceptualization repositions time from a "determining criterion" to a "descriptive and analytical characteristic." The potential for citizen participation in an urban regeneration project can likewise be considered an intangible asset of the internal environment. This participatory capacity is embedded in the residents themselves and merely requires an internal or external stimulus to become actualized. Conversely, the external environment may also include both actual and potential elements that lie beyond the scope of direct control. Therefore, the temporal criterion alone cannot provide a valid basis for distinguishing internal and external environments. Over-reliance on this criterion may lead to conceptual misclassifications within the matrix and cause planners to overlook many of the planning area's existing assets and resources.

Taken together, these ambiguities ultimately affect how the four SWOT categories are formulated. If points are correctly associated with identifiable elements and the distinction between internal and external environments is established through a combination of spatial realities and controllability, the classification into the four SWOT categories can emerge more naturally and, in a manner, grounded in reality. However, this outcome requires another important step: comparing the empirical findings with the reconstructed concepts and translating them into diagnostic criteria. In other words, retroduction in this study aims not merely to propose new definitions of strengths, weaknesses, opportunities, and threats, but also to demonstrate how these definitions can be used to identify each category in a specific case. This issue is directly related to the fourth generative mechanism underlying conceptual ambiguity: the essentialization of the relational positions represented by the four SWOT categories. This ambiguity highlights the need to recognize that, at the real level, the four SWOT categories represent relational positions defined with respect to planning objectives. The generative mechanism underlying this essentialization is the conflation of two distinct stages: determining an element's position within the internal or external environment and evaluating its relationship to planning objectives. In this regard, particular attention must be paid to the possibility of modifying and using elements. For example, intrinsic and unchangeable environmental characteristics, such as climatic or geographical conditions, cannot readily be classified as weaknesses, since such classifications may direct planning toward inappropriate interventions or merely reproduce the conditions that existed before the problem emerged (Ghazaie, 2026, p. 117). Furthermore, the wording of the four SWOT categories should refer directly to identifiable elements and avoid unnecessary elaboration and repetition of evaluative attributes, since each element's position within the matrix already indicates its evaluative significance (Leigh, 2010; Clark, 2011). Accordingly, the formulation

of each SWOT entry should result from two distinct stages: first, identifying and analyzing the element and determining its position within the internal or external environment; and second, evaluating the element's relationship to planning objectives to determine whether it constitutes an advantage, a constraint, an opportunity, or a threat. This distinction prevents attributes such as "high," "low," "good," or "bad" from being entered directly into the matrix as points. For example, the expression "possibility of establishing ...," commonly entered in the opportunities category, represents a frequent error because it does not directly identify the element in the internal planning environment that makes such a possibility feasible. In fact, this expression does not represent an opportunity; rather, it resembles a proposed planning action. Similarly, expressions such as "shortage of ..." or "high ..." are other common errors. "Shortage" and "high" are evaluative descriptors established through the process of analysis that precedes applying the SWOT matrix, and should serve as the basis for classifying elements within the matrix rather than constituting the points themselves. Regarding terms such as "absence," "nonexistence," and "lack," it should also be recognized that the absence of something does not necessarily carry a positive or negative implication. Such absence must be examined in relation to the planning objective under consideration: should the element have existed but is currently absent, or should it not have existed but is currently present?

The combined outcomes of description, analytical resolution, abduction, retroduction, and comparison of the empirical findings with the theoretical foundations indicate that the SWOT matrix and its constituent components can be redefined to reduce their dependence on diverse interpretations and individual judgments. At the real level, this reconceptualization involves addressing the four previously identified generative mechanisms: 1) restoring the organizing function of SWOT rather than reducing it to analyzing and understanding existing conditions; 2) redefining a point as an "identifiable environmental element" rather than an evaluative attribute or generalized judgment; 3) defining internal and external environments through the relational position of an element with respect to the system and its capacity for intervention, rather than relying on a single geographical or control-based criterion; and 4) defining the four SWOT categories as relational positions of elements with respect to planning objectives rather than as intrinsic attributes. On this basis, the answer to the research question "How can SWOT and its constituent components be redefined in a less contentious manner within urban planning literature?" can be articulated through a logical sequence. First, the function of SWOT is not to analyze and understand existing conditions, but to organize and structure previously analyzed knowledge to support decision-making and strategy formulation. Consequently, causal analysis and the identification of influential mechanisms must precede incorporating information into the matrix. Second, a "point" must refer to a specific, identifiable element or asset of the system or its surrounding environment, rather than merely an attribute, value judgment, analytical conclusion, or generalized statement. Third, internal and external environments must be determined according to the relationship between an element and the system under investigation. Spatial belonging may provide evidence for this determination, but it is insufficient on its own. The fundamental criterion is whether the element falls within the system's domain and its capacity for direct or indirect intervention. Fourth, an element's actual or potential status does not, by itself, determine whether it belongs to the internal or external environment, since an internal element may remain potential while an external element may already be actual. Fifth, strengths, weaknesses, opportunities, and threats are not intrinsic attributes of elements but represent their analytical positions in relation to planning objectives. Thus, the same element may be a strength under one set of conditions or in relation to one objective, and a weakness under different conditions or in relation to another objective, without any change in the inherent nature of the component itself.

6. Conclusion

This study aimed to review the SWOT matrix critically and show that, contrary to its established perception as a self-evident and standardized framework, the tool is characterized by conceptual diversity and inconsistencies in how its fundamental elements are interpreted, both in practice and theory. These inconsistencies are particularly evident in the matrix's function, the nature of "points," the distinction between internal and external environments, and the formulation of the four SWOT categories. They suggest that, in practice, SWOT is grounded less in a unified and shared logic than in a range of diverse interpretations of reality.

At the same time, much of the criticism in previous literature has characterized the tool as generally ineffective because of these conceptual ambiguities. By clearly distinguishing between levels of analysis, emphasizing the role of SWOT as a framework for organizing previously analyzed knowledge, redefining points as identifiable elements of the planning environment, and conceptualizing the distinction between internal and external environments through the relationship between spatial–geographical boundaries and the capacity to control and intervene in environmental elements, the present review demonstrates that some of these criticisms concern not the inherent nature of the tool but rather how it is understood and applied – or, in other words, its departure from realist foundations. Indeed, this paper suggests that SWOT's continued relevance depends not on reproducing conventional practices but on returning to more rigorous analytical and realist foundations, in which the distinction between "what exists" and "what is perceived to exist" is clearly maintained.

Based on this reconceptualization, the process of determining the position of an element within the SWOT matrix can also be formulated as a systematic procedure. In this procedure, the starting point is not an evaluative label such as "strength" or "weakness," but rather an element of the planning environment identified and analyzed before entering into the matrix. The element's position is then determined in relation to spatial–geographical boundaries and the degree of control and capacity for intervention, establishing whether it belongs to the internal or external environment. In the next step, the relationship between that element and the planning objective determines how to classify its internal or external position within the four SWOT categories. Accordingly, a favorable internal element that can be utilized in relation to the planning objective is classified as a "strength"; an unfavorable internal element that can be modified is classified as a "weakness"; a favorable external element that can be utilized is classified as an "opportunity"; and an unfavorable external element that imposes constraints is classified as a "threat." Thus, the four SWOT categories constitute not the starting point of analysis but the outcome of a logical sequence progressing from an "analyzed element" to its "internal/external classification" and subsequently to its classification as a "strength/weakness/opportunity/threat." The checklist presented in Figure 2 summarizes this procedure in matrix form.

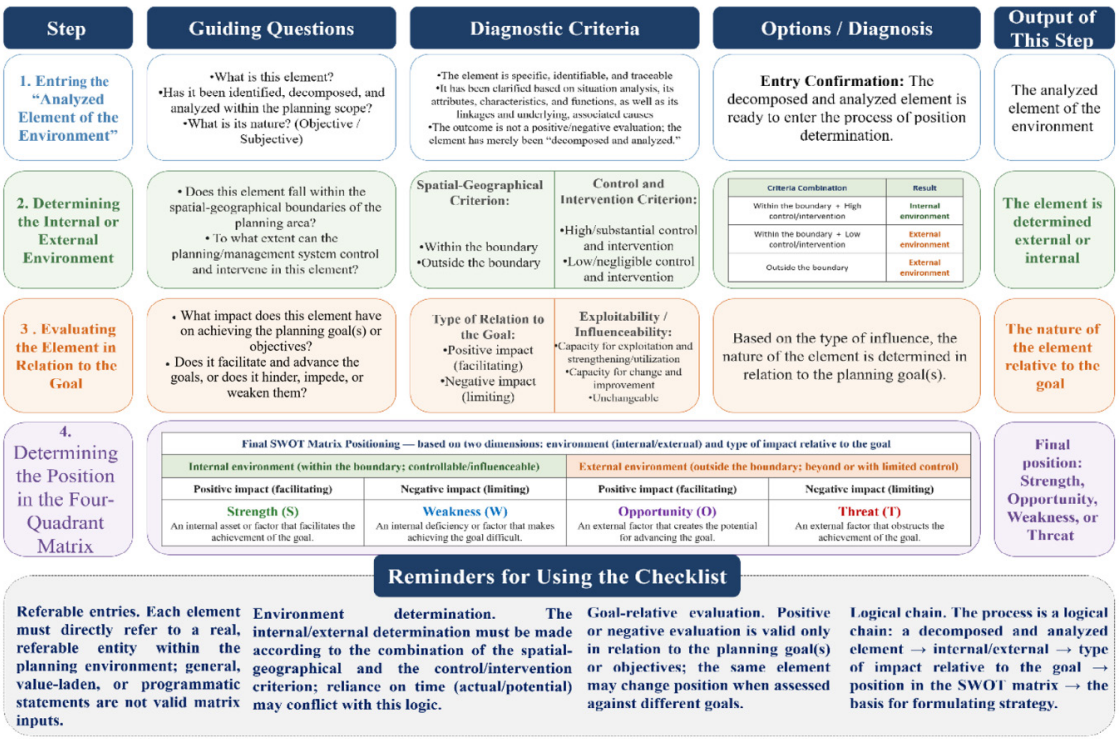


Figure 2. Systematic checklist for classifying planning environment elements within the SWOT matrix (from analyzed environmental elements to the four SWOT categories)

Accordingly, in direct response to the research question, "How can SWOT and its constituent components be redefined in a less contentious manner within city planning literature?", it can be argued that this can be achieved not by providing separate definitions for the four SWOT categories, but by reconstructing the logical relationships among their constituent elements. Within this reconceptualization, the function of SWOT is to organize and structure previously analyzed knowledge for strategy formulation; "points" refer to identifiable elements of the planning environment; the distinction between internal and external environments is determined by the relationship between an element, the spatial–geographical boundaries, and the degree of control and capacity for intervention; and, finally, strengths, weaknesses, opportunities, and threats are determined not as intrinsic attributes of elements but as their relational positions with respect to planning objectives. From this perspective, reconceptualizing SWOT does not primarily entail changing the matrix's conventional structure. Instead, it involves refining the process through which analyzed reality is translated into strategic formulations, thereby potentially reducing some of the existing conceptual controversies surrounding this tool.

Building on these findings, future research should critically evaluate the application of SWOT in actual planning documents, plans, and projects rather than accepting conventional assumptions about the tool. Specifically, the findings and conceptual framework developed in the present study could be applied to examine the SWOT matrices used in the spatial development plans of Iranian provinces and assess the extent to which the elements represented in these matrices correspond to the realities of the planning environment in terms of their nature, their classification as internal or external, and their relationships with planning objectives. Such research could also investigate whether a critical review of SWOT based on the proposed framework changes the four SWOT categories and, consequently, the strategies formulated in spatial development plans. Furthermore, developing an evaluation-oriented framework to assess the quality of SWOT application could help improve analytical rigor and reduce conceptual errors in planning processes. As a qualitative study that conceptually reviewed the SWOT matrix, the research has certain limitations that should be considered when interpreting its findings. First, most of the research data were collected through a semi-structured questionnaire and written responses. Although the open-ended questions allowed participants to express their perspectives freely, this approach, compared with in-depth, interactive interviews, may have limited the researcher's opportunities to ask follow-up questions, clarify ambiguities, and explore deeper layers of participants' reasoning. Consequently, some of the identified conceptual distinctions or mechanisms may lead to more detailed formulations if more in-depth interviews are used.

Authors' Contributions

Both authors contributed equally to all stages of the research and manuscript preparation.

Acknowledgments

The authors sincerely thank the journal's Editor-in-Chief and reviewers for their time, scholarly rigor, and valuable comments and suggestions, which helped improve the scientific quality and structure of this manuscript. The authors also thank academics, specialists, and researchers from across Iran who participated in this study and generously shared their valuable perspectives and experiences.

Additionally, the authors acknowledge using ChatGPT (GPT-5.6) to assist with translating this manuscript from Persian into English and to provide conceptual and visual inspiration for the development of the figures.

Conflict of Interest

The authors declare that they have no conflicts of interest related to this article.

EndNotes

The open-ended questions were as follows: What is the function of the SWOT matrix? What do the "points" commonly referred to in expressions such as "strength point," "weakness point," "threat point," and "opportunity point" represent within a planning area? What do the internal and external environments mean in the SWOT matrix, what are their characteristics, and how should they be determined? What are strengths? What are weaknesses? What are opportunities? What are threats?

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