Designing a Tourism System Thinking Approach for Tourism Research

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Abstract

In navigating the intricate dynamics of contemporary societal, ecological, and economic phenomena, traditional reductionist approaches have proven inadequate, particularly within the tourism sector. This paper delves into the limitations of conventional analytical methods and proposes a systems thinking approach as a more effective alternative. Drawing upon insights from various scholars, it examines the fundamental principles underlying reductionism and contrasts them with the holistic perspective offered by systems thinking. The paper highlights the vulnerability of tourism systems to diverse influences and the shortcomings of reductionist paradigms in addressing the complexities within the industry. Through a comprehensive review of literature, the study underscores the need for a paradigm shift towards systems thinking to address the multifaceted challenges facing the tourism sector. It introduces a structured approach to studying tourism challenges, focusing on the use of systems thinking methodologies. The proconsequences andmprises ten interconnected steps, including identifying the level of analysis, setting desired outputs, problem-content system analysis, identifying system boundaries and environment, elements identification, interconnectedness analysis, conversion, evaluating output consequences, and assessing feedback loops. Each step is supported by relevant tools and methodologies aimed at fostering a deeper understanding of tourism systems and facilitating effective interventions. The paper emphasizes the flexibility and adaptability of the proposed approach, encouraging researchers to explore a diverse range of methodologies to enhance the analysis and improve research outcomes. Ultimately, the study advocates for a systemic approach to tourism research, grounded in systems thinking principles, to address the complex challenges and opportunities within the tourism industry.

Keywords: System Thinking -tourism- tourism approach- Tourism research – tourism complexity

Introduction

In the context of the multifaceted, dynamic, and emergent nature of complex social, ecological, and economic phenomena, including tourism, traditional reductionist approaches to addressing social dilemmas and solving problems have become inadequate (Moore & Westley, 2011; Meyfroidt, 2013). The conventional analytical approach, which focuses on individual elements of a system and their interactions, operates under the assumption that these relationships are stable and unchanging. Conversely, the system's approach emphasizes a system's entirety, complexity, and dynamics, considering the outcomes of interactions. While the analytical approach is often viewed as too restrictive to accurately represent the real world and explain a broad range of phenomena, the systems approach is more effective in facilitating the understanding and description of organized complexity (Baggio, 2008).

Ackoff (1991) posits that traditional scientific models of thought rely on two fundamental principles. Firstly, reductionism suggests that everything in the world, along with our experiences of it, can be broken down into simple, indivisible parts. By explaining the behavior of these parts and then aggregating these explanations, we assume we can grasp and elucidate the entire system's behavior. Secondly, all phenomena are thought to be explained through cause-and-effect relationships. However, new relationships or properties, known as emergent properties or relationships, may arise from the interaction between various parts or aspects of a situation. This phenomenon is often summarized by the phrase "the whole is greater than the sum of its parts." Some emergent properties are intentional, while others may be unforeseen and counterintuitive. Additionally, causal relationships may not always be straightforward and one-way (Daellenbach & Donald, 2005).

Tourism is particularly vulnerable to various influences because it does not occur under controlled conditions but arises from continuous interactions that both influence and are influenced by their environment. Tourism destinations function as dynamic, evolving complex systems, consisting of numerous interdependent factors and activities with potentially nonlinear relationships (Rodriguez-Giron & Dominique, 2019). During the tourism experience, participants encounter dynamic, non-centrally controllable, and interdependent factors such as culture, nature, society, laws, politics, and the economy (Dekkers, 2015; Hartman, 2016). Therefore, according to Baggio (2008), the reductionist paradigm, which involves dividing a tourism system into components and assuming stable and static relationships between them, fails to provide meaningful explanations for many research outcomes. Moscardo (2021) argues that a significant portion of published tourism research has had minimal influence on industry practices, particularly regarding sustainability issues, due to the lack of integration of systems thinking in guiding research inquiries and methodologies. Traditional research in tourism has typically adopted a linear approach, monitoring variables and relationships to forecast future outcomes using simplified models, but the limitations of this approach have prompted several authors to advocate for a different methodology (Baggio, 2008).

Additionally, while scientific research aims to understand the world and provide solutions to tourism problems, decision-makers receiving these research outputs seek to change it, requiring a nuanced understanding of complex, real-world dynamics. Unlike controlled laboratory conditions, decision-making operates in unpredictable environments. Methodologies must adapt to this complexity, offering flexibility and timely results, and prioritizing effective decision-making over

strict scientific inquiry (Jakulin, 2015). To improve research outputs, social and tourism researchers need a new paradigm that addresses problems within their real-world complexity rather than isolating them. (Situmeang, 2016).

In response to these challenges, a perceptual framework known as systems thinking has been suggested to enhance the recognition of the emergent and unpredictable traits of complex tourism systems (Maani & Maharaj, 2004; Randle & Stroink, 2018). System thinking provides a framework for addressing and solving problems that require having a whole macro lens, and are more complex, as well as affecting and being affected by the surrounding systems. (El Mansy, 2016)

Problem statement:

Although complex systems ideas have emerged as one of the most promising interdisciplinary research themes in recent decades, relatively little attention has been paid to this area within the field of tourism. (Baggio, 2008; Morrison et al., 2018). Even tourism studies that have tackled the tourism phenomenon from the perspective of tourism thinking have yielded fragmented outcomes (Pearce, 2014; Ioannides, & Stoffelen, 2023).

On the one hand, a brief overview of the state of the art of tourism research (Moscardo, 2021; Stumpf et al., 2016; Tribe& Liburd,2015; Buckley, 2012)reveals that many of the methods used concentrate on addressing the problem in isolation rather than considering the broader ecosystem in which the tourism problem exists. Considering the challenges posed by the global economy, issues often manifest as intricate and sometimes interconnected dilemmas. Climate change, traffic congestion, and long-standing organizational issues exemplify complex problems that require a holistic perspective, distinct from the approach used for simple or linear problems. Part of the challenge in grappling with complex tourism problems stems from conventional methods of problem-solving, which may inadvertently exacerbate the complexity. Systems thinking offers an alternative approach by emphasizing the examination of the broader ecosystem rather than fixating solely on the immediate tourism problem.

On the other hand, in studies examining destination systems, characterized by non-linearity (e.g., Baggio, 2020; Hall et al., 2018; Kadar & Gede, 2021; Pavlovich, 2014; Pearce, 2014), the resulting insights have often produced a fragmented and incomplete understanding of destinations as complex adaptive systems, lacking clear direction (Pearce, 2014). Despite extensive research on the complex relationships within destination systems, characterized by non-linearity (e.g., Baggio, 2008, 2020; Hall et al., 2018; Kadar & Gede, 2021; Pearce, 2014), the multitude of components and elements has led to varied interpretations of the tourism destination concept (Baggio, 2008), ultimately contributing to a fragmented and incomplete conceptualization of destinations as complex adaptive systems lacking clear direction (Pearce, 2014, p. 141).

Objectives of the study

The study aims to structure an approach to studying tourism challenges based on the use of system thinking, thereby enriching tourism research. Additionally, it seeks to provide tourism policymakers with a practical methodology to tackle challenges in tourism stemming from insufficient awareness of interdependence and interconnectedness within the tourism sector. Therefore, this paper seeks first to develop an understanding of the phenomenon under study, enabling tourism research to focus on leverage points that can significantly impact practice, and second, to develop a system-thinking approach to tackle tourism challenges stemming from the

complex nature of tourism aiming at capturing the big picture of tourism and acknowledging the open system nature of tourism.

Significance of the study:

Tourism is recognized as a complex system where the interactions among its components and with the environment are so intricate that understanding the tourism system requires more than just analyzing its individual parts. In the broader context of the Egyptian tourism industry, various shortcomings arise due to a lack of coordination and a holistic systematic perspective. Without this Systems Perspective, solving one problem may inadvertently give rise to new and larger issues later or elsewhere in the system. Additionally, system thinking aligns with the global trend toward sustainability, encompassing social, economic, environmental, and political dimensions. Moreover, Systems Thinking facilitates the identification of key areas for intervention to induce long-term behavioral change within the system.

Methodology: This study counts primarily on literature review methodology through conducting a comprehensive review of academic journals, books, and relevant publications in the fields of tourism, systems thinking, and related disciplines with the aim of understanding the existing theories and frameworks in tourism systems and system thinking. From among several types of literature review, the study adopts a theoretical Review form through which it reviews and Analyzes the theoretical frameworks and models used in the literature.(Luft et al, 2022) Reviewing literature aims at achieving the study objective through UISF's four steps: 1. Understanding Existing Theories and Framework, 2. Identifying Gaps and Opportunities, 3. Synthesizing Best Practices, and Formulating the desired approach\Conceptual Framework.(Park, & Jeong, (2019).

Literature review

System thinking versus conventional thinking:

According to Meadows (2008), there are two distinct ways science perceives human experience and provides solutions to social problems. One approach emphasizes rational analysis and linear thinking, ingrained through education, which leads us to attribute problems to specific causes and seek control over our environment. Conversely, there is an innate, intuitive grasp of complex systems, acquired long before formal education, evident in our interactions with the intricate systems within and around us. Despite the complexity often associated with modern systems theory, it essentially elucidates truths universally recognized at some level. Meadows also underscores the significance of feedback delays within complex systems, echoing the wisdom encapsulated in proverbs.

Stroh (2015) describes conventional or linear thinking, which many of us were taught in school, as dividing the world into specific disciplines and problems into their components. This approach assumes that focusing on the parts is the best way to address the whole. However, conventional linear thinking is inadequate for dealing with complex problems. Stroh suggests that solving the complex problems inherent in complex systems requires a shift from conventional linear thinking to systems (integrative or circular) thinking.

Traditional research, often referred to as analytical, linear thinking, and reductionism operates under the premise that explaining complex phenomena scientifically requires breaking them down into simpler components, with the understanding that the whole can be elucidated through knowledge of its parts (Floridi, 2008). General system theorists argue that reductionism divorces

a subject from its surroundings, exemplified by isolating variables in laboratory settings. They contend that this approach fails to capture systemic and emergent properties. By studying elements of a larger whole in isolation, reductionism overlooks the intricate relationships and interactions that contribute to the organization of life. General system theory offers a novel perspective, enabling the examination of connections among systems and accommodating the concept of 'open systems' that interact with their environments (Minati, 2024). Table 1 summarizes the basic differences between traditional and system thinking.

Table 1: Systems Thinking versus Traditional Research Approaches

Systems Thinking Features	Traditional Research Approaches
A focus on understanding the whole first as the key properties that emerge from the functioning of the whole system cannot be predicted from an analysis of its parts	A focus on understanding parts and assuming these build to a whole and therefore include key properties
A focus on the connectedness of actors and their actions	A focus on identifying, classifying and describing actors and their actions
Assumes nonlinear causality that contributes to continuous change through feedback loops	Assumes unidirectional causal connections between a single or small set of causes linked to a predicted or known effect
Is driven by a desire to change the system and emergent properties in some way	Is driven by a desire to describe the system
Simplifies complex systems using relatively simple models bounded by a specific problem or desired outcome	Builds increasingly complex models guided by a desire to describe in detail the processes considered to be of interest

Source: McCool, S.F.(2019).

While scientific research aims to comprehend the world, decision-making endeavors to change it, which requires a more comprehended view of the complex real world. Unlike controlled laboratory conditions, decision-making operates in the unpredictable, chaotic real world. Therefore, methodologies must adapt to real-world complexity, offering comprehensiveness, flexibility, and timely results. Strict adherence to scientific inquiry principles is secondary to facilitating effective decision-making processes(Jakulin, 2015).

Most decision-making processes in the modern world involve addressing complex problem scenarios. These situations are frequently ambiguous and influenced by conflicting forces and objectives. The systemic context within which these problem situations arise is a significant factor contributing to this complexity. therefore, for social and tourism researchers to improve the quality of research outputs, a new methodological paradigm appears to use to tackle tourism problems within the real complexity of the tourism context overcoming the idea of isolating the researched problem from its context since the problem is not isolated in the real world.

Decision-makers must grasp the reasons why current approaches are ineffective and comprehend the unique aspects of the systems approach. (Situmeang, 2016)

Tourism research and system thinking: Two of the pioneers of the concept are Clare Gunn and Neil Leiper(Morrison et al., 2018). Gunn (1994) describes Tourism research and systems thinking:

Clare Gunn and Neil Leiper are two pioneers of this concept in tourism research. Gunn (1994) describes the functioning tourism system as comprising attractions, services, promotion, information, and transportation on the supply side, stating that "No matter how it is labeled or described, tourism is not only made up of hotels, airlines, or the so-called tourist industry but rather a system of major components linked together in an intimate and interdependent relationship." Leiper (1990) contends that a tourism system consists of five elements: a human element (the tourist), three geographical regions (the traveler-generating region, the transit route, and the tourist destination region), and an industrial element (the travel and tourism industry).

According to Baggio(2008) the reductionist paradigm, which involves dividing a tourism system into components and assuming stable and static relationships between them, is challenged for its inability to provide meaningful explanations for many outcomes. Moscardo(2021) argues that a significant portion of published research in tourism has exerted minimal influence on industry practices, particularly concerning sustainability issues, due to a lack of integration of systems thinking in guiding research inquiries and methodologies. Additionally, based on two main dimensions of methodological rigour and practical relevance, Anderson et al., (2001) argue that many reasons have pushed tourism researchers away from pragmatic research towards the other three categories: Popularist, Pedantic, Puerile research which unlike pragmatic research lacks either rigour or practical relevance. A proposed solution to address the issue of relevance and promote a shift towards more pragmatic research involves the adoption of systems thinking. Therefore, theoretically and methodologically system thinking in tourism firstly involves cultivating a comprehensive understanding of the phenomenon under examination, thereby enabling research to concentrate on pivotal points that significantly impact practice and secondly, it necessitates an understanding of the theoretical systems that encompass the concepts employed in the research.

Mai and Smith (2015) emphasize that tourism operates beyond just being an industry; it functions as a system influenced by diverse stakeholders, external factors like natural disasters, evolving tourist behavior, and technological advancements. Recognizing tourism as a system reveals its intricate, non-linear relationships among components, actors, and stakeholders (Baggio, 2008). A multi-stakeholder approach and tourism value chain analysis are essential for comprehending this complexity.

Tourism destinations function as dynamic complex systems shaped by external and internal factors, undergoing evolution through dynamic adjustments. Understanding this complexity is essential for effective destination development (Situmeang, 2016).

Additionally, viewing tourism as a system necessitates a paradigm shift, where researchers primarily employ synthesis rather than analysis. Synthesis involves understanding both the whole and its parts simultaneously, as well as the relationships and connections that drive the system's dynamics. In contrast, analysis involves breaking down complexity into manageable components, fitting into a mechanical and reductionist worldview that fragments the world into discrete parts. (McDonald, 2009)

Tourism destinations function as dynamic, evolving complex systems, consisting of numerous interdependent factors and activities with potentially highly nonlinear relationships. Traditional research in this field has typically adopted a linear approach, where variables and relationships are monitored to forecast future outcomes using simplified models and derive implications for

management organizations. However, the limitations of this approach have become apparent in many cases, prompting several authors to advocate for a new and different approach.(Baggio, 2008). Tourism, as a complex system, requires a comprehensive sustainability approach for effective management. Understanding its structures and feedback mechanisms is crucial for long-term viability (Roxas et al., 2020).

Tourism scholars have approached the conceptualization of tourism systems from various perspectives, offering unique insights into their composition. Gunn (1994) focused on demand and supply factors, while Leiper (1990) examined tourism through tourist destinations and routes. Mill and Morrison (1998) considered demand and destination marketing, and Roxas et al. (2008) analyzed it from a stakeholder perspective. Moscardo (2021) explored environmental impacts, and other scholars emphasized the complexity inherent in tourism systems. A multi-stakeholder approach redirects attention from individual stakeholders to their interactions within the complex system (Buchholz & Rosenthal, 2005; Edge & McAllister, 2009).

Origins of system thinking: Starting around 1940, researchers from diverse scientific disciplines, including biology, mathematics, communication theory, and philosophy, began recognizing that all entities, events, and perceptions are components of larger systems. This perspective does not diminish the significance of individual components; rather, it shifts the emphasis to the systems to which these components belong. This marked the emergence of systems thinking, focusing on understanding phenomena as integral parts of interconnected systems (Daellenbach & Donald, 2005).

The origins of systems thinking derive from the general theory of systems, tracing back to two primary sources. One origin is in biology, where scientists examine interactions between organisms and their environments. Ludwig von Bertalanffy extended the concept of systems to the social sciences, pioneering general systems theory in the 1940s. This theory emerged as an alternative to reductionist analysis, which struggled to address interdependence and complexity (Montuori, 2011). The other origin is cybernetic theory in mechanical engineering, focusing on control and communication within machine systems. Cybernetic systems use feedback mechanisms to maintain stability, and these concepts have been applied to social systems.

General systems theory introduced key concepts such as open and closed systems, equifinality, and isomorphisms, emphasizing the importance of context and environment. David Easton applied systems thinking to political science, developing an approach widely used to study human behavior. Easton’s systems approach (input-output analysis, or the five-step approach) views political phenomena as a system comprising inputs, conversion processes (the "black box"), outputs, feedback, and environment (Hanumanthappa, 2023). This approach suggests that systems take in inputs from their environment and transform them into outputs, typically in response to demands for specific policy outcomes (Anyebe, 2018). Figure 1 illustrates how systems work according to David Easton's input-output model.

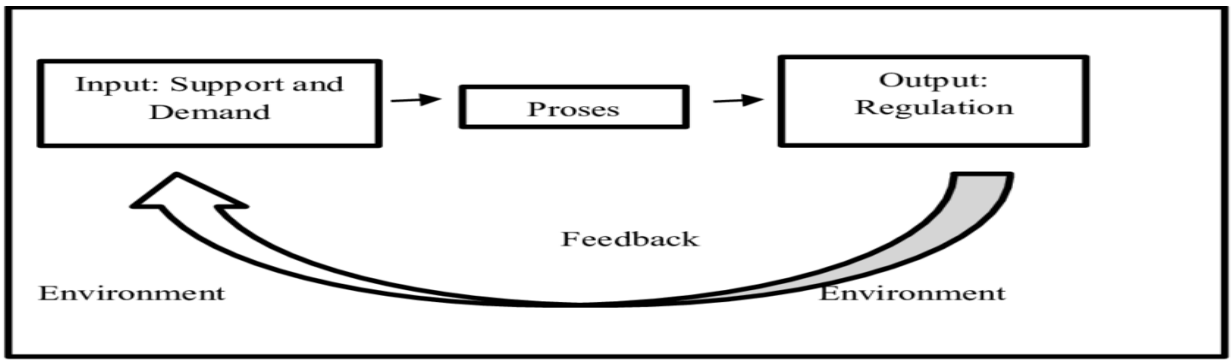

Figure 1: David Easton Model, as adapted from: Adenskog, (2018)

Thanks to Wassily Leontief, the input-output method was introduced to Economic Sciences in 1973, revolutionizing the field by providing a systematic approach to analyzing the interconnectedness of economic activities within an economy. As an economic sector, tourism is seen as a system depending on the various theoretical backgrounds of economists, and social scientists.

Defining system: The word "system" originates from the Greek "systema," denoting an organized arrangement of interconnected units or components. Defined as an orderly assembly of interdependent elements orchestrated in accordance with a predetermined scheme to accomplish a particular goal, a system embodies structured relationships among its constituent parts. Several attempts are provided to define the word system. most definitions agree on defining system as a set of entities or elements with interconnectedness between them where the behavior of one entity/ elements is influenced by another elements.(Baclund, 2000). This definition corresponds to the Britanica Dictionary which defines system as a group of related parts that move or work together.(Britanica Dictionary).

In simple terms, a system is a structured assembly of parts, or subsystems, closely knit to achieve a common objective. It operates by taking in various inputs, undergoing specific processes, and producing corresponding outputs, all working together to fulfill the system's overarching goal. A system can be defined as a grouping of various elements, entities, or individuals that are interconnected and interact with each other in specific ways. These components are organized and adhere to specific rules or principles of interaction, forming a structured framework within which they operate. Together, these elements have a defined purpose, meaning they strive to achieve or generate outcomes that are beyond the capabilities of any individual part acting alone. (Daellenbach & Donald , 2005)

Upon reviewing various definitions of a system, several terms emerge to describe its nature and components(Aleksandra, 2022):1.Descriptive Terms for System: "Set", "totality", "complex", "group", and others, 2. Terms for Components/Elements: "Elements", "components", "units", "parts", "subsystems", and others, 3. Terms for Interconnection/Interdependency: "Interconnection", "interdependency", "interaction", "relationship", "structure", and their derivatives, 4. Terms for Emergent Properties/Unity: "Emergent property", "emergence", "integrity", "integrability", "integral unity", "integrated totality", "unified whole", and others, and 5. Environmental and Boundary Terms: "Environment", "boundaries", "isolation", and their

derivatives. These terms collectively contribute to a comprehensive understanding of the concept and functioning of a system within various contexts.

A key characteristic of a system is its composition of numerous components or elements, along with their interrelations. These structural features, including the system's boundaries, define its structure. Additionally, systems exhibit temporal or functional attributes. These encompass exchanges with the environment, interactions among components through feedback loops, and the system's evolution towards specific outcomes, like growth or decay.(Alter, 2018)

To consider any group of elements as a system, several features must be met. Firstly, holism dictates that a change in any part of a system impacts the whole system, either directly or indirectly, as systems are composed of interconnected parts. Secondly, specialization allows a whole system to be divided into smaller subsystems so that the specialized role of each component can be understood. Thirdly, importance ensures that every component is crucial to the whole system. Fourthly, grouping involves organizing components into subsystems based on their specialization. Fifthly, coordination is essential for the grouped components and subsystems to work together effectively, as a lack of coordination leads to chaos. Lastly, emergent properties highlight that some subsystems have no value unless they combine with others, resulting in new properties that contribute to the overall system. (Chuaungo, 2016)

Defining system thinking: Systems thinking has emerged as a multidisciplinary concept, presenting nuanced interpretations across various fields. At its core, it embodies a methodological approach focused on conceptualizing and analyzing systems themselves. Coined by Barry Richmond in 1987, this approach emphasizes the need for adapting learning methods as interdependency grows. Richmond advocates for a shared language and framework to exchange knowledge across different contexts, warning that without such a mindset, our ability to navigate an increasingly interconnected world may be compromised (Amold & Jon, 2015). Described as a discipline enabling the perception of wholes, systems thinking provides a framework for observing interconnections and discerning patterns of evolution rather than static snapshots (Capra & Luisi, 2014).

In organizational management, it offers a problem-solving framework acknowledging diverse causal roots and facilitating the assessment of outcome patterns in organizational processes. Systems thinking encompasses a worldview guiding personal or societal philosophies and epistemologies, characterized by a holistic mindset and an understanding of continuous change within systems (Randle & Stroink, 2018). Moreover, it aids in organizing knowledge, comprehending system behavior, and identifying measures to sustain or modify systems, contrasting with the analytical approach, which focuses on isolated elements and assumes stable relationships (Postma & Ian, 2020). In essence, systems thinking provides a vantage point from which the whole system and its interrelationships are perceived, rather than fixating on individual details, allowing events to be seen within the larger context of unfolding patterns over time.

System thinking assumptions, as outlined by El Mansy (2016), Gretter et al., and Situmeang (2016), encompass several fundamental principles. Firstly, they emphasize the interconnected nature of systems, asserting that changes to one part affect the entire system. Secondly, systems are perceived not as chaotic assemblies but as structured entities where components interact. Thirdly, the behavior of a system is determined by its structure, highlighting the importance of connections between components. Moreover, system behavior is deemed emergent, characterized

by non-linear relations and time delays, defying simple predictions based on individual elements. Feedback loops are crucial in shaping dynamic behavior, with numerous connections influencing inputs and outputs. Additionally, systems are nested within broader systems, with analysis levels reflecting the aims of the analysis. External environmental forces exert pressure on systems, further influencing their behavior. Furthermore, complex social systems exhibit counterintuitive behavior, necessitating analytical methods like systems thinking and system dynamics for effective problem-solving. Lastly, the habits of systems thinkers include considering both short and long-term consequences, recognizing circular cause-and-effect relationships, and acknowledging mutual dependencies within systems.

Components of system thinking Although system thinking research has a longstanding history, there is no agreement among system researchers on the starting point of this thinking. However, the following components represent the main elements of system thinking.

System boundaries and environment: System analysts must first establish clear boundaries between the system under scrutiny and its environment, a crucial step in system analysis (Checkland, 1981). This environment exists externally to both the problem system and the system designated for addressing it. These boundaries delineate the focus of analysis and provide insights into the relationships between the system and its environment. Decision-makers' control over system elements determines the boundary, encompassing elements over which authority can be exerted. Elements beyond this control form part of the system's environment. The environment, spanning all levels of system aggregation, significantly influences system function (Mella, 2012). The macro-environment, comprising various factors like social, economic, demographic, legal, political, technological, and natural aspects, is uncontrollable and profoundly impacts organizational decision-making and performance. Examples include competitors, interest rate changes, cultural shifts, adverse weather, and government regulations. Given these dynamic forces, organizations must continually adapt their strategies. Environmental scanning is crucial for monitoring and evaluating these influences, facilitating proactive adaptation within the organization. In system analysis, the environment serves dual roles: exporting inputs and importing outputs as shown in Figure 2.

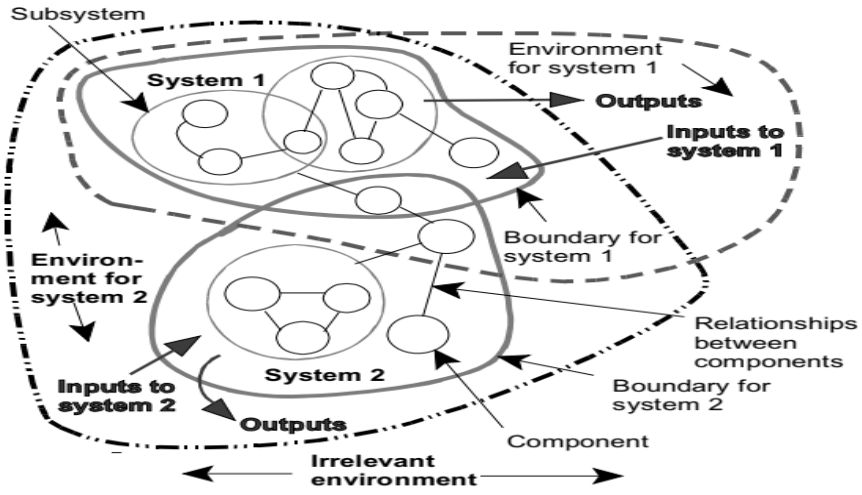

Figure 2: system environments and boundaries, as adapted from: Daellenbach & Donald, (2005)

Researchers often struggle with defining system boundaries and understanding the interactions among boundaries, subsystems, and the environment. The concept of boundary judgment justifies boundary choices based on their consequences and allows for reassessment as the system understanding evolves (Daellenbach & Donald, 2005). These choices significantly influence the scope and focus of analyses, determining controllable inputs and stakeholder considerations. Incorrect boundary selection can undermine system benefits by overlooking broader context drawbacks.

David Easton's classification differentiates between intra-societal and extra-societal forces within the environment, both influencing decision-making processes (Hanumanthappa, 2023). Delineating system boundaries from other systems is challenging, as the world operates as a continuum. The decision on boundary establishment depends on the discussion's specific purpose (Meadows, 2008). Methodological issues often arise from mismatches between managerial authority and established system boundaries.

System analysts integrate environmental analysis into system thinking by examining mutual effects between the environment and system phenomena. This involves assessing how various environmental factors, such as social, political, and economic influences, impact the system and vice versa (Rodriguez-Giron & Dominique, 2019). To evaluate internal and external system environments, analysts use tools like PESTEL and SWOT analysis (Barney & Hesterly, 2015). Terms like "Context-Dependency" highlight how the meaning and function of system parts depend on their context within the whole environment.

System elements and stakeholders: System elements, sometimes called inputs from the environment, encompass tangible and intangible components that constitute a system. These elements can be called parts, players, entities, components, units, and subsystems. For instance, in the tourism system, tangible elements include travelers, destinations, travel agencies, and hotels, while intangible elements such as destination image and branding are crucial for comprehensive analysis (Speakman & Díaz, 2016). Researchers should categorize system elements into primary elements, sub-elements, visible elements, and hidden elements.

In analyzing social systems, researchers should consider various types of elements, including humans, public and private organizations, NGOs, interest groups, political parties, and international organizations (Durán, 2023). Non-human entities such as infrastructures, cities, or nations also play significant roles. These entities, collectively known as system stakeholders, include individuals or organizations with a vested interest in or influence over the system's operations and outcomes. Stakeholders, such as users, customers, sponsors, managers, regulators, and suppliers, provide essential requirements, feedback, and resources for system functioning and development.

Stakeholder analysis begins by identifying individuals and entities that can affect or are affected by an organization's objectives, as defined by Freeman (1984). This broad definition underscores the significant influence stakeholders have on organizational outcomes, making stakeholder analysis vital for addressing systemic issues. Initially used in business management, stakeholder analysis has evolved to encompass various contexts. Mitchell et al. (1997) expanded this concept by developing a typology that prioritizes stakeholders based on power, legitimacy, and urgency. Fran Ackermann and Colin Eden (2011) further prioritized stakeholders according to power and

interest, suggesting researchers focus on stakeholders' attitudes to categorize relationships as supportive, mixed, non-supportive, or marginal.

In system thinking, Daellenbach and Donald (2005) present another classification of stakeholders during problem analysis. They categorize stakeholders into problem owners (decision-makers with control over the problem), problem users (those who use the solution and/or execute decisions), problem customers (beneficiaries or victims of the solution's consequences), and problem analysts or solvers (those who analyze the problem and develop solutions for approval by the problem owners).

In tourism system analysis, Roxas et al. (2018) advocate for a multi-stakeholder approach, emphasizing its necessity for efficient development and planning. The success of tourism within its system requires concerted efforts among relevant stakeholders, defined as "any groups or individuals who can affect or are affected by the achievement of an organization's objectives." Central to this approach is transforming bystanders or opponents of tourism development into active participants in the sector (Peric et al., 2014).

Interconnectedness: Interconnectedness is fundamental to systems thinking, necessitating a shift from linear to circular perspectives. This shift is based on the principle that all elements within a system are interconnected, particularly drawing from principles in the biological sciences (Acaroglu, 2017). Recognizing this interconnectedness involves exploring the complex web of relationships and dependencies among system components. The opposite of a system, therefore, is a conglomerate lacking specific interconnections or purpose. Networking theory can guide research in tourism systems, as most complex systems can be characterized as networks of interacting elements. These interactions often lead to emergent behaviors not directly observable at the level of individual elements (Baggio, 2008).

In systems research, "state variables" refer to system components with either numerical or categorical values. Understanding interconnectedness involves examining both correlation and causality, prompting researchers to ask: what depends on what, and what causes what? Defining the direction of linkage, whether positive or negative, is crucial in this context. For instance, a positive relationship is denoted by '+' (i.e., A increases, B increases), and a negative relationship by '-' (i.e., A increases, B decreases) (Roxas et al., 2018).

A key aspect of interconnectedness is the "Dependence on Initial Conditions," also known as the Butterfly Effect (Gleick, 1987). This principle highlights that minor changes can have disproportionately large impacts, a hallmark of complexity. Moreover, holism is another consideration for researchers of system thinking studying interconnectedness. Interactions among system elements can lead to outcomes that do not replicate previous patterns, what is called emergent properties (Erkoçak & Açıkalın, 2015). In tourism, for example, isolated negative events can be magnified by media coverage, resulting in widespread cancellations, and demonstrating the non-linear nature of the industry (Jørgensen, 2017).

Researchers in systems thinking focus on the regulations governing these relationships, often referred to as system governance (Cole et al., 2018). The term "system traffic" describes the interrelationships between various components, such as traffic flow on different streets, reflecting the regulatory and non-random nature of a system. "System governance" is often used interchangeably with "system traffic" to describe these interrelationships. Understanding these

principles allows system researchers to explore the intricate, interdependent relationships within systems, leading to more effective analysis and problem-solving approaches.

Conversion: Conversion refers to the activity, process, or function of transforming inputs into outputs. In some systems, this conversion process is clearly defined and straightforward for researchers to describe. However, in many cases, the process is vague and difficult to understand, akin to the function of computer wires, which are understood in general terms but whose internal workings remain obscure. This challenge gives rise to the concept of the "black box," signifying the difficulty or impossibility of comprehending the internal mechanisms of the conversion process. This concept is particularly evident in political systems, where researchers often lack insight into the inner workings of the governmental "black box." Instead of delving into exhaustive details, it may be sufficient to conceptualize the inner workings of a system as a black box, thereby encapsulating its operations. In this approach, the various activities of the transformation process can be simplified and represented by a single functional relationship (Daellenbach & Donald, 2005).

Feedback loops: Systems are held together by the flow of information, which significantly influences their operation. Feedback is the information received about a reaction to an output, allowing for the modification of the output. Since feedback involves a series of actions and reactions, a feedback loop is a closed chain of causal connections from an output, through decisions, rules, physical laws, or actions dependent on the output level, and back again to alter the output. (Ahmadi et al., 2023)

Feedback loops are processes where a change in the system triggers a response that either amplifies or mitigates the change. There are two types of feedback loops: positive reinforcing loops and negative balancing loops. A reinforcing loop encourages the system to continue in the same direction, leading to either growth or harmful escalation. Conversely, balancing feedback loops are goal-seeking structures that stabilize the system and resist change.(Meadows, 2008)

In a nutshell, positive feedback loops intensify changes, while negative feedback loops restore balance and maintain stability within the system. Feedback loops are essential in regulating system behavior, stability, and dynamics, shaping the system's overall behavior and responses to internal and external influences. Like interconnectedness, the directions of feedback loops need to be identified. A reinforcing loop indicates that a change in one direction is amplified by further changes in the same direction, while a balancing loop shows that a change in the opposite direction can offset an initial change (Roxas et al., 2018).

Purpose: purpose is the goal of any system. Some researchers use functions instead of purpose when describing system goals. The reason for this mix is the importance of deducing the system goal from the way by which it behaves. In other words, purposes are inferred from behavior, not from rhetoric or stated goals.(Meadows, 2008). A system's purpose is often implicitly defined by its operation rather than being explicitly stated. While there may be overarching goals or objectives that guide the design and implementation of a system, these goals are typically manifested through the way the system functions and the outputs it produces. By focusing on delivering value to its users and aligning with stakeholder expectations, a system can effectively fulfill its purpose even without explicit articulation. Moreover, Systems can be nested within one another, creating a hierarchy where there are purposes within purposes(Burge, 2015) as shown diagrammatically in Figure 3.

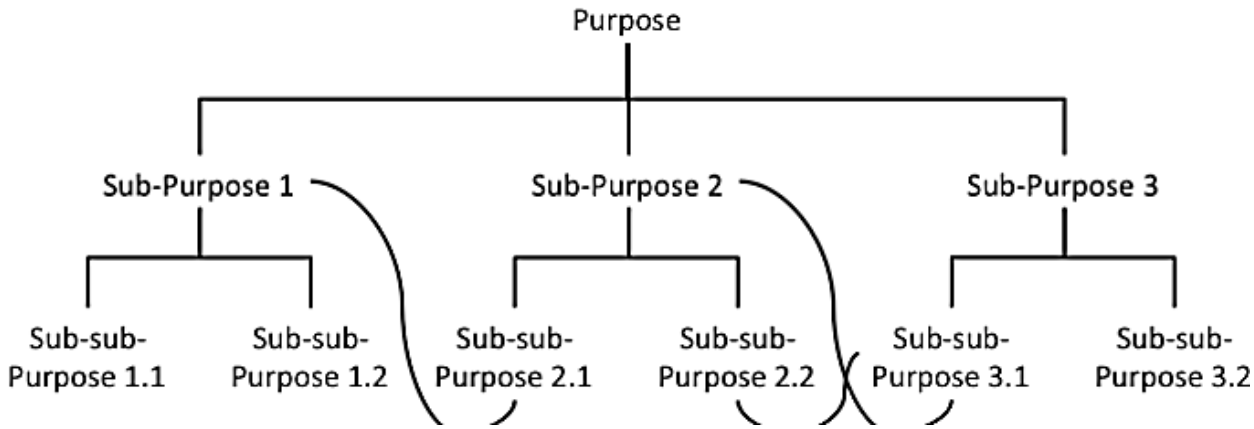

Figure 3: Hierarchy of purposes, as adapted from: Meadows, (2008)

Additionally, system purposes differ according to system type, sector, system level, etc. For instance, the overreaching purpose of business organizations within Industry 4.0 is to enhance cost- and time efficiency while also elevating product quality. Achieving this necessitates a comprehensive grasp of the enabling technologies, methodologies, and tools involved.(Albers et al., 2016). However, the declared goal of a system is to produce outputs that provide value to its users and are in line with their expectations. Achieving this objective requires a deep understanding of user needs, a commitment to delivering quality and reliable outputs, and a willingness to adapt and improve over time in response to user feedback.

Outputs: sometimes is called outputs to the environment. Since system behavior consists of a transformation process, i.e. inputs from the environment are transformed into outputs, outputs may produce new inputs, which lead to further outputs, and so on in a never-ending flow. Parsons et al.(2013) define outputs as the tangible and intangible products that result from project activities. Outputs refer to the elements that the system "releases" or provides to the environment. These can include goods and services, information, funds, and waste products. Additionally, outputs encompass measures of performance or other indicators of the system's behavior. (Daellenbach & Donald , 2005).

Consequences of output: A side effect of system output: externalities: When analyzing outputs, researchers focus on their effects and impact on both targeted beneficiaries and non-targeted parties, these effects are called consequences. Researchers need to distinguish between consequences, side effects, and externalities. Consequences encompass both positive and negative external effects of an output, whether they are intended or unintended. The outcome refers to the intended positive consequences of output. (World Bank, 2021)Side effects are unintended consequences that can be positive, neutral, or negative (adverse events) but still relate to the intended stakeholders or beneficiaries. Essentially, a side effect is a secondary unintended effect on intended beneficiaries, which can be short-term or long-term. Externalities occur when consequences affect unintended third parties or non-beneficiaries. In other words, externalities are those benefits or costs that are transferred to third parties. (Greenlaw, 2018) Externalities take the form of positive or negative externalities. and these externalities can also be positive (benefits) or negative (costs or burdens). Positive externalities are benefits of an output transferred to other parties not intended to receive, negative externalities are costs beard by other parties not intended

to bear. In other words. externalities can either reduce the benefits enjoyed by others (negative externalities) or improve the well-being of others (positive externalities). Negative externalities, such as pollution or noise, impose costs on third parties, while positive externalities, such as education or vaccinations, confer benefits to third parties.(Gołębiewska, 2018). Table 2 summarizes the difference between these concepts.

Table 2: Consequences, side effects, and externalities

Output Consequences					
Beneficiaries (targeted)				**Third parties**	
Intended		Untended			
Positive	Negative	Positive	Negative	Positive	Negative
Outcome		**Side effect**	**Side effect**	**externalities**	**externalities**

The proposed approach:

The proposed approach is presented for tourism researchers as a framework that is composed of ten steps as follows:

1- **Identifying the level of analysis**: To effectively utilize systems thinking as a research approach, tourism researchers must first determine the level of analysis, whether international, regional, national, sectoral, or company-level, and then decide on the type of system to employ, whether closed/specific or open/general system (Durán, 2023), as well as the unit of analysis they are focusing on. There are three levels of analysis (Kwon, et al., 2016): 1. Individual Level (Micro): Focuses on individual actors, such as tourists or residents, 2. Aggregate Level (Meso): Examines groups or organizations, such as travel agencies, tourism associations, or local communities, and 3. Social Level (Macro): Looks at broader societal or national contexts, including government policies, national tourism trends, and international influences. These levels can also be referred to as individual, group, and national levels, or micro, meso, and macro levels, respectively. Understanding and choosing the appropriate level of analysis is crucial for accurately framing research questions and interpreting findings within the tourism system.

2- **Setting the desired output**: The new approach to the system model, unlike other models, deals with output which represents the ultimate objective for tourism system researchers to attain in the form of policy, law, action plan, product, service, performance, etc. In this step, the tourism system researcher establishes the desired outcomes or objectives for the system. This involves defining specific targets or goals that the system aims to achieve, such as improving performance metrics, maximizing profitability, enhancing tourism competitiveness, and so on. In essence, the outputs represent the recommended actions or strategies proposed by the researcher to address and resolve the identified problems within the system.(Daellenbach & Donald , 2005). These outputs serve as the guiding principles for decision-making and implementation processes aimed at achieving the desired outcomes and improving the overall functioning of the tourism system. The system's purpose must guide the determination of the desired output, considering both its stated objectives and actual behavior. This ensures that setting desired outputs is more realistic.

3- **A problem-content system analysis:** after agreeing on level of analysis, the initial phase of systems thinking is problem analysis(Kolomoyets, 2007). The particularity of system problems

as well as the interactive and context-oriented nature of system problems, scholars present another name for problem analysis to a problem-content system by which problem-solving is a net of different but connected activities and accordingly is not limited to one solution since it defines what problems boundaries and limits are, what is inside and what is excluded and what relationships between problems as well as what are causes problems and problems effects(Checkland, 1981). Perceiving system problems differs from tackling traditional problems since system problem situations are complex and system problem analysis requires looking beyond the problem itself to deeply understand what is going on below the surface. researchers certainly may never attain complete knowledge, but the effort dedicated to the exploration phase to gain insights will prove beneficial when they start crafting interventions rooted in uncovering the less apparent aspects of the system. To change a problem's status quo, problem solvers and researchers need to understand its systemic dynamics. Rushing solutions for quick success can lead to issues resurfacing unexpectedly, possibly in new forms or places.(Acaroglu, 2017). This requires rethinking problem analysis to go beyond problem identification to problem composition. Once the specific problem is identified, the subsequent stage in problem analysis involves breaking down the problem into smaller, distinct components and refining the unique characteristics of each one further considering other system elements and environmental impact(Sidky et al., Nd).

Tools: Numerous tools are employed to tackle the complexity of systemic problems, with one notable tool being the Iceberg model. This model posits that only 20 percent of the total mass is visible above the waterline, while the remaining 80 percent lies beneath the surface. It encourages researchers to delve deeply into both the apparent surface causes and the underlying roots of the problem. (Egbude, 2022). The iceberg model offers four levels of understanding that help reveal the systemic factors and underlying worldviews that contribute to events as illustrated in Figure 4.

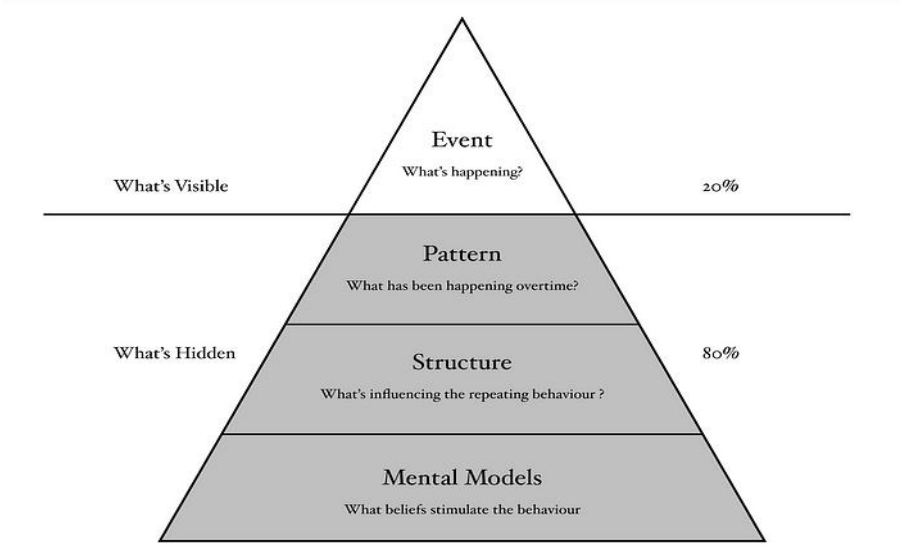

Figure 4: The Iceberg Model , as adapted from: Meadows, (2008)

The Iceberg model includes four levels: 1. Events: These are the visible outcomes or manifestations of a problem or situation,.2. Patterns: These are recurring trends or behaviors that

are observed over time, 3. Structures: These are the underlying systems, processes, or frameworks that shape patterns and events, and 4. Mental Models: These are the deeply ingrained beliefs, assumptions, and perspectives that influence how individuals and organizations perceive and interact with the world. Understanding these four levels helps in identifying the root causes and systemic factors driving events and patterns.

Additionally, the interconnected nature of system complexity forces researchers to focus, while analyzing problems, on the importance of demarcation between root causes and effects using analytical tools such as Root Cause Analysis(RCA), Preliminary System Study, and Cause Effect Analysis(CEA). Although cause-and-effect thinking is part of traditional thinking, this does not imply discarding reductionist and cause-and-effect thinking in favor of systems thinking.

One of the primary distinguishing aspects of Root Cause Analysis (RCA) involves the ability to differentiate between the root cause and other contributing factors through **event correlation** techniques.(Ito et al., 2022). Cause-effect analysis, also known as causal analysis or causal reasoning, is a methodical approach used to examine the relationship between actions, events, or variables and their corresponding outcomes or effects. This analytical technique aims to identify and understand the underlying causes behind specific outcomes or problems. This technique is known as the Fishbone diagram or Ishikawa diagram, where the problem is depicted as the "head" of a fish, and causes are categorized from broader to more specific levels.

Moreover, researchers while analyzing system problems must be aware of the problem spectrum i.e. different problem types and their characteristics; the problem spectrum stretches from well-defined problems, which are termed "hard," to ill-structured problems which are termed "soft."

Ultimately, Timing is paramount in problem-content system analysis, as different outputs such as events, situations, problems, policies, and performances may interconnect at specific junctures. This interrelationship may not persist in past or future moments. Put differently, intervention alternatives effective for a system problem at one time may not be suitable for another timeframe (Lu et al., 2010).

furthermore, tourism researchers can use several diagrammatic aids provided by system researchers to help in capturing systems' components such as. Mind maps, rich picture diagrams, and cognitive maps. While mind maps and rich pictures effectively illustrate both an individual's perspective and a group's collective understanding of a problem, a cognitive map solely reflects the subjective perception of an individual. These diagrammatic aids are also used in other steps, especially interconnectedness and conversion.

4. Identifying system boundaries and environment: Identifying the elements of the system helps in defining the boundaries of the system. The choice of system boundaries is a critical aspect of system definition. It determines whether each aspect or element is considered a component of the system or part of its environment. Boundary selection will largely fix the scope, direction, and focus of all subsequent analyses. (Daellenbach & Donald , 2005). Choosing incorrect boundaries can lead to addressing the wrong problem, creating challenges in implementing solutions, and potentially diminishing the benefits that could have been achieved. Framing the research problem within specific boundaries requires an analysis of the environment. and the mutual effect between the environment and system elements.

5. **Elements Identification**: In this step, tourism researchers focus on identifying the various components or inputs within the system that contribute to the desired outputs. This involves

analyzing the elements that underlie the system problem as well as those responsible for achieving the desired outcomes.

Tools: Tourism researchers employ various tools and methodologies such as stakeholder analysis to facilitate this process. Stakeholder analysis helps identify key individuals or groups with vested interests in the tourism system. Although tourism is a human activity, in tourism, the primary interacting elements of the system include various human actors such as visitors, residents, firms, governments, associations, nongovernmental organizations, and academia. However, Actor-Network Theory (ANT) extends this view to include nonhuman elements—such as objects, machines, and technologies—as actors. These nonhuman actors are crucial because they facilitate and enhance the tourism experience (Van der Duim et al., 2013). While it can be argued that nonhuman elements gain significance through human interaction, it is also true that complex natural or artificial entities, like ecosystems (e.g., a national park) and crowd-sourced information platforms (e.g., TripAdvisor), exhibit behaviors that influence the tourism experience. Therefore, considering nonhuman objects as actors within the tourism system acknowledges their active role in shaping the tourism landscape. Furthermore, we research expand the system to include elements not traditionally considered part of the tourism sector, but which play a significant and undeniable role within this framework.

6. **Interconnectedness analysis**: In the context of interconnectedness, the tourism experience doesn't simply emerge from individual actors or components in isolation. Instead, it arises from a complex web of interactions involving visitor participation, facilitated by interconnected relationships among both human and nonhuman elements (Jørgensen, 2017). Therefore, it's the relationships themselves, rather than the isolated elements, that give rise to the tourism phenomenon (Van der Duim & Caalders, 2008). This perspective underscores that the tourism experience transcends mere services and locations; it's a result of dynamic and interconnected interactions within the tourism system.

Additionally, researchers should focus on emergent properties, where new relationships or properties may emerge through interactions between various parts or aspects of a situation. It's crucial to identify and understand these emergent properties as they can significantly influence the overall behavior of the system. Furthermore, the type of relationships among the system's elements is important to identify. Utilizing diagrams can be particularly helpful in visualizing and categorizing these relationships, enabling researchers to gain deeper insights into the dynamics of the system. (Postma &Ian, 2021)

Tools: To explore this interconnectedness, researchers typically begin by identifying system traffic or system governance—the rules governing the system's dynamics to guide tourism system researchers to understand the nature of relationships between system elements. They may then utilize tools like Causal Loop Diagrams and consider externalities to understand the complex interplay of factors. Network theory is also instrumental in comprehending the relationships and interactions among the various elements within the system. Through this process of identifying and analyzing relevant elements, researchers gain valuable insights into the underlying dynamics of the system, enabling them to develop targeted strategies for achieving the desired outputs.

7. **Conversion**: since performing a function means taking a resource, processing it in a set of stages, and delivering an output (Dekkers, 2015) tourism researchers at this stage should follow a functionalist approach by which a focus on resources, budgeting, timing, and capabilities. The

tourism outputs arise from the aggregation of various entities, including visitors, facilitators, and nonhuman actors like ecosystems or technological platforms. The behaviors of these actors, which constitute the elements of the tourism system, shape the ultimate tourist experience. These actors possess resources such as time, budget, logistics, information, and energy, which influence their interactions within the tourism system. Through their interactions, at different moments and locations, resources are transformed into tourism experiences (Chen, et al, 2013).

Tools: Various tools aid in analyzing conversion processes, including Flowcharts for illustrating the flow of inputs, processes, and outputs within a system, Process Maps for visually representing the steps involved in conversion, and Value Stream Mapping, which analyzes the flow of materials and information throughout a system.(Chavez et al., 2018)

8. Evaluating output consequences: after attaining the desired output or a limited desired output, researchers analyze the output consequences. At this step, tourism research determines who will benefit from the outputs and who will suffer undesirable consequences, as well as externalities to third parties. Additionally, this research must define the probability of the desired output to be an input for the same system or other systems. In other words, output consequences, side effects, and externalities would have been identified. This step is the starting point for tourism researchers to design an action plan for the whole or related system elements such as tourism interest groups, tourism public agencies, or tourism investors.

Tools: Tools: Cost-benefit analysis, Impact Assessment, Scenario Analysis, and Feedback Loops are valuable for researchers in this context.

9. Assessing Feedback loops: since feedback is the information gained about a reaction to output and its consequences, researchers, before designing the intervention, pay attention to the reactions of stakeholders to the output and its consequences to recommend how to reinforce positive feedback and how to avoid or balance negative feedback(Hattie, & Timperley 2007). according to Eston's system analysis, feedback represents inputs to the system, that researcher can use in their intervention and recommendations.

Tools: Surveys and Questionnaires, Interviews, Feedback Forms, and Stakeholder Analysis can be used to support the assessment of feedback loops.

note both steps evaluating output consequences and assessing Feedback lie under evaluation and assessment analysis.

10. Recommending the best intervention: To successfully intervene in a system, it is essential to acquire a thorough and detailed understanding of the problem situation.

One recurring theme in this text is the critical importance of considering the appropriate boundaries for the system and its relevant environment when designing interventions, as well as acknowledging their reality when addressing the targeted stakeholders. The effectiveness and legitimacy of any system intervention hinge on these considerations. Most important is the identification of areas of system change which are called leverage points. They are specific areas within a system where interventions or changes can significantly and lastingly impact the system's behavior or outcomes. In Systems Thinking, identifying leverage points is crucial as it allows for pinpointing strategic areas where small adjustments can lead to substantial shifts in the system's behavior over time(Bolton, 2022). Leverage points can vary and include aspects such as feedback loops, system structure, information flows, decision-making processes, and the underlying mindsets or paradigms: 1. Feedback Loops: Understanding and adjusting reinforcing or balancing feedback loops can create significant changes in system behavior. Reinforcing loops amplify

changes, leading to exponential growth or decline, while balancing loops help maintain stability.2. System Structure: Modifying the underlying structure of a system, such as its organizational hierarchy, rules, policies, or relationships between elements, can have far-reaching effects on system behavior.3. Information Flows: Improving the flow and quality of information within a system can enhance decision-making processes and facilitate more effective interventions.4. Decision-making Processes: Identifying and improving decision-making processes, including how decisions are made, who is involved, and what factors are considered, can lead to more informed and impactful interventions.5. Mindset or Paradigm Shifts: Challenging and shifting underlying beliefs, assumptions, or paradigms that shape how individuals perceive and interact with the system can fundamentally transform its behavior. (Meadows 2008; Riechers, et al., 2021). By identifying leverage points and strategically targeting interventions at these points, systems thinking enables us to exert maximum influence and bring about meaningful and sustainable changes in the complex tourism system. Figure 5 illustrates this proposed approach.

As depicted in Figure 5, arrows illustrate the systemic nature of the new approach. Identifying the level of analysis, conducting a problem-content system analysis, and achieving the desired system output are interconnected, as indicated by the bidirectional arrows. This suggests that researchers can initiate one, both, or all three steps simultaneously. The problem-content system analysis defines system boundaries and environment, with elements identification, interconnectedness analysis, and conversion contributing to answering system problem and helping in reaching the desired output. Evaluating output consequences and assessing feedback loops assist in formulating recommendations for the most effective intervention, ultimately contributing to the achievement of the desired system output, referred to as the system outcome.

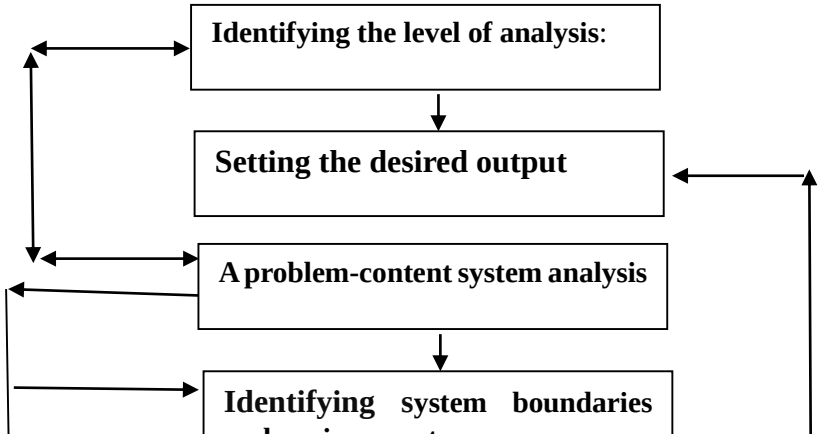

Figure 5: the new approach, as developed by the researcher

Considerations: Researchers are not limited to starting with a specific step among the first three steps. They have the flexibility to begin with any one of the steps—identifying the level of analysis, conducting problem-content system analysis, or aiming for the desired system output—or they can engage in two or all three steps simultaneously. This adaptability allows researchers to tailor their approach based on the specific needs and context of their study.

Moreover, while the tools mentioned in this approach, such as elements identification, interconnectedness analysis, and conversion, are suggested as initial methods, they are not exhaustive. These tools serve as a starting point or pilot, but researchers have the liberty to adopt a wide range of other methodologies and techniques that may be more suitable or innovative for their research objectives. The approach encourages the use of diverse and potentially more effective tools to enrich the analysis, enhance the understanding of the system, and improve the overall research outcomes. This openness to multiple methodologies ensures that the research is comprehensive, adaptable, and robust, ultimately leading to more effective and impactful interventions in the tourism system.

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تصميم اقتراب للفكر السياحي النظامي لأغراض البحث السياحي

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ملخص

في التعامل مع الديناميات المعقدة للظواهر الاجتماعية والبيئية والاقتصادية المعاصرة ومن بينها السياحة، أثبتت الأساليب التقليدية القائمة على التحليل الخطي التفكيكي عدم كفايتها، لا سيما في قطاع السياحة. يتناول هذا البحث حدود الطرق التحليلية التقليدية ويقترح نهج التفكير النظامي كبديل أكثر فعالية. من خلال الاستفادة من رؤى مختلف الباحثين، يستعرض هذا البحث المبادئ الأساسية التي يقوم عليها التحليل التفكيكي ويقارنها مع المنظور الشمولي الذي يقدمه التفكير النظامي. يبرز البحث ضعف نظم السياحة أمام التأثيرات المتنوعة وقصور النماذج التفكيكية في معالجة التعقيدات داخل هذه الصناعة. من خلال مراجعة شاملة للأدبيات، تؤكد الدراسة على الحاجة إلى تغيير النموذج نحو التفكير النظامي لمواجهة التحديات المتعددة الأوجه التي تواجه قطاع السياحة. استنادا الى مراجعة للأدبيات بهدف فهم النظريات والأطر الحالية، وتحديد الثغرات والفرص، ودمج أفضل الممارسات يقدم البحث اقتراب مختلف لدراسة تحديات ومشكلات السياحة باستخدام منهجيات وأدوات التفكير النظامي. يتضمن الاقتراب المقترح عشر خطوات مترابطة، بما في ذلك تحديد مستوى التحليل، تحديد المخرجات المرجوة، تحليل محتوى المشكلة من منظور سياق النظام، تحديد حدود النظام والبيئة، تحديد عناصر النظام، رصد العلاقات والارتباطات، التحويل، تقييم نتائج وتداعيات المخرجات، وتقييم حلقات التغذية الراجعة وأخيرا التوصية بالتدخل المطلوب لتحقيق المخرج المطلوب والذي يمثل الهدف من دراسة النظام السياحي. تدعم كل خطوة أدوات ومنهجيات ذات صلة تهدف إلى تعزيز فهم أعمق لأنظمة السياحة وتسهيل التدخلات الفعالة. يوصي البحث بأهمية مرونة وتكيف تطبيق هذا الاقتراب المقترح، مشجعًا الباحثين على استكشاف مجموعة متنوعة من المنهجيات الاخرى لتعزيز التحليل وتحسين نتائج الأبحاث. في النهاية، يدعو البحث إلى تبني نهج نظامي لأبحاث السياحة، يستند إلى مبادئ التفكير النظامي، لمواجهة التحديات والفرص المعقدة داخل صناعة السياحة.