
The Role of Leaders in Fractal Structures of Enterprises: A Case Study of Chris Tourism and Recreation

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Abstract:

Purpose: The purpose of the article is to define the role of leaders in the fractal structure of the enterprise Chris Tourism and Recreation and to provide practical guidelines for improving leadership in such structures. The article focuses on examining how a leader influences the functioning and development of individual fractals within the organization.

Design/Methodology/Approach: The research methodology was multi-stage. The process began with an analysis of the subject literature and the application of a documentary method. In the second stage, a case study method was adopted using the example of the enterprise "Chris Tourism and Recreation," employing two data collection techniques: participant observation, which allowed for assessing the functioning of fractals within the organization, and interviews, which provided information about the role of leaders in coordinating and integrating activities. The collected data were subjected to inductive, deductive, and synthetic analysis, and the results were presented through descriptions, graphics, and tabular summaries.

Findings: The conclusions from the research indicate several key elements. First, leadership and interpersonal skills are essential for not only managing tasks but also building an atmosphere of trust and cooperation. Second, flexibility in the fractal structure allows for easy adaptation of offerings to changing market needs, enabling quicker responses to customer expectations. Third, effective motivation of staff and ensuring participant satisfaction leads to greater customer loyalty. Finally, a challenge in managing fractals is the need for quick responses to changes, such as changing weather conditions, which requires leaders to be flexible and capable of making decisions in dynamic situations.

Practical implications: The article provides practical guidelines that can help enterprises improve management effectiveness. Understanding the fractal structure enables optimization of management, flexible decision-making, and task delegation, which translates into greater team efficiency. Tourism enterprises can use these guidelines to respond more quickly to changing customer needs and industry challenges, thereby improving service quality.

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Originality/value: *This research brings a new perspective to analysing the role of leaders in flexible and dynamic organizational structures where individual autonomy is key. Focusing on the practical application of this structure in the context of tourism camps provides unique insights that may be helpful for other organizations considering implementing fractal structures.*

Keywords: *Leader, fractal structure, tourism enterprise, Chris Tourism and recreation.*

JEL codes: *M12, L22, L83, O32.*

Paper type: *Research article.*

1. Introduction

Currently, in a dynamically changing environment, organizations face the challenge of quickly adapting to unpredictable market and technological conditions. In response to these challenges, the concept of a fractal organization is gaining increasing popularity, offering a flexible and adaptive management structure (Voss, Krumwiede, and Lucas, 2017, p. 122-135).

Based on mathematical and geometric principles, the fractal structure has found applications in various fields of science and everyday life, as well as in the analysis of organizational structures of enterprises, including in the tourism industry (Dooley, de Ven, 2022, p. 132-145).

The fractal structure of a tourism enterprise, analysed at the macro level, reflects the diverse areas of its activities, such as accommodation services, transportation, tour organization, gastronomy, and entertainment. Each of these segments is responsible for a specific part of the offer, and their organizational structure and management principles show similarities, which facilitates the coordination and integration of activities within the company (Zimmermann, Schmidt, and Becker, 2015, p. 462-469).

At the micro level, the fractality of the structure is revealed within individual segments, such as hotel departments, including reception, room service, and gastronomy management (Chrisidu-Budnik, Korczak, Pakuła, and Supernat, 2005). Each of these departments operates on principles similar to those of the entire enterprise, which supports flexibility and autonomy in decision-making at lower levels while maintaining consistency with the overall strategy of the enterprise (Wieczorek-Szymańska, 2015).

Every organization needs effective leaders. They serve people. The best leaders put other people at the center. They make efforts to help others and strive for the success

of the organization. Thanks to this, they become successful themselves (Blanchard and Miller, 2013, p. 28).

Contemporary tourism enterprises need leaders who not only carry out current tasks but also effectively manage change, support the development of their teams, and can inspire action in the face of challenges (Adamopoulos and Thalassinou 2020). In the dynamic tourism environment, where market demands can change from day to day, leaders must demonstrate flexibility and openness to change (Kopacka, 2015).

According to R.W. Griffin, leaders are people who are able to influence the behavior of other people in organizations. They do not have to use force. People accept leader's decisions. People acting as leaders have power, which is understood as the ability to influence the behavior of other people and social groups (Griffin, 2022, p. 453-455).

Therefore, leaders' competencies should encompass both specialized and interpersonal skills, as well as innovative abilities. This combination allows the enterprise to adapt to changing market realities, supporting the effective management of the company's fractal structure (Kopertyńska, 2015). In such a structure, each part, from the main segments to the internal departments, operates according to principles consistent with the entire organization, enabling rapid adaptation at the enterprise level (Sobczak-Cardoso, 2022).

A special role in a modern organization is played by the so-called silent leaders. A quiet leader can bring out the potential in employees. It improves the quality of their thinking. Leader doesn't tell anyone what to do. People themselves know how to perform given tasks (Rock, 2019, p. 13).

The aim of the article is to define the role of leaders in the fractal structure of Chris Tourism and Recreation and to provide practical tips for improving leadership in such structures. The article focuses on examining how a leader influences the functioning and development of individual fractals within the organization. The specific objectives are:

1. Understanding how the fractal structure affects leadership dynamics and team relationships.
2. Presenting ways in which a leader supports the autonomy and collaboration of individual fractal units.
3. Identifying the benefits and challenges associated with the role of a leader in a fractal structure, especially in the tourism industry.
4. Developing conclusions about effective leadership in fractal structures that may be useful for other organizations considering implementing such a structure.

The further part of the article has the following structure. The second section presents the research methodology. The third section discusses the application of

fractal structures, highlighting their advantages and specific features that make them effective in the tourism industry. The fourth section showcases the management of fractals within Chris Tourism and Recreation. It illustrates how leaders influence the functioning and development of individual "fractals" and what innovations are introduced in response to changing market conditions. The fifth section formulates conclusions, including limitations and implications regarding future research directions.

2. Research Materials and Methods

In this article, a multi-stage research methodology was employed. The research process began with a literature review and the application of a documentary method aimed at gathering, selecting, analysing, and synthesizing source materials. For this purpose, databases such as Elsevier, ProQuest, Springer, Google Scholar, and EBSCO were utilized. The preliminary selection included over 80 scientific articles, which were then subjected to detailed evaluation based on selected keywords, abstracts, and titles, allowing for the selection of literature closely related to the article's topic.

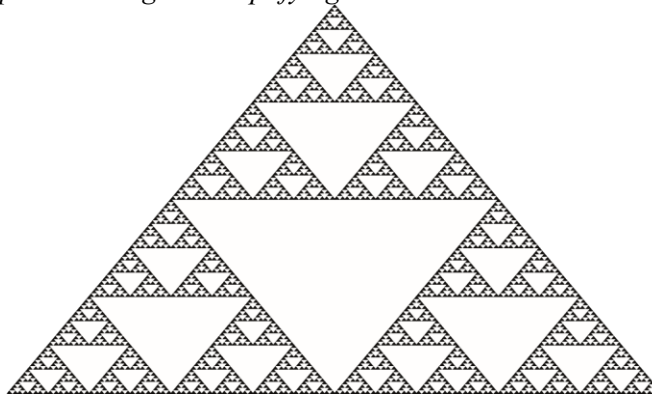
In the second stage, a case study of the company "Chris Tourism and Recreation" was adopted as the main research method. Within this approach, two data collection techniques were used: participant observation and interviews. Participant observation enabled a direct assessment of the functioning of individual fractals within the organization, while interviews gathered information about the role of leaders and their influence on ensuring coordination and integration of activities as well as fostering adaptability and innovation.

In analysing the collected data, induction and deduction methods were applied along with synthesis, which facilitated drawing conclusions based on observations and information gathered during interviews. The research results were presented using descriptive methods, graphical representations, and tabular compilations. Through these methods, practical recommendations for improving leadership in the tourism industry were formulated.

3. Fractal Structure: Characteristics and Applications in a Tourism Enterprise

A fractal organization is a type of organization defined based on fractals. The term "fractal" is derived from the Latin word "fractus," meaning broken, fragmented (Korpany, 2001, p. 289). This means that it resembles a geometric figure, either flat or three-dimensional, characterized by the property of self-similarity. When viewed at an enlarged scale, small fragments of the fractal appear identical to the entire figure with its complex structure (Figure 1).

Figure 1. *Sierpiński Triangle Exemplifying a Fractal*



Source: *L. Siemieniuk, A., Gardocki, N., & Siemieniuk, M. Fraktalne właściwości akademickich inkubatorów przedsiębiorczości (AIP). Miscellanea, 2019, 3, p. 96.*

Fractals are used in management theory to describe modern, dynamically changing organizations. The concept of a fractal organization was first characterized by H-J. Warnecke. He understood a fractal as “a self-operating unit of a company, where goals and performance can be clearly defined” (Warnecke, 1999, p. 109). The application of fractals in management concepts is an attempt to simplify organizational complexity, which allows for a new holistic perspective on the organization (Perechuda, 2000, p. 26).

Fractal structure is a concept of organization in which similar patterns of behaviour are repeated at different levels, creating a complex yet coherent structure. As a result, each organizational unit operates according to the same principles and procedures, fostering greater integration and coordination of internal activities (Binsztok, 2005, p. 150).

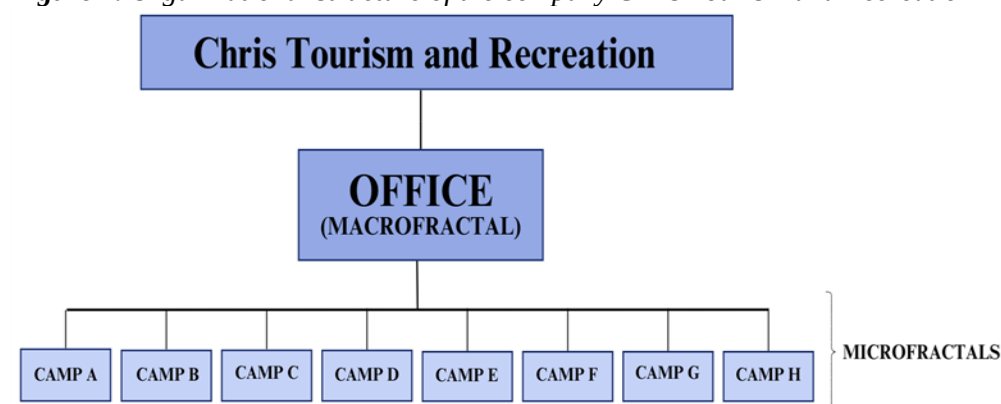
The introduction of fractal principles in the tourism industry is crucial due to its exceptionally dynamic and variable nature, which demands flexibility and the ability to quickly adapt to changes in the environment. The fractal structure, characterized by a network of autonomous, interconnected units with shared values and goals, enables more agile and independent management of various business segments, such as accommodation services, transportation, travel agencies, and gastronomy. Each of these segments can operate as a self-sufficient, well-organized part of a larger whole, facilitating the management of diverse tasks and a faster adaptation to changes (Chrisidu-Budnik, Korczak, Pakuła, and Supernat, 2005).

Thanks to the fractal structure, it is also possible to achieve better resource utilization and greater flexibility in responding to sudden market changes, such as seasonality or tourism crises (e.g., the COVID-19 pandemic), which alter demand and customer preferences (Bloch and Gopalakrishnan, 2023, p. 45-58). This

structure also enables more efficient management of conflicts of interest between different departments. Moreover, the fractal model promotes a customer-oriented approach, as fractal units can better respond to the specific needs of various customer groups by offering more personalized products and services (Yoo, Suh, and Park, 2002, p. 439-453).

In the context of the company Chris Tourism and Recreation, the fractal structure is evident at every stage of operations, both at the macro-fractal level (the main headquarters) and at the micro-fractals level (at individual camps). The organizational structure of the company is illustrated in Figure 2

Figure 2. Organizational structure of the company Chris Tourism and Recreation



Source: Own elaboration based on documents from ChTiR

The macro-fractal is the main office of the company, which plays a key role in managing all eight camps⁵. The main tasks of the office include not only communication with clients and coordinating reservations but also managing the company's image, handling accounting, organizing recruitment and training, and monitoring the quality of services provided.

The micro-fractals are the individual camps, which maintain the same organizational patterns as the main office. Each camp is a self-sufficient unit tasked with achieving set goals and procedures, including providing appropriate care for children, organizing activities, and maintaining communication with parents.

⁵“Camp” in the tourism industry refers to an organised camp, which may be thematic, educational or recreational. It is a form of rest, in which participants engage in various activities and activities under an organiser’s supervision. Camps may be addressed to children, teenagers or adults with the aim of developing defined skills.

As fractals, the camps exhibit a range of properties that confirm their fractal structure. Their characteristics as micro-fractals are presented in Table 1.

Table 1. *Characteristics of the camp as a fractal*

Self-similarity	The structure of the camp exhibits characteristics of self-similarity both at the level of the entire camp and within individual groups or sections, with a repetition of structures and procedures. Similarities can be observed in several aspects: 1.Hierarchy: The organizational structure of the camp is arranged hierarchically, both at the level of the entire camp and within individual groups. Each group has roles for leaders, individuals responsible for specific tasks, and group members. 2.Diversity of Activities: At various organizational levels within the camp, there is a diversity of activities; however, their goals and methods of implementation are consistent, creating a cohesive structure. 3.Grouping of Children: The division of camp participants into groups is consistent, and each group operates according to similar rules and procedures.
Self-organizational abilities	Camps have the ability to self-organize, which is reflected in the flexibility of daily activities and the capacity to adapt to changing conditions. Camp leaders and participants are able to adjust to various situations, make decisions on the fly, and organize activities based on available resources. An example of this is the flexible adjustment of the program according to the number of children, weather conditions, or the availability of instructors. In the event of adverse weather, the camp director can change the schedule of activities by moving them indoors or modifying their nature. Furthermore, the organization of activities at the camp allows for effective utilization of available resources, such as equipment or space, enabling campers to continue their activities despite changing circumstances. This flexibility and ability to adapt actions allow the camp to function effectively, even in dynamically changing conditions.
Dynamics and vitality	Camps are characterized by a dynamic environment, which means they can quickly respond to changing conditions and needs. The camp program, schedule of activities, and organization of classes can be adjusted in real-time, allowing for effective use of time and resources. The ability to self-organize ensures that camps operate smoothly and without unnecessary disruptions, which is crucial for maintaining high-quality services. Thanks to this flexibility, camps can adapt to changing circumstances, ensuring their effective operation and participant satisfaction.
Self-optimization	Camps, being microfractals, have the ability to create an optimal holistic organizational structure. Through cooperation among various units and effective resource management, they can adapt their actions to meet the needs of participants. They minimize resource redundancy and optimize efficiency, allowing for effective functioning. The efficient coordination of activities at the headquarter level and among

	individual camps ensures that the entire process runs smoothly and according to expectations, without unnecessary complications.
Navigation	Camps have the ability to navigate, which means continuously checking, modelling, and adjusting actions to achieve intended goals. Each camp, while being part of a larger organization, maintains autonomy but also has mechanisms in place to prevent the emergence of undesirable internal competition. Camp managers regularly monitor progress, analyse results, and, if necessary, adjust actions to ensure that the organization's goals are met as planned.

Source: Own elaboration.

The application of a fractal structure in Chris Tourism and Recreation enables effective management at both the central and local levels. This organizational model is crucial for ensuring high-quality services and customer satisfaction, as it allows for easy adaptation to changing market conditions and customer expectations (Black, Hinrichs, and Fabian, 2022). Each camp operates on similar principles, which makes implementing changes in the organization quick and efficient. Thanks to the fractal structure, the enterprise becomes more dynamic, flexible, and better prepared for various challenges.

4. Managing Fractals in the Company Chris Tourism and Recreation

In the context of a fractal structure, leaders play a crucial role. A leader is someone who manages a team, motivates, inspires, and guides its members to achieve organizational goals (Głowienka, 2021). According to M. Armstrong, leaders fulfil two fundamental roles: first, they must accomplish the task, as this is the primary goal of the team; second, they must maintain effective relationships among team members, which contributes to the successful execution of tasks (Armstrong, 2007).

At the camps, the managers are responsible for organizing work and supervising its proper execution. In the company Chris Tourism and Recreation, the position of camp manager is often referred to as a leader for several important reasons.

First, the manager is selected from among the employees already working at the given camp or office, which means that this person is usually well acquainted with the work culture, operational principles, and team specifics. Second, the choice of manager is based not only on experience but also on interpersonal skills. The leader is respected by colleagues and superiors for their competencies, commitment, and ability to effectively manage the team.

In fractal structures, such as those in Chris Tourism and Recreation, leaders operate at various levels of the organization, yet they always share common traits: communication skills, flexibility, and the ability to adapt to changing conditions. A leader in such a structure not only manages their team but also serves as a role model and support for other leaders, fostering a culture of collaboration and continuous innovation.

The responsibilities of a camp manager encompass a wide range of duties related to organizing and supervising the camp's operations. Among the most important tasks are planning the framework program for the session, which includes scheduling activities, excursions, and special events. The manager is also responsible for coordinating logistical activities such as organizing transportation, meals, and accommodation, as well as overseeing adherence to schedules and the achievement of goals by the camp staff.

Figure 3. *Camp management duties*



Source: *Own development based on information provided by the studied enterprise.*

The camp manager is responsible for the comprehensive organization of the camp, including the detailed division of duties among staff members, such as group leaders, educators, and instructors. Based on their competencies and experience, the manager assigns tasks, establishes duty schedules, and ensures clear communication so that all responsibilities are understood by the team.

The manager motivates the staff through regular informational meetings and providing guidance, which fosters active information exchange and collaboration within the team. One of their key responsibilities is to ensure that appropriate resources are available for conducting activities, such as sports equipment, educational materials, and workshop supplies. They collaborate with suppliers, monitor inventory levels, and ensure timely replenishment. If additional materials need to be ordered, the manager accurately communicates this information to the office, specifying the quantity, type of materials, and delivery deadlines.

The camp manager also ensures compliance with health and safety regulations by conducting regular inspections of sanitary conditions and responding to emergency

situations. If necessary, they coordinate rescue operations. They regularly communicate with the office, reporting on session progress, key events, and maintaining complete documentation, including participant lists, health cards, and activity reports.

During the camp session, camp managers work with group leaders who are responsible for organizing the work of educators and instructors within their respective groups. Their tasks include organizing meetings, registering participants for activities, arranging evening games, and supervising the quality of care provided.

Group leaders also maintain contact with parents and ensure high-quality care for the children. They continuously provide feedback to the camp manager regarding camp organization, quality of activities conducted, adherence to health and safety rules, as well as reports on caregiving.

They also propose improvements in work organization that could enhance efficiency and improve participants' comfort. Additionally, a reception desk supports the functioning of the camp by handling phone calls outside of duty hours, managing inventory in the shop, and collaborating with the camp manager on documentation.

5. Conclusions and Recommendations

In management, fractals and fractal organization fit into the process of civilizational changes that constitute a source of chaos and uncertainty in the environment. The theory of fractals explains the behaviour of contemporary enterprises operating in a dynamically changing environment. The application of the fractal concept in tourism enterprises leads to more effective resource management, better coordination of activities, and greater flexibility in responding to market changes. The analysis of the fractal structure also helps in identifying areas requiring optimization and facilitates understanding the relationships between segments of the enterprise's activities.

The conclusions from the analysis of the fractal structure in the company Chris Tourism and Recreation and the role of leaders at the camps provide practical guidance regarding:

1. Leadership and interpersonal skills of leaders: in practice, this means that leaders must not only manage tasks but also create an atmosphere of trust and collaboration, which translates into smooth operations and quality service for camp participants.
2. Cooperation and flexibility in the fractal structure: in practice, this means that the enterprise can easily adapt programs and services to market needs and changing customer expectations.
3. Motivation and care for customer satisfaction: in practice, this means that the organization can count on the loyalty of participants and their parents,

which translates into continuous development of the company and its market position.

4. Challenges in managing fractals: practically, this means that managers must cope with dynamic changes, such as changing weather conditions or unforeseen situations, ensuring continuity of the camp and safety for participants. Flexibility and the ability to respond quickly are crucial for effective management and maintaining a high level of service.

This study is not without limitations. First, it focuses on one enterprise – Chris Tourism and Recreation, which may limit its universality and applicability in other industries. Additionally, the analysis is based on selected leaders and camp employees, which may not fully reflect the overall picture of the organization and its operations.

The research also does not consider the long-term effects of the fractal structure and its impact on organizational development over many years. Furthermore, the results may depend on changing external conditions, such as trends in tourism, legal regulations, or seasonality, which can affect organizational effectiveness.

Future research on fractal structure in organizations could focus on the long-term effects of its implementation, analysing the impact of this structure on enterprise development and adaptation in a changing environment.

Additionally, it would be valuable to examine how external factors, such as changing market trends, legal regulations, or seasonality, affect the functioning of organizations operating within a fractal structure in the tourism industry. It will also be important to expand research to other industries to assess the universality of this structure, as well as to delve into the role of leaders, their interpersonal and leadership competencies in the context of organizational effectiveness.

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