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# Application of Complexity Theory to Organizational Career Management System's Development

The paper aims to highlight the relevance of complexity theory application to organizational career management processes and systems. This perspective enables to reveal and analyse the employees' career management challenges faced by organizations in the context of high complexity. The study shows that organizations strive for a flexible and adaptable workforce while employees seek to increase their employability and competitiveness in organizations and in the labour market. Consequently, the role of current organizations in the context of complexity in employees' career management is to help them to sustain and grow their career potential thereby strengthening their own competitive advantage.

**Keywords:** organizational career management, complexity theory, career complexity.

Straipsnyje siekiama pagrįsti kompleksiškumo teorijos taikymo aktualumą organizacinės karjeros vadybos procesuose ir sistemose. Ši perspektyva leidžia atskleisti ir analizuoti organizacijų patiriamus darbuotojų karjeros valdymo iššūkius kompleksiškoje aplinkoje. Teorinė studija atskleidžia, kad organizacijos siekia lanksčios ir linkusios prisitaikyti darbo jėgos, o darbuotojai siekia didinti savo darbumą ir konkurencingumą organizacijose ir darbo rinkoje. Taigi, šiuolaikinių organizacijų vaidmuo kompleksiškumo kontekste karjeros valdymo srityje yra padėti darbuotojams palaikyti ir auginti jų konkurencinius pranašumus bei karjeros potencialą taip stiprinant kartu ir organizacijų konkurencinį pranašumą.

**Raktiniai žodžiai:** organizacinės karjeros valdymas, kompleksiškumo teorija, karjeros kompleksiškumas.

## Introduction

Recent decades have been marked by significant rapid changes in the societal, economic and technological environment. The accelerating pace of change has implications for human resource management in organizations, and in particular employees' career management processes and systems.

Currently, careers of talented and high potential employees are treated as boundaryless and highly individualized as opposed to earlier traditional career ladder models which were enacted within the boundaries of one organization. However, the organizational career management system, being a part of the HR function, still plays an important role in creating stronger human capital which has become

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the main organizational resource in the era of knowledge.

The changed nature of careers raises the question to organizations as to what role should they play in employees' career management in order to satisfy the emerging needs of their employees while ensuring its' own competitive advantage. Employees' careers are enacted in a highly volatile, uncertain and ambiguous world which requires new management principles for organizations and the careers of their employees. The rapidity of technological progress and its adoption by the organizations, constantly changing requirements for professional development, the need for reskilling, changing nature of employment relationship as well as the emergence of unplanned events (i.e., the COVID-19 pandemic) are just a few examples of current reality which calls into question existing organizational career management practices which are mainly based on traditional linear thinking models. Hence, given the growing multidimensionality of current careers in terms of a multiplicity of agents and interactions among them (De Vos, Van der Heijden, 2017; Baruch, Rousseau, 2019) as well as growing uncertainty and unpredictability (Pryor, Birght, 2007) application of complexity theory to organizational career can offer fruitful insights to the management of these systems.

There is a noticeable interest in the acceptance of complexity science as a legitimate approach to the study of organizations and their management. A complex system is defined as a whole made up of a large number of interacting agents, which are each managed by some rule or force which relates their behaviour in a given time period contingently to the states of other parts (Allen et al., 2011). In the field of management and organization studies, application of complexity science has grown dramatically over the past two decades. Complexity theory provides scholars with a firm and scientifically solid foundation from which to explore and understand human organizations by recognizing complexity, patterns, and interrelationships rather than focusing on surface-level assumptions (Allen et al., 2011; Sapir, 2020).

There is a growing interest among scholars in the application of complexity theory to the organizational management field in a variety of aspects, i.e., leadership (Rosenhead et al., 2019), team management (Díaz-Fernández et al., 2020), project management (Sapir, 2020), organizational change (Lowell, 2016), and in separate fields, as for example policy making (Cairney, Geyer, 2017), public sector (Eppel, Rhodes, 2018), health service (Thompson et al., 2016), etc.

However, the attempt to analyse organizational career management system through the lens of complexity theory are insufficient. Our study sought to fill in this gap. Setting career management complexity as **the research object** we raise the following **aim of the research** – to highlight the relevance of complexity theory application to organizational career management processes and systems. **The objectives of the paper are:** to study and analyse the evolution of management paradigm from reductionist-analytical to complex understanding of organizations; to reveal the key tendencies of contemporary organizational career management change; to propose new principles to organizational career management based on complexity theory perspective.

Conceptual analysis and synthesis were chosen as theoretical **research methods** in order to examine the key elements of complexity theory and their application to organizational career management system. Comparative method was applied to compare different approaches to the management of organizations and organizational career as well as applicability and constraints of these paradigms in the environment of dynamic changes.

## Organizations as complex systems

Management of organizations is based on an accepted worldview or paradigm. The acknowledged paradigm or fundamental conceptual framework under which the whole organizational system operates shapes its trajectory, strategies, rules as well as behavioural models or attitudes of its members. According to the philosopher of science T. Kuhn (1962), paradigm shifts occur when the dominant paradigm under which normal science operates is rendered incompatible with new phenomena, facilitating the adoption of a new theory or paradigm. His idea applied to organizational management demonstrates how large-scale rapid changes in societal, economic and technological environment evoked the need for a new compatible model for organization management in the 21st century. Nowadays organizations operate in an extremely complex environment (i.e., globalized and open market) (Daryani, Amini, 2016) which challenges them to become more resilient, open to surprises across all levels of scale, apply the forward-looking approach, practicing experimentation and being ready for constant renewal (Hazy, 2011).

The aforementioned paradigm shift marks the transition from a reductionist to a complex approach to organizations (Sapir, 2020). These different organization management paradigms can be linked to Snowden's (2005) model, termed "Cynefin Framework" used to aid decision-making context by demonstrating that different context requires a corresponding response to them. As companies are operating in vastly more complex conditions than existed just decades ago it becomes evident that frameworks and strategies they commonly turn to are no longer effective. The previous mindset based on reductionism views organizations as machines. In order to understand the world, reductionism seeks to reduce the world to its elements, analyse them and then put those parts together in new ways to make new objects. The Newtonian perspective of the world is grounded on the following assumptions:

- The world works like a machine that is simple and predictable;
- Every observed effect has an observable cause;
- Even very complicated phenomena can be understood through analysis which means that the whole can be understood by taking it apart and studying the separate elements;
- Sufficient analysis of past events can create the capacity to predict future events;
- The outcome of an action is predictable and repeatable;
- Outcomes (outputs) scale in proportion to inputs (i.e., more effort results in larger or quicker output).
- Change can be focused on specific areas, holding all other things constant (Sapir, 2020).

The classic illustration of this approach is F. Taylor's scientific management school (1911). In order to increase productivity, F. Taylor divided the whole production system into small elements – tasks, which were analysed, standardized and regulated. His precisely functioning "machine" was a closed system with no impact from outside, where all tasks were constant, clear, repeatable, and thus bringing predictable outcomes. Such a mechanical view of organizations provides a sense of order, purpose, control and predictability, consequently, it becomes easy to analyse facts, predict the future, decide how to act, make and execute plans, control and measure outcomes (Boulton et al., 2015). The principles of the mechanistic organization have found their way into fast-food restaurants, organization of hospitals, factories, retail outlets, schools, universities and other institutions seeking to rationalize their operations (Morgan, 2006).

The reductionist-analytical understanding of organizations has been changing with the adoption of the system thinking approach which is a way of seeing the world as a series of interconnected and interdependent systems rather than lots of independent parts (Sapir, 2020). The label of system thinking has been used to embrace many different theories starting from its beginning in 1950 when von Bertalanffy introduced "General System Theory" (1968).

Following J. Sapir (2020), system thinking suggests that everything is part of a larger whole and that the connections between all elements are critical and thus the only way to fully understand a problem is to understand the parts in relation to the whole. The foundation of system thinking is a synthesis that requires to describe things through understanding their place within the function. The system thinking is characterized by certain components (ibid) which we discuss in the context of organizations:

- Interconnectedness. Every system is an interconnected set of elements that is coherently organized in a way that achieves a purpose. A system cannot be understood simply as the sum of its parts. Similarly, the organization is a system consisting of many subsystems (e.g., departments, units, teams) which must be coordinated and aligned to each other in order to achieve the objectives of the organization. The subsystems, e.g., functional units such as IT, finance, sales, HRM or marketing work together to contribute to the survival and success of the organization.
- Every system is made up of many subsystems and is itself a part of larger systems. Just as an organization consists of various divisions, the organization itself makes a part of a larger system such as industry where it belongs, the economic and society system (Weihrich et al., 2008). Consequently, organizations do not function in a vacuum, they are open systems that interact with the external environment such as customers, competitors, suppliers, labour unions, etc. An organization that will not be responsive to its environment will hardly survive (Cornell, Jude, 2015). Constant changes in social, economic and technology contexts exert pressure on organizations to react and adapt in order to survive.
- System thinking seeks to define the ideal future and strategies to close the gap between current reality and future vision (Sapir, 2020). The future

depends on decisions made today and represents an inexorably unfolding path from the present. In this way by analysing the facts, predicting the future, making and executing plans, controlling and measuring outcomes organization can reach a desirable future state (Boulton et al., 2015). Organizations are managed through future-oriented goals and plan settings to reach those goals. Managers set plans, then organize resources according to the plans and control everything by monitoring and measuring the effectiveness of the plan. The management process (planning, organizing, leading, controlling) is based on the assumption about future predictability which is one of the main characteristics of complicated systems. Even if there may be millions of interconnecting parts and events but the outcomes are still predictable (Schloss, 2014).

- Causality. It represents the linear relationship between the cause and effect in the system. The complicated situation in Snowden's model is one in which cause and effect are separated by time but the outcome is still predictable and discoverable through analysis (Snowden, 2005). Linear models are static and describe a set of linear relationships that do not change over time. The "movement" is extracted from so-called linear models where time is not an independent variable (Haroldsson, 2004). Linear thinking based on logic, rules, and rationality is widely predominant reasoning in an organization's decision-making process. In most cases, linear thinking works well but may encounter problems when the static representation of reality meets the complexity of the real world. Linear models assume that a change to one variable will have a corresponding effect on another variable such as an increase in production level will increase sales levels (Hazy, 2011).

To sum up, complicated systems are certainly predictable. The components of such a system can be managed based on rules and algorithms in a repeatable manner. Even if complicated systems require more expertise in their management still such systems can generally be successfully managed (Sapir, 2020). Organization as a system receives inputs (i.e., people, capital, consumers) transforms them (i.e., finance, production, HRM, marketing), and exports the outputs (i.e., products, services, profit) to the environment. This system model works well when developed into management processes through planning, organizing, staffing, leading and controlling (Cornell, Jude, 2015). However, the paradigm of a complicated system has been receiving criticism as representing too much static, simplistic and reductionist perspective on management processes that appear to be incompatible with the complex environment (Sapir, 2020; Patton, McMahon, 2014).

There has been an increasing interest in the application of complexity science to organizational theory (Mitleton-Kelly, 2003; Schloss, 2014; Daryani, Amini, 2016; Tani et al., 2018). Studying organizations as complex systems had become more relevant due to the pressures of competitiveness, flexibility and agility in globalized and open market context (Arévalo, Espinoza, 2015). Complexity is defined as a feature of a system that arises as a result of the interactions of the individual components of the system (Dekker

et al., 2011; McDaniel, Driebe, 2001). For this reason, the behaviour of the system cannot be lowered to the total of the behaviour of its constituent elements (Dekker et al., 2011). Different from a complicated worldview that provides a sense of order, control and purpose, the complexity perspective is much more challenging and different than the sum of its parts because they interact in unpredictable ways (Sapir, 2020). Complexity science seeks to study and understand phenomena characterized by turbulent fluctuations and instabilities in which order is broken though sudden changes lead to new forms and behaviours (Arévalo, Espinoza, 2015). In Snowden's "Cynefin Framework" (2005) complexity is described as situations where the outcome of any actions is not predictable in advance and makes sense only after the fact. Complex systems (CS) have the following characteristics:

- CS are made of elements that make sense only within the integrity of the system. CS cannot be comprehended by means of reductionism.
- CS evolve unpredictably.
- CS can undergo sudden changes in state.
- CS are sensitive to initial conditions.
- CS have a self-organizing capacity.
- CS can be modelled and studied in an equivalent topological space called 'phase space', which has its specific concepts: attractors and repulsors, attraction basin, trajectories, limit cycles, etc.
- CS are characterized by evolution and dynamics (Brătian, 2014).

The theories of complex systems have been used in the study of human social systems into three broad categories: the science of complexity, complex adaptive systems (CAS) and organizational cybernetics. All these theories explain the emergence of a new order and deal with nonlinearity (Arévalo, Espinoza, 2015). Complex systems adapt to changes in their environment and that's why they are called "complex adaptive systems". According to J. Sapir (2020), CAS is a highly adaptive, self-organizing, interrelated, interdependent entity that behaves as a unified whole that is made of semi-autonomous agents who have the freedom to act according to a set of simple rules in order to maximize specific goals. Such a system learns from experience and adjusts to changes in the environment (ibid). CAS recognizes complexity, patterns and interrelationships rather than focusing on cause and effect. This way of thinking about and analysing have significant implications for modern management (Morgan, 2006; Sapir, 2020) as it considers deeper underlying causes and interactions than may have been the case of more surface-level assumptions in a complicated model. CAS have a number of linked properties that are essential for guiding current management or organizations:

- Self-organization. The unplanned creation of augmented order or the spontaneous emergence of self-maintaining (Tani et al., 2018). Self-organization takes place through simple rules without centralized power (Sapir, 2020). For managers, this means to shape and create contexts in which appropriate forms of self-organization emerge (Morgan, 2006). The idea of self-organization is the opposite of the complicated orientation of management where centralized control is expressed.

- Emergence. It refers to the emergence of new systemic behaviours, paths and properties of networked systems from spontaneous interactions among agents (Goldstein, 2011). Emergent properties can never be planned or predetermined, they have to emerge alone. Hierarchy and control in CAS are no more than "snapshot" points, a temporary condition or outcomes of the self-organization process. As such the role of managers is to facilitate the process and to flow with the change, rather than try to predesign and control in a more traditional way (Morgan, 2006).
- Attractors. They act as magnetic forces that draw CAS towards given trajectories (Pascale et al., 2000). The attractors, i.e., the patterns of behaviour, can be beneficial or negative (Sapir, 2020). In a situation where the dominant attractor pattern is producing negative effects, managers have to push the system toward the critical point and create instability within the established system and find ways of creating new contexts. However, managers cannot define the precise form that the new attractor pattern will take (Morgan, 2006).
- Non-linearity. Nonlinear systems' outputs are not proportional to their inputs: small changes can trigger large effects, and the behaviour of the whole cannot be explained from the sum of the parts (Arévalo, Espinoza, 2015). From the management perspective, sometimes small changes may catalyse a major change or create a critical mass effect. Managers have to have skills in identifying important points of leverage to create a context supporting the new line of development (Morgan, 2006).
- Sensitivity to initial conditions. CAS sensitivity to initial conditions means that the further one goes into the future the more inaccurate predictions become (Sapir, 2020). Due to the limited amount of information about the system, it becomes no longer predictable in a certain time. The so-called "butterfly effect" implies that managers have to be prepared to discontinuous change, engage in experimentation, and be opened to surprises across all levels of scale (Hazy, 2011).
- Feedback loops. They refer to the part of a system in which some portion of the system's output is used as input for future operations. Linear thinkers often fail to consider the effect of feedback loops in business resulting in unintended consequences. CAS emphasize the understanding of the role of feedback loops in preventing unintended consequences of business decisions. For example, raising prices increases short-term profit but may negatively impact sales volume and customer attitudes.
- Nested systems. CAS are nested in other CAS – all systems exist within their own environment, and they also make a part of other systems' environment. CAS are open systems which means that when their environment changes, they need to co-evolve as well, and as it changes, they need to change again. As a result, constant changes and unpredictability require to build flexibility into the system (Sapir, 2020).

The analysis of recent scientific literature indicates a paradigm shift in organization management from a complicated

to a complex system view. Organizations, treated as complex systems, are able easier to adapt to changing market environments in comparison to traditional complicated-type organizations which depend on order and control.

## Contemporary career management as part of the complexity world

Traditional bureaucratic careers, which were dominant up until the 1980s, characterized by vertical progression, long-term organizational membership, and security (McArdle et al., 2007) represent a reductionist closed system type career model. Employees moved up the career ladder through a sequence of well-defined positions in the organization's hierarchy while the organization supported career progress providing training and other career development possibilities. This career ladder model in organizational settings was based on a predominant psychological contract that emphasized the loyalty and hard work of employees in exchange for the responsibility of the organization to provide security and career possibilities to them. At that time the scientific career literature was highly influenced by the person-organization fit theories (Kristof, 1996) which highlighted the compatibility between both parties leading to positive outcomes such as job satisfaction, commitment, performance, decreased turnover, etc. Accordingly, the organizational career system received inputs (candidates with right person-organization fit) from the environment, transformed them (through training, development and career management practices) and exported the outputs, i.e., beneficial outcomes for both (e.g., improved organizational performance, employment security and career satisfaction). This simplistic and static organizational career model characterized by linear relationships which do not change over time functioned rather well in a predictable and slowly changing environment.

However, organizational career management today faces an extremely complex and turbulent environment (De Vos et al., 2017; Baruch, 2015). At the end of the 20th century, organizational downsizing and restructuring due to increased global competition and economic conditions led to mass layoffs and flattening of organizations (Clarke, 2013). These shifts accounted for the increasing number of new forms of employment, such as self-employed individuals, one-person employers and free agents. Furthermore, new non-standard work arrangements such as teleworking, part-time, fixed, or temporary employment have emerged in contemporary organizations as well as increased mobility, uncertainty and reduced loyalty in employment relationships. Consequently, contemporary careers have crossed the boundaries of one organization and became opened to a variety of contexts and influences. Today, individuals are increasingly called upon to take responsibility for their career management. In this context, individuals experience constant pressure to update knowledge, develop new competencies, skills in problem-solving, adaptability and flexibility. As a response to the changing career environment, there has been a significant interest among career researchers in the conceptualisation of the "New" career (Table 1).

As can be seen (Table 1) there is a wide range of career models which

*Table 1.* **Current career conceptualizations**

| Career Concept | Definition |
|---|---|
| Boundaryless career (Arthur, Rousseu, 1996) | Career is not bounded and tied to a single organization and is marked by less vertical coordination and stability. |
| Protean career (Hall, 1996) | Career driven by the person, not organization, based upon personal goals and values and being driven by psychological success rather than objective ones, such as power, rank, or pay. |
| Resilient career (Waterman, et al., 1994) | The ability of individuals to successfully face and overcome adversities, the ability to adapt and to accept change positively. |
| Intelligent career (Arthur et al., 1995) | The focus is on the importance of three career competences, which are "know-how, know who, know why" allowing to support the responsible construction of own career path. |
| Portfolio career (Cawsey et al., 1995) | This career comprises a variety of roles rather than one job at a single organisation. |
| Multidirectional career (Baruch, 2004) | Refers to many career alternatives and awareness of the existence of various possibilities for obtaining success. |
| Kaleidoscope career (Mainiero, Sullivan, 2005) | Career is defined by the individual, based on his/her values, rather than determined by corporation values; highlights three relevant aspects (authenticity, balance, challenge) in the re-organization of one's own professional and personal path. |
| Objective and subjective career (Savickas, 2005) | Objective career is defined as a series of occupations in which the person is involved while subjective career refers to a series of stories on the basis of work experiences, which can enable the individual to give a personal meaning to past, present and future experiences. |
| The chaos theory of careers (Pryor, Bright, 2003) | This theory treats an individual as a complex dynamic system being in a constant interaction with other systems of this kind (employers, labour market, national and global economy, etc.). |
| Sustainable careers (De Vos, Van der Heijden, 2015) | Sequences of career experiences are reflected through a variety of patterns of continuity over time, thereby crossing several social spaces characterized by individual agency, herewith providing meaning to the individual. |

largely focus on an individual level of career management emphasizing the need for career-related resources in order to create and develop meaningful careers in the environment of high complexity. However, the concentration mainly on individual agency leaves a gap in organizational level research concerning the role of career management systems in contemporary organizations. How can organizations, based on current career management principles, build a career management model which would enable them to satisfy the current needs of their employees and in this way to gain a competitive advantage of a highly skilled and committed workforce? Given the multidimensionality of current careers, we believe that the injection of complexity principles into the design of an organizational career management system can offer fruitful insights.

## Organizational career management principles from a complexity perspective

The career management system provides the main principles which regulate the

careers of the employees, it reflects the dynamic aspects of HRM and includes and integrates the majority of HRM processes (Valickas, 2012). Well-designed career systems provide an opportunity for organizations to upraise to the highest levels of management hierarchy the people who are able to generate, create and implement new ideas helping the organization to adapt to rapidly changing environment (Higgins, Dillon, 2007).

The application of complexity thinking to organizational career processes and systems may offer a more appropriate framework to organizational career management in comparison to more traditional linear career management models.

Even if contemporary careers are considered to be a property of an individual, but inevitably for the most part careers are unfolded in organizations and consequently are influenced and shaped by them. Furthermore, we argue that investment in high potential employees' career management may become one of the key elements to competitiveness in the era of knowledge where human capital has become the main organizational resource. In other words, looking from a broader perspective today HR function is no longer just a 'strategy-taker', but has become a key 'strategy-maker' (Colbert, Kurucz, 2011) which implies that the key strategic resources are embodied in people. Consequently, organizational career management system being a part of the HR function, plays an important role in building human capital.

As careers have moved from bureaucratic to boundaryless, they became subject to a variety of different contexts, i.e., systems, including organizations, employees, labour markets, higher education institutions as well as governments. Hence, employers face a multiplicity of influences when developing the careers of their employees. Traditionally organizational career management system comprised a three-level framework of strategy, policy, and practice (Baruch, 2004) which was rather an organization-centric model. Today, organizations seeking a skilled and committed workforce, have to deal with individualized careers and respond to the newly emerging needs and challenges of their employees such as the constant need for development, work-life balance, career security and continuity as well as employability and well-being sustainment. Complexity acknowledges that people have agency and multiple identities which may have different thinking patterns based on priorities (Sapir, 2020) and this makes people management even more challenging. Accordingly, the "one size fits all" approach to employees' career management will not work, as well as a rigid, rules-based attitude.

Individuals and organizations being autonomous systems are interconnected and interact with each other in terms of career management. At the same time, organizations and individuals as systems are embedded and nested within a larger-scale system like labour market which in turn influences career-related decisions of employers and employees. Similarly, governments shape the market in terms of options, economy and social structure (Baruch, 2015). The educational system also plays an important role as it contributes to human capital, prepares individuals for future jobs, balances labour markets and ensures the flow of skilled workers for the organizations. The complexity perspective to organizational career management

systems opens up a more realistic picture of reality with all its interrelated autonomous agents which interact in unpredictable ways. In this context it becomes irrational to implement long-term career development plans as the world we live has become very turbulent, uncertain and unpredictable. According to World Economic Forum (2020), in the near future due to automation technologies, many jobs will disappear while new ones will emerge. At the same time due to the rising individualism and the lack of employment security individuals have become more proactive in their career management. In search of a meaningful career, individuals change jobs, organizations, professions, and even states. Therefore, long-term career plans should be replaced by new career management principles which would focus on the key priorities and aspirations of organizations and high potential employees, e.g., organizations seek for flexibility from employees and employees want to increase their employability when working in organizations.

Looking from a broader perspective, all actors in a complex career system (individuals, organizations, educational system, labour market, government) are self-organizing and there is no central control, rather distributed one, e.g., government and educational institutions reacting to the increased or decreased demand for specific jobs, need to adapt to prepare individuals for the changing labour market trends in order to sustain a constant flow of qualified workers to organizations. All agents in the career system are autonomous but interrelated and seeking to achieve their own aims. Governments add regulations to the career system by encouraging employability, education, and development, educational organizations prepare a skilled workforce, individuals make decisions about their future direction within or outside organizations, employers hire, develop, promote and empower employees (Baruch, 2015). Hence, complex systems are resilient because they are adaptable. That is why the failure in one part will not result in disruption of all the system, as all parts of the larger system being semi-autonomous, having their own goals, and functioning in their own environments, co-evolve and adapt due to constant feedback flows within its parts. In the long-term, the agents in a complex career system self-organize without the intervention of centralized power.

One of the main challenges concerning the management of complex systems is their unpredictability. The unpredictability of these systems depends largely on their nonlinearity, one of the main conceptual tools of complexity theory for understanding structural-process transformations. Nonlinear effects arise when a small change in one aspect of a system results in a disproportionate response from the system (Sapir, 2020). In other words, small changes can produce magnified results and vice versa. This way of reasoning strongly contradicts a conventional type of thinking in organizational as well as the career management field where decisions are made based on rather isolated linear cause and effect relationships. Such reductionist linear thinking model application to career management often relies on the ability to predict and control the outcomes, e.g., long-term succession planning (Bagdadli, Gianecchini, 2019) which supports the identification and development of key individuals for executive positions. In general, organizational career

management processes and practices are highly influenced by linear thinking models like long-term plans, search for the perfect fit between individual needs, aspirations and organizational requirements, etc. However, the latter approach to career management represents a frozen picture of now (Haraldsson, 2004) where everything is fixed according to the particular moment of time. Such a simplified model of reality fails to resound the multidimensionality of the career system.

Another challenge related to the unpredictability of complexity is chance events. Unplanned events, an inevitable consequence of complexity (Pryor, Bright, 2003), impacts the organizational career management system. The occurrence of chance events often highlights the limitations of long-terms plans and the rationality of decision-making. These unplanned events can happen at different levels of the organizational career management system. As careers become more personal, organizations more often face unplanned events at the individual level, e.g., potential talent loss to a competitor or turnover due to work-life conflicts. Since an organizational career system is opened to and is nested within other systems, it can be highly influenced by unpredictable events which occur in the interconnected systems. A good example of this kind of unpredictable event is the COVID-19 pandemic which has resulted in life-altering employment and organizational shifts across the globe such as unexpected job loss (Autin et al., 2020), the sudden switch to virtual work, and the resulting challenges to organizations, i.e., adjusting employees to drastically altered work conditions, implementing new workplace policies and procedures to limit human contact, addressing raised work-family conflicts (Carnevale, Hatak, 2020) or career-related constraints (Raišienė, Rapuano, Varkulevičiūtė, Stachová, 2021).

Complexity perspective on career management has implications for both organizations and their employees. The successful organizational career management system should be firstly based on the assumption that people's development is central to organizational effectiveness. Today organizations compete for human resources which are skilled but scarce (Lam et al., 1999). The role of managers in employee career management is crucial. Even if managers should realize that they cannot directly control the outcome of events but they can create the right context which fosters desired results, i.e., organizational culture which would promote learning, growth, participation, and creativity in order to sustain the career potential of their employees while at the same time strengthening the ability of organizations to be flexible, resilient and adaptable. For these reasons the role of top managers is crucial in the way that they create the right context and processes by fostering the commitment and the significance of people development for organizational success and personal growth. Defining and sharing values that promote employees' development can inspire them to engage in continuous learning. Hence, organizations seeking to create a successful career management system should strive to become a "learning organization" (ibid.).

As organizations and careers are becoming more and more boundaryless, i.e., breaking down traditional borders, expanding within different contexts and with increased diversity in terms of employees' culture, countries and emerging

needs, traditional "command and control" type management is becoming ineffective. Furthermore, such trends as growing individualism, employee empowerment, and individual agency in career management reinforce the transition in the mindset for managers from „commander and controller "to "coordinator". Thus, organizations are not responsible anymore for the careers of their employees, but, on the other hand, organizations play an important role in providing support for the development of their careers. In other words, the responsibility for career development is shared between individuals and organizations. Organizations recognizing individual agency in career management, should offer and make available to their employees a range of development options such as formal courses, seminars, workshops, mentoring, etc. Hence, the role of organizations in their employees' career management is to contribute to their career potential by providing the right tools and processes.

The complexity theory provides valuable insights on how to deal with unpredictability and uncertainty in career management systems. Due to the constantly changing and rising requirements for employees, shifts in labour market and unpredictable events such as COVID-19, etc., organizations cannot offer life-long employment for their employees, nor create rigid long-term career development plans or rely on succession planning since in the constantly changing environment it is almost impossible to predict what jobs or what skills will be needed in the near future. Hence, in accordance with J. Sapir (2020), managers and HRM professionals have to understand the "now", and evolutionary potential of the present instead of seeking to define an ideal future and then define strategies to "close the gap". This emphasizes the importance for managers to have a holistic mindset enabling them to observe what is happening in the system and to understand the forces operating within it as well as try to identify natural trends of systems development.

Employees, in turn, have to take responsibility for their career management. Seeking to pursue a successful and meaningful career individuals must adapt to a variety of continuous changes and unpredictable events which often occur in complex environments. Nowadays, individuals have to be proactive in constructing their careers. The new employability-based psychological contract (Clarke, Patrickson, 2008) implies the necessity to invest in the development of competencies. Career security and continuity today may be encouraged through investment in employability, i.e., career potential. From the employees' point of view, organizations may sustain their career continuity through the enhancement of their employability by providing various learning and development opportunities. At the same time, it is crucial that employees understand and accept the influence of the complexity in their career-related decision-making process. This means to accept continuous change, unpredictability, uncertainty, chance events, and multiplicity of factors influencing their careers trajectories (Pryor, Bright, 2003). Consequently, apart from the constant need for reskilling and upskilling, various career-related resources (i.e., adaptability, flexibility, risk-taking, resilience, etc.) are needed in pursuance to maintain career potential in the context of high complexity.

## Conclusions

Due to the increasing complexity of the environment, the paradigm of organizational management has undergone significant shifts which mark the transitions from reductionist to complex approach to organizations. There has been recently an observable interest among scholars to analyse organizations through the lens of complexity science. This perspective enables us to explore and understand the environment of current organizations in a more realistic manner by recognizing its complexity, uncertainty, and unpredictability.

The organizational career management system, being a part of the HR function, has undergone significant shifts to its approach as well. Traditional bureaucratic careers, characterized by vertical progression, long-term organizational membership, and security have been replaced with boundaryless and individualized careers. Nowadays careers have become hardly predictable, fluid, subjective, multidimensional, and individualized. Therefore, organizations today face many challenges related to employees' career management since being unable to offer long-term career opportunities, they have to find new ways to satisfy the emerging career aspirations of their employees and at the same time to gain its own competitive advantage.

The study has demonstrated that the application of complexity theory to an organizational career system can offer valuable insights to its management. Firstly, it enables to open up a broader view of current careers in terms of the multiplicity of agents and their competing objectives which indicates the constraints of rationality and effectiveness of command and control approach to the career management system. Secondly, complexity theory provides a fresh perspective on unpredictable events in employees' career management, i.e., unpredictability is treated as a normal characteristic of the current world rather than an exception to the rule. Finally, the growing complexity has accounted for the changed needs and aspirations of employees as well as organizations. Organizations today strive for a flexible and adaptable workforce that is ready for constant changes, needs continuous learning, and is able to accept employment uncertainty. Employees, in turn, seek to increase their employability while working in organizations.

The aforementioned conclusions have implications for both organizations and their employees. An organization must provide support for the career management of their employees in terms of creating the right context and processes. Managers of organizations and HRM professionals should seek to promote a learning culture where commitment to learning, growth, and development of their employees is awarded. It is also important the ability of managers to see the whole picture when dealing with the complexity of current careers. To conclude, the role of current organizations in employees' career management is to help them to grow and sustain their career potential thereby strengthening their own competitive advantage. Employees, in turn, have to take responsibility for managing their careers. This implies that due to the rising complexity of the career environment they have not only to engage in continuous upskilling but also to gain various career management-related resources.

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# KOMPLEKSIŠKUMO TEORIJOS TAIKYMAS VYSTANT ORGANIZACINĖS KARJEROS VALDYMO SISTEMAS

S a n t r a u k a

Šiuolaikinė talentingų ir didelį potencialą turinčių darbuotojų karjera traktuojama kaip beribė ir labai individualizuota, priešingai nei pagal anksčiau vyravusį tradicinį karjeros laiptų modelį, kuris buvo įgyvendinamas vienoje organizacijoje. Organizacinė karjeros valdymo sistema, kaip svarbi žmogiškųjų išteklių funkcija, turi didelę reikšmę kuriant stipresnį žmogiškąjį kapitalą, kuris žinių eroje tampa pagrindiniu organizacijos resursu.

Vis dėlto pakitusi karjeros samprata kelia klausimą, koks turėtų būti šiuolaikinių organizacijų vaidmuo darbuotojų karjeros valdymo srityje siekiant patenkinti naujai besiformuojančius su karjera susijusius jų poreikius ir taip užtikrinant organizacijų konkurencinį pranašumą. Atsižvelgiant į didėjantį dabartinių karjerų daugiadimensiškumą ir neapibrėžtumą, kompleksiškumo teorijos taikymas organizacinės karjeros valdymo sistemai gali pasiūlyti vertingų įžvalgų.

Šio straipsnio tikslas – išryškinti kompleksiškumo teorijos taikymo aktualumą organizacinės karjeros vadybos procesams ir sistemoms. Tikslui pasiekti straipsnyje keliami šie uždaviniai: išanalizuoti valdymo paradigmų evoliuciją nuo redukcionistinio-analitinio iki kompleksinio požiūrio į organizacijas; atskleisti esmines šiuolaikinių organizacinių karjeros sistemų pokyčių tendencijas; remiantis kompleksiškumo teorija pasiūlyti naujus organizacinės karjeros valdymo principus.

Kompleksiškumo teorijos taikymas karjeros valdymo srityje leidžia identifikuoti šiuolaikinėse karjeros sistemose veikiančių agentų ir jų sąveikų įvairovę, kuri išryškina racionalaus ir griežtu vadovavimu bei kontrole pagrįsto požiūrio į karjeros valdymą neefektyvumą. Be to, kompleksiškumo perspektyva suteikia inovatyvų požiūrį į nenuspėjamus įvykius darbuotojų karjeros valdymo srityje, t. y. nenuspėjamumas yra traktuojamas kaip normali šiuolaikinės realybės charakteristika. Taip pat pažymėtina, kad augantis aplinkos kompleksiškumas turėjo įtakos pakitusiems darbuotojų ir organizacijų tarpusavio lūkesčiams ir poreikiams. Organizacijos siekia lankščios ir adaptyvios darbo jėgos, kuri būti pasiruošusi nuolatiniams pokyčiams, nuolat keltų kvalifikaciją ir gebėtų priimti darbo aplinkos neapibrėžtumą. Darbuotojai, savo ruožtu dirbdami organizacijoje, siekia padidinti karjeros potencialą. Pagrindinis šiuolaikinių organizacijų karjeros valdymo uždavinys yra suteikti darbuotojams paramą, t. y. tinkamą kontekstą ir procesus, įgalinančią juos stiprinti ir išlaikyti savo darbumą. Darbuotojai, siekdami sėkmingos karjeros kompleksiškumo aplinkoje, turi prisiimti kontrolę ir atsakomybę už savo karjeros valdymą, nuolat mokytis bei įgyti karjeros valdymui reikalingų resursų.