Knowledge dynamics for smart leaders and smart cities

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Abstract
The studies in the current literature bring to our attention important knowledge as the intangible resource that can dictate the development direction of some institutions or companies at a critical moment. Thus, the application of knowledge management in the decision-making process is increasingly important. But is the knowledge sufficient to face a complex environment, determined by infinite and changing characteristics in directions that are increasingly difficult to anticipate? In such a context, in addition to knowledge management, our specific way of thinking and the way we perceive and use knowledge is the prime reason for failure or success in negotiations, business, management, administration, or governance. The dynamism and speed of movement of things in the current era influence our every field of activity, in such a context the main factor that determines certain people, businesses, or management styles to be more successful than others is the way of thinking. Successful people think smart and use effective strategies to achieve their outcomes. In order to face the current challenges, leaders and managers must find out-of-the-box solutions, and make connections and causal maps that will not only help them overcome the current situation but offer them a sustainable recovery and management of the company's resources and human capital. Such a system involves not only strategic thinking and dynamic thinking. Current studies show that Dynamic Thinking skills enable you to trace your issue or challenge as a trajectory of performance over time. The trajectory should have a historical segment, a current state, and one or more future paths. Dynamic Thinking thus puts a current situation in the context of where you came from and where you are going. Thus, in the present context, dynamic thinking is the main element and the main characteristic of the development and application of a sustainable system of strategic thinking The present article's purpose is to highlight how dynamic thinking applied at the managerial level causes leaders to turn to innovative ideas for solving problems and building a smart management system.

Keywords: thinking patterns; smart leadership; innovation; knowledge management; strategic thinking.

1. Introduction
The present society is based on a complex ecosystem that involves challenges at social, economic, political, environmental, and cultural levels, etc. All these dynamic challenges in these areas that we depend on personally and professionally generate significant changes in managerial and leadership processes. Leaders and managers who aim for the proper functioning of public and private systems face the dynamism of the current environment that constantly tests their resilience. But the human mind through the way it is conceived and developed at the level of thought can make a fantastic switch between challenges and opportunities. Adapting to the changing environment time and again, leaders have proven an exceptional power of transformation and innovation, but knowledge and thought processes are at the base of all this.

This article starts from the current studies in the field of knowledge management, strategic thinking, and leadership and projects the defining characteristics of the leader and leadership mechanisms dedicated to the construction and sustainability of the Smart City. The development of this article is based on an essential curiosity for future development, namely, what are the characteristics that define the leader of the future? Knowing the way that the meaning, definition, and practice of leadership change over time, and having in mind the continuously changing global environment, this article tries to delimitate the influence of knowledge, and time in the development of future leaders' skills. Leaders who

can manage change and make it sustainable in accordance with all environmental characteristics. A leader who lives up to expectations, has innate leadership characteristics, but educates the way of thinking and exercises a way of leadership beneficial to the spread and development of knowledge, innovation, and smart solutions. In this research, we took into account two essential characteristics of any kind of development, time and knowledge. According to the initial premise, these two variables influence in different ways any future change.

Current studies show that using strategic thinking skills enables you to trace your issue or challenge as a trajectory of performance over time. Any development trajectory should have a historical segment, a current state, and one or more future paths. Thus, in this paper we will highlight how Dynamic Thinking can design the Smart City and how it contributes to its sustainability, starting from the characteristics of time. We will highlight how the dynamics of knowledge and strategic thinking pave the way to the smart city, but also how the projection overtime on the three directions past, present, and future creates strategies for delimiting opportunities and challenges and vice versa.

We start from the idea that Smart Cities bring to the fore the concerns of ensuring an adaptable, inclusive, productive, sustainable, and resilient future for humanity. But in an environment described in this way, the mechanisms of leadership and governance play different roles than those in the present reality. Smart City governance mechanisms have a key role in leading and directing development projects and actively contributing through development funds. Exploring the different ways in which digital technology can be integrated, and knowledge with traditional activities raises substantial challenges. In this sense, the emergence of intelligent leadership is necessary. This way of leadership must consider ensuring a balance between innovation and sustainability, in this sense strategic thinking and foresight are important to help manage complexity. Therefore, Smart Cities will not succeed without intelligent leadership development. The present article aims to draw some directions on which this type of leadership must develop, but also some characteristics on which it must be based.

2. Literature review

Smart City does not have an exact, clear, and universally valid definition that bases the development of the whole concept, but Smart City must certainly generate a climate of prosperous and balanced existence with the environment. But the success of a smart city does not only involve the development of smart, eco-friendly technologies, nor the simple increase in economic prosperity or confident and progressive development plans. The success of a Smart City is based on people, ideas, knowledge and knowledge dynamics, and good management.

If we support the idea that the main purpose of a Smart City is to optimize city functions and promote economic growth while improving the quality of life, we must recognize that without cultivating a knowledge system and a thinking model which is in balance with all these ideas, not only at the leadership level but also at the universally valid individual level, building a sustainable Smart City is doomed to failure. In this vein of ideas, this article brings to the attention of the public the importance of the dynamics of knowledge and the

development of systems of thought necessary for the evolution and prosperity of the Smart City.

For the sustainable, concrete, and correct development of the necessary mechanisms for Smart Cities, the first phase must develop the thinking of individuals in a direction that develops Smart Leaders. People are the basis of all innovations, development, and evolution of the environment in which they live, and thinking and knowledge are the main tools and mechanisms that lead to the construction of Smart Cities.

Causally and deterministically we must understand that without "Smart Thinking" there can be no "Smart Leaders" and even fewer "Smart Cities." However, biologically as well as psychologically, the human mind is limited, our capacities to know, learn, develop and create are limited. A single person cannot be the basis of the entire human development, which highlights the need for knowledge transfer, moreover, this cruel reality of human limitation put in confrontation with the infinity of existing changes brings to the attention of researchers the need to base the system of taking decisions on patterns of thinking and thinking models.

These patterns of thinking are important constituents of intellectual organizational capital [1]. Studies in this direction have also shown how the development of thinking patterns at the individual level contributes to the generation and creation of organizational knowledge [2]. In this way, we humanize the organizational organism, and we consider that human limitations are transposed to the level of organisms, like individuals, the evolutionary course of organizational organisms is determined by the way of thinking, the knowledge held, and the decision-making processes. Moreover, the metaphor is also supported by the presence of tacit and explicit knowledge, i.e. those bits of knowledge that the organization knows it possesses and the pieces of knowledge that it possesses but is not aware of their presence. As Albrecht notes "*we often describe human beings as doing their thinking with both conscious mind and unconscious mind. An organization also has both a conscious mind and an unconscious mind* [3]." Thus, the ecosystem built at the organization level of leader, manager, and employees are created from their knowledge and the transfer of knowledge is an essential characteristic for creating the leaders of the future and the organizations of the future.

Thought patterns are not simple interferences of our mind with the environment, these patterns are the result of more complex processes of interdependence and influence of our mind and life. Practically, these models are influenced by numerous factors from the external environment, such as culture, religion, customs, politics, etc. which sculpt thought and perception processes in our minds that help us both to understand the world and the universe in which we live but also to make decisions to act in one way or another. These processes are rooted in our minds from the early stages of our development as they have continuously developed under the action of educational factors from family, school, community, church, and personal effort, but they are not immutable norms or rules in the future, they can be processed, educated and developed towards one form of thinking or another. It is important to remember this emphasis, that mental models have the role not

only of helping us in understanding the universe in which we live but also in making decisions and acting in the sense of their implementation [4].

Having said that, the leader's thinking model can represent an institutional body at a given moment the decisive point regarding its failure or success. Thus we emphasize the fact that thinking patterns are composed of functional structures, a knowledge basis, a set of inferences, rules, and a set of fundamental reference values, [3] three elements are the basis of the formation of our thinking processes, either that we are talking about inertial thinking, dynamic thinking or entropic thinking.

Moreover, it is necessary to emphasize an essential element. At the base of all our actions, whether we are discussing the changes and challenges we face in the social economic environment, or whether we are discussing developments at an individual or professional level, there are two infinite constants, undefined and variable, but on which our entire evolutionary process is based, knowledge and time. All changes occur over time, whether we are talking about beneficial changes or not, and our way of responding, acting, and deciding, has its response over time. But our actions, decisions, and adopted strategies are based on the knowledge we have in the memory of our decision. This constant dynamic between time and knowledge is constantly changing and is essential to human evolution itself, both in the private and public spheres. Not infrequently, timely knowledge has proven critical to the success or failure of a development or turnaround plan.

Placing the focus on the analysis of the two elements as resources, we highlight the fact that, even if time is infinite in its passage and pursuit when it is perceived as a resource, time becomes a finite resource in that any activity, process, or objective to be achieved must be perceived being achievable in a certain period of time so that it can be calculated in profit and loss and can be expressed in currency. In this line of ideas, any exceeding of the time allotted for the achievement of an objective is the equivalent of a consumed resource and can be perceived as a loss. When we think about knowledge in terms of resources, we highlight the fact that organizations increasingly recognize the role of knowledge as a strategic resource and its importance in achieving a competitive advantage and sustainable development [5]. However, people as well as organizations, at the individual level, are limited and finite in their knowledge and mental capacities, however, thought at a collective level, the capacities can be substantially expanded.

3. Knowledge dynamics for Smart leaders

Modern society is based on knowledge and any form of building and developing a future society must be based on knowledge. More precisely, on a dynamic of knowledge and an understanding of it based on a past, present, and future timeline. Today, "knowledge" is the most sought-after resource, considered an organization's most valuable asset and a means of competitive advantage. Knowledge is the driving force that stabilizes the efficient use of all other resources within the organization so that they are used to achieve the organization's goals and ultimate purpose. Knowledge is the only resource that does not diminish through sharing; instead, by using and sharing it, on the contrary, they expand [6]. However, knowledge must be managed, its transfer facilitated, and sorted according to the strategic plan.

However, regardless of their importance, knowledge cannot single-handedly represent the engine of change for the Smart City. The real fruition of knowledge is done by the leaders of organizations and the main role of Smart Leaders should be to facilitate the management of knowledge and the dynamics of knowledge at the level of the organization that leads to change. Leaders should encourage knowledge management actions. If leaders do not directly support, at all organizational levels, the transfer of knowledge and its dynamics, it is difficult for knowledge management actions to reach the desired performance level [7]. The role of smart leadership is reflected in the recognition of knowledge management practices as crucial for the implementation of future strategies. Studies show that both the effectiveness of leaders and the organization-wide cultivation of knowledge transfer behavior are critical elements that influence the workplace performance of employees within an organization [8]. Contemporary management researchers repeatedly emphasize the importance of the acquisition, development, transfer, and correct use of knowledge at the organizational level believe that organizational transfers depend on the organization's ability to acquire new skills, but also on the ability of the leader to attract new knowledge that allows him to transform the organization concerning the changing social climate [9].

Therefore, knowledge management is considered to be more important than knowledge itself, and organizations seek to clarify how individual and organizational information and knowledge are transformed into individual and group knowledge and skills. The main goal of smart leaders should be to focus on organizational and social development towards an environment free of fear and based on trust so that its members are willing to share knowledge with each other, an environment that maximizes knowledge creation and drives knowledge to innovation [10]. In fact, knowledge management is considered a way to improve innovation capabilities, which can be translated through an additional effort from the level of companies to the macro level of societies [11].

According to studies developed by Nonaka and his colleagues, both we as individuals and the organization as a unitary humanism possess two types of knowledge, explicit knowledge, and tacit knowledge. Both categories of knowledge are important for our evolution and even more so for innovation. In order to understand the specific nature of the two categories, we must perceive our explicit knowledge as that knowledge that can be expressed through language, be it formal or systematic, and can be recorded and documented. This knowledge can be published and shared as primary or secondary sources of knowledge and information, it can be transmitted, transferred and available to the general public, it can be captured, coded, decoded, and presented. On the other hand, tacit knowledge is that knowledge that people do not possess mentally, including personal perspectives, perceptions, skills, techniques, experiences or opinions, and expertise. This tacit knowledge is purely personal, it cannot be put into writing and it cannot be shared through language alone. This knowledge is very useful but is hidden from the individual and not easily transmitted [5]. The transfer of tacit knowledge is based on transparent and trusting relationships. Trust is essential when different groups who believe in the power of knowledge come together to share or create knowledge [12].

Therefore, the transfer of knowledge represents an essential strategy and a mode of action for smart leaders, it must be cultivated and promoted both to facilitate the development of

solutions and innovations for Smar City and to facilitate the sustainability of these types of communities. In light of the above, it is necessary to develop communities around the Smart City idea that facilitate the growth, application, and stability of these communities.

The creation of such a culture is centered on smart leaders, who are able to facilitate a climate of knowledge management and dynamic knowledge. This environment of knowledge transfer can only be achieved by understanding and applying knowledge dynamics by leaders. An essential contribution to the development of the concept was made by Nonaka (1991; 1994), then Nonaka and Takeuchi (1995), who made a significant discovery by developing the concept of knowledge dynamics, which means the possibility of transforming a form of knowledge in the other form [5]. Nonaka and his colleagues developed the concept through the creation of a space for the continuous transformation of knowledge, the model developed by Nonaka involve four basic processes: socialization, externalization, combination, and internalization, a famous model in the specialized literature and the SECI model [5]. This achievement created the opportunity to discover new aspects of the semantic spectrum of the concept of knowledge and the understanding of its intrinsic dynamics.

We have talked so far about the existence of tacit and explicit knowledge and highlighted how important their transfer at the individual level is for innovation and the development of the future society. The SECI model was originally developed for the corporate environment and is designed for the development of automotive manufacturing in the Japanese industry. However, the working principles of this system can represent a stable working basis for future societies. The SECI model views knowledge as a dynamic flow of activities that facilitate the generation, transfer, and application of knowledge, all of which are accomplished through the four quadrants. Instead, it is important to remember that this dynamic must be perceived as a spiral of knowledge that covers the 4 quadrants and expands with each working cycle of the spiral. As exemplified in figure 1.

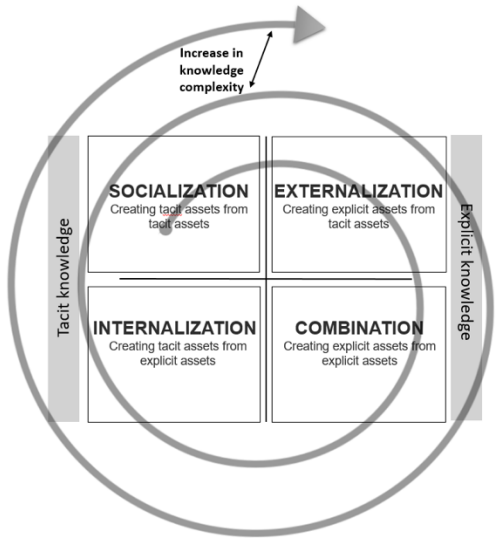

Fig. 1. SECI Model of Dynamic Knowledge Creation. Adapted from: (Nonaka, 1994).

These activities include socializing (from tacit to tacit); outsourcing (from tacit to explicit); combination (from explicit to explicit) and internalization (from tacit to explicit) are processes that are repeated innumerable times, and each repetitive cycle constitutes a new increase in the complexity of knowledge and an expansion of it. As an environment facilitates the creation of this transfer of knowledge through the circuit exemplified by these quadrants an increase in the complexity of the knowledge in the cycle is achieved to the same extent.

This model of knowledge dynamics may seem idealistic, but numerous studies highlight the idealism of this model and constantly discuss the reality of its application at the management level. A significant addition to the SECI model was made by Bratianu C. through the association made between the dynamics of knowledge with the laws of thermodynamics, thus Bratianu emphasizes the fact that without an external power that moves the spiral of knowledge it will not have a continuous flow of development "*Thus, knowledge conversion processes postulated by Nonaka and his co-workers cannot be realized by themselves without any production or consumption of cognitive work* [3]."

What Nonaka's model of knowledge dynamics highlights is the need for a culture of knowledge transfer at the level of any company or organization. The need to create a constant climate of learning and innovation within an organization is obvious, and even more so when we discuss Smart leadership. The facilitation of new experiences at the organizational level that creates a blurring of the traditional way of working and facilitates innovation, and technological development, can only be achieved through the dynamics of knowledge. The evolution of Smar City is based on knowledge, and without the dynamics of knowledge, this would remain unvalued, be it tacit or explicit, the creation of a working environment in groups that allows storytelling and experience sharing, these practices, to everyone's surprise, tend to not be a component of many organizational training regimes.

We subtract from the mentioned two essential ideas. Smart leaders must emphasize the development of knowledge management at the organizational level by creating a work environment that facilitates the transfer of knowledge. The lack of such a culture will not only make the Smart City development process difficult but will destabilize the whole process. Thus, I believe that Smart City cannot be sustainable without much thinking and the cultivation of this transfer, consciously to the leaders of the future.

Leaders' approaches regarding the development and management of smart cities must be oriented towards facilitating the environment for the transfer of knowledge and knowledge transformation so that this environment in turn facilitates the delivery of innovations. A smart city development project that is based on a climate that generates new knowledge and facilitates the transfer of knowledge is the main premise that leads to the creation of a prosperous social and economic environment, the development of the local economy, and the increase of the welfare of society. This knowledge dynamic represents a key way to fill the existing gaps in our understanding of how smart cities can function at their true potential.

The second resource discussed at the beginning of this chapter, namely, time, has an essential influence on the development of knowledge dynamics. By adding the time segment to a planar dimension of knowledge dynamics we can perceive knowledge as being, past knowledge, present knowledge, and future knowledge. It is directly influenced by the environment in which the dynamics of knowledge development, but also by the external events that guide our daily activity. This means that any person or organizational body is put in a position where every decision made is based on limited resources. Limited in knowledge and limited in time, the leaders of the future must find systems to overcome these limitations, and a primary way this can be achieved is by implementing a culture of knowledge transfer between valuable people with different experiences and expertise.

4. Thinking models for Smart leaders

Knowledge dynamics become a key element in decision-making processes. From this perspective, knowledge is considered to be a cognitive structure that can be processed by our thinking patterns to generate new structures, and knowledge can change into actions, as a result of the decision-making process, but this transformation is closely related to the performance of the model of thought used and the cognitive experience of the manager.

Thus, based on a system of comprehensive understanding of the organizational climate and easy knowledge management, the next step for Smart Leaders is to properly combine the knowledge and skill sets necessary to lead change. Therefore, it is the duty of leaders to understand their leadership roles and responsibilities. Leadership is itself a scientific revolution that evolves from born leaders, according to the great man theory, to transformational leaders and a multitude of styles in between. It is certain that in order to produce change, innate leadership skills must be educated so that they evolve both in the direction of knowledge dynamics and in the direction of strategic thinking.

To understand the process of change, it is necessary to introduce the concept of time as a resource in the analysis. Not infrequently, time as a resource has been ignored, although at the level of organizations it has a special significance in everyday activity. All activities, both professional and personal, are perceived as unfolding over time. Even though time in sound is immeasurable it provides a measure of how the organization organizes its activities. Time is the main driver of evolution, whether we are talking about technological developments or knowledge, everything takes time to develop and everything develops over time.

The inclusion of time resources in the development of thinking models has generated a new way of perceiving them and implicitly a new thinking model, which the researchers call dynamic thinking. This model is considered superior to the inertial model (the one resistant to change) because it presents the ability to represent reality in its dynamics, to perceive the evolution of time, and to act in accordance with the adaptation to a new reality. Dynamic thinking constitutes the thinking model capable of representing change, by incorporating time as a fundamental variable. Dynamic thinking is based on the assumption that changes are reversible processes or dynamic equilibrium processes [13].

The need for dynamic thinking is therefore more relevant in contemporary times than it used to be. Dynamic thinking is no longer a choice or a variable left to fate towards development, the leaders of the future must deliberately and educated lean towards dynamic thinking to stand out in a fiercely competitive environment, especially in the context of prevailing economic instability and flux [14]. Thus dynamic thinking is necessary to face existing challenges being imperative for modern organizational success. The path to success is full of uncertainties and turbulence, so leaders must look for ways that generate business intelligence that creates value that deliberately advances business performance.

Let's take for example the case of the crisis generated by COVID-19, which has put the business environment as well as the administrative environment in front of new and unprecedented challenges, from the establishment of the character and the limitation of movement mobility to substantial economic challenges [15]. Companies that have weathered the crisis by maintaining their entire staff have found novel ways to adapt and grow. A McKinsey study highlights the fact that most managers who made these changes did not believe they could be implemented in such a short time. This example highlights the importance of dynamic thinking in the decision-making process, that out-of-the-box thinking that allows a substantial degree of innovation and adaptation to the new references existing in the social economic environment. Not all companies have taken similar measures, but those among the leaders who have proven adaptability are the most profitable. There are several routes to reach a crisis point, each of which is specific to each business until the moment of crisis. With its appearance, the internal processes of the company are destabilized, being affected by the very activity and the ability to produce a profit. The major destabilization of companies at the moment of crisis can only be overcome by actions calculated based on risk and based on innovative ideas relevant to the new socio-economic climate.

Figure 2 exemplifies the thinking patterns following the critical, crisis point. Each of the 3 thinking models, inertial, entropic, and dynamic, have a specific form of action, the desired final point being the equilibrium state.

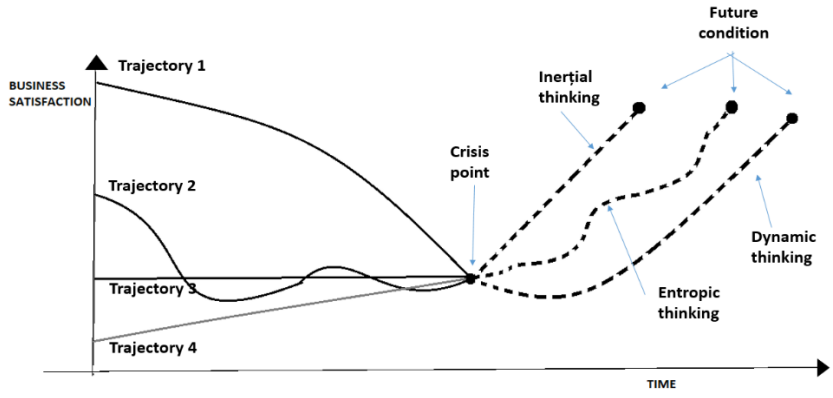

Fig. 2. Thinking patterns

From the point of view of inertial thinking, applying the same methods until now will generate stability, this type of thinking is based on the idea that if something has brought success in the past the process must be repeated without changing because the result will be the same. Entrepreneurs who refused during the pandemic to make changes in the way they operate their business, being convinced that the situation is temporary and will not last long enough to substantially affect the business profit, are placed in this thinking model. To their surprise, the mods spanned 2 years, and those businesses either had to make bigger investments to get back on their feet or died. For the most part, taking this specific case, the entrepreneurs who showed this way of thinking were those who refused to digitize their work processes, either out of the desire to keep human contact with customers or out of the desire to avoid additional expenses with implementing technological solutions. However, the result is the same.

Dynamic thinking is that thinking that allows the formation of a performance trajectory over time, it has a historical segment, a current state, and several future paths, thus dynamic thinking emphasizes the current situation through the prism of the past situation and the point where you want to reach. So, applying the new variables and making decisions produces a new state of equilibrium. According to this model, changes are reversible processes or dynamic equilibrium processes, [16] so these systems allow passage through time and evolution during change so that they reach the same state of equilibrium. In other words, in the case of the evolution of the COVID crisis, dynamic systems are those systems that have gone through the crisis, adapted at the methodological level to change, and managed to maintain themselves in a state of equilibrium. There are those companies that quickly implemented work-from-home solutions, through digital forms of project management and a system of working with employees in teams, including online meetings and time planning of tasks. These companies have given up the old ways of working, they have adapted their daily activity to the online environment, some of them to optimize costs have given up office spaces but put the emphasis on people, keeping the integrity of the teams, strengthening communication between their members and increasing the channels of teamwork.

The perception of changes must be related to the moment of time, past, present, and future, which takes us into the field of entropic thinking. The entropic and most complex thinking in question is that long-term thinking confirms it the future is made up of more or less probable events making its nature essentially probabilistic, an action or a decision taken can have several courses of action and not just a safe and linear one. Entropic thinking implies that style of thinking that has the ability to anticipate probable scenarios for the future, which allows preparation for it and the possibility of programming future actions in accordance with the evolution of the situation [17]. This way of thinking, about the example taken, involves those companies that have made decisions to optimize their activity and adapt to the novelties of the environment with the evolution of the crisis. They focused their strategic thinking on the accumulation of knowledge from the external environment, they understood that the dynamism of the socio-economic environment is much too unpredictable for a single decision to be sufficient to achieve the proposed objectives and they created a working scenario to maintain the state of equilibrium and creating a beneficial future state.

We thus emphasize the need for the development of strategic thinking, based on the causal relationship present in entropic thinking must be a characteristic of the future leaders of Smart City. For the leaders of the future to engage in the kind of initiative that can successfully achieve change from a system in its current state to a desired future state, they must investigate the nature of the relationships that have driven the system to the present point but also which they are the characteristics that deeply define its current state. In this context, dynamic thinking encourages people to use the historical trajectory to stimulate and guide inquiry into the underlying relationships that produced it. Insights from such an inquiry can help us design an initiative that will successfully leverage the desired change in performance. At this point in the analysis, entropic thinking intervenes to project, based on the present data, the possible future scenarios in accordance with the existing relationship between the current environment, which is complex in its nature, and the possible actions to be taken. Thus, the change can be placed in time in the past-present-future dynamic, which allows the description of any real transformation process in time. (Figure 3)

Thus, entropic thinking, which is the basis of the strategic thinking system, involves the projection in time of the possible scenarios for each decision taken at the level of the organization or institution. This type of thinking involves the analysis of existing variables and the perception over time as a result of the decision-making process of three scenarios, the most likely outcome, the best outcome, and the worst possible outcome. This projection over time allows the managerial system to constantly analyze the risks to which the organization is subjected and to adapt in time to the interferences that may occur during the development of one of the scenarios. Of course, the analysis of these scenarios does not only require their awareness, but also the establishment of a course of action by it and the analysis of a future return to the equilibrium situation.

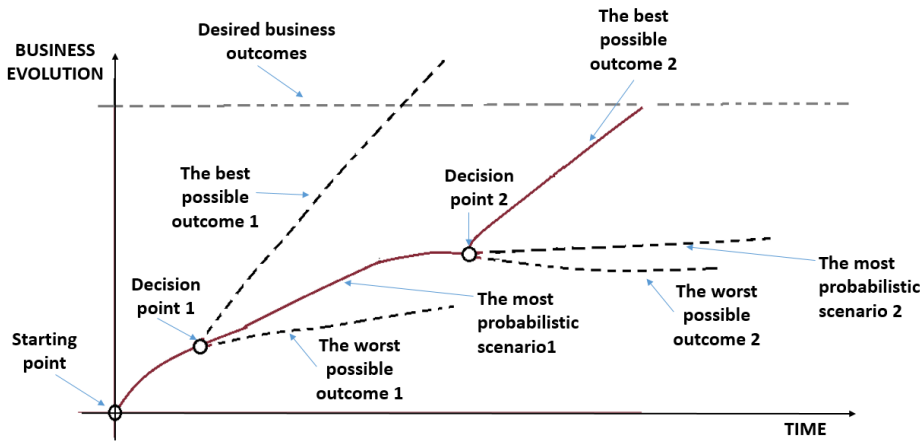

Fig. 3. Gândirea entropică

Strategic thinking is that form of thinking that projects the future by orienting towards it, it helps us calculate our chances of reaching the desired future but also the possible less

desirable scenarios, it increases our confidence in our forces and optimizes our chances of success. It is a formula to bypass passivity, get out of it and adopt a constructive attitude of continuously searching for opportunities and capitalizing on them. Strategic thinking does not only involve the evolution towards a desirable future, it allows the anticipation of possible crises, which may delay the desired result, but at the same time, it allows the development of creative constructs that allow overcoming those situations.

This way of thinking is essential for the development of Smart Leaders and implicitly Smar City as it is a generator of change by its very definition. In this sense, we emphasize the importance of developing a smart city based on a system of knowledge transfer and knowledge distribution in such a way as to increase its entropy, respectively, the culture of innovation. In conjunction with entropic thinking, knowledge entropy reflects the distribution of knowledge in a given organization at a given point in time [18]. The implementation of such a model of thinking and transfer of knowledge at the level of a future society involves significant interference from the leaders who lead the change, without the directions drawn by them the change will be chaotic and unsustainable.

5. Future leaders of smart cities, a radiography of the way of thinking

At the base of every development is a culture of innovation, a culture that allows constant growth and the projection of the desirable future in terms of strategy reported in clear and concise times. And Smart City is no exception. The present article highlighted the need for continuous development of thought processes and knowledge, to facilitate the development of true Smart Cities. I emphasize this fact because without a social climate that makes the transfer of knowledge and knowledge dynamic Smart City boils down to technological implementation only. Technology brings nothing but evolution in return, as it is constant, growing in intensity with each newly discovered notion, and will not stop. What we now call the Smar City of the future will change its image in a few years, if not even sooner. No matter how much technology we implement in everyday life, without a culture that will fruit the development of companies as sustainable organisms and of individuals and society itself, the ideal of a Smart City cannot be achieved.

The transition to change will be made by leaders from various fields, these leaders are destined to develop skills that allow the sustainability of the Smart City idea over time. Skills that enable them, along with understanding the complex economic, social, and technological challenges in smart cities, the need to gather and combine the knowledge, expertise, and experiences of people from both the public and private sectors, to design the future.

Smart leaders should create an ecosystem of thrust, knowledge sharing, and constant learning on each level of human life. They must project the change in time and be able to think about change in terms of the scenario of evolution. Smart leaders and smart leadership must focus, in my point of view on the following characteristics.

Skills in knowledge management and implementation of methods of capturing, filtering, and dissimilating knowledge in order to be exploited.

Long-term thinking. Thinking that discerns beyond the immediate project outcome. This management system approach has as its main objectives the improvement of economic, social, and environmental outcomes for local businesses and long-term residents;

Developing strategic thinking by projecting in time the desirable future and calculating the available scenarios to achieve this future. This type of thinking allows the projection in the time of development stages, leading to the creation of an environment ready to respond to future challenges.

Dynamic thinking skills. Which involves the use of a historical trajectory to stimulate and guide the evolutionary course of the relationships that produce changes over time on the system, so that an initiative can be created that successfully uses the change in a performance fit.

Worldview. A vision with rational rather than positional projection. Which entails leadership approaches and behaviors that are capable of stimulating, exploiting, and disseminating learning. Vision to create an atmosphere that comes to support and creates the exchange of knowledge, especially knowledge that is more intuitive, tacit, and emergent over time;

Ability to access and mobilize tacit knowledge. Adapting a constant knowledge-gathering approach to be embedded in the local culture at all possible levels, organizations of all types but also from the everyday experiences of residents;

Social understanding. The leader must have a good understanding of the implications and impact these new technologies and smart processes will have on work life, development opportunities, and overall well-being.

These skills and abilities listed must enable the leaders of the future to create a culture that will develop a learning society. This form of organization must allow an exchange of mentality between governing bodies and social participants, as well as an understanding of the fact that innovation and social development are based on collaboration mechanisms, continuous learning, knowledge sharing, and reflection. Smart Leaders must understand that Knowledge creation and acquisition is the driving force for innovation and development of smart cities. And therefore the sustainability of this change is driven by a strategic thinking system.

Smart City development does not causally imply the removal of any kind of challenge, but on the contrary, we need to show an increased awareness that the Smart City brings new and perhaps even more technologically intense challenges at all scales. This is one of the main reasons why the development direction of the leaders who will be part of the governing bodies must be thought about and drawn. Management teams within any Smart City whether we are talking about institutions, companies, or communities with different cultures, capabilities, and needs, one characteristic remains constant, these management teams must have a high degree of adaptability and master a series of skills including

leadership skills, communication, management, conflict resolution, consensus building, knowledge development and resource provision and so on.

At the same time, these teams must work continuously to ensure that they are constantly aware of the changing needs and capabilities of the Smart City community and stay in constant touch with opportunities generated by the developments of emerging digital business models, local markets, national, international, and developed processes. To accomplish all these tasks, this form of leadership has the obligation to facilitate the application of a collaborative approach to knowledge creation, knowledge management, knowledge transfer, and its dissemination, to integrate everything into a culture that regards knowledge as being an important local attribute of the Smart City type society.

6. Conclusion, limitation, and future research

The present study highlights the importance of the systems thinking of leaders who drive change for the future sustainable implementation of innovation as well as for the creation of a culture of continuous learning. The analysis shows the existing intersection between knowledge dynamics and systems thinking and how they need to be understood and implemented at the social level for the development of the smart city.

In the descriptive note of this article, the smart city is not presented as a system of technologies, technological innovations, and economic growth, it becomes an ecosystem of thinking, knowledge transfer, and the balance between data, technologies, and the human mind, which allows a development sustainable gradualism and not a fallible technological boom. Therefore, leaders' approaches regarding the development and management of smart cities must be oriented towards facilitating the environment for the transfer of knowledge, so that this environment in turn facilitates the delivery of innovations. Such an approach aspires to generate new knowledge and to exploit and disseminate knowledge in cities to improve local economic development, and social and environmental outcomes.

This article traces the importance of strategic thinking and knowledge transfer to be implemented in all aspects of building and understanding a smart city, starting from its development to creating the sustainability of such a society. We thus highlight two emerging and interconnected elements of the smart city that represent a conceptual approach that leads to the improvement of change management and implementation mechanisms, namely the integration of knowledge exchange perspectives at the level of smart cities and the development of organizational learning capabilities.

The limitations of this study are represented by its very original purpose, namely to analyze the specialized literature and explore the existing knowledge, to allow the development of a skeleton of the thinking system and the defining characteristics of a smart leader, without however developing empirical data to support existing notions. At the same time, this limitation of the present article also determines possible future research that allows the superimposition of the conceptual framework built on the sustainable development of the smart city that allows the validation or invalidation of the initial premises of the presented system.

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