

Sustainable Management Based on Sustainable Knowledge

Andrea Bencsik

University of Pannonia, Hungary

bencsik.andrea@gtk.uni-pannon.hu

Abstract: The issue of sustainability has been on the minds of professionals for years, as it is on the minds of everyone involved in everyday life. Numerous studies have been carried out on various aspects of organisational operation, nature conservation, environmental protection and climate change. However, little research has been done on the potential for sustainability of organisational knowledge, a factor that fundamentally affects the functioning of organisations. This concerns the steps in the knowledge management process, organisational culture, working conditions, organisational environment, and organisational leadership that provides governance. Among these factors, this paper reviews the criteria for sustainable leadership as an effective channel for strategic decision making. Sustainable management has a significant impact on the organisation and its environment, balancing operations, people, profit, market competition and planetary sustainability. It is necessary to capture, share, incorporate and store valuable organisational knowledge for organisational performance excellence. The expectations of sustainable management that govern the sustainability of knowledge is a little researched topic in both management science and knowledge management literature. This paper aims to fill this gap by highlighting the supporting role of sustainable management for knowledge sustainability. Research to date has identified sustainable management as an alternative style of management that can significantly change organisations and society through a deeper understanding of natural and economic systems and their interdependencies. Accordingly, it ensures market performance in a holistic approach, based on the concept of sustainable knowledge, in the long term, with a focus on the efficient use of the company's internal resources. The cornerstones of these interrelationships and the conditions of the relationships are presented in a theoretical approach in the study.

Keywords: sustainability, sustainable knowledge, sustainable leadership, sustainable organisation, knowledge management, learning organisation, techno-stress

1. Introduction

Sustainability is one of the most commonly used terms in relation to the way organisations operate. It encompasses the environmental consciousness of management, the expected behaviour of managers and staff, values and mindset.

The characteristics of organisations operating according to sustainable principles have become increasingly clear in recent years, both in theoretical and practical research (Suriyankietkaew and Avery, 2016; Pastore and Massacesi, 2020).. Sustainable organisations often perform better than their peers, e.g. in terms of social responsibility, employee satisfaction, and even financially (Mura and Svec, 2018). Underlying sustainable organisational performance are the characteristics of leadership based on the principles of sustainability, which fundamentally influence organisational performance. For more and more businesses and economic actors to operate according to the principles of sustainability, they need to understand some important links outlined below.

The irresponsible way in which humans exploit natural resources and pollute the planet threatens the survival of the Earth. To address the resulting environmental problems, a rethinking of organisational functioning and governance is needed (Ordonez-Ponce and Weber, 2022). Business and society have a role to play in this process. If business does not operate in a sustainable way, its impact on local communities will be problematic. So, the question is: what can leaders of organisations do to create and manage businesses that are more sustainable, both in terms of their internal operations and their external impacts? We need organisations that create value for themselves, their environment and society. Sustainable management is therefore about helping organisations to stay at the forefront of their industry, regardless of what is happening in their environment, while keeping sustainability in mind (Tiedeman et al, 2013; McCann and Holt, 2010).

The research questions that the theoretical study seeks to explore are:

Q1. Why do sustainability-minded organisations outperform their competitors in the long run - while experiencing the same problems, crises, and market competition in their environment?

Q2. Why are they better able to adapt to changes, cutting-edge technologies, and challenges, while still performing well?

Q3. Can the operational successes of these organisations be identified?

Q4. What is the role of knowledge and knowledge sustainability in sustainable organisational performance?

In the following chapters, with a view to answering the research questions, the paper will present the basic concepts of sustainability, the concept of sustainable management, its foundations, the characteristics of sustainable knowledge and the interrelationship between the two and the conditions for combining them in a theoretical approach.

2. The concept of sustainability

Sustainability is defined in the literature in several ways (Ives et al, 2018; Mulligan, 2018; Heather et al, 2020). If we focus on the ecosystem, the most commonly used definition was formulated in 1987 by the UN World Commission on Environment and Development (WCED), also known as the Brundtland Commission. It is defined as meeting the needs of the present generation without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development, 1987). This definition means that the present population can use what it needs from the Earth's resources, but it must do so in a way that leaves sufficient resources for future generations. The three pillars are environmental, economic and social policy. It ensures a balance between economic growth, environmental quality and social equality. This requires an integrated policy and a cross-sectoral institutional framework rather than isolated policies (Hasna, 2007). The report, for all its merits, is flawed in that it does not declare that the potential for growth depends on the carrying capacity of the environment. Politicians are fond of using the term 'sustainable economic growth', even though it is not possible to grow infinitely in a finite world (Kendiukhov, 2017; Armeanu et al, 2018). The report has been criticised further, yet in its time it was revolutionary in raising awareness. In its enhanced version, sustainable development is defined as improving the quality of human life while remaining within the carrying capacity of supporting ecosystems (World Resources Institute, 1992).

Today, the most accepted term is circular farming (Corvellec et al, 2022), which in a sense goes beyond the need for sustainability. In essence, it is a return to the order of nature, since in nature almost all materials are involved in cycles and there is no waste: the end product of each process is the starting material for another process. The idea is still a kind of illusion, but responsible organisations and their management can do much to make this illusion a reality (Corvellec et al, 2022). This idea brings with it the need for organisations that practice sustainable or circular management to have management and decision-makers who understand and manage their organisations in the spirit of these expectations. These leaders are what the literature today calls sustainable leaders.

2.1 Sustainable leadership

Being a leader today is fraught with challenges that were unimaginable a decade ago (Pardey, 2016; Nani and Safitri, 2021). Today, political, corporate and government leaders face issues such as climate change, social responsibility, talent shortages, volatile financial markets, and food and water crises in many parts of the world. These are all challenges of a dynamic, global, interconnected, and high-tech world more than a decade old. The context, the environment and the decision situation for management have changed (Miao et al, 2020).

In the long term, the successful operation of an organization requires a leader and/or management that is aware of the concept of sustainable development and is able to interpret it in a complex way in decision-making (Al Muhairi et al, 2019). Sustainability has become a critical management task for success. Research to date has identified sustainable leadership (SL) as an alternative management style that can significantly change organisations and society by developing a deeper understanding of natural and economic systems and their interdependencies (Setyaningrum, 2020). Sustainable leaders see the role their organisations play in a larger context beyond immediate, short-term benefits. They define strategies and deliver results that meet the triple bottom line of social, environmental, and financial performance (Avery and Bergsteiner, 2011a; 2011b). This triple requirement covers the requirements of environmental stewardship (ES), expected behaviour, values (EBV) and conscious thinking (CT).

A sustainable leader creates lifelong value and long-term prosperity for all stakeholders, going beyond following the expectations of 'greening' and social responsibility. It also meets the requirements of sufficient profit for growth, business resilience and a sustainable planet at the same time. The sustainable leader challenges the neoliberal economic approach that seeks only to maximise profits (Acheampong et al, 2018). Accordingly, it takes a holistic approach, taking a long-term view and focusing on the efficient use of the company's internal resources, to ensure market performance based on the concept of sustainable knowledge. It refers to achieving

visions of futures in which people live within their ecological and social potential without exploiting it (Gerard et al, 2017).

The Sustainability Leadership Institute (2011) offers another definition to characterize a sustainable leader as "individuals who are driven to achieve change by consciously deepening their relationship with the world around them. In doing so, they adopt new ways of doing things (vision, thinking and interaction) that result in innovative, sustainable solutions". According to the Institute, leadership for sustainability is "leadership for sustainability", which is not a separate school of leadership, but a distinct blend of leadership.

The Cambridge Impact Leadership Model, as one of the most widely referenced models, describes the kind of leadership needed to create value for business, society, and the environment. In their words, 'A sustainability leader is someone who inspires and supports action to improve the quality of life.' The model was developed in several phases (Avery, 2005; Avery and Bergsteiner, 2011b).

The model emphasises the contextual/environmental focus of leadership, the expected qualities, style, skills and knowledge of the leader, and the external and internal actions to be taken.

Tiedeman and colleagues (2013) also compiled a seven-element model with elements that similarly summarise the expectations of sustainable leadership.

Sustainable leadership is not about altruism or charity work, or just thinking 'green'. According to the WBCSD (World Business Council for Sustainable Development) (Mahajan, 2022), sustainable leadership makes organisations more competitive, resilient, responsive, and attractive to customers. It helps attract talented employees and makes businesses more attractive to investors. Examples of sustainable business leadership can be found all over the world. Avery and Bergsteiner (2011c) in their book "Sustainable Leadership" compare two extreme examples of leadership to the operating mechanisms of animal colonies in nature, which illustrate the results of leadership thinking and behaviour. The most extreme form of locust-like philosophy, business behaviour and decision-making mechanism is hard, ruthless, asocial, and profit-driven leadership. Managers achieve their goals by polluting the environment, driving competitors out of business, paying pittance wages or using tax evasion and avoidance methods. Unethical behaviour is part of the "global economic game". The locusts' philosophy is based on the premise that benefits can only be achieved if others suffer as a result of pursuing their interests. Contrary thinking and management philosophy is modelled on the behaviour of a community of bees (known as the "Honeybee"), sophisticated, interest group oriented, social, and divisive. It focuses on the long term and achieves results responsibly. Management starts from the premise that an organisation can only be sustainable if its operating environment is sustainable and if the basic needs of all stakeholders and the interests of future generations are taken into account. They strive to protect the planet, care for local communities, and protect the organisation's image and brand through ethical behaviour. Honeybee's approach is holistic in nature, favouring a value-based approach to stakeholders.

Gayle Avery (2005), in her book *Leadership for Sustainable Futures*, identified 19 elements that characterise Honeybee's leadership philosophy. Avery and Bergsteiner's (2011c) sustainable leadership philosophy builds on Avery's work and identifies four additional elements that influence long-term organisational performance. These are employee engagement, self-management, trust, and employee appreciation. Overall, the enhanced philosophy thus includes 23 desirable elements to achieve the goals of sustainable management. The elements listed form a pyramid-like shape, with 14 expectations (from a managerial perspective) providing the foundations. This is built upon by a further six elements (which can be assessed through the employee perspective), followed by the key performance determinants, which represent the customer focus. At the top of the pyramid is sustainability (performance outcome), which, by definition, represents the interests of ownership. The pyramid is a logical mapping of the sustainable management criteria, the interconnectedness of which demonstrates how the Honeybee philosophy contributes to the competitive advantage of organisations. A diagram illustrating the logic of this thinking is shown below (Figure 1).



Figure 1: Sustainable leadership pyramid

2.2 Sustainable knowledge

Knowledge is the key to economic development. This knowledge will enable production companies to operate on renewable energy sources and find ways to use other natural resources more efficiently (Hallinger and Suriyankietkaew, 2018). Since knowledge indisputably belongs to humans, it is safe to say that human capital is indispensable. Good professionals and talent are needed by all organisations, and today's workers and managers need to broaden their horizons to collaborate with professionals from other disciplines (dos Santos et al, 2020). To achieve this collaboration, significant investment in education is also needed. A social model must be developed in which it is natural for people to learn and develop their skills throughout their lives. In previous years, many initiatives (Chaudhry et al, 2019) were launched to promote lifelong learning, but after the usual "hype", these initiatives were forgotten and new fads washed away the importance of their necessity. Whereas the building and functioning of knowledge management systems requires the provision of up-to-date knowledge and its integration into everyday practice (Raymond-Yakoubian et al, 2017; Eberherr, 2018). The triple requirement (people (PE), process (PR), technology (T) for a knowledge management system (KMS) to work.

Building on the elements of the knowledge management system, the steps of the knowledge management process ensure the smooth acquisition, flow, use and retention of knowledge, which, once assessed, confirms the strategy's delivery, or indicates gaps. A coherent set of steps in the knowledge management process (knowledge strategy - knowledge identification - knowledge acquisition - knowledge development - knowledge sharing - knowledge storage - knowledge use - knowledge evaluation) is the key to sustainable knowledge (Ouriques et al, 2019). Among the steps in the process, the knowledge storage phase is worth highlighting as a prerequisite for sustainable knowledge. It consists of two parts: the 'container' (IT), provided by technical means, which serves to capture and preserve explicit knowledge (sometimes as a basis for sharing). The other part is the organisational memory (OM), which contains tacit knowledge and ensures its long-term sustainability (Al Omari et al, 2019). The problem of the viability of the technical backbone can be caused by the so-called techno-stress, which can arise from excessive workload, expectations, and a sense of the need to be constantly ready and learning (La Torre et al, 2020). Therefore, from one point of view, the technical backbone is an essential requirement for knowledge sustainability, while from another point of view it is the condition that is considered most critical. It can be influenced by technical, human, software, and artificial intelligence (AI) generated problems.

Sustainable knowledge is thus inevitably intertwined with the knowledge management concept, which is based on meeting the requirements of a learning organisation culture (LO) in terms of organisational embeddedness and functionality. The principles of learning organisations are summarised in five points by Senge (2014), which he categorises into three core competences. These are Aspiration (AS), Dialogue (D) and Complexity Management (CM). Aspiration includes two core principles (out of the five), these are Personal Vision (formerly called Personal Direction) and Shared Vision. Dialogue also includes two principles, thought patterns and group learning. Complexity management can be identified with systems thinking.

The question may arise: how can the philosophy of sustainable development be linked to learning organisations? In other words, do learning organisations automatically contribute to the idea of sustainable development through systems thinking? Organisations, and groups within them, use systems thinking tools primarily to understand the complexity of their narrow business environment. If we think at a higher level, and consider the Earth as a system, systems thinking is essential (Lunday, 2018; Marginson, 2021). And this is certainly needed from a sustainability perspective. As a system, the Earth must strive for a new equilibrium, for which the idea of sustainable development can point the way. Through systems thinking we understand the current state of the organisation and the forces that influence its functioning. The thought patterns provide the framework conditions and through personal guidance and group learning we arrive at the target state defined by the shared vision.

Learning organisations do not develop and become what they are by themselves, but are determined by the personal example, values and professionalism of the leader and are also shaped by the rightly selected and knowledgeable staff (Minarova et al, 2021). In the economic sphere, good examples of sustainable development exist, and best practices can be demonstrated (Painter et al, 2019; Sharma, 2020). This means that the knowledge needed for sustainability is already largely available and manifested. Depending on the context, it will be owned by organisations through knowledge sharing or through the creation of new knowledge. In order for an organisation to become sustainable, in addition to the development of a learning organisation culture, innovation is in most cases needed. Learning organisations tend to have a significant capacity for innovation, as they are learning organisations precisely because they create knowledge (Senge, 2014).

Freedom of access to knowledge is also very important for the success of sustainability. The right leadership style, a broad stakeholder focus, open-mindedness, 'permissive' behaviour, long-term planning, foresight, and transparency greatly facilitate knowledge sharing and/or knowledge creation based on learning organisation operations for sustainability (Farooq, 2008).

Building on these ideas, the next section will review the relationship between the elements of sustainable leadership mentioned earlier, the criteria for a learning organisation and sustainable knowledge.

3. The contact system

Of the models and characteristics of sustainable management presented earlier, Avery and Bergsteiner's (2011c) pyramid is the closest to the concept of sustainable knowledge. In the following, we will look at the possible linkages between them. The pyramid summarises the necessary elements of sustainable management from the basics to the final outcomes. Basic elements are: 1. Appropriate leadership culture/style, 2. Talent recruiting & retaining staff, 3. Developing people continuously, 4. Internal succession planning, 5. Respect, diversity & inclusion, 6. Ethics and virtues, 7. Good governance & accountability, 8 Long-term thinking, 9. Considered organisational change, 10. Independence from outside interference, 11. Environmental responsibility, 12. Social responsibility, 13. Broad stakeholder focus, 14. Strong shared vision and purpose. If we look at the basic elements of the pyramid, 11 of the 14 elements set out expectations that can be classified as characteristics of a learning organisation culture. Two articulate the steps of the knowledge management process (talent/knowledge acquisition and continuous improvement) and the first one declares the management style itself. This means that the basic requirement of sustainable management is based on the characteristics of the learning organisation and the steps of the knowledge management process are considered necessary. If we move to a higher level of the pyramid, 5 of the six elements are again attributes of the learning organisation culture and one of the six elements is the knowledge management steps (knowledge sharing and retention). The next level builds on the previous ones and includes the key factors that drive performance. These are quality, employee engagement and innovation. Assessing the elements of this level from a knowledge management perspective, knowledge development/deployment = innovation, knowledge application and measurement = quality, employee engagement = knowledge sharing and knowledge retention. Since previous research on the functioning of knowledge management systems (TMR) has already demonstrated (King, 2009; <https://solhungary.hu>) that a learning organisation culture is a prerequisite for the successful functioning of TMR, it follows from the above that most of the criteria for sustainable management (see pyramid) include the characteristics of the learning organisation and the steps of the knowledge management process. Thus, sustainable management for sustainable organisational functioning should aim at developing an organisational culture that favours those elements of the knowledge management process that contribute most to the sustainability of knowledge. The following Table 1 illustrates the relationship.

Table 1: Relationships of sustainable leadership, learning organisation and knowledge management

Elements of sustainable leadership	Characteristics of a learning organisation	Steps in the knowledge management process
Foundation practices		
Appropriate leadership culture/style	x	
Talent recruiting & retaining staff		x
Developing people continuously		x
Internal succession planning	x	
Respect, diversity & inclusion	x	
Ethics and virtues	x	
Good governance & accountability	x	
Long-term horizon	x	
Considered organisational change	x	
Independence from outside interference	x	
Environmental responsibility	x	
Social responsibility	x	
Broad stakeholder focus	x	
Strong shared vision and purpose	x	
High-level practices		
Intrinsic motivation	x	
Self-management	x	
Team-orientation	x	
Enabling culture	x	
Knowledge retention and sharing		x
Trust	x	
Key performance drivers		
Innovation		x
Staff engagement		x
Quality		x
Performance outcome		
Sustainability	x	x

Based on the table, we can say that among the steps of the knowledge management process, the acquisition of knowledge (attracting the right people/talents) and the continuous improvement of the acquired knowledge can be considered as a basic element for sustainable knowledge. The integration of the knowledge management process into organisational operations also requires the implementation of further steps in the process, and knowledge sharing and retention can be considered as a higher level of expectation for sustainability. From the point of view of sustainability, the key elements are knowledge development/implementation (innovation), knowledge application and measurement (quality), knowledge sharing and knowledge retention (employee commitment). In order to ensure the sustainability of knowledge through sustainable organisational operation and sustainable management, it is necessary to formulate a strategy that is able to translate the above expectations into implementation measures under the conditions of everyday expected behaviour and conduct. This requires the building and continuous maintenance of a learning organisation culture. The (inverted) pyramid of sustainable knowledge is shown in Figure 2.

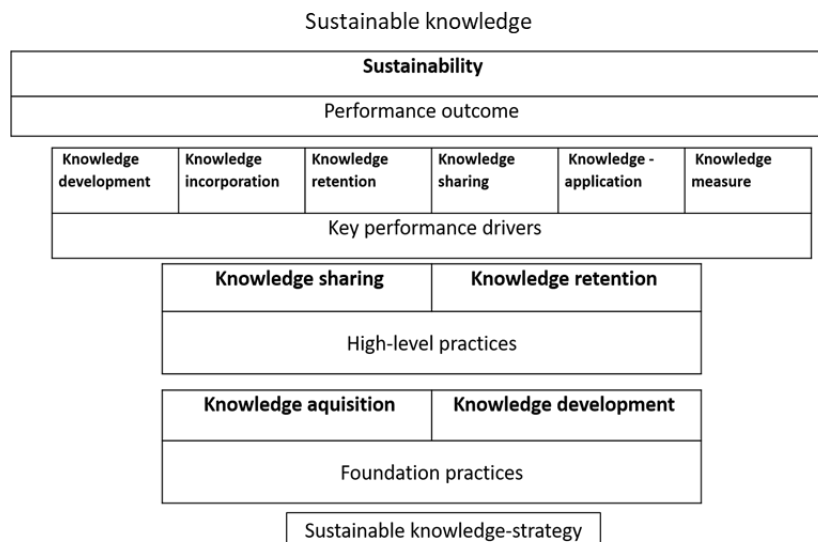


Figure 2: The (inverted) pyramid of sustainable knowledge

If we follow the logic of the two diagrams, we can see that sustainable leadership requires building a foundation of a broad cultural requirements system (learning organisation), from which the outputs that are important for the organisation at the top are then built and delivered at the highest quality. At the same time, however, the foundations for achieving sustainable knowledge are expressed in a much narrower set of conditions, which, when unfolded, form the basis for each of the elements of the knowledge management process. Increasingly, the elements of the knowledge management process are emerging as the drivers of key performance. Ultimately, the elements of the management pyramid will lead to the fulfilment of sustainable knowledge. The juxtaposition of the two pyramids illustrates the relationship between the two necessary processes (Figure 3)

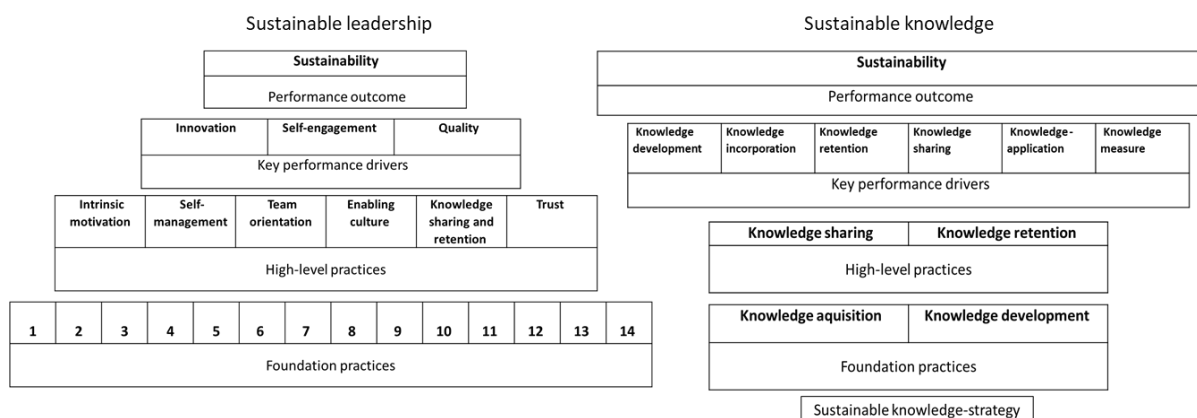


Figure 3: Pyramids of sustainable leadership and knowledge

Each of the four conditions (learning organisation (LO), sustainable management (SL), knowledge management system (KMS), knowledge repository) can be further broken down in detail, as they all represent complex entities. A full description of these elements is beyond the scope of this study. The logic described above justifies that the interplay of the four prerequisites can ensure sustainable knowledge. The area requiring the broadest base and most extensive attention of all the conditions is sustainable management.

Figure 4 shows an overview of the sustainable knowledge model composed of the above elements.

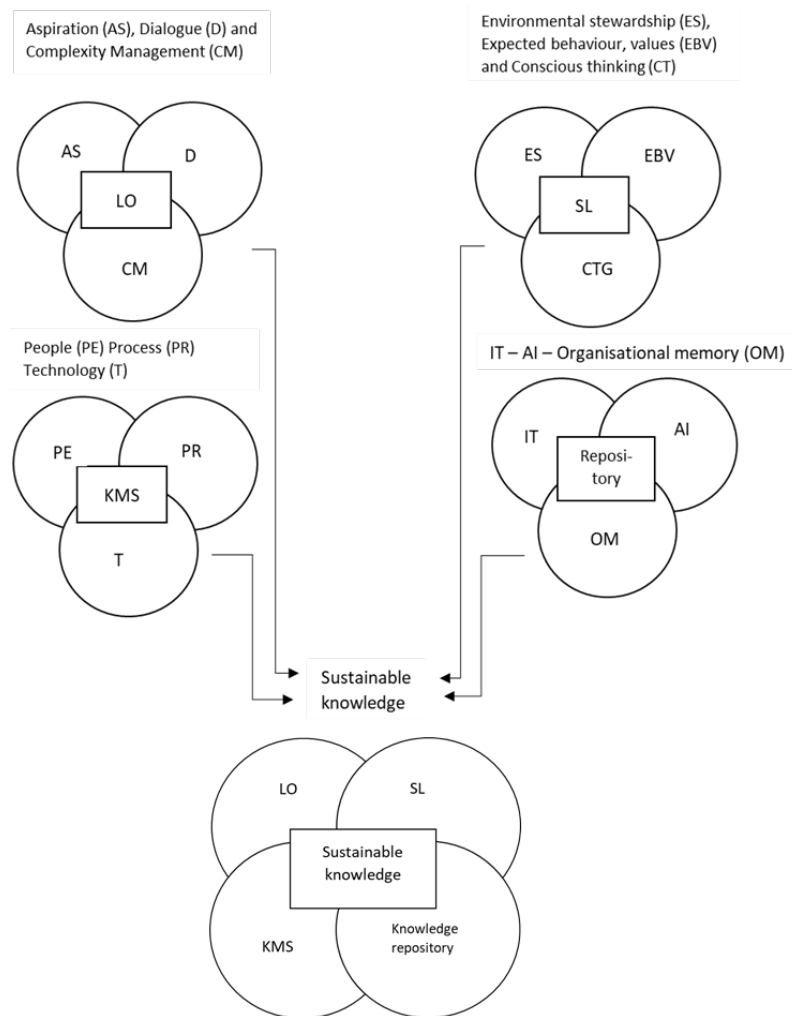


Figure 4: Sustainable knowledge model

4. Conclusions

The review of the theory and the models, supplemented by our own reflections, provide a comprehensive picture of the role of sustainable management for sustainable knowledge. These provide an opportunity to answer the research questions formulated in the introduction.

Q1. Why do organisations with sustainability in mind perform better than their competitors in the long run - while experiencing the same problems, crises and market competition in their environment?

As a result of the sustainable leader's ability to enforce the basic elements, sustainable organisations gain advantages that result in a competitive advantage in the market. We have seen that shaping culture is a powerful force in itself. This cultural atmosphere ensures that the members of the organisation are cooperative, balanced, well-informed, open to each other's ideas and have a common vision and goals. Such organisations perform better without the demands of sustainability. They think long term, attract, and retain young talent because they see career opportunities. These cultural characteristics also guarantee the sharing and transmission of knowledge, i.e. its sustainability. This, combined with the right leadership style, ethical behaviour, and due diligence, ensures that sustainable organisational operations are successful. Independence from external influences, environmental and social responsibility help to ensure balanced development that delivers results in the longer term, rather than a preference for short-term success (profit-seeking only).

Q2. Why are you better able to adapt to changes, advanced technologies and challenges, while still performing at a high level?

Willingness to change, patterns of thinking and confidence as learning organisation criteria determine the way staff think about change and the flexibility of their attitudes. Mutual help and support, leadership patterns, ethical management principles put potential worries and conflicts in the background, and a permissive (it is

possible to make mistakes) management attitude is particularly helpful in a change situation. The attributes of a sustainable leader include judicious change management, the fulfilment of which will support the adaptation of staff and the organisation as a whole. Excellent people, their knowledge, skills, values, respect, diversity and inclusion all help to overcome problems and challenges in change situations, while maintaining the quantity and quality of output.

Q3. Can the successes of these organisations be identified?

The answer to this question is clear. The secret to the success of these organisations lies in the principles of sustainability. As described above, these organisations are driven by an organisational culture and management values that are reflected in the management decisions, the image of the organisation and the image it presents to society. Their social and environmental responsibility is visible and appreciated by all. Thus, sustainable organisations do not hide the secrets of their success, but rather provide a model, a best practice, which should not be 'copied'. Of course, the internal events, rules and processes are not necessarily public, but the philosophy behind their success, the essential elements, are an example for the external environment to follow.

Q4. What is the role of knowledge and the sustainability of knowledge in sustainable organisational functioning?

It has been known for years that knowledge is a key element for successful organisational performance. The requirements of a learning organisation culture and the principles of the knowledge management system make it essential to keep knowledge up to date and to develop it continuously. Knowledge passed on to each other through joint work, information recorded in the IT system and organisational "secrets" (tacit knowledge) in the organisational memory are the guarantees of sustainable organisational functioning. Forgetting knowledge that has become redundant is a success factor in the professional management of well-considered organisational change. Incorporating knowledge into everyday operations, trust-based community behaviour and ethical leadership all contribute to the long-term use and sustainability of knowledge.

5. Research limitations and future directions

The main limitation of the research is that it only summarises the influential role of sustainable leadership for sustainable knowledge at a theoretical level. As the research has only recently started, empirical data collection has not yet been carried out. It is also a limitation that the available literature has not extensively addressed the context of this study in recent years, and therefore the number of references is limited. This limitation also points the way for future research. The aim is to test the theoretical model in practice, which will provide an opportunity to fill the gap in the literature from several perspectives. We hope to report on these results in our next study.

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