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A Systems Thinking and Design Thinking Approach to Leadership

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Systems Thinking, Design Thinking and Leadership have largely been developed independently of each other. More recently, there have been, ongoing initiatives to integrate Systems Thinking and Design Thinking. The main aim of this abstract paper is to suggest that the effectiveness of this integrated approach is uniquely linked to leadership. The paper will emphasise the important role played by leadership and explore how leadership has developed through the different paradigms. The benefits of viewing these transitions from a Kuhnian scientific paradigm perspective is highlighted followed by a Systemic view of leadership and then a presentation of a Design Thinking perspective noting that the attributes arising out of the two approaches will benefit leadership. This leads to a discussion of how leadership will benefit from the integrated Systems and Design Thinking approach.

Keywords: *Leadership, Transformational Leadership, Systems, Thinking, Design Thinking*

JEL Classification*: M14, M20*

1. Introduction

The world of the twenty first century organisation is characterised by increasingly rapid change, interdependence, and complex purposeful systems that demand a leadership that has a clear understanding of their paradigm if they are to understand the leadership requirements of their times. However, leadership itself and its very definition remain obscure and no set of universally accepted principles of leadership nor universal determinants of success have emerged (Hazy et al., 2007). As will be shown below, organisations, their environments and their leadership are in a state of constant change and this contributes to the difficulty in developing such a set of principles and determining factors. The search for a relevant leadership theory therefore continues as new paradigms unfold. The main aim of this paper is to show how leadership adapts to its environment and the needs of the organisation in the prevailing paradigm and how a Systems Thinking and Design Thinking integrated approach will equip leadership to meet the demands of the current paradigm.

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2. Literature Review

Systems Thinking helps in understanding the interconnected nature of the environment of organisations while Design Thinking helps in creativity and designing innovative ways of practising leadership that will meet challenges at hand. Mugadza (2015) gives a basic summary of both Systems Thinking and Design Thinking and various ongoing initiatives at integrating the two highlighting the benefits to be realised from this integration. This paper, considers the application of the Systems and Design Thinking integrated approach to Leadership. A definition of leadership, how it has morphed in response to the changing requirements of the 21st century organisation is presented followed by a discussion of the Systemic and Design Thinking approaches to leadership. The treatise culminates in discussions on an approach to the application of Systems and Design Thinking to Leadership. The paper, however, does not present all the leadership styles and models but restricts itself to the prescriptive transformational leadership style (Bass, 1990; Hazy et al., 2007).

2.1. Leadership

Kevin Kruse's (2013) definition of leadership as '...a process of social influence which maximises the effort of others towards achievement of a goal' to a great extent, sums up the various definitions and attributes of leadership that have recently been put forward. Even this definition however, still does not fully capture the full attributes and essence of leadership for all contexts. Despite this lack of clear universally relevant definition, leadership contributes to every aspect of an organisation or any social grouping. It can make or break an organisation (Kruse, 2013). As such, the careful scrutiny of leadership styles, types, rewards and other such aspects is important for the success of the organisation and its very survival. Types of leadership prevalent at any given time are influenced by the general environment in which it is exercised. The field of leadership has therefore, developed over time in line with the requirements of the environment in which it is exercised. A vast number of studies have been carried out on the topic resulting in a number of leadership models based on the results and application of those studies and the experiences emanating from the research activities and their application.

Henry (2013) sees the concept of Scientific Paradigms as creating, strengthening and encouraging a new approach to leadership. His main contention is that the Scientific paradigms perspective gives one a grasp of the organisational climate they are operating in and thereafter, with a better understanding of their responsibilities and environment, they can identify the skills sets and knowledge required to lead the organisation. An understanding of the different paradigms that both organisation theory and leadership have gone through and fusing the knowledge and skills sets gleaned from the multiple perspectives improves leaders' decision making and choice of actions in an environment of constant change (Henry, 2013).

As leadership developed through different paradigms it had to respond to the changes that organisations underwent (Flood, 2008; Henry, 2013). The industrial revolution, (from mid-18th century to mid-19th century), for example, had an impact on both society in general and the way industry was organised and hence the nature of leadership that led the organisations of the day. Prior to this, organisations, were small groups of people who were tightly knit together to serve their local communities driving the development of local and national economies under the leadership of 'born leaders'; typically, a master craftsman who would work with an apprentice (Flood, 2008).

The industrial revolution brought a new organisation; the factory. The new economic demands and activities of the new industrial era saw the rise of factories of mass manufacturing that required efficient and effective organisation that could be achieved only through effective management and proper structuring by Organisation Design. Operational processes needed to be designed in a way that maximised efficiency using ideas such as Scientific Management, Fordism and Henri Fayol's ideas (Schermerhorn, 2011). This brought about efficiencies by splitting up processes into simple parts. People were then trained to specialise in single, simple and repetitive tasks. This approach was meant to lead to perfection of performance that was meant to drive efficiency and profits.

Ackoff (1974) observed that the Taylorist approach provided a logical framework for the analysis of problems and was concerned with efficiency and systematisation in management which was appropriate for the requirements of the industrial revolution era. It led to the emergence of large organisations characterized by job specialisation and the administration of vast numbers of human resources. Hierarchical structures of organisations with clear lines of authority emerged and evolved into functional structures and specialist management activities like finance and personnel. Management set and implemented goals and policies. Supervisors monitored workers' adherence to these policies closely. The belief was that workers are motivated

by rewards; the economic man theory (Flood, 2008). This was the classical paradigm (Henry, 2013) dominated by trait leadership.

Hierarchical structures inherent in such organisations, however, led to lengthy decision making hindering quick effective and timely support to operational activities. Organisations became poorly coordinated resulting in functional silos that were out of touch with each other. Workers were reduced to alienated cogs in machines by specialised repetitive simple tasks that were boring and neglected human needs while management was overwhelmed by the centralised structures (Flood, 2008). Workers' roles were reduced to rigid adherence to methods and procedures with no room for them to use their discretion. Motivation became an economic exercise as pay was linked to output. The mechanistic approaches led to high productivity and efficiency but ignored human factors.

The mechanistic classical theorists described above, ended up being obsessed and concerned with the mechanics and structure of organisations in an unbalanced manner. The Human Relations Theorists (Elton Mayo and his Hawthorne studies) and the neo-Human Relations theorists including A. Maslow, R. Likert, C. Argyris, McGregor (Schermerhorn, 2011) that followed, shifted focus to the human factors and emphasized group motivation and leadership to the extent of overly tipping the scales to the psychological and social human factors. This marked the neo-classical paradigm (Henry, 2013) where leadership was mainly situational.

The Reductionism and Analysis of the mechanistic approaches mentioned above were increasingly found to be waning in their effectiveness especially with the advent of globalization and the ever present technological advancement (Fiedler, 1967) such that by World War 2, the machine age began to give way to the systems age (Ackoff, 1974). The increasing interconnectedness of the problems and the Human Activity System led to the need for a new world view/ paradigm/ weltanschauung (Pourdehnad, et al., 2011) that would match the new systems age. This new age is characterised by increasingly rapid change, interdependence, and complex purposeful systems. Focusing on complexity and interdependence of relationships, the Systems Approach synthesised the two classical approaches (the Mechanistic and the Human Relations theories) and views organisations as systems made up of interrelated subsystems characterised by emergent properties that arise from the synergy between the systems and their subsystems.

Table 1. *The development of leadership over the paradigms*

Paradigm/ period	Pre-Industrial Age (17th - 18th century)	Industrial Revolution age (18th - 19th century) *Classical paradigm*	Human relations & neo human relations age *Neo classical paradigm*	Systems age (1940'sand ongoing) *Contemporary paradigm*	Systems and Design Thinking/ Innovation Age
Dominant leadership ideas and styles	Craft industries *Born leaders*	Mechanistic Thinking- Fayol, Taylor, Fordism, Weber1920's to 1960's *Trait Leadership*	Elton Mayo (Hawthorne studies) Maslow, McGregor, Likert, Arygris *Situational leadership*	General Systems Theory- Bertalanffy, globalisation Innovation age, holistic design, postmodernism *Contingency leadership*	This must glean all positives from the previous paradigms *Innovative Leadership encompassing systemic, Design/Creative & transformational qualities*

The contemporary paradigm (Henry, 2013) which examines such issues as division of labour, human factors and the effect of information and communications technology (ICT) on organisation theory that followed the two classical paradigms described above, views social power, situations pertaining to people, machines and the environment as all important and is dominated by contingency leadership (Fiedler, 1967).

With the mechanistic era losing momentum, Fiedler (1967) posited that situational factors and the leadership style are the important factors that determine the effectiveness of a leader. James (McGregor Burns, 1978) further purported that leaders and followers achieve their objectives only when there is mutual respect

and cooperation between them. He was mainly concerned with distinguishing between managers and leaders- a distinction that later became to be between transactional and transformational leadership (Bass, 1990).

2.1.1. Transformational Leadership

The term transformational leadership was first coined by Downton J. V (1973) and has been further popularised by James McGregor Burns (1978) and Bass (Bass, 1990) and many others. Burns (1978) argued that transformational leadership creates significant change in the life of people and organisations. It redesigns the perceptions and aspirations of employees. According to him, transforming (later labelled transformational) leadership is a process in which leaders and followers help each other to advance to a higher level of morale, morality and motivation. Transformational leaders have the ability to raise followers from a lower level to a higher level of Maslow's (1954) hierarchy of needs. Transformational leaders to him, (Burns) inspire followers to accomplish more by helping followers align their values with organisational values. Both the leader and follower motivate each other to higher levels resulting in congruence of value systems and the congruence of personal and organisational outcomes will impact follower satisfaction and employee commitment to organisational outcomes.

Bass (1985), further, refined Burns' (1978) leadership theory and argued that a leader is one who can motivate people to do more than they had originally intended by raising their level of awareness of the importance of outcomes and how to achieve them. They broaden and elevate the interests of the employees and generate awareness and acceptance of group/ (organisational and societal) purposes and mission. Followers are encouraged to go beyond self-interest for the good of the group. Further, transformational leadership creates and sustains a context of building human capacity by among other things; identifying and developing core values, unifying purpose and liberating human potential.

Transformational leadership will have an influence on organisational and employee behaviour and influences organisational citizenship behaviour, performance, culture and vision. It influences personal empowerment, commitment, self-efficacy, beliefs, job satisfaction, trust and motivation and empowers the employees to accomplish those objectives. Transformational leadership has a direct and indirect impact on organisational citizenship behaviour (Bass, 1990). The following have been identified as components of transformational leadership;

- ***Idealised influence*** **-** They maintain a high level of integrity and are therefore charismatic which enables them to instil acceptance of organisational goals and their alignment with workers' individual values.
- ***Inspirational motivation*** **-** Transformational leaders are able to challenge followers and provide meaning which will motivate their followers hence arousing the spirit of the team so it displays enthusiasm and optimism Bass, 1990, p13). The transformational leader builds relationships with followers through interactive communication, which forms a cultural bond and leads to a shifting of values by both parties toward common ground. The leader inspires followers to see the attractive future state, while communicating expectations and demonstrating a commitment to goals and a shared vision. Idealized influence and inspirational motivation are usually combined to form charismatic inspirational leadership (Bass, 1990).
- ***Intellectual stimulation*** -Transformational leaders stimulate their followers' efforts to be innovative and creative. They solicit their followers' ideas and creative solutions to problems, thereby including followers in problem solving.
- ***Individualised consideration*** -The transformational leader disburses personal attention to followers based on the individual needs hence fostering two-way communication. They develop followers by delegating tasks and then unobtrusively monitoring those tasks (Bass, 1990).

To Bass (1990), leadership is measurable in terms of the influence the leader has on followers. The followers of a transformational leader trust, admire, respect and are loyal to their leader because of the leader's qualities. The leader offers followers something beyond working for self-gain. They inspire mission and vision and give identity to their followers. Their idealised influence (charisma) enables them to motivate followers. They encourage followers to come up with new and unique ways to challenge the status quo and change the environment to support success.

Further, they (transformational leaders) make the difference between success and failure and make a great difference for an organisation's performance at all levels. A leader's job should be more than just exchanging material, social and personal benefits for services rendered by employees. Transformational leaders ultimately develop a powerful influence and establish value congruence and trust. They articulate

vision in a clear, appealing manner and explain how to attain it. They act confidently and optimistically, express confidence in followers and emphasize values with symbolic actions. They lead by example and empower followers to achieve the vision and are concerned with overall development transforming the personal values of followers to support the vision and goals of the organisation by fostering an environment where relationships can be formed. They establish a climate of trust in which visions can be shared (Kruse, 2013).

While there are different personality styles of transformational leadership , they all succeed because of their transformational leadership qualities. Transformational leadership can be learnt. Organisational and HR policies can be used to increase the level of transformational leadership and it should be made a subject of management training and development (Bass, 1990). Unlike Burns (1978), however, Bass (1990) did not see transformational and transactional leadership as mutually exclusive; he believed that this is a continuum with transactional on the one end and transformational on the other end.

Contrary to transformational leaders, transactional leaders work in the existing culture, established goals and organisational boundaries emphasising organisation, performance, evaluation and rewards. They are task-and-outcome oriented and focus on the roles of supervision, organisation and group performance. Concern is with maintaining the status quo and day-to-day progress towards the attainment of goals. Supervision, the use of rewards, punishment and attention to task performance is key. It follows then that they work effectively under strict time and resource constraints in specialised projects in particular. As Bass (1990) puts it, transactional leadership emphasizes the task at hand and focuses on satisfying the self-interest of those who perform. The leader promises and affords recognition, advancement and rewards for such in a relationship that portrays a transaction where contingent rewards are given for good performance while non performers are warned and disciplined. Managers will only intervene when procedures and standards are not met and actively search for deviations from rules and standards and take corrective action as necessary (management by exception). This echoes the Scientific management style of the machine age and will also be efficient in those instances where adding value to existing innovations and implementation of new innovations following their exploration is key (Marcus and Mugadza, 2015).

Whether required leadership at any moment is dominantly transactional or transformational, will determine ability and willingness to transform. This in turn, is determined by the extent to which the leadership understand the system in which their organisation operates and will determine its ability to move to the desired end-state of the organisation. Failure to realise this state results in a collapse of the system with the occurrence of unintended consequences (Merton, 1976; Norton, 2008). The ability to transform, is a crucial attribute for any organisation if it is to be capable of surviving in turbulent and changing environments.

Writing on leadership, Bennis (2003) identifies four competencies of a leader;

- Possession of a **vision** and the ability to engage others by creating shared meaning. This is the ability to persuade others to make that vision their own and it requires one to have empathy for their followers and be attuned to them, feel their pain, wants and needs.
- A distinctive **voice, purpose, self-confidence**, and a sense of self and other abilities- collectively called emotional intelligence which is more so important as the modern media broadcasts it everywhere.
- **Integrity**- character and moral compass which is aided by belief in something outside oneself believes that character is the most important attribute for a president; even more important than such issues like foreign policy etc.
- **Adaptive capacity**- the ability to quickly and intelligently adapt to relentless change. Speed is of the essence, decisions have to be made quickly even before data can be gathered. Adaptive capacity is a form of creativity that encompasses the ability to identify and seize opportunities.

The study of leadership, according to Bennis (2003)is not susceptible to rules because people are neither predictable nor uniform. There are no easy universal truths, but only opinions. He captures this well in his famous quote;

'Leadership is like beauty: it's hard to define but you know it when you see it' (Bennis, 2003, page XXX)

Bennis (2003) further acknowledges the importance of the context in which leadership takes place- a point echoed by Flood (2008)and Henry, (2013). He also believes that the ability to lead in a world characterised by radical change is dependent on the leader's ability to understand their world. Failure to master one's context results in them being mastered by it. Successful leaders have the ability to express themselves fully and freely. The key to full self-expression is understanding oneself and one's world. The key to that is

learning from one's life and experience. Bennis (2003) further, regards full self-expression as the essence of leadership and it is knowing oneself, weaknesses and strengths as well as how to deploy strengths and compensate for weaknesses. Successful leaders, in addition to these, know what they want, why they want it and how to communicate what they want to others so as to get their cooperation and support. They know how to achieve their goals.

Contrary to the belief in 'born leaders', Bennis (2003) believes that the ability to lead can be learnt because to him, all people have some capacity for leadership. The process of becoming a leader is similar to the process of becoming an integrated human being. All people are the sum of their life experiences but leaders are distinguished because they amount to more than the sum of their experiences and they manage to make more of those experiences. It takes the will to change and develop one's potential. Anyone is capable of self-transformation and this is a process with no beginning nor end but recurring themes with both formal and informal education. This echoes Bass's (1990) position that transformational leadership can be learnt.

The leadership of an organisation is responsible for its effectiveness as the success of the organisation rests on the decisions taken. It is important for leaders to realise that;

- staying with the status quo is not acceptable
- the key to competitive advantage is the capacity of leadership to create the social architecture capable of generating intellectual capital;- ideas, know-how, innovation, brains, knowledge and expertise

Bennis (2003), argues that restructuring and reengineering cannot/ are not enough to lead the company to prosperity. What is needed rather, is re-invention of the company which is only done by empowering and supporting the people- being transformational.

2.2. Systems Thinking Approach to Leadership

The following is not and exhaustive presentation of Systems Thinking perspectives on leadership Tate(2009) outlines core principles of Systems Thinking that are relevant for leadership. To Tate (2009), for a leader using the Systems Thinking perspective, the following aspects apply:

- views the organisation as a system and explains things in terms of the system's overall purpose
- they focus on the system's purpose ahead of its processes and procedures,
- they synthesise rather than analyse,
- they personally examine and check what's going on in the organisation,
- they seek to understand the system as a whole and do not let short-term pressures get in the way of this,
- they build and make use of feedback loops,
- they understand the complex dynamics through patterns and feedback loops rather than cause-effect links
- they value and facilitate emergence
- they listen to and value what the customer wants as well as understand and respond to demand
- they seek continuous improvement
- they encourage self-adaptation
- they consider all the players and actors of the organisation
- they are aware of natural oscillations
- they do not isolate strategy makers and strategy making from the front line
- they stimulate and seek organisational learning
- they embrace the edge of chaos and make the most of uncertainty

Tate (2003), further, presents and argues for a systemic view of leadership and views the leadership role as one factor in an intricate system of interacting elements, These elements (systems) affect the application of leadership in organisations and how it can be improved. From a systemic view, leadership, is a social activity that is not only cognitive but an empathic pursuit conducted through relationships. It relies on interacting with people and other 'organisational things' (Tate, 2009).

The pieces interact and connect to form a complex leadership puzzle that is found in the leader's immediate environment. This entails that leadership should not be sought within the individual but within the organisation's system. Leadership is a system found within systems. The role of organisational leadership is therefore, to optimise that system. Echoing the sentiments by Flood (2008) and Henry (2013) stated above, Tate (2009) is of the view that attempts to assess a leader should appreciate the time, place and situation of the leader. Moreover, any attempt at improving leadership should not isolate leadership from the 'whole system in which it operates and of which it is part.

2.3. Design Thinking

Design Thinking was originally coined by David Kelly of the IDEO design School (Brown, 2008). It is a systematic approach to problem solving that starts from considering the customers and how to create a better picture for them (Liedtka and Ogilvie, 2011). Initially applied to business, especially product design. where innovative products are designed to meet people's needs, Design Thinking is now being extended to other human centred (softer) problems (Miemisi, 2010). She further described Design Thinking as a set of principles from mindset to process that can be used to solve a wide range of complex problems ranging from product development to organisational and societal problems as it is integrated with various tool-kits as appropriate. In this process, Design Thinking has been observed to adopt a systemic stance even though design thinkers do not necessarily use Systems Thinking language (Mugadza, 2015).

Various approaches to Design Thinking have been put forward. The IDEO approach, (Brown, 2008) adopts the classical product design philosophy. The starting point is based on a known outcome, the end user has a desire for a new product or process or wants to achieve a new dispensation for the organisation such as 'doubling the bottom line profits'. The Ackoff Collaboratory and the Da Vinci Institute process are solely based on a systemic (holistic) approach. The starting point is unknown and the process is based on the notion that you do not know what the real problem is? The process is based on Ackoff's (1981) 'interactive planning' approach in which a wide cross-section of a broad base of stakeholders participate in two parallel sessions. The one team focuses on identifying the 'mess' whilst a second team develops the so-called 'idealised design'. The Da Vinci approach integrates Design Thinking with Systems Thinking

2.4. Design Thinking Approach to Leadership

Tom Kelly postulated that Design Thinking, which has produced amazingly functional products, can be applied to leadership and produce great leaders (Kelley, 2012). He views creativity to be a vital trait for success in any industry and a most important trait for leadership. While every person has some measure of creativity, it is not always fully utilised as not everyone has been able to unlock their full creative potential. Design Thinking, to him, enables leaders to unlock their ***creative confidence*** and become more effective. Creative confidence is the ability to conceive creative ideas coupled with the confidence to act upon those ideas (Kelley, 2012). Leaders with creative confidence have the ability to conjure new ideas and the courage to test those new ideas. Once a leader unlocks their creative confidence, it spreads and their teams are also creatively confident making them agile, open and innovative which will make their leaders great.

3. Integration of Systems Thinking and Design Thinking

Mugadza (2015) summarises some of the current ongoing initiatives to integrate Systems Thinking and Design Thinking, and further outlines the following as favouring this integration:

- Systems Thinking already has developed a philosophy and tools that have been used and refined over a long period of time which will benefit Design Thinking
- Experiences of interventions that integrate the two have yielded positive results and prove this not only to be a possibility but has brought to light further understanding of factors that determine success
- The two are already being pulled to each other in their natural progression as Design Thinking moves to extend beyond product design and packaging. Systems Thinking is being drawn towards a solution based approach (Ackoff, 1981)

The paper concludes that Systems thinking and Design Thinking complement one another. Systems Thinking aims at being holistic by following a method whereby the understanding of a system starts from the apparent issue and widens the system's boundary by expanding the circle to include those other factors that may not be so apparent but have an influence on, and are connected to it emphasising the connections and synergy. Design Thinking on the other hand, is more empathetic and human centred and requires the modeller to be inside the problem and design the solution after having walked in the shoes of the affected (Mugadza, 2015). This empathetic angle in Design Thinking will improve on the holism that Systems Thinking emphasises and seeks. It will give stakeholders a chance to walk in the shoes of others and increases their understanding of the problem from various angles and potentially, increases the 'innovativeness' of the solutions reached.

Combining Systems Thinking and Design Thinking has the potential of improving on the holistic understanding of the current system as stakeholders have the opportunity to view the system from different angles. This has the potential to generate more informed ideas to transform the system with a more holistic

view. The abductive reasoning based Design Thinking (Mugadza, 2015) emphasizes the need to be empathetic and creative to produce and outcome that meets the need (solution based approach). An approach that combines the two should therefore be more holistic, empathetic and innovative (Mugadza, 2015).

4. Discussion and Conclusion

The foregoing account of how leadership has developed and some of the desirable qualities of successful leaders show that the field stands to benefit from the developments taking place elsewhere. It has been shown above that the requirements of the industrial revolution era called for and were best served by a transactional type of management as it required efficiency in the mass production of industrialisation. The interconnected nature of the Systems Thinking age and beyond however, renders this linear approach too simplistic for the new environment. Having a transactional oriented type of leader leading in the new environment will fulfil Bennis' (2003) quote that 'Failing organisations are usually over managed and 'underled'. It is beneficial for leaders to understand the paradigm they are in, how it differs from the preceding paradigms for them to understand their system and its paradigm (Henry, 2013).

It should be noted however, that while both transactional and transformational leadership roles have their place in an organisation, the danger is when the transactional orientated people are placed in wrong positions at the wrong time. Within one organisation, different styles may be most suited for different stages of an innovation. At the exploratory stage when new ideas and or products are being sought and experimented upon, the risk taking requires a transformational type of leadership. However, after new innovations are implemented and value addition to the existing innovations is required, transactional leadership may be more suitable (Marcus and Mugadza, 2015).

A design attitude and creative confidence (Kelley, 2012) have become imperative for today's organisation. This is not limited to product design but even design of management and operational systems to enable the organisation to be relevant and viable. Hence, in addition a systemic understanding of the organisation with clarity on interconnections within the organisation and its connection to its environment and the emergence that arises, there is need for a design attitude and creative confidence to enable organisations to come up with innovative products, working systems and services that are holistic but also empathetic to and meet the needs of the stakeholders in the systems of which their organisation is part.

A leadership that combines systemic and design qualities will be equipped to operate in today's environments that require adoption of a holistic stance and takes all stakeholders and their interests into account avoiding unintended consequences as well as the creative confidence (Kelley, 2012) to enable them to continuously conceive creative ideas and act upon those ideas.

A continuous ability to innovate and come up with new ideas and ways of working has become an imperative to remain competitive and viable. This goes beyond mere adaptation to change but shaping that change while meeting and exceeding the needs and expectations of stakeholders and taking advantage of the lessons learnt from the previous paradigms. It is in this context that the notion of managerial leadership (Da Vinci) comes to the fore. There is increasing evidence that transactional leadership traits are becoming less appropriate for the 21st century organisation.

There is room to further develop and better equip leaders of today by taking advantage of developments taking place in all the disciplines; Systems Thinking, Design Thinking and Leadership. A leadership that makes use of all three will be better equipped to develop organisations that are robust, more able to cope with continuous change and above all are easily adaptable to changing socio-political and rapid technological changes.

Figure 1 below summarises features of a Systems Thinking and Design Thinking approach to leadership.

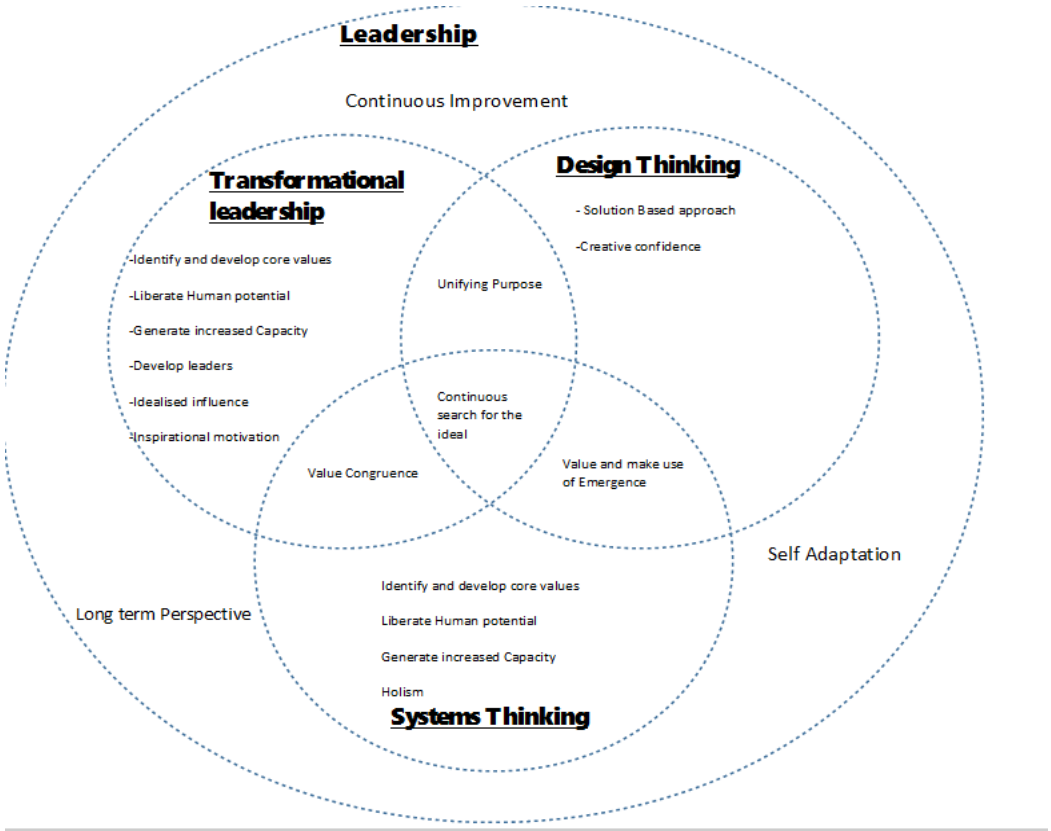

Figure 1. *Features of leadership integrating Systems Thinking and Design Thinking*

4.1. Theoretical Contribution

The integration of Systems Thinking and Design Thinking is gaining momentum and is being successfully applied to different types of problem situations. Mugadza (2015) sums up some of these initiatives and both the theoretical and practical benefits of the integrated approach in dealing with complex problems. This paper shows how the integrated approach equips leadership for the complex environment of the twenty first century.

4.2. Managerial Implications

The paper encourages leaders to think systemically and to adopt a design attitude. This will equip them with a necessary holistic view as well as appreciates the need for a design attitude that is crucial in the world of Innovation.

4.3. Limitations of study / Future directions of research

A major limitation of this paper is that it is an abstract paper with no practical application. Further research looks at organisations based in South Africa that have used the Da Vinci Design Thinking approach, a strategic intent intervention process that integrates Systems Thinking with Design Thinking. Another yet research stream is considering an even more pluralist approach to Leadership that integrates the Systems Thinking-Design Thinking Approach with Complexity Theory. These are in the search for and approach to leadership that will match the increasingly complex and interconnected world of the organisations

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