Chapter

Leadership in the Digital Realm: What Are the Main Challenges?

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Abstract

The current book chapter examines how digital leaders cultivate opportunities and address risks in a fast-moving, digital market environment. The focal point is to understand if digital leaders are able to keep control over all mechanisms triggered by the turbulent business environment. The chapter's challenge is to verify how digital leadership works in the specific context of aerospace industry through the case of the Boeing Company.

Keywords: digital leadership, dynamic capabilities, ambidexterity, aerospace industry, Boeing

1. Introduction

As always more companies strive to develop new digital capabilities, digital leaders are making significant changes to their organisational culture and strategy-making process. These shifts cause the emergence of important questions about what means to lead a digital business. Digital leaders should articulate a vision people can share and also create the conditions that facilitate digital maturity.

Given these premises, this chapter deepens the theme of digital leadership by stressing the fact that building collaboration and consensus, identifying strengths of individuals and providing meaning and purpose, together with enticing visions, is necessary for organisational effectiveness in the digital realm.

The focal point is to understand if digital leaders are able to keep control over all mechanisms triggered by the turbulent business environment. More precisely, as the digital environment makes organisational practices more visible to potential masses through employee engagement, a growing interest in relational aspects of organisational life and stakeholders' expectations for increased organisational transparency.

The chapter is organised as follows. First, it starts with a literature review on the topic to after propose a theoretical framework. The chapter proceeds with the case study of the Boeing Company. Finally, the conclusions highlight the main theoretical and managerial implications.

2. Theoretical framework

In order to explore the topic of digital leadership, in the current chapter, we first clarify the meaning of digital leadership and then carry out literature review on

ambidexterity and dynamic capabilities. Subsequently, we propose a theoretical framework that integrates digital leadership with the two above-mentioned streams of research.

2.1 Digital leadership

The issue of leadership has been studied under numerous perspectives and in different contexts [1].

The actual challenge in the theoretical context is characterized by the realised transaction between the static world and the digital world. This latter requires specific competences and capabilities able to enhance organisational relationships in the referring ecosystem [2]. In other words, theorising on leadership has been transforming from a modern, static leadership theory emphasising the leader-person (e.g., traits) to increased acknowledgement of the discursive resources and the organisational relationships involved in leadership practices [3].

Moreover, digital leadership refers not only to the fact to run businesses in the era of artificial intelligence but also consists in owning the right digital skills to spur the technological changes and innovation.

Digital leadership is based on specific factors [1], p. 121, such as 'organisational agility, engagement of skilled staff, leadership, support from technology partners, investment, culture, alignment of new digital technologies with existing IT, and learning from failed projects'. The main challenge is, indeed, to contextually manage and balance all these factors.

This kind of leadership also requires leadership pivotal capabilities in developing both internal and external collaboration in order to co-produce ideas and strategies for digital changes.

Digital leadership can be also considered a strategic factor that influences the well-being of internal human resources [4].

Following the thought of Zeike et al. [4], we share the holistic vision of digital leadership as an overlap between digital literacy (i.e., computer literacy, ICT literacy, digital competence and digital readiness) and digital leadership itself (i.e., digital leadership skills/capabilities/abilities).

Table 1 encloses definitions on the topic that share the same vision conceiving digital leadership as the ability to drive digital process as well as to create the roots for digital transformation.

Author/s	Year	Definition
El Sawy	2016	Doing the right things for the strategic success of digitalization for the enterprise and its business ecosystem
Larjovuori et al.	2016	The leaders' ability to create a clear and meaningful vision for the digitalization process and the capability to execute strategies to actualize it
Kai-Uwe Brock and von Wangenheim	2019	Leadership provides the transformational energy for firms to be DIGITAL and, as a consequence, successful with artificial intelligence
Zeike et al.	2019	Digitally successful companies have built strong leadership capabilities to envision and drive transformation. In this context, leadership capabilities are the ways in which managers are driving change

Table 1.
Definition of digital leadership.

In this light, two important areas are highlighted in order to succeed with a digital transformation: leadership capabilities and the operationalization and implementation of digitalization (see **Figure 1**).

As for the leadership capabilities, Westerman et al. [6] refer to the ability to create a transformative digital vision, energise employees by engagement, focus on the digital governance and build technological leadership.

In particular, five factors are crucial to understand how digital leaders can positively impact on the firm's success:

1. Devolved decision making: It means that decisions are made at the appropriate level closest to the customer; in this sense, leaders have to share power and support others to make the right decisions.

2. Collaborative achievement: It refers to work together as a team to achieve shared outcomes; leaders should enable teams to operate effectively and to work well along the whole process.

3. Agility: It is related to always improve and adapt to changing circumstances in line with purpose and direction.

4. Purpose and direction: This is strictly linked to the importance of storytelling and the use of narratives in leadership work.

5. Authenticity: It is to build trust and establish a corporate reputation; in this view, leaders act with integrity and balance to build trusting relationships.

Consistent with the research carried out by Brynjolfsson and McAfee [8], the digitalization is characterised by three different drivers: (1) Exponential growth of digital technologies; (2) economies of digitization; and (3) compatibility of different technologies.

The pivotal technological aspects are the connection of people and things via Internet and cloud technology. An important role is played by social media platforms, which are establishing huge personnel networks; the same approach could be used with companies (social collaboration platforms). At the same time, the 'Internet of things' is setting up networks of machines, wearables, products, etc. Based on these networks, a very huge amount of data is produced. This big data can be used (in real time) for data analytics and business predictions. In order to do that, artificial intelligence is becoming more and more important. The industry 4.0 concept is at the centre of these technological aspects. In the Industry 4.0 era, manufacturing systems are able to create the so-called 'cyber twin' [9] of the physical world and make smart decisions through real-time communication and cooperation [10]. Industry 4.0 combines embedded production system technologies with intelligent production processes to pave the way for a new technological age that will transform business models. The technological developments impact on the competitive environment (new business models, new competitors, new products and services, etc.) based on new technological possibilities.

As mentioned by Petry [7], the digital world can be conceived as a VUCA environment. It is an acronym that stands for volatility (frequent changes), uncertainty (lack of predictability), complexity (interdependence of different elements) and, at least, ambiguity (cause-and-effect confusion).

All managers need to adopt their leadership style to the VUCA environment of the digital age. Nevertheless, it is important to stress out that all individuals are

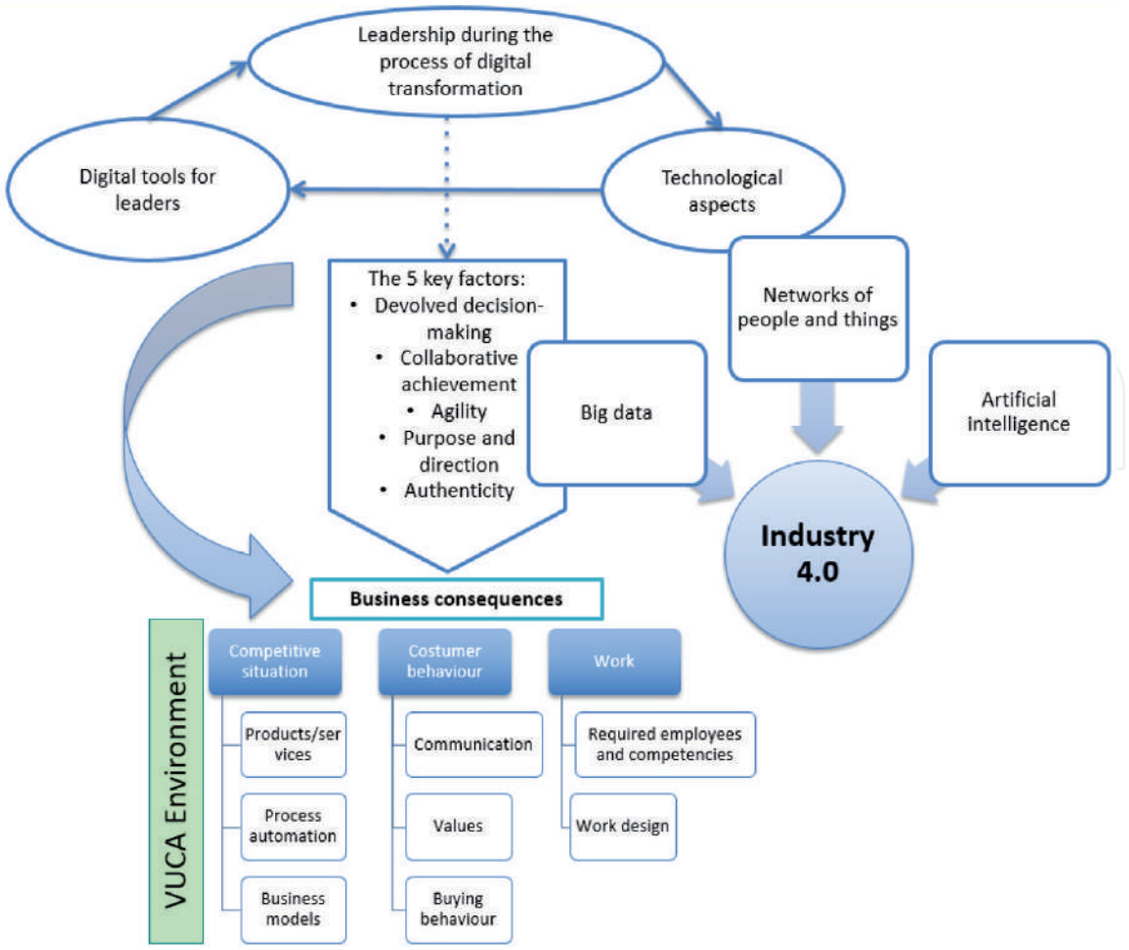

Figure 1.
Leadership capabilities and digitalization: Key factors and business consequences. Source: Our elaboration from ref. [7].

overstrained in a VUCA environment. So, since it is impudent to centrally control, digital leaders need to use the collective intelligence in the company (participative leadership [11, 12]). Moreover, leaders in the digital economy need to lead openly, give and receive feedback and be open for criticism. In this sense, digital leadership is an 'open leadership'; more specifically, a successful leader typically requires some kind of ambidexterity.

2.2 Ambidexterity

Bunch of literature has up to now defined ambidexterity, both from a strategic and an organisational point of view [13, 14]. There is still a missing issue, however, which concerns the main sources of ambidexterity in an organisation and the relative relationships between these individual sources and the organisation as a whole. The key point is therefore to apply the concept within organisations, in order to see the roots and the overall set of relationships connected with ambidexterity that can have a positive impact on firm performance.

This chapter studies, in particular, strategic human resources in ambidexterity, with specific reference to the top management.

The ambidextrous enterprise can be analysed in light of the management and decision-makers capability of research, creation and appropriation of value. In literature, the ambidextrous enterprise has been frequently related to the managerial skills to counselling/direction [15, 16], organisational skills [16] and cognitive processes [18]. In particular, we refer to top management skills.

Mom et al. [17] identify the characteristics of the 'ambidextrous managers' emphasising the distinctive traits. In fact, ambidextrous managers:

1. are contradictory [14, 18];

2. are multi-tasking [15, 19];

3. rapidly update their knowledge, skills and competence [19];

4. have high experiences in manage radical and unexpected changes; and

5. have specific diversity management skills.

Regarding the first trait, the ambidextrous manager is able to engage in apparently conflicting opportunities, goals and needs [17]. These contradictions mainly come out with strategic and organisational dilemmas. Accordingly, the ambidextrous manager has to balance the incongruities because recognising and accepting the contradictions can be the key of the business success [18], p. 527. In such a process, according to resource-based theory [20–22], mainly focused on the analysis of strategic resources and competences, able to create sustainable competitive advantage, dynamic capabilities are a key concept [23]. They in fact represent the organisational processes through which strategic resources are used in order to face and/or create changes in the market [24], p. 1105. They mainly refer to decision makers, at different levels.

The second trait refers to the multi-tasking nature of the ambidextrous manager. Some scholars [15] define in a broader meaning contexts and actions of managers and employees that show ambidextrous skills. Moreover, the analysis of the ambidextrous manager is closely related to his explicit and tacit knowledge exploration and exploitation [25, 26]. This aspect is also related to the capabilities of these leaders to manage diversities through a shared vision [27], emphasising the 'unity-in-diversity' of Dass and Parker [28]. Finally, the high experience in managing radical and unexpected changes is a distinctive trait of the ambidextrous manager, but it is the fundamental element of the ambidexterity. In fact, ambidextrous managers can be managed by both incremental and radical/revolutionary changes [14]. The relation between ambidexterity traits of project manager and the performances of the project team imply the definition of specific assessment techniques of the project success in terms of improvement of the organisational routines and of achievement of prompt results related to the project itself [13].

Blomquist and Muller [29] show that ambidextrous leaders' behaviours are contingent to the different project typologies, thereby underlining how the reactivity of the uncertainty management of project team activities is crucial. The different structures of the project manager ambidexterity are related to the adoption of informal social integration mechanism and of horizontal integration mechanisms linking all the organisational units involved in the project. This research result is a very relevant finding, thereby highlighting the importance of balancing both formal and informal elements in order to achieve ambidexterity in the project team management. Findings of this research have been validated in the study of [30].

2.3 Dynamic capabilities

The definition of dynamic capabilities (DCs) that seems to be the most appropriate for the subject of this paper gets inspiration from that of Zahra et al. [31] as

the capabilities and competences to create and/or reconfigure firm's resources and 'in the manner envisioned and deemed appropriate by its principle decision maker'.

According to this view, in the paper, top managers' dynamic capabilities are conceived as capabilities of managing strategic resources dynamically and, more specifically, refer to:

1. the capacity to create, modify, significantly extend or replace its business model/s [32];

2. the capability of singling out 'bottlenecks and choke points' in the value chain, in order to capture value from innovation [32], p. 28;

3. the capabilities of encouraging change through specific organisational structures (incentives, career policies, etc.) and developing specific routines for a continuous shedding of radicated assets; and

4. the capabilities of developing diverse organisational capabilities [33–36];

In front of the previous literature on this topic, such dynamic capabilities refer to Collis [37]'s second, third and fourth level of capabilities, based on the creation, modification and/or extension of resource-based, as well as on 'the capability to develop the capability to develop the capability that innovates faster' (p. 148). They also refer to the first level of capabilities singled out by [38]. In any case, contrary to Ambrosini and Bowman [39], dynamic capabilities are not processes that impact on resources and on their use, just because they are dynamic: they are resources able to generate successful changes, alterations and extensions of resource based and can be subject to some changes.

However, dynamic capabilities are not sources of competitive advantage per se. In order to create value and generate competitive advantage, strategic resources have to be valuable, rare, costly or difficult to imitate and organizationally used; in the long run, however, their value may decrease and become obsolescent: it is therefore important to analyse firm's leaders' strategic capabilities of managing them properly dynamically. From this point of view, it is interesting to analyse the top managers' dynamic capabilities as well as his/her capacity of creating and sustaining them.

Considering human resource specific skills and capabilities, both in terms of initial and personal resource endowment and of capabilities in resource combination and recombination, it is important to verify: (1) if these resources and capabilities, on the other hand, are inserted in a complex set of relations and organisational procedures so to create value for the firm and (2) if the talented leader transfers knowledge and competences that are different from his/her own but are important to better manage the firm and motivate its personnel.

Top managers' dynamic capabilities are the result of their personal resource endowment and of their capability of using and bundling strategic resources dynamically, creating new organisational capabilities and favouring change through specific organisational devices.

As regards the top managers' level, some scholars ascribe the micro-level origins of value creation to the managerial ability as it plays a strategic role in identifying opportunities and reconfiguring firm's resources [40], in using DC [39, 41] and developing them [42].

Furthermore, Rindova and Kotha [43] highlight that the antecedents reside in the top management team as it is considered a key factor in the process of DC development, supported by its organisational vision.

If we consider the sensing and seizing dimensions [44] richly analysed in the DC literature, it is needful to remind some studies [31, 45, 46] as they underline the importance of manager's ability, skills, experience and motivation level in the process of DC creation.

Besides, other works [47] specify that the CEO experience (i.e., age and CEO international experience) can be considered as an important attribute able to generate the DC.

The point is that the more these capabilities are characterised by difficult to imitate processes, especially those characterised by unique historical conditions and/or causal ambiguity, the more they could be firm specific. Others, like social complexity, depend on what they mainly refer to: if they regard the top managers' personal relations, they can be more human specific rather than firm specific; if on the contrary, they are mainly based on a complex set of relations within the organisation and between the organisation and its stakeholders then they can be more firm specific and not so much 'marketable'. Besides, in this case, the top manager himself may be less explicitly aware of his personal distinctive features.

Furthermore, in order to better distinguish the nature of some of the main DC of top managers, resource-based approach is applied. More specifically, in this study, strategic dynamic capabilities are considered as those that result valuable, rare, inimitable and organizationally used. Besides, with reference to the possible causes of inimitability, path dependence and causal ambiguity are considered on the one side and social complexity on the other side as different sources of inimitability. This distinction reveals to be useful in connecting top manager's DC with value creation and appropriation: some of these strategic DC, in fact, seem to be more easily embedded in the organisation, while other (especially the more socially complex) can more often and easily (even if not always) remain strictly bound to the individual.

Of course, the concept of digital leadership requires capabilities that authors synthetize in 'leadership capabilities to envision and drive transformation' [1] and capability to execute strategies to actualize it [5]. It is exactly not a thorough explanation on necessary digital leadership skills/capabilities/abilities that push towards

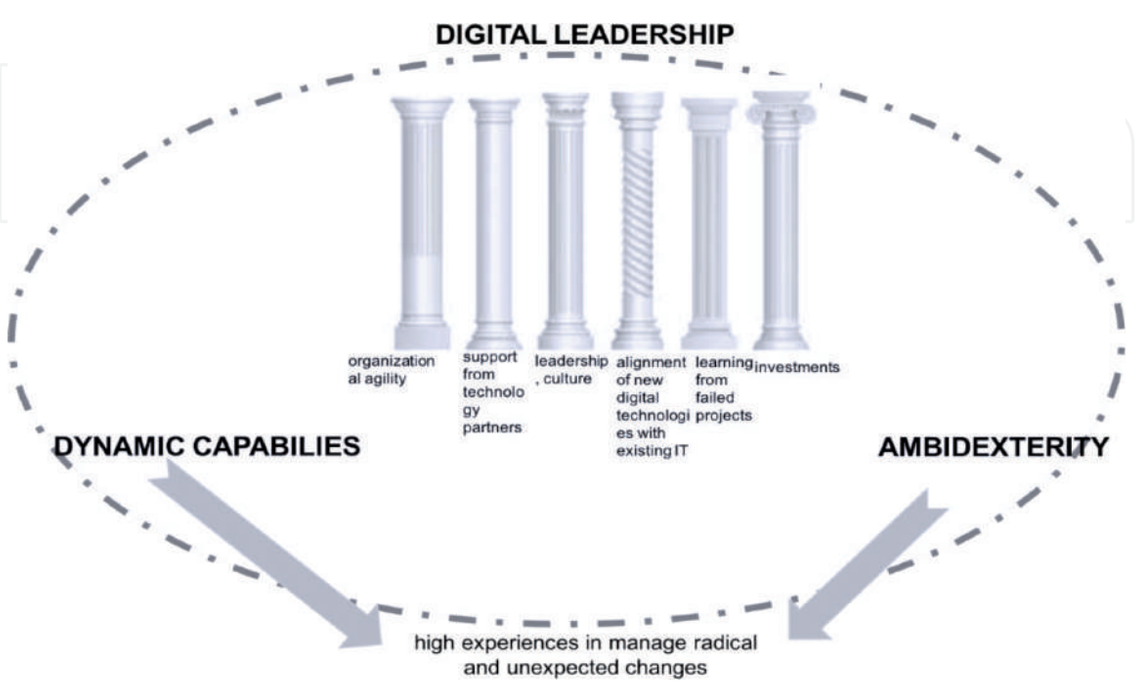

Figure 2.
Theoretical framework. Source: Our elaboration.

the integration of solid bases in strategic stream of research such as ambidexterity and dynamic capabilities. The choices on these two precise streams are due to the fact that these explain and support the cases of radical and unexpected changes either to manage or favour their creation (**Figure 2**).

3. The case of Boeing

As regards the case study, the reasons for the choice of Boeing feed their roots in some key factors:

- it is considered a pioneer in many aspects of the aerospace industry;
- it is more than 100 years old and this aspect is useful in order to understand how the company balances the past with the digital transformation;
- the aerospace industry is becoming more proactive, agile and lean since new technologies, outsourcing models and service providers have sprung out helping aerospace firms in adopting more agile enterprise culture. The case of Boeing shows how digital transformation helps in being more agile. This is one of the key factors a digital leader should possess (see also **Figure 1**);
- many scholars agree on the fact that with regard to digital leadership, Boeing offers a clear example also for companies operating in other industries [48–50].

Boeing is an aerospace company, the world's largest in terms of employees (150,000), customers in more than 150 countries, annual revenue (US$101,1—fiscal year 2018), showing an increase in year growth of 8%, delivering 806 aircrafts in 2018 [51].

The core business of the company is shaped by commercial jetliners, defence, space and security systems and service provider of support for client companies.

Bill Boeing created the company in 1916 with the clear philosophy 'build something better'. This philosophy is always actual since the company pursues innovation and changes through the continuous challenges of the aerospace industry.

Digital leadership claims the necessity of the engagement with the staff. The Executive Director in the Office of Innovation, Niky Allen, explains how the engagement is at the base of the leadership style of Boeing. Through a starting question 'how do we go from being order-takers to leading the digital conversation?', Niky Allen goads the team to work according to a bottom-up approach. This kind of engagement is based on a call through question 'why do we do things this way?' [52]. This allows to give the power to employees and to transmit the feeling of co-creation.

The company also works with external engagement. Indeed, not only the human resources are included but also external partnership. Niky Allen also explains that their competitive advantage comes from strategic alliances. Their initial question is 'How do we leverage external partnerships to bring best of breed solutions from the outside in?' [52].

The case of Boeing is interesting for the meaning of organisational agility. Traditionally, this is connected 'with the ability to rapidly adapt to market and environmental changes in a productive and cost-efficient manner' [53], p. 6, while the company shows the capacity to provoke changes being proactive rather that to adapt the market and the environmental changes. Indeed, the company focuses on the attention of leveraging its aircraft design, generating capabilities able to support in a real time and at competitive price their clients.

This agile organisation allows to create customer loyalty and on-time delivery of quality products and services.

Actually, this agility is obtained due to the implementation of a business model that recalls the alliances with external partners as claimed in the pillar of digital leadership 'support from technology partners'.

For example, in 2017, Boeing launched the project 'the Boeing HorizonX India Innovation Challenge 1.0' that consists in launching, through an open call, challenges for IT Indian start-ups.

Just to cite one of the winning examples, the project named 'ZestIoT' is based on the idea of creating a bridge between the airport and the airplane ecosystem using Internet of Things to optimise ground handling at airports and improve on-time performance of airplanes. Another important aspect of digital leadership is learning from failed projects. For example, the company has implemented specific mandatory workshops for its engineers on problem resolutions. Indeed, Bo Bejmuk, manager of the Boeing Space Shuttle Orbiter highlights 'I wanted additional training for our engineers so that they could better solve technical problems in a team environment. What we do every day in the shuttle program requires our best engineering effort, every day. This workshop will improve the quality of support we give to our customer', (https://boeing.mediaroom.com).

Digital leadership also claims the existence of alignment of new digital technologies with existing one. In this field, Boeing has established digital transformation environment (DTE) that is a digital factory including application development and runtime platform, cloud systems and hardware platforms.

All these examples are the mirror of how top managers everyday work in order to implement digital transformation inside the company.

Indeed, one of the hottest topics in this industry is the environmental sustainability that Boeing Company answers with specific strategies. For example, 787 Dreamliner uses 20% less fuel than the replaced model and the new model 777X has been projected in order to be the most fuel-efficient twin-aisle airplane.

The case of Boeing also shows how the overlapping between digital leadership and the deployment of ambidexterity and dynamic capabilities lead the company to be the world's leader.

Indeed, Boeing involves highly knowledge-based activities that are vital and have a great impact on both process-level and firm-level performance. For example, best practices and R&D represent two knowledge-based activities of the company and the actual CEO, Dennis A. Muilenburg claims 'So, we ploughed a lot of those savings back into innovation and R&D. And we spend billions of dollars every year on R&D investment here in the U.S′ [54], p. 4.

The steady and growing attention on lead-time reduction leads to the creation and development of new approaches by the CEO and the top management since the lead time constitutes a critical aspect in the management of this kind of industry. The fact the Boeing is able to match challenges in order to reduce the time to introduce new aircraft (time to market) show high degree of dynamic capabilities. Hence, the fact the company invents in lead time and time to market shows that Boeing owns firm specific and personnel (top managers) dynamic capabilities. According to this view, top managers' ambidexterity [14] allows balance the present strategic choice with future forecasts in terms of products innovation since they will be delivered after a long period from their order.

The case also offers an overview on the creation of a digital transformation environment (DTE). Indeed, Boeing has ideated the DTE and the Chief Information Officer and Senior Vice President, Ted Colbert describes the effort as 'a game-changer for Boeing. The productivity improvements we have seen from DTE partnering with our businesses are beyond our expectations, and we are ready

to expand the effort'. Again, according to Nicki Allen, Vice President Boeing 2CHR Program, 'We have to create our own digital factory that we can use as an accelerant to help lead us through this transformation. Technology is literally revolutionising and changing the way that we do business. If we leverage this correctly, that's how we survive another hundred years'.

DTE is shaped by infrastructure and 4.0 technologies to build innovative services, as well as a project management office to produce innovative processes.

According to executives and top managers' vision, digital transformation is based on cultural transformation and they are investing in global talents and transforming traditional IT work-spaces to modern environment.

Indeed, digital capabilities are spread at all the organisational levels [55]:

- through sprints conducted in Boeing's digital transformation environment;
- through hackathons led and driven organically by BCA millennials.
- Boeing measures the results of digital transformation through different metrics [56]:
- value: At Boeing value is measured in net new revenue reduction in cost and avoidance of cost;
- productivity: The creation of DTE labs has allowed to reach between 100 and 300% more productivity from the software development teams working;
- time on tasks: The new digital environment has allowed to accelerate the time to market. As the top manager outlines: 'We look at time to market in two ways. One is how long did it take to get a minimum viable product (MVP) out? Typically, it used to take us many months or years to get a credible MVP out into production. With this overall methodology and the new environment including the infrastructure, we were able to get MVPs out somewhere between a few days ranging to no more than three to four months, which is amazing'.

4. Conclusions and managerial implications.

This chapter shows the complexity of the topic of digital leadership. Indeed, it uses the theoretical lens of dynamic capabilities and ambidexterity in order to enrich with solid strategic management base the theoretical framework.

The analysis has been conducted on a firm operating in aerospace industry, the Boeing Company.

The reasons for the choice of this sector as major set of analysis have to be found in the following aspects that deploy high levels of digital leadership.

Even if digital leadership is an actual burning topic [1], the history of Boeing showed the importance of leadership, the one that today we label as digital leadership. Indeed, when they claim 'since July 15, 1916, we have been making the impossible, possible', this means that digital leadership has to be constantly developed with top managers' dynamic capabilities and ambidexterity. More specifically, in this sector, knowledge absorption, knowledge creation, knowledge storage and knowledge application play a key role for their own deployment. The case of Boeing showed that best practices include mechanisms able to capture internal tacit knowledge to create new knowledge and to perform

day-to-day improvements. On the other hand, R&D is a function based on organisational learning where knowledge acquisition and sharing are essential to create new innovations.

The company is proactive, agile and lean since the implementation of new technologies, outsourcing models and the right service providers have sprung out helping Boeing in adopting more agile enterprise culture.

Taylor made firms, such as the Boeing one, that operate on the basis of their customers' specific designs, and special requirements can obtain the leadership of the market.

Managerial implications show that successful digital leaders create clear and compelling visions for the future. They focus their energies on vision, long-term goals, aligning and changing systems and developing and training others.

The main contribution of this study is the further development of the concept of digitalization connected to leadership studies. However, as digitalization is a non-reversible societal effect, changing and creating new ways of communication, further research in this area is highly suggested. The process of digitalization linked to leadership is discussed for a main reason: as individuals and businesses are fundamentally changing as Kotter [57] described in a state of transformation, the highly complex situation of leading through this digital change is therefore placed on leaders of organisations: tasked to lead in a state of constant change, into an unknown digitalized future.

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Chapter

Leadership for Digital Working: Towards a Contextual Ambidextrous Approach

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Abstract

This chapter focuses on Smart Working (SW) adoption and its related leadership styles. We particularly aim at understanding how SW adoption requires an ambidextrous approach based both on directive and empowering leadership. Our theoretical framework, particularly, contextualizes the leadership approach by highlighting that within such blended context (off-site and on-site working mode), leadership should be ambidextrous, according to the specific working mode and, therefore, according to the opposite related dynamics, such as autonomy vs. control or task vs. objectives focus. The model, moreover, focuses on the importance of enabling an approach that implies new relational skills (or new combination of such skills) both for the leaders and the workers that, regarding their remote or physically approach, should evaluate to be more or less directive (or empowering). However, other contingencies should be analysed in order to have a deeper view for a successful SW adoption. Leaders and followers, therefore, need to be cognizant and aware about such contingent approach that claims for their flexibility and variety of behaviors, and they should develop, accordingly, a related behavioral repertoire. This contribution, by proposing a more complete and complex approach for SW adoption based on ambidextrous leadership, offers an original point of view that highlights the importance of balancing both directive and empowering leadership styles within a SW context.

Keywords: ambidexterity, directive leadership, empowering, smart working, advanced information technologies

1. Introduction

Nowadays organizations are continuously changing their business models due to a dynamic environment dominated by growing competition, new regulation and rapid technology evolution [1–3]. Digital technologies, such as cloud services and mobile devices, affect organizational work design [4] and enable constant connection to workplace [5–6]. Together with institutional change (i.e. normative issues) technologies have been allowing a disruptive scenario, by enabling the emergence of new business model, organizational forms and business processes, including social and working life. Digital Working, the possibility to work in a more flexible way in space (where work gets done) and time (when and how long workers engage in work-related tasks) dimensions [7–8] represents an example of such innovation. However, Digital Working adoption, and in general Digital Transformation, can

radically improve organizational performance [9], if macro-level changes actively interact with micro-level change [10–12] by reframing the cultural assumptions of organizations [13].

Among such assumptions, effective leadership is one of the main drivers for Digital Working adoption, as it is based on completely different employers-employees relationships, where employees' autonomy, trust and result-oriented activities are more important than control and task-focused behaviors. Accordingly, in the case of Smart Working (SW), a specific mode of Digital Working, an autonomous relationship between leader and worker is required, as tasks are usually performed away from the office. Since they cannot always interact in a face-to-face mode, they should compensate such physical distance by building trust, transparency and the reciprocal belief of honesty and effort towards organizational objectives [14]. However, SW context is not always characterized by off-site working as it is conceived as a blended approach which coexists also to the traditional, face-to-face, way of working.

Within a SW context, in fact, workers freely choose (according with specific individual agreement) on-site and off-site mode schedule for the working week. This peculiarity impacts on different organizational variables, namely, structure, processes and skills, and particularly it requires a set of leadership approaches that varies according to the modes in which workers decide to perform. Different implications derive from such peculiarity. By starting from such peculiar characteristic, the aim of this contribution is to understand more about leadership in SW context and, particularly, what leadership style should be applied for SW adoption. Our contribution is structured as follow.

We first describe the concept of Digital Working (and more specifically, of SW) and the main variables related to its implementation, namely, advanced information technologies (AITs), normative issues and cultural variables. Then, in-line with the study aim, we focus on specific cultural issues (particularly, leadership styles) relevant for its implementation. We describe two recognized leadership styles especially within a contingent perspective literature [15–17], namely, directive and empowering leadership. We specifically highlight how, for SW-oriented context (i.e. characterized by remote working and discretion about spaces, time and working tools choice), it is important to enable an ambidextrous approach to leadership according to working modes. This implies new relational skills both for the leaders and for the workers, which, regarding to their remote or physically approach, should improve organizational performance.

2. Smart working: a flexible approach to work

For the aim of this contribution we consider a specific, blended-type of Digital Working, also known as Smart Working. SW is a particular type of Digital Working, different from teleworking and remote working, as the former is usually configured as a mode of working outside the workplace through computer-based technology tools, by simply transferring the office work (and its scheduling and timing) to the home, while the latter can generally be executed without the mediation processes of digital technologies (AITs) and generally distant from office premises.

Conversely, SW offers the possibility to work with flexibility in the space–time dimension throughout the mediation and support of AITs (i.e. group support system, cloud services or collaborative tools) [3]. However, it can be designed only for certain tasks that are not particularly depending on the organization physical premises: for instance, it is not applicable for medical or manufacturing units, while it is more adoptable for service-oriented organizations. The specific features of

SW provide organizations and workers with different advantages [3, 18]. The most important, by the organizations side, is the increase in productivity and organizational effectiveness. Such benefits are, at least in theory, related to the explicit responsibility towards individual and team job outcomes, due to more autonomy and less worker distraction: the off-site mode intensifies work for lacking of interruptions and makes it more liquid by offering the possibility to choose working during break as well as in the evening. SW helps organizations to develop a stronger goal orientation, which asks for more attention to goal setting and goal implementation [19]. These characteristics push organizations towards an organizational result-driven culture and, consequently, to a performance management approach. Moreover, from the individual side, SW mainly promotes people well-being (i.e. work-life balance and job satisfaction) due to the flexibility in working conditions enabled by the possibility to carry out tasks outside the company premises [18], with less time and budget spent on travel. Moreover, related to such factor, employees will probably increase their intrinsic motivation [20].

2.1 Macro-level change: technological and institutional issues

SW is very attractive for organizations, especially for the focus on goal orientation, organizational (and individual) KPIs and effective results. However, the adoption of SW without an integrated approach that considers the redesigning of business processes, as well as the reframing of cultural assumptions, is not sufficient to improve organizational performance (**Figure 1**). The literature is quite clear about the approach that should enable a digital transformation approach [7, 10] and, therefore, also the SW implementation. It does not happen automatically but requires a change management approach that involves a combination of hard (AITs) and soft (culture and leadership) variables that often require also a normative push.

Figure 1.
Main variables of SW adoption.

AITs should be reciprocally adapted to the requirements of the organization, namely, its basic assumptions, values and artifacts [13, 21]. According to sociotechnical systems principles and business process reengineering orientation to process measurement and radical changing through AITs [22], SW should be considered more than a technological transformation, as the introduction of AITs and the redesigning of business processes are a balanced and cross-disciplinary field for achieving strategic objectives [23]. Therefore, when organizations launch a digital transformation programme by implementing SW, they should redesign the overall working processes and workflows, by integrating technological issues within normative opportunities and cultural mind-set reframe, such as team interaction mechanisms [24], like relationship between leaders and followers, with a major focus on trust and on result-oriented behaviors. Only by the simultaneous implementation of AITs, legal issues and cultural reframe, workers can really benefit from SW advantages, like increased job meaning and autonomy as well as responsibility [25].

2.1.1 Technological issues

From a technological point of view, companies should design space for optimizing the work performance and use AITs (i.e. cloud services or smartphone App), for the dematerialization of the workplace. AITs should enable the paperless perspective adoption, like document-sharing digital platforms for performing and using digital information accessible at anytime from anywhere via digital and mobile devices. The concept of bring your own device (BYOD) describes how, for certain type of jobs, workers can perform far away from physical offices by only using their own digital device as tablet, smartphone or personal computer connected to a private or public network [3]. As a consequence of technology adoption, workers are always connected the office that is accessible anytime and anywhere.

2.1.2 Legal issues

Legal issues are fundamental drivers for SW diffusion and adoption especially for the public sector. For example, in the Italian context, SW (also called agile work) has been introduced by the Law no. 81/17, with the aim of increasing organizational productivity and enabling better work-life balance both in the private and in the public sectors. According to the Law no. 81/17, different aspects of SW are regulated, particularly:

- Workers' obligations: related to the possibility of performing outside the company's premises according to an adaptation of working hours within formal organizational rules limits, legal regulations restrictions and organization working schedules.

- Workers' rights: i.e. the regulation of use (when and how) of computers and mobile devices as well as the right to disconnection in order to enable the reconciliation of working, private and family life.

- Organizational issues: i.e. SW enables organizations to be more sustainable and competitive according to a way of working that should be more flexible and result oriented.

However, in Italy, for example, 1 year after the adoption of the Law no. 81/17, its effects are much more evident in the public sector than in the private sector. In 2018, 82% of large companies had already introduced or thought to introduce

Smart Working initiatives. In the PA, however, as many as 60% of organizations with agile work projects found stimulus after the Law adoption, and only 40% had foreseen it before [26].

2.2 Micro-level change: organizational features

In order to make SW effective, organizations should redefine their culture and redesign responsibilities deriving from the work relationship, particularly how managers and employees communicate with each other [27]. Cultural behaviors are, indeed, factors that have unique potential to promote or inhibit major changes in organizations. In fact, flexibility enabled by the opportunity to determine when and how (with which tools) to work is balanced by workers' responsibility and empowerment, mediated by motivational mechanisms that allow for self- and organization improvement.

2.2.1 Leadership for smart working: a contingent perspective

Within the cultural variables, we particularly consider leadership as an enabling process for the SW. Leadership is generally defined as the ability to influence others to actualization or achievement of a set of goals and objectives [16]. Despite different typologies of leadership proposed in the literature [16, 28–30], we consider a contingent perspective [15–16, 31–32] for examining the conditions under which each leadership approach to SW implementation is most effective.

According to such perspective, our basic assumption is that there is no a single best approach for the leader-follower relationships, but its effectiveness basically depends on the context [33]. We particularly use situational leadership theory within SW context by considering an ambidextrous approach [34–36]. Ambidexterity, a concept and framework initially proposed by Duncan [37], and then largely developed and applied [35, 38–41], is the ability to balance, in an integrated way, explorative and exploitative behaviors [42–43] carried out by the individuals or teams for organizations' survival and effectiveness. The use of ambidextrous approach suggests a paradoxical use of different leader behaviors to produce sustainable team performance [44]. According to Rosing et al. [34], we use the ambidexterity concept by focusing on two representative leadership styles: directive and empowering leadership.

They are specifically appropriate for dealing with blended working, characterized by the need for managing opposite dynamics such as autonomy vs. control or task vs. objectives focus.

Particularly, contextual ambidexterity leadership has been described through the concept of close (exploitative) and open (explorative) behaviors [34]. The former is typically associated to the set of leader behaviors that includes setting guidelines, monitoring task accomplishment and taking corrective action. We consider such behaviors as directive leadership style. The latter is typically associated with behaviors that encourage people to independent thinking (think out of the rules) and acting (to do things differently) by experimenting breaking of routines and rule and supporting efforts to challenge established approaches and status quo. We categorize such behaviors as empowering leadership style.

In the following sections, we describe directive and empowering leadership styles by highlighting that, for the blended characteristics of SW context (off-site and on-site working mode), there is no best way for leadership. Instead, we claim for a more contextual ambidextrous approach in which rules and autonomy as well as control and trust alternates each other according to the specific working mode and contingencies.

2.2.2 Directive and empowering leadership: towards an ambidextrous approach

Directive leadership is usually adopted on large organizations characterized by formal processes, procedures and rules that are used for controlling employees' productivity and behaviors. According to literature, directive leadership is effective for these organizational typologies in which rule, hierarchy and control are standard methods for managing people: they act as explicit coordination mechanism for followers, in which autonomy, trust and decision-making capabilities are substituted by the leaders' instructions, commands and control. Within such context leaders usually give followers specific directions and detailed instructions about task execution, by pushing them on performing task requirements according to formal rules and procedures [28]. Directive leadership is mainly top-down, as it relies primarily on position power that excludes followers' participation into the decision-making process. It is associated with task-focused direction, expressed through leader instructions, orders and goal setting process. The strong tendency to control of subordinate actions with close supervision, task planning and scheduling [29, 45] and punishment [46, 47] aims to influence followers' behaviour by ensuring that they follow procedures.

While directive leadership focuses upon external and top-down control of people, structure and rules, empowering leadership relies on internal control, self-direction, culture and values [20, 28]. According to the concept of empowerment, defined as an "extent to which leaders enhance autonomy, control, self-management, and confidence in their teams" [48], p. 541, leaders encourage the development of followers by lacking direct supervision and more responsibility-taking culture [29] through independent decisions, thinking and acting. The main assumption is that followers can perform tasks better in autonomous way [49], as empowerment intrinsically motivates workers [20]. The enabled relationship between leaders and empowered followers is, in fact, characterized by delegation, mutual trust, consensus and equal responsibility, thanks to bottom-up flow of communications and shared decision-making.

Despite the clear concept boundaries and differences between directive and empowering leadership styles, there is no consensus in literature about the effectiveness superiority of one style over another. Leadership effectiveness seems, in fact, context-dependent.

Directive leadership has been found be useful for the trauma centre, where employees have to follow orders and instructions that leaders formulate, especially where severity was high or when the team was inexperienced, while empowering leadership was more effective when trauma severity was low and when team experience was high [17]. Similar to such perspective, other studies found that empowerment is most appropriate when tasks are not urgent but innovative (if subordinates have the appropriate skills) [16]. Other studies show how directive leadership is useful for improving confidence and motivation to participate in technology-supported teams by reducing role ambiguity [50]. Further, directive leadership is positively related to performance within more structured tasks or problems [51], while empowering leadership is effective for less-structured tasks by allowing employees to generate more solution for problems [52].

However, related to environment stability, heterogeneous teams within stable environments may view directive leadership as unnecessary and prefer instead a participative decision-making process [53]. Under such situations directive leadership may cause unnecessary conflict [53]. Increasingly, directive style is appropriate for subordinates with an external locus of control [54] and may be also necessary in heterogeneous teams when the environment is dynamic, in order to bring together

the diverse team views for dealing with problems [53]. Finally, operating in online contexts, the structure and goal setting associated with directive leadership is likely more important than empowerment, especially during the early stages of online group interactions [55].

Given such context-dependent effectiveness of leadership styles, we adopt a contingent perspective: there is no a best way for managing people, but effective leaders should exhibit behavioral flexibility, namely, they need to display a variety of leadership styles depending on the situation [56].

3. A framework for flexible working: contextual ambidextrous leadership

Despite academic literature and professionals suggesting for an effective SW implementation, a transition towards more empowering behaviors [3, 7, 57], there is no evidences related to a more comprehensive approach for such transition. However, we think that SW adoption could also be facilitated by the directive leadership approach. In this conceptual contribution, we try to fill this gap by following a contingent view of leadership, based on directive and empowering styles. It suggests that SW adoption requires both leadership styles. According to SW mode, in fact, employees alternate, during the working week, both on-premise and off-site working, by requiring different leadership styles.

Our framework focuses on a more contingent idea about leadership for blended working, by highlighting that within a SW context, according to the general idea that one type of leadership will be effective in one situation, but a different type of leadership will be effective in another situation, leadership should be ambidextrous.

Particularly, our model considers four main quadrants based on the combination of different gradients of directive and empowering leadership in order to describe how, for a blended working context, not only an empowering leadership style is necessary (according to a work typology that is flexible and liquid), but also an ambidextrous style based both on directive and empowering leadership. In fact, a SW adoption implies a blended mode of working, where the same employees, or teams, perform their tasks in a blended fashion (off- and on-site) according to working schedule.

Therefore, leadership should be developed accordingly: it sometimes coexists with the traditional way of working, in which rules, procedures and leader instructions, typical of directive leadership, are necessary and sufficient for leading the workers, while during periods of off-site working, where face-to-face approach and visual control are excluded, it is necessary to set a leadership approach based on followers' autonomy and trust, typical of empowering leadership. This peculiarity requires a set of leadership approach that varies according to the modes in which workers decide to perform. Therefore, different scenarios derive from such peculiarity. We describe such scenarios on the theoretical framework on **Figure 2**.

3.1 Quadrant I

Within this quadrant there is mainly a situation where leadership is not effectively exercised, due to a lack of the possibility of exercising organizational power. These situations fall into the case of autonomous jobs and individual entrepreneurs that make autonomous decisions for their organizations and companies. This quadrant can be considered as a transition quadrant, especially if the entrepreneur decides to grow, by opening the quadrant II or quadrant III scenario.

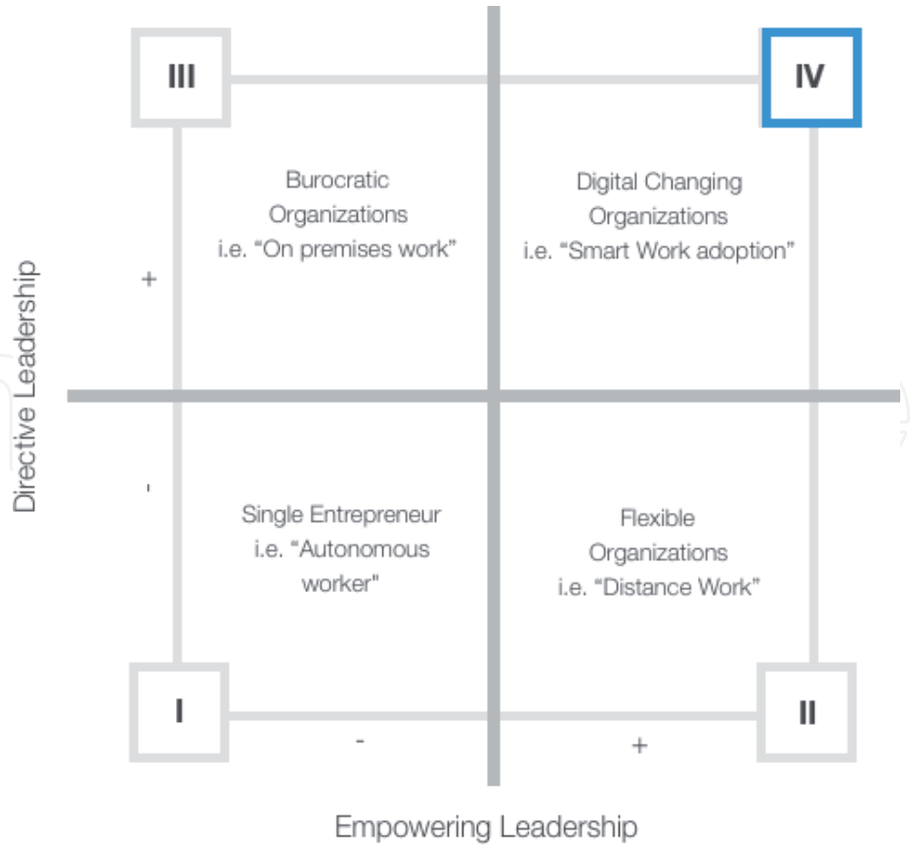

Figure 2.
Theoretical framework about leadership styles.

3.2 Quadrant II

Under quadrant II falls the directive leadership styles, typical of large and bureaucratic companies, characterized by routines' implementation, procedures and standardized behaviors. Under this situation leadership should be predominantly hierarchical in order to align followers to leaders' directives/instructions and organizational routines and to assure reliability and regularities of operations.

Moreover, such organizations use procedures and rules for control of employees' productivity and behaviour. According to literature, directive leadership is effective for these organizational typologies in which rule, hierarchy and control are useful mechanism for managing people, as directive leadership configures a strong situation for which there are uniform expectancies regarding appropriate followers' behaviour [58] in which productivity and behaviors are strictly controlled. The strong tendency to control of subordinate actions with close supervision, task planning and scheduling [29, 45] and punishment [46–47] aims to influence followers' behaviour by ensuring that they follow procedures.

Typical examples of organizations with directive leadership style are healthcare organizations, public administrations and public utilities but also large enterprises. The complexity of such organizations and their size usually require highly standardized and vertical decision-making procedures and mechanisms.

Within such organizations usually directive leadership is mainly top-down, as it relies primarily on position power that excludes followers' participation into the decision-making process which is the traditional coordination mechanism.

Such organizations have also spaces for a more flexible management in regard to emergencies or change in management projects, i.e. agile oriented. In fact, in case of emergencies or unforeseen, leadership should switch from a directive mode to an empowering one [32]. However, these switching processes are contingencies in

which leadership styles alternate themselves in order to match the specific situation, which is usually an ordinary one.

3.3 Quadrant III

Research states that empowerment is appropriate for flexible, decentralized and less formalized organizations, where participation and autonomy on performing tasks is emphasized.

Accordingly, under quadrant III falls empowering leadership, typical of more flexible organizations, usually represented by small size companies and start-ups. Such situations are characterized for high level of flexibility and are defined as weaker than those of quadrant II, for the lack of expectations for appropriate behaviors [58].

Leaders, in such situations, have more fluid boundaries than larger and stable organizations structures and have more discretion and less bureaucracy to deal with.

Empowering allows the team to participate to decision-making and take ownership of the provided solutions for improving productivity and achieve more effective and efficient results.

Empowerment is a style of leadership that predominantly characterizes the small work groups where the tendency is towards the resolution and management of emerging problems that do not require a high level of standardization, but rather operational flexibility even beyond the role to enable everyone to find the right solution to a certain task, activity or routine.

Symmetrically to what happened to quadrant II, also within such quadrant organizations are more rigid. Therefore, a structured approach, typical of directive leadership styles, may be required. Start-ups or flexible organizations that decide to grow need to be more structured, with more rules, procedures and hierarchy. Also in this case, like quadrant II, organizations need to follow a sequence from empowering leadership style to a more directive one.

3.4 Quadrant IV

While in quadrant II and quadrant III there are basically static styles of leadership, which can, however, change over time according to the specific situation of the organization, for example, a bureaucratic organization whose typical style is directive that wants to become agile or that it is managing an emergency or a small organization (where the style is typically empowering) that wants to grow should leave room for a more directive one where rules of procedure and hierarchy can guarantee the stability path linked to the growth of the company, the quadrant IV combines the two styles of leadership within the same context. Under quadrant IV fall the digital changing organizations, particularly large companies that exploit high potential of innovative projects by digitally transforming their core processes, like SW adoption. In large companies SW phenomenon is widespread, and its impact is increasingly evident and pervasive. This is, for example, what emerges in the Italian context from the survey of the Politecnico of Milano Report on Smart Working [26]: 56% of large companies surveyed (on a sample of 183 large companies, with more than 250 employees) have implemented SW projects; 16% of them are in the testing phase and are developing pilot projects that generally last about 6 months and involves about 14% of the employees; 44% of the companies are extending the participation to a wider audience; and the remaining 40% of companies' projects have taken off and involved all those who can be included in the initiative.

Under this quadrant leadership styles are completely different from the previous ones: it embraces contexts that need both the directive and empowering behaviors

in order to match continuously the requirement for the complex nature of SW processes. Leaders should enable (together with workers) a mixed approach oriented to autonomy, by leveraging on trust and result orientation, as well as to hierarchy, by setting rules, procedures and formal control. Therefore, within such quadrant, we claim the need for a more contextual ambidextrous leadership.

Smart Workers are, in fact, peculiar workers that, according to working schedule, perform both in a traditional bureaucratic way (on premises, as under quadrant I), where directive leadership is most effective, and in a more flexible mode according to an autonomous and trust-oriented context (on a more empowered setting, similar to quadrant II).

Contextual ambidextrous leadership balances the two opposite leadership requirements for blended working at the same time: close (exploitative) and open (explorative) behaviors. The blended peculiarity of SW conceived by definition for off-site (online) and on-site (offline) working needs different, sometimes opposite, leadership styles, namely, a contextual ambidextrous approach.

Leaders and followers (blue and white collars) should behave accordingly: when workers perform on-site, leaders and followers should adapt themselves to a strong situation, by interacting with a directive and task-based leadership, as tasks are monitored day by day, with a lacking of attention to final results, autonomy and trust, in a fashion typical of quadrant II.

Conversely, when workers switch to an off-site mode, both leaders and followers should adapt their approach to an empowering style based on autonomy, trust and result orientation, through the support of collaborative and mobile technologies, by performing as digital workers, in a more flexible fashion typical of the quadrant III.

The importance to enable an ambidextrous approach, therefore, implies new relational skills (or the combination of actual skills in a different and innovative way) both for the leaders and for the workers that, regarding their remote or physical approach, should be able to switch from directive to empowering and finally improve organizational performance.

Leaders and employees should be able to manage a repertoire of behaviors, namely, be hierarchical and directive (from the point of view of the manager); be able to follow rules and instructions (from the point of view of the follower); be able to empower by giving autonomy, trust and checking for final results (from the point of view of the manager); and be able to receive responsibility for results and work autonomously (from the point of view of the follower). The situation that falls under this quadrant is very different from the previous ones.

In this case, when team members work on-site, they usually have to exploit in order to get the job done. Thus, their team leader needs to support them in doing so with directive behaviors. Conversely, when team members work off-site, the context changes completely. They are far away from the colleagues and from their leader. They should accomplish task, as in the previous situation, but can encounter problems (systems and application that do not work, software that are not updated), or should decide about important issues without the possibility of having the real-time opinion of their boss or colleagues.

Therefore, they need to be supported also into an empowerment approach, for starting to explore ways to handle these issues by developing new solutions or better ideas without specific instructions or rules. Accordingly, the leader should change his/her style by displaying opening behaviors to encourage team members to complete job autonomously, search for new solutions, to think in different ways and to risk by going beyond existing schemas.

According to literature [34], this case claims for continuous switching between different styles and different situations that are not organized sequentially, but in a rather complex and unpredictably fashion.

4. Theoretical and practical implications

Building on contingent view of leadership or situational perspective, in which leadership and its effectiveness are dependent upon the context [32], our contribution aims at understanding more about which leadership styles should operate within a Digital Working context. It particularly offers an original point of view related to the role of contextual ambidextrous leadership for Smart Working adoption, in which blended working (on-site and off-site) requires an ambidextrous approach, namely, directive and empowering leadership. According to existing literature, which emphasizes the importance of empowerment flexibility and agility for digital transition [3, 7, 57], we propose a more complete and complex approach by highlighting also the importance of structure and rigidity typical of directive leadership. We particularly claim for an ambidextrous approach by refocusing, besides the empowering leadership style, also the importance of structure, command and control of the directive style. Effective leaders, therefore, should exhibit behavioral flexibility, namely, they need to display a variety of leadership styles, directive and empowering, depending on the situation [56].

Our findings particularly suggest new directions for research about leadership within digital changing organizations towards more dynamic aspects of leadership styles, including the contextual ambidexterity approach [35], and the related "switching" process, from directive and empowering, and vice versa, within the same context of Smart Working adoption. Our study underlines the importance of complementing empowering leadership with directive one, with a finer-grained look at the contextual capacity for leaders and followers to manage reciprocally directive and empowering relationships, in a quite paradoxical fashion.

The first theoretical implication is related to leadership for Digital Changing Organizations (i.e. SW oriented), which requires more than empowering, flexible and liquid approach.

Particularly, flexibility and liquidity, in the case of SW adoption, should be related to the theoretical concept of the ambidextrous theory [38, 41] and ambidextrous capacity, the capacity for leaders to delegate people as well as to direct them with regard to the specific situation in which the Smart Worker is going through. Ambidextrous leadership means, in this sense, the possibility for the teams to work both in directive and empowering fashion, by asking them to continuously adapt to such changes within the context in which they are working in. According to existing literature [15, 16], we claim that for SW approach there is no the best leadership style (i.e. empowering style) but a best leadership approach, as the leader (and followers) should be able to switch their behaviors according to the specific working mode they are dealing with. Studies about ambidextrous leadership [34] have advanced the understanding of open (empowering) and close (directive) leadership styles. Accordingly, we further extend such insights within a SW context, which, differently from an innovation project (that ends with the innovation implementation), requires a contextual ambidextrous approach in which the switching process between directive and leadership style is continuous.

The second theoretical implication is a consequence of the first one and is related to how managing the transition towards the ambidextrous leadership. Particularly, it requires, for SW context, a change management process in which leadership should be considered as continuously adapting to the context. This means that within SW context, change management, from the leadership point of view, is more than a planned approach [59]: it should be a permanent process in which organization and teams search endlessly for the most adapt solution for achieving effectiveness: a continuous search for the most effective combination of directive and empowering styles.

Therefore, within a Smart Working context, there is a different perspective that changes from how to sustain the transition from "directive" to "empowering" to an approach focused on how to sustain both "directive and empowering" styles. By analyzing the IV quadrant of our framework, we highlight the interesting idea of an interwoven process of changing in which complexity, more than linearity, leads the transition to an ambidextrous approach.

Our contribution has practical implications as well. Particularly, we suggest that an effective ambidextrous leadership requires, from a practical point of view, the development of an adequate mind-set, mainly throughout training on ambidextrous strategic mind-set that calls for both exploratory and exploitative behaviors. Leaders must internalize, transfer and reinforce ambidextrous ways of thinking and working by encouraging followers to accept different behaviors not as improvisation or lack of vision but as an overall strategy that considers the necessity of being adaptive, directive and empowering, depending on the specific context.

5. Conclusion

Our contribution aims at understanding more about which leadership styles should operate within a Digital Working context.

In Section 1 we have contextualized the concept of Digital Working, and more specifically the concept of SW, by distinguish it from other innovative ways of working, like teleworking and remote working.

In Section 2 we have described the main variables related to SW implementation, namely, AITs, legal issues and cultural variables. According to literature, we have highlighted how, conceptually, the effectiveness of SW adoption mainly depends on the simultaneous implementation of such variables. Particularly we have described AITs as enabling tools that allow organizations to efficiency and effectiveness (SubSection 2.1) and legal issues as enabling factors for digital innovation (SubSection 2.2). Moreover, as described in SubSection 2.2, we have focused on how SW adoption can radically improve organizational performance, only if macro-level changes, by interacting with micro-level change, reframe organizational cultural assumptions, like leadership approach.

Within the Sub-subSection 2.2.1, we set our basic assumption of situational approach of leadership for analyzing our research problem and focusing particularly on the ambidextrous perspective for managing SW contexts, namely, the simultaneous and paradoxical application of opposite behaviors: close (exploitative) behaviors, similar to directive leadership, as it includes setting guidelines, monitoring task accomplishment and taking corrective action, and open (explorative) behaviors similar to empowering leadership, as it includes independent thinking, the breaking of routines and supporting attempts to challenge established approaches.

In the Sub-subSection 2.2.2, we have described the peculiarities of directive leadership, more top-down, control-oriented and task-focused, as well as of empowering leadership more focused on workers autonomy, self-leadership and performance oriented. We have also highlighted that despite the clear concept boundaries between directive and empowering leadership, there is no consensus in literature about the effectiveness superiority of one style over another, which seems more context-dependent, as results from some research evidences that we have reported about the contingency effectiveness of directive and empowering leadership.

Therefore, in Section 3, we extended the reasoning about contingent leadership by building, presenting and describing our conceptual framework.

Such model highlights how, under a SW blended context (off-site and on-site working mode), leadership should be ambidextrous according to the specific

working mode and, therefore, the opposite related dynamics such as autonomy control or task objectives focus.

Particularly, we have highlighted the importance to enable an ambidextrous approach that implies new relational skills (or the combination of such skills) both for the leaders and for the workers that, regarding their remote or physically approach, should improve organizational performance. Therefore, leaders and employees should be able to manage a repertoire of behaviors, namely, be hierarchical and directive (from the point of view of the manager); be able to follow rules and instructions (from the point of view of the follower); be able to empower by giving autonomy, trust and checking for final results (from the point of view of the manager); and be able to receive responsibility for results and work autonomously (from the point of view of the follower). In fact, the ambidexterity approach should be applied not only regarding the way in which workers decide to perform: the leader and followers should also evaluate the more or less directive (or empowering) behaviors not only regarding off-site or on-site mode but also other important variables related to the Smart Workers. We propose, as examples, the following:

1. Digital skills: Digital skilled workers need less directive behaviors than workers less confident on AITs platform; the latter needs to be more directed and controlled when they perform on the digital environment.

2. Workers' age: SW represents a quasi "natural" way of working for digital natives that have grown up on digital age, while it is something of unusual for traditional workers that should adapt to the innovativeness of the AITs that are, nowadays, the most part of the organization population.

3. Organizational size: SW represents a digital transformation issue mainly for big and medium size companies, which often redesign their process according to more effective and cost-saving organization (i.e. premises, equipment and electricity). Such organizations are typically hierarchical with a lot of procedures and organizational levels.

4. Life cycle of the SW project implementation: During the initial phase of a SW project, organizations usually need more explorative oriented behaviors that empowerment can enable (experimentation, search and risk taking), while during the mature phase, they need exploitative behaviors, more oriented to the exploitation of the actual procedures and rules.

Future research should look at such further specific SW contingencies in order to deepen the understanding about the effectiveness of ambidextrous leadership.

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Chapter

Competitive Advantage Leadership in the Ultra Modern Era

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Abstract

The environment in the ultra modern era is changing rapidly and the business competition is very sharp, so there is a need for a new leadership style. Company leaders' need have good managerial and entrepreneurial skills, namely proactively managing change to benefit from opportunities arised. The leader is to have the best quality of leadership to lead and continue to adapt to the dynamics of environmental and market developments. They are supported by prime human capital to take advantage of their organizations. An ultra modern era leadership style with managerial abilities that proactively manages the changes and takes advantage of opportunities is mean managerial leadership. Entrepreneurial leadership is a person who has the quality to lead and constantly adapt to the changing environment and market to take advantage of his organization, and the concept of entrepreneurial leadership synergizes with managerial leadership that has been applied and developed in various business institutions and nonprofit organizations. Key factors in implementing human capital are people and skills, creating value for the organization—people as assets, remuneration, training, development and empowerment, and career development to promote the success of the performance of an organization or company.

Keywords: human capital, managerial, entrepreneurial, leadership

1. Introduction

It goes without saying that our environment is constantly changing. In today's twenty-first century, the changes are unpredictable resulting in a situation where adaptive institutions (those who perceive changes as a necessity) are the ones to survive and compete. One of the examples is the case of Nokia that the fall of Nokia is caused by the failure of its leader to accept changes in the market preference towards Android phones. The twenty-first century is regarded as a global leadership century where a notion of limitless border among nations, countries, and people should be comprehended. This provides the opportunities for everyone to become a leader and to work across the varied skills and cultures. The era of the rapid, yet disruptive world demands a new leadership style with managerial abilities that proactively manages the changes and takes the advantage over the opportunities. This type is the combination of managerial and entrepreneurial leadership.

In [1], a new leadership approach, i.e., entrepreneurial, is necessary for today's dynamic and competitive environment (including market atmosphere). This is to enhance the performance of an institution as well as its capacity to adapt and to take the advantages over the opportunities to manage its sustainability. Entrepreneurial leadership is expected to be applicable in a hypercompetitive and disruptive environment. Entrepreneurial leadership refers to an individual possessing the quality to lead and continuously adapt with the ever-changing development of the environment and market in order to take the advantages for his or her organization. Recently, the concept of entrepreneurial leadership complements the idea of managerial leadership that has been implemented and developed in several business institutions and nonprofit organizations.

The above phenomenon emphasizes the idea of the necessity for organizational management, where several of its employees have double position, i.e., as a manager and as an entrepreneur leader. With being said, organization leaders are urged to possess "prime" managerial and entrepreneurial abilities as a strategic element for the success of the organization. The aim of this book is to provide insight and the key concepts grounding from several studies on leadership. This book discusses programs and activities that are able to improve the managerial and entrepreneurial leadership, and maintain the quality of these two styles of leadership in sync and continuously.

2. Human capital

Human capital, in an institution or a company, serves as the most strategic resource. In [2], human capital refers to the way of dominating and developing knowledge, skill, ability, capacity, and innovation in an organization. Furthermore, in [3], the key factors in the implementation of human capital comprise of people and skill, create value for the organization—people as assets, remuneration, training, development, and career progression to promote the success of the performance of the organization or company. In [4], the interrelation between human and performance is reflected by the career opportunities and satisfying rate. These two aspects are central to the series of particular model for optimum performance.

Research in [2] issues the roles of human capital strategic, i.e., competence, compensation, and career, towards the performance of employees. The purpose of this research is to explore the extent to which the three independent variables, i.e., competence (X_1), compensation (X_2), and career (X_3), influence the dependent variable, i.e., employee performance (Y). The result of those research is found:

- the contribution of competence, compensation, and career towards the performance of employees is 57.5%. In addition, the percentage of 42.5% is influenced by other factors;

- the factor of competence (X_1), compensation (X_2), and career (X_3) simultaneously significantly contribute to the employee performance (Y);

- the factor of competence (X_1) significantly contributes to the employees' performance the most in comparison to the variable of compensation and career;

- it is revealed that the factor of career (X_3) is the second variable that significantly contributes the most on the employee performance; and

- the factor of compensation is not significantly contributes on the employees performance.

Another research in [5] conducted research on human capital in private company. It is aimed at exploring the extent to which the variable of training (X_1) and competence (X_2) contributes to the employee performance. The results of the research are:

- the contribution of competence, compensation, and career towards the performance of employees is 73.8%; on addition, 27.2% is influenced by other factors;
- the factors of training and competence simultaneously significantly contribute to the employee performance; and
- the factor of competence (X_2) contributes to the employee performance the most in comparison to the variable of training.

The result of the aforementioned studies can serve as reference in enhancing the performance of the organization in today's global era. This can be done by:

a. designing training programs in enhancing the performance of the leader and all member of the organization. The focuses of this program are as follows:
   - designing workshops to meet the demand of the tasks and condition of the leader, and organization staffs in the digital era;
   - promoting an environment that supports the utilization of technology to ensure the conduct of quality workshop;
   - ensuring a professional training transfer, this signifies that the mode of the training is not only in a traditional face-to-face mode. In the digital era, it is necessary to develop once experience and knowledge by exchanging ideas between organization leaders, the leaders with staff. This should be carried on a regular basis and continuously in the workplace. Furthermore, the format of the development program can take form in digital training, mentorship, and coaching;
   - designing skill equivalency programs for the leaders and organization staffs through competency tests based on the needs of the standard of education and industry;
   - implementing technology for the assessment of employees; and

b. competency development programs can also be implemented to enhance the performance of the leaders and staffs. The programs are able to:
   - improve the empathy of an individual towards his or her career, which drives the person to perform to their maximum capacity;
   - raise the initiative of leaders and organization staffs to maintain their performance and to carry out their duties without even being ordered;

- promote a sense of providing sincere service continuously for the users;
- improve the interpersonal understanding to cooperate with other organizations on the basis mutual trust;
- improve the effectiveness of personal competencies, i.e., integrity and good behavior according to the codes of conducts or principles of morality;
- improve the abilities in implementing the principles of human resources management to contribute to the success of the organization;
- improve the ability to manage interaction with customers and other organization in providing quality services to ensure the success of the organization;
- improve the ability to express ideas to the employees and leaders in dealing with issues, such as the provision of legal assistance, health insurance, and daily need services (cooperation of the employees);
- improve one's initiative by providing spaces and opportunities for leader and staffs to express their ideas in every event; and
- promote a situation that integrates the core value of honesty and responsibility.

c. compensation development programs in enhancing the performance of the organization staffs are as follows:

- increasing remuneration to the leaders and organization employees for their position and contribution in attaining the goals of the organization;
- increasing monthly allowance for the aforementioned staffs. The allowance is given based on the performance of the staffs;
- providing incentives for all the organization staffs as an award for their maximum performance;
- increasing indirect compensation by providing specific programs, i.e., health and life insurances for the employees; and
- maximizing the benefits of the pension fund as compensation from the organization to its retirement.

d. career development programs in enhancing the performance of the organization staffs be able to:

- enhancing the effectiveness of human resources career planning in organization. This focuses on the identification of the career path for the advancement of the leaders and employees;
- maximizing the effectiveness of individual career planning focusing on the responsibility of the individual for his or her career;

- improving the effectiveness of career development by facilitating the development of an individual's work performance and achievement in attaining career goals, and

- enhancing career development programs by integrated, transparent, and objective career development of the employees and institution.

The result of the research on the aspects of human capital above represents the efforts in developing the ability of human resources, i.e., employees of an institution. The efforts are, by nature, managerial attempts that are mandatory for a leader to manage to increase the competitiveness of the institution in a globalized era.

3. Leadership

The character of leadership in the future is different from the quality of leadership before. The most notable trait is the way the leaders uses their power to empower their subordinates; this term is well-known as empowering and enabling [6]. The importance of empowering and enabling concept reflects the changes from the idea of managing knowledge, and people were not integrated to managing people with knowledge to be integrated. In enforcing characteristic of leadership based on the above concept, and in [6], it mentions several abilities that should be possessed by the leader of an organization in this competitive era, such as:

- abilities to determine and formulate built shared vision of the organization;

- abilities to determine coordination pattern between fellow leaders and subordinates, e.g., integrating the potential of the subordinates in coordinating a multiple task-focused team;

- abilities to cope with conflicts in a fair and calm manner (*acknowledge and test mental models*);

- possessing broad knowledge to determine a better policy based on the dynamics and complexity outside the institutional system of the organization;

- encourage a challenging atmosphere to the employees in promoting innovation, creativity, and risk-taking attitude; and

- abilities to design a concept of a complex issues and conceptualize it into innovation and grounding for the learning in an organization (conceptualize, inspire, learning, and action).

Generally, the term leadership is defined as an individual with the capability to mobilize, synchronize, and lead a group and to express ideas in which other people accept it. A leader is central to promoting changes and is responsible for directing every works and dealing with obstacles to ensure the clarity of the vision of an institution. Another obligation of a leader is to conceptualize an organizational climate that promotes the independence of the employees and, at the same time, the employees aware of their responsibility. In [7], the leadership is closely related to the ability to motivate and influence subordinates, and a successful leader is the one who is able to direct and influence subordinates. Furthermore, a leader with this

quality is able to carry out his or her managerial roles based on the pre-determined goals. According to [8], a good leader possesses several characteristics as follows:

a. **balanced responsibility**: the term balance in this topic refers to the balance between the responsibility of a person for works and subordinates;

b. **positive role model**: role model encompasses the responsibility, behavior, and achievement that people expect to be possessed by a person with a certain position. In other words, a leader must be a good role model for his or her subordinates;

c. **good communication skill**: a good leader should be able to express is or her ideas concisely and clearly. The way the leader communicates must be done in an appropriate manner;

d. **positive influencer**: a good leader positively influences his or her subordinates. This is considered as an art of using the authorities of the leader to direct and change the perspective of the subordinates towards a particular point of view; and

e. **convincing**: a successful leader is able to take advantage of his or her communication skill to convince the others and direct them to fulfill their responsibilities.

The tendency of future leadership heads towards teaching organization in which it functions to anticipate changes and diverse knowledge, skill, and ability of human capital and to enhance the performance of an institution. The success of an institution in the competitive, globalized era is determined by the momentum of the institution to change or adapt with its business or industrial environment. The above discussion shows that the competence of leadership is central to the efforts of the organization in achieving competitiveness and gaining an advantage in this globalized era. A leader is urged to be responsible for directing every attempt in coping with issues and ensuring the clarity of the vision. Another obligation of a leader is to conceptualize an organizational climate that promotes the independence of the employees and, at the same time, the employees aware of their responsibility.

One of the most notable achievements of modern sociology of leadership is the development of role theory. Every member of society, according to this theory, has a certain position and plays a certain role. This indicates that leadership is viewed as an aspect of role of differentiation. Furthermore, this signifies that leadership is defined as an interaction between an individual with his or her members of the group. Ideologically, a leader or a manager has some characteristics, i.e., strong, persistent, and having broad knowledge, that outweigh other people [9]. Although leaders are few in numbers, their contribution is central to the success of attaining the goal of their organization. The vision of a leader is determined from the direction of the organization. Even though a leader is not the only contributing factors to the success of an organization, its absence results in the organization being static and has no clear target.

In the history of human civilization, the sustainability of an organization is a dynamic movement that is determined by a small group of people as who manage the organization. It can be said that the advancement of people comes from a few numbers of people with a specialty that eager to be a pioneer, creator, and expert in an organization. This group of people is leaders, and this fact signifies that leadership is a key to good management. In carrying out leadership duties, a leader is

responsible not only for his or her superior and for the success of the organization, but also for the internal problem of the institution. This encompasses the responsibility for developing and guiding human resources through training and development. From the external factor, a leader is responsible for the social aspect of a society or public accountability. The basic leadership theory discusses two factors, i.e.

a. factors involving in the conceptualization of a leader and

b. characteristics base of leadership.

Research on two aforementioned factors is more suitable than the theory. However, the theory of leadership is also intriguing as it helps to define and to formulate some issues in several studies. Some literature on leadership reveals that the theories of leadership are influenced by research in [10] the background of famous people that implement inheritance-based leadership. Further studies point out that every member of a society has different intelligence, energy, and moral power. The individual is also lead by a superior person.

In the further development, some theorists develop a view of the emergence of great leaders as a product of time, space, and temporal situation. In [7], two developed hypotheses of leadership are:

a. the quality of a leader and leadership that is determined by a situation of a group; and

b. the quality of an individual in coping with a momentary situation is a product of successful leadership that previously addressed a similar issue.

Two theories, i.e., *trait theory* and *situational theory* explain leadership as an effect of a single authority and power. The interactive effect between individual and situational factors seems to receive little attention. With that being said, exploring the concept of leadership should encompass:

a. the characteristics of effective, intellectual, and individual behaviors; and

b. the specific condition of an individual in the implementation of leadership.

Another opinion [10] asserts that aspects which should be focused on in order to understand the concept of leadership are:

a. characteristics and motives of a leader as an ordinary person;

b. conceiving that a leader should pay attention to his or her subordinates as they follow the leader;

c. a leader should play his or her leadership roles; and

d. institutional correlation which should involve leader and subordinates.

The above opinions can be categorized as a personal-situational theory of leadership. This is because the view discusses not only the present situation but also the interaction among individuals or between leaders and their groups. A theory of leadership that is developed according to the above three theories is *interaction-expectation* theory. This theory develops the role of leadership by referring to three

basic variables, i.e., attitude, interaction, and sentiment. It is assumed that an increase in the frequency of interaction and participation is closely related with the increase in sentiment or feeling of happiness and the clarity of norm of groups. The higher the position of an individual, the more appropriate the activities with the norm of groups. In addition, the interaction is more distributed, and more groups of members are convinced to interact.

A study in [11] reports that to support corruption eradication in an organization, a managerial leader should possess several qualities such as smart, sociable, confident, honest, trustworthy and responsible, encouraging members to perform and obtain optimal satisfaction, expressing thoughts concisely, passionate, valuing morality, focusing on internal supervision, anticipatory followed by good corporate governance, and not developing centralized leadership. A managerial, centralistic leader is a person who prioritizes forcing which impacts on legal aspects, such as:

a. vague rules and conditions where it cause ambiguous results for every violation committed by all members of organization;

b. inconsistent implementation of sanctions for violations;

c. over-early investigation, fact-discovery, and conclusion-making which are susceptible to biased verdict and law implementation;

d. vague law procedures, subjective perspective on a case, and lack of credibility; and

e. lack of law justice and equality.

The above research results serve as a guideline institutions or organization in improving its competitiveness. This is also to help the implementation of corruption prevention/eradication, i.e., prioritizing the organizational culture and the implementation of strict "organizational ethics" in an organization. A managerial organization leader is obliged to implement clean and good corporate governance in relation to the implementation of organizational culture and ethics. The following are some organization ethics that should be improved:

a. every human resource in an organization must follow his or her job description accurately and respond it immediately;

b. employees in all work units of an organization should implement their jobs based on a certain analysis. The employees are also demanded to pay attention to the details of the works;

c. employees in all work units of an organization should ensure transparent and responsible processes and the management and provision of facilities;

d. all leaders in every work unit should consider the impact or the outcome of the improvement of organization performance in every decision-making process; and

e. all leaders in every work unit are encouraged to implement *empowering* and *enabling* approach in organizing the operational works. The examples of these approaches are mentoring, coaching, team learning (learning with others), or team working. These are carried out together with fellow leaders or employees or between the leaders and the employees.

4. Managerial leadership

Managerial leadership is an important role demanded of managers due to their managerial works (technical works). In [12], typical activity patterns of managerial works are the people as the responsible managerial party working in a long period and often bringing the project at home. Their mind continually finds and analyzes new information. This is an automatic process, and they are always reminded to finish it under any circumstances. They keep receiving requests of information, assistance, briefing, and authority from the subordinates, co-workers, leaders, and other people excluded in the organization. This managerial activity is different from general perceptions that consider a manager is only making plans, arranging activities, and then waiting for an exception of normal operations that need much attention.

Manager activities are varied, yet it is often interrupted because of the high activity frequency and intensity so that talks are unfinished, and significant activities are interspersed with unimportant ones, requiring a quick change of feeling. A considerable number of managers are very reactive instead of being proactive. Most of their time is spent by carefully analyzing the problems of the organization/business as well as developing plans to deal with it. The remaining time is used to read letters or documents, handle administrative works, read reports from subordinates, write reports/memos, read journals or technical publications, and news related to managerial activities.

In [12], it claims that general manager network frequently reaches hundreds of people, either the internal or the external parties of the organization. Network interaction is necessary for information needs inside or outside the organization, which later affect the manager performance and career. The ability to develop network and cooperation is essential to support changes and innovations that can be successfully carried out. Developing network in organizations is performed with the following ways:

- having a talk with the people in formal or informal occasions in them organization;
- serving a particular committee, stakeholder, and task force;
- joining a group of community leaders, advisory board, and social club; and
- being active in conducting and attending several conferences, workshops, seminars, trade and industry exhibitions, profession association forum, education forum, science and technology, and others.

The managers should constantly build networks. They constantly interact and communicate to gain information from different sources, such as:

- written sources (disposition, memo, recording, letter, report, written order/instruction, and contract);
- planned and/or unplanned meetings; and
- in the site observations.

In performing interaction and communication, the main choice of the managers is by using “oral communication”; via telephone and face-to-face meeting to obtain

information exchanges and efforts to influence people. Managers prefer current information, which is from face-to-face contact with the ones who have information access, including those outside the managers' work sub-unit. Rumors are new information on the latest event and development; written reports, meanwhile, are summary-like information of the old event. New and detailed information helps a manager; information gained from facts, opinions, gossips, behaviors towards interests, and things related to him as a manager. Oral communication gives an effect, i.e., strengthened by intonation, movement, expression, and other nonverbal communication. Managers, in oral communication, also needs jokes and discusses job-unrelated topics, such as sports, arts, hobbies, and the like. Moreover, social activity and informal communication be able to facilitate them to develop and maintain the effectiveness of the strategic network relationship.

Managers, in decision-making, normally need supports and authorities from various parties, hierarchy levels, and organization sub-units. For this reason, they should consult with the subordinates, co-workers, and leaders regarding the vital decision to be taken. Every person can be the initiator of the decision-making that it does not only depend on people who make the last option among action alternatives. Some parties, managers, and functional specialists oftentimes disagree with the solution of the issues that will be decided due to different perspectives, assumptions, values, impacts, and consequences. In addition, decision-making is a complicated process that it takes months to years as a result of interruptions, issues deflected by the opponents, crisis, or it is returned to the initiators to be fixed based on critics and suggestions also note that strategic decisions which have impact on the organizations/institutions can be performed, depending on the influencing ability, the initiators persistence, and relative authority of the people who are responsible for the decision-making. Managerial decisions are not always on a large-scale, complex, having a big change, and going through a long political process that spends a lot of time; this rarely happens to managerial problems. Most managerial problems that should quickly be decided are related to: operations; work plans; giving authority by utilizing funds for office stationery and equipment purchases; wage increase for the employees; and work achievement allowance. This decision has its solution and low risk, and the decision-maker should consult with some people as well as should immediately make the decision due to the critical deadline; although this decision is not too important, it still needs the adequate technical capability, quick risk analysis, and action. A delay in decision-making, which is considered less significant as they want to get more information, will provide a negative impact on the operations of the organizations and their managers.

The most strategic decisions are made outside the process of formal planning and are formulated in a gradual, flexible, and intuitive manner. Besides, executive leaders set a strategy to reach general work goals and plans so that it is still possible to accept suggestions. The strategy is then perfected and becomes an agreement in the organization to be socialized and implemented in accordance with the situation and condition of each work unit. In [13], it mentions nine duties to be in a managerial position, as follows:

a. **supervising**: working together with the subordinates to improve performances, analyze strengths and weaknesses, give training, develop skills, plan works, and establish work achievements;

b. **planning and organizing**: formulating short-term plan; project implementation, budget plan; evaluating organizational structures; determining resources allocation and use; arranging short-term operation

goals based on long-term plans; and supporting and developing operation policies and procedures;

c. **making decisions—decision forms**: making a business decision with no doubt in an unstructured situation; provide deviation authority towards procedures of unusual cases or new conditions excluded in the rules/procedures;

d. **monitoring indicators—monitoring forms**: internal strengths/weaknesses; external opportunities/threats; performance indicators; company's finances and properties; market conditions; economic, social, cultural, and political circumstances; security defense; and technology;

e. **controlling—controlling forms**: work plans; budget plans; completion schedules of production/work along with goods and services distribution; productivity; goods and services quality; and operations effectiveness;

f. **responding issues**: response forms towards issues: responding to complaints; communicating to advance relationship and cooperation; negotiating; promoting to build and maintain the image of universities and products; and developing and maintaining trust from all parties;

g. **coordinating—coordination forms**: coordinating and communicating with other work units of the internal organization in which managers do not have direct control; fulfilling the set work plans related to other work units of the internal or external organizations; overcoming problems to achieve goals and performances; fostering work relationship with strategic partners; and resolving conflicts among important individuals due to the misunderstanding in executing the work;

h. **consulting—consultation forms**: technological development in particular organization that influence universities activities and performances; introducing new technology and techniques; acting as an expert; acting as a consultant; and giving solutions of another party's problems; and

i. **administrating—administration forms**: basic administrative activities; availability of information about the procedures and practices of work implementation; analyzing essential information for the organization; and arranging detailed (complete, accurate, secure, and easy-to-find administration, archive, and documentation).

In general, there are 10 manager roles to be applied in institution/organization:

a. **formal leaders' roles**: managerial roles for a formal leader are by performing particular legal and social duties (signing letters, contracts/MOU, and official permits); leading the meeting and ceremonial events; and participating in ceremonies and rituals;

b. **leaders' roles**: the roles as a leader include: being responsible for the functions of sub-units that are integrated to be a system to carry out the duties to reach organization goals; present guidelines to the subordinates; motivating the subordinates to make an achievement; and creating a conducive condition for the well-running duties;

c. **connector**: the roles of a connector are establishing and maintaining network relationship with individuals or groups outside the managers work unit, either in the internal or external organization; the nature of the connector's roles (composing a new contract/MOU; giving assistance as a basic aspect to help each other if needed);

d. **observer**: the roles as an observer constantly find information, such as reading reports and memos; attending a meeting and briefing; doing an observation; disseminating vertical and horizontal information; analyzing information to get business opportunities and threats; and conducting an information internalization that is considered significant;

e. **disseminator**: the roles as a disseminator included: developing and maintaining special access towards information sources inside or outside the organization; and forwarding vertical or horizontal information that is considered necessary;

f. **spokesperson**: the roles as a spokesperson are formulating important information to be delivered; delivering a statement about information values to parties outside the work unit of the internal and external organizations; following the procedures (middle-level and lower-level managers should report to their leaders; chief executives should report to their leaders or the owners); lobbying when dealing with the leaders and outside parties; and mastering actual knowledge regarding organization and its environment;

g. **entrepreneur**: the roles as an entrepreneur are as follows: initiating and designing changes; utilizing opportunities for the importance of business that supports organization; developing new products; developing new equipment; re-organizing formal structures; supervising the changes and improvements; and delegating to the subordinates as in line with their ability;

h. **person who addresses problems**: handling unexpected and sudden crisis, for instance: conflicts among the subordinates; losing a good and potential subordinate; fire/accidents; natural disasters; riots; strikes; and subordinate apathy (hopeless);

i. **Allocator of resources**: the roles as a resource allocator are allocating money, personnel, materials, equipment, facilities, and services; and controlling developing controlling strategies, coordinating resources activities, and integrating strategic achievements of the resource; and

j. **negotiator**: the roles as a negotiator are as follows: making a commitment; involving in several negotiations (contract between organization's employees and management); subordinates demand; contract with customers and suppliers; giving special/important works to a good and potential staff; and other ad hoc negotiations.

5. Entrepreneurial leadership

The dynamics of businesses/industries lately have an impact on the strategic behaviors of organization leaders, including university leaders. Uncertainty and rapidity of changes in science and technology affect the behavior changes of

businessman, CEOs of business and industry. Around the year of 2000, the concept of entrepreneurial leaders emerges because of the increase of business dynamics—which then comes up as an identification of entrepreneurial personalities and characteristics, followed by entrepreneurial education; then, contemporary works on entrepreneurial motivation arise. A new leadership type is required, i.e., business leadership to encounter the increased competitiveness and uncertainty in this dynamic market [1]. Such a type of leadership is "entrepreneurial leaders." Does entrepreneurial leadership exist?

In [14], it defines entrepreneurial leadership as an ability to take risks, have innovations, focus on duties, bear personal responsibilities, and have economic orientations; this presents the initial definition of entrepreneurial leadership. He argues that leadership quality is more than just being an administrator or manager. As such, this implies that leaders regulate the company with energy, confidence, persistence, and learning ability. In era before digital, the interesting question about entrepreneurial leadership as a new paradigm. People in this era of intense competition correlate entrepreneurs with leadership functions, i.e., should provide visions to develop products, services, and new organizations. A leader should also be entrepreneurial; they also opine that entrepreneurial leadership is associated with concept and idea, and it is frequently related to nonorganizational issues. Conversely, entrepreneurial leadership tends to have characteristics, e.g., tending to be individual-behaved, visionary, problem-solver, decision-maker, risk-taker, and strategic initiative-taker.

In [15], the concept of entrepreneurial leadership is clarified and the empirical measure of significant factors to build up entrepreneurial leadership is developed. Here are the definitions of entrepreneurial leadership that have several characteristics: creating visionary scenarios; motivating and playing the cast of characters for discovery; and exploitation of strategic values creation in an organizational environment. Entrepreneurial leaders can learn and develop knowledge, and in [16], it is believed that "the ability to develop, share, and improve knowledge will replace asset ownership and control as the main source of competitive excellence." Entrepreneurial leaders can increase their knowledge and promptly share it with their organizations. Fast learning and its sharing enable the entrepreneurial leaders and their organizations to get better quality than other organizations. In [1], the entrepreneurial leaders should always cope with a sudden change as well as understand that the dynamic market condition requires them to move beyond the increase that provides the value added (*incremental*). In the dynamic market, entrepreneurial changes need a real-time knowledge generation and strategic experiments, facilitating all organizations to identify opportunities and create a momentum to manage those opportunities. Entrepreneurial leaders understand the implication of resources and competences. A strategic implementation in a competition demands the entrepreneurial leaders to develop a unique combination between resources and competencies/abilities, which are defined as the main competence that creates competitive excellence in the market. In [16], it is also noted that leader's ability to develop and exploit their "main competence" will give significant results for the success level of the company.

According to [17], entrepreneurial leadership competencies are defined a special leadership ability required to successfully leading competitive and challenging activities, vital things that show up in the success of entrepreneurial activities, either in a new business or organization. Nevertheless, in [18], there is not a sufficient information about the process of entrepreneurial learning and where people learn these entrepreneurial leadership competencies. Moreover, as explained in [19], it might hope that the process of entrepreneurial learning is improved by the availability of a role model (example), private network expansion and strengthening, and temporary internship.

On that ground, a clear description of "entrepreneurial leaders" refers to people who have an appropriate "entrepreneurial" approach and ability to keep oneself taking part in the development of a rapidly changing situation or market as well as to exploit opportunities to get benefits for the organization faster than others. The presentation of this concept introduction causes some organizations to try to develop concepts in the business area. In [20], it specifically indicates entrepreneurial leadership as an entrepreneurship research field that is ignored, and in [21], it identifies a missing link in traditional entrepreneurship education, which makes it not conducive to leadership learning. In learning contemporary entrepreneurship, the recurring concept is that "entrepreneurship is interdisciplinary." The world is now experiencing an entrepreneurial revolution, which is more intense than an industrial revolution in the twentieth century.

The concept of leadership in entrepreneurship is a combination of two words: leadership and entrepreneurship. Therefore, one can contextualize that leadership in entrepreneurship involves gist in both concepts. In [22], it brings up the facts that entrepreneurship is a process of creating something different from others through:

- time use;
- provision of financial capital and risk along with psychological and social risks;
- compensation receipt;
- satisfaction; and
- personal freedom.

In this case, entrepreneurship is related to the invention or creation of new ideas that are different from others. An entrepreneur should have the characteristics of confidence, results-oriented, risk-taking, leadership, originality, and future-oriented [23]. By referring to the definitions of entrepreneurship and the characteristics of an entrepreneur, entrepreneurship is a process of inventing or creating new products/services, indicated by the behavior of willing to make time, providing financial capital or risk and psychological/social risks, receiving compensation, and having the satisfaction and personal freedom.

Leadership is generally an ability to mobilize, harmonize, activate groups, and deliver ideas to make other people understand, acknowledge, and follow him as a leader. In [24], leadership qualities include being intelligent, sociable, confident, truthful, trustworthy and responsible, persistent, good at expressing thoughts, and having high moral standards. In [25], the leadership refers to the process of the collective briefing that is impactful on mutual willingness to carry out the desired business to achieve the common goals. Furthermore, in [26], the indicators of entrepreneurial leadership are the high ability to motivate, the ability to influence other people, set direction, have a good communication skill, develop changes, address strategic resources, encourage people to be competitive, and good at finding opportunities. Entrepreneurial leadership is leadership characters that are strongly correlated with once concepts and ideas in driving his business to arrive at optimal results (profits). Those concepts and ideas include visions and missions, decision-making, applied strategies, and the like. Leadership characters in entrepreneurship raise inspiration and motivation for employees and business partners to gain business opportunities, in addition to the managerial direction that becomes their competencies to be a role model in entrepreneurship civilization. Thus, each business

unit requires leadership in entrepreneurship. This condition often emerges issues in strict competition along with rapid communication and information technology advancement. Many company units are collapsed lately.

In [27], it is argued that entrepreneurial leadership is one's ability in the process of collective briefing that has an effect on mutual willingness to always invent or create new ideas by giving motivation to be oriented towards the future to look for opportunities, developing changes, directing to be results/achievements-oriented, taking risks, and being persistent. This indicates that entrepreneurial leadership and creativity are variables that cannot be ignored as the dominant factors to predict the level of innovative behavior of product producers in a company. By referring in [28], the innovative behavior of product/service producers has become a fundamental aspect to realize an optimal performance achievement in business activities. This is because such behavior plays a crucial role in improving their product competitiveness as well as encouraging them to do more different things, even within limitations. Hence, the innovative behavior of product producers will try to use their limitations by optimizing new ideas to create new, different, more useful, and more valuable products/services. The results of those study provide further implications that human resources (employees) who are innovative and responsive to the advancement of science and technology must be prepared earlier through educational institutions/schools (early childhood education/kindergarten, elementary schools, junior and senior high schools, and universities). These institutions play a strategic role and cannot be set aside in forming and preparing innovative and responsive behavior of the young generation towards the advancement of science and technology through the character development of entrepreneurial leadership and creativity in the curriculum (hidden curriculum) and noncurriculum (extracurricular).

In [29], higher education institution plays a crucial role and is very potential to educate and prepare the next generation of entrepreneurs leadership in a country, and the key to the success of entrepreneurship leadership development among students (young generation) is that the higher education institution should do the following things:

1. encouraging students to take active and independence activities, by having a hand on experience in entrepreneurship, such as establishing a business while studying through start-up capital program facilitated by higher education institution/university;

2. facilitating them to have an internship in companies that partners with the university; and

3. business mentoring by various entrepreneurs facilitated by university through seminars, workshops, focus group discussion (FGD), etc.

6. Competitive advantage leadership

Competitive advantage leadership is leadership that has managerial and entrepreneurial abilities supported by human capital (**Figure 1**). The foundations of leadership that must be possessed are:

a. move the organization and its job descriptions effectively;

b. able to analyze tasks and operational details;

c. carry out tasks openly and responsibly;

d. mastering facility management so to be able to provide organizational operational facilities effectively and efficiently;

e. ability to make appropriate decisions by anticipating the impact of decisions on the performance of the organization and its members;

f. always empower the organization and its personnel and carry out continuous monitoring; and

g. always provide couching and counseling to his subordinates.

These basic leadership abilities must be followed by managerial and entrepreneurial abilities, while the managerial abilities that must be possessed are: supervising; planning; organizing; making-decision; monitoring indicator; controlling; response issues; coordinating; consulting; and administrating. While the entrepreneurial abilities that must be possessed are:

a. having strong concepts and ideas, and able to move business effectively and efficiently;

b. having a vision and mission that is supported by the ability to make appropriate decisions and ability to implement the outlined strategy;

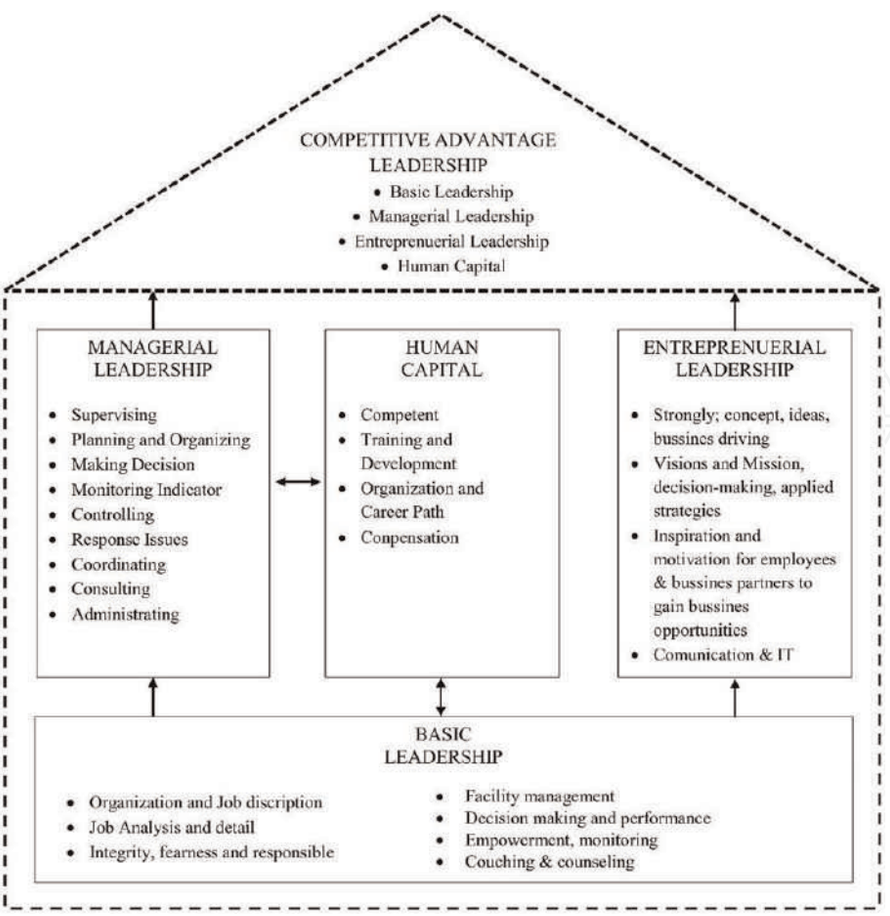

Figure 1.
Competitive advantage leadership architecture (by Soehari TD, 2019).

c. having the ability to inspire and motivate employees and business partners to obtain opportunities and, at the same time, utilize these business opportunities to achieve business goals; and

d. the ability to communicate and use IT to support business operations.

The important factors of human capital are:

a. competence;

b. training and development;

c. organization and career path; and

d. compensation.

Four important factors of human capital are used to support basic leadership, managerial leadership, and entrepreneurial leadership so as to create business competitive advantage.

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Chapter

Digital Leader-Followership for the Digital Age: A North American Perspective

Petros G. Malakyan

Abstract

This chapter examines the emerging literature on contemporary leadership, particularly *leadership in the digital age*, *digital leadership*, *e-leadership*, and *cyber leadership,* in the context of socio-cultural changes, theoretical shifts in leadership studies, and leadership education changes observed in the United States in the last two decades. Although the above literature shows a shift from leader-centered and hierarchical to follower-centered and relational leadership, it is not clear how the old may yield to the new paradigm of leadership. There seem to be no discussion in the leadership literature on how to transition from pre-digital to digital era of leadership. While this study acknowledges the discontinuity and tension between the contemporary and the traditional leadership approaches, it offers theoretical and practical alternatives for transitioning from traditional to contemporary leadership in the digital age. Since leadership research has already shifted from single-role identity to multiple-role identities, which enables individuals to acquire and master both leading and following skills in today's organizations, this study is optimistic that the *leader-follower trade* (LFT) or similar approaches may build bridges between digital native and digital immigrant generations of leader-followers for a smoother transition from hierarchical to distributed, shared, collective, and adaptive leadership for the digital age.

Keywords: leader-followership, digital leadership, virtual organizations, digital natives, digital immigrants

1. Introduction

The twenty-first century marks the beginning of an unprecedented, fast-paced technological revolution of digitization. As a result, today's digital followers, leaders, and ordinary citizens possess instant access to a vast amount of information, and there has been greater dissemination of knowledge than ever before. Furthermore, as information technology has opened up new opportunities for sharing knowledge, information, and work responsibilities, most traditional, hierarchical leadership theories and models have become outdated and irrelevant because they were not designed for the digital age. As artificial intelligent technologies and tools replace traditional managerial positions in organizations, and as company workers become increasingly engaged in multiple leading and following roles in today's virtual organizations, there is a greater need for new models of leading and following in the virtual space, where participants may acquire different types of leading and following competencies that are more relevant for the digital age.

The emerging literature on leadership for the digital era can be categorized as leadership in the digital age, digital leadership, e-leadership, and cyber leadership. *Leadership in the digital age* deals with the consequences of the digitization on leadership conceptualization and practice the virtual space. *Digital leadership* as a relational, fluid, spontaneous, and role-based leadership redefines leadership behavior and practice through the use of digital tools in the virtual world. *E-leadership*, as the traditional leadership, faces similar issues of vision, motivation, and direction to overcome challenges of social influence processes through advanced information technology (AIT) in the areas of communication, trust, and relationships between leaders and followers in a virtual organizations. Lastly, *cyber leadership*, a digital version of military leadership, deals with complex and multifaceted issues of organizational safety and security such as information warfare, cyber-security threats, and cyber-attacks.

The above-mentioned literature on digital leadership shows a clear departure from the leadership paradigm established by Baby Boomer after the World War II.[1] Since then, major cultural and generational changes have taken place in the areas of communication, relationships, and attitudes toward leadership, authority, and corporate loyalty [1]. The value and the philosophy of work have changed from working hard and making a profit at any cost (Boomer and Gen Xers) to working for personal satisfaction and for individual and environmental well-being (Millennials and Gen Zers). Additionally, the current research on leadership has moved from leader-centered to follower-inclusive and leader-follower relational models of leadership [2]. Nowadays, leadership education and training resources are no longer solely the privilege of company managers and leaders. More than 1570 leadership degree programs exist worldwide, most of which are in colleges and universities in the United States, that offer leadership certification and associate, bachelor's, master's, and doctoral degree programs [3]. As a result, the traditional understanding of positional leaders and followers in organizations has become blurrier and irrelevant for the contemporary leadership in the digital age because the latter is spontaneous and organic while the former is rigid and static.

However, the above-mentioned literature on digital leadership does not offer mechanisms for bridging the socio-cultural, theoretical, philosophical, and generational gaps that exists today between Boomers and Millennials. Nor does it proposal plans for transition from the traditional theories and practices of leadership to contemporary leader-followership processes in the age of information and technology. The following questions are worth exploring:

- How does the digital leadership deal with the existing hierarchical relationships and power distances between leaders and followers in today's organizations?

- Since the traditional hierarchical leadership practiced in most organizations will not cease to exist any time soon and that the old and the new have to co-exist together for a time being until the old is replaced by the new organizational structures and relationships, what can be done today to bridge that gap for leadership continuity between different generations of the workforce?

[1] In this chapter, different generations of American society are presented:

- Baby Boomers—born between 1944 and 1964
- Gen X—born between 1965 and 1979
- Millennial—born between 1980 and 1994. Some researchers refer to Millennials as Generation Y or Yers [13].
- Gen Z—born between 1995 and 2015

Retrieved on August 19, 2019, from https: //www.kasasa.com/articles/generations/gen-x-gen-y-gen-z.

To address these and related issues in the digital age, this chapter offers alternative approaches and a conceptual framework to bridge the discontinuity gap between pre-digital and digital leader-followership that emerged as the consequence of contextual differences between physical and virtual space for leadership, socio-cultural and value changes among leaders and followers, theoretical shifts in leadership studies, and changes in leadership education.

2. The context of the pre-digital leadership era

The history of the Western world marks the rise and the fall of the "cult of leadership" [4], also known as the "cult of personality." Rooted in antiquity and common until the middle of the twentieth century, it cost countless human lives, societies, and civilizations. Long before social psychologists described the close relationship between authority and the "thirst for obedience" [5, 6], and how followers' perceptions and beliefs toward prototypical leaders may turn them into "leader worshipers" [7], leaders and company managers have used manipulative tactics to gain followers and maintain their power.

History shows us that the consequences of the abuse of leadership power have been ferocious and destructive for both leaders and followers, as well as for organizations, societies, and nations. Major world problems seem to revolve around unethical and toxic leaders [8, 9], and social environments have given birth to such despotic leaders as Queen Mary, Adolf Hitler, Joseph Stalin, Mao Zedong, Augusto Pinochet, and others. Thus, it can be assumed that the leadership paradigm of the twentieth century did not help the majority of the world's population overcome poverty and injustice to live a decent life.

Moreover, while the *industrial era* segregated individuals as masters and slaves, managers and subordinates, separate and parallel identities of leaders and followers, employers and employees [10, 11], the *post-industrial era* emboldened followers to take leadership roles and improve leader-follower relationships. For instance, in the United States, the second part of the twentieth century marks the *era of followers* and the beginning of a shift from the corporate mindset of profit for the few and "corporate rights" to a collective mindset of profit for all and "human rights" [12] due to the rise of the post-industrial generations, Xers and Millennials [1, 13], and environmental awareness. As a result, 90% of the value- and mission-driven organizations in the non-profit, charity, and public sectors, as well as in philanthropy and freelance entrepreneurship, that are currently in operation were created after the 1950s [14].

Since the turn of the twenty-first century, the world has continued to change. Currently, we live in the *post-industrial* era of the information and digital age [15]. Today's college students and young professionals, who represent the Millennial and Z generations, have gained access to electronic information on science, art, history, entertainment, video games, and electronic education and are more informed about the world and their environment than ever before. These generations have even created their own digital and virtual communities and languages with district grammar and vocabulary. They have also begun to lead and follow each other through online platforms such as Facebook, Twitter, Instagram, and YouTube.

3. Socio-cultural and value changes

Sociologists and social psychologists have observed a major cultural and generational shift from Boomer to Millennial generations in the areas of communication styles, acquisition and dissemination of information, interpersonal relationships,

the concept of physical and virtual space, and their attitude toward leadership authority, corporate loyalty, and commitment [16–18]. Scholars who have tried to bridge the generational divide between Boomers, Gen Xers, and Millennials have observed major differences between them [19]. Millennials, for instance, are team players, and having an organizational impact motivates them. They like open communication with their supervisors and are technologically savvy. Unlike Boomers, Millennials tend to have different perspectives on the world marketplace, supervisor-subordinate relationships, cultural diversity, task performance, communication styles, and information technologies [20]. Millennials lack the loyalty and work ethics established by Boomers and Gen Xers [19], and they tend to establish their own ethics and functional work relationships [21]. These and other empirical findings seem to suggest that there is a tension between pre- and post-digital generations. What will happen to current organizational structures when Boomers retire and Millennials take the lead?

Values and attitudes toward fellow human beings and the environment have also changed in the United States. The digital revolution and the advancement of digital technology have allowed environmental scientists to learn and process a vast amount of geospatial data about the planet Earth [22]. This data has shown that the climate is changing as a result of industrial pollutions [23]. The Digital Earth (DE) initiative, started by Vice President Al Gore in 1998, and rapid digitization gave birth to a new generation of global citizens, often referred to as *digital natives*, who tend to think and act digitally in a different way than previous generations, referred to *digital immigrants* [24]. The Boomers and some Xers are considered digital immigrants because they were either born or grew up before the digital revolution of the 1990s and 2000s. Millennials and the Zers, who were either born during or grew up after the digital revolution, are considered digital natives [25]. Digital natives seem to hold a very different vision and values about the world, the environment, the local and global economy, the concept of work, their personal and social well-being, and intercultural and international relations. An example of this is the March 2019 global march for climate change by Gen Zers.[2] Ironically, more Gen Zers express concerns for the well-being of the Earth than Boomers or Xers. This value and cultural change seems to indicate that a new digital leadership (DL) and digital followership (DF) is in the making in today's digital age.

4. Theoretical shift in leadership studies

Post-industrial leadership theories moved away from simplistic and cultic person-centered "great man" theories of leadership to system-based *complexity of leadership theories* (CLT) in the information and digital age [26, 27]. They offer new ways in which followers and non-followers may take more active and participative roles in leadership processes in society and organizations. Furthermore, value-based and relational leadership theories such as transformational, servant, ethical, collaborative, inclusive, distributed, shared, and adaptive seem to be more follower-centered. As a result, scholars' attention shifted from the leader as a person to leading and following as a process. This shift provides a "foundation for theories that move beyond hierarchical, individualistic, one-directional and de-contextualized notions of leadership" [28].

Additionally, complexity leadership theorists (CLT) raise legitimate concerns about "how, in the context of bureaucratic organizing structures, can organizational leaders enable emergence of the new solutions and innovation needed to survive and thrive in today's complex world?" [26]. The answer to this question

[2] Retrieved on August 15, 2019. Available from: https: //350.org/global-climate-march/.

may be sought in an ancient metaphor where one attempts to withstand a new wine in an old wineskin.[3] The "old wineskin" here represents the bureaucratic organizing structures and leader-centered theories of the twentieth century that may not sustain the "new wine," which represents the twenty-first century virtual organizations and leading-following complex processes in the digital world. Thus, in order for the leading-following interactive process to occur (the "new wine") in today's digital age, a new organizational mindset and design seems necessary (the "new wineskins") because the environmentally conscious and responsible digital generation (the "new wine") cannot fully function in corporate hierarchical structures with leader-centered leadership mindset (the "old wineskins").

Furthermore, role identity theories and research indicate that multiple or interchangeable role identities may be beneficial for positional leaders, who lead under constant demands and pressure, to be willing to share leadership with followers and adopt leader-follower multiple identities. If leaders and followers trade their leading and following roles in organizations and interchangeably lead and follow in various situations [29, 30], it may minimize leadership power abuse, eliminate social identity stereotyping for followers [31], reduce psychological distress [32–34], and prevent physical illnesses [34–36].

5. Leadership education change

Unlike most organizational leaders of the Boomer generation, who did not get a formal education in leadership, Millennials were exposed to leadership and organizational studies in their undergraduate and graduate curricula across the United States in the last 30–40 years [37]. Nowadays, every college or university student, or any individual interested in acquiring knowledge or a degree in leadership, has access to such studies via university or online databases without restrictions or discrimination. For instance, according to the Higher Education Program Directory of International Leadership Association (ILA),[4] there are more than 380 undergraduate and graduate certificate programs in leadership and more than 200 bachelor's degrees in leadership in 13 countries, including the United States. Nearly 28 countries offer 800 graduate degrees, and 10 countries offer 350 doctoral programs in leadership. According to Guthrie et al. [7], the ILA directory hosts more than 1570 academic programs worldwide. However, followership has not been fully integrated with the leadership curriculum and leadership education in the United States, which means that colleges do not teach and students do not learn the importance of followership.

Furthermore, the allocation of leadership training resources solely to company managers and leaders to increase their effectiveness and productivity [38] has resulted in leader-favored and leader-focused research and further separation of followers from the leadership process [39]. However, studies in followership as an inseparable role of leadership are expanding. College courses on followership and followership education began to emerge at the turn of the twenty-first century. Students are now learning how to be courageous followers by standing up to and for their leaders [40], challenging toxic leaders [13], and exercising intelligent disobedience to resist unethical leaders [41].

[3] The "old wineskin" and "new wine" metaphor is taken from Matthew 9: 16–17 (NRSV): "No one sews a piece of unshrunk cloth on an old cloak … Neither is new wine put into old wineskins; otherwise, the skins burst and the wine is spilled, and the skins are destroyed; but new wine is put into fresh wineskins, and so both are preserved."

[4] Retrieved on February 12, 2019. Available from: http://www.ila-net.org/Resources/LPD/index. htm.

6. The context of the digital era

The digitization of information on history, arts, science, business, health, and other subjects through information and communication technologies (ICT) has fundamentally transformed humans' way of life. New virtual environments have been formed for socialization and work through the World Wide Web and social media. As a result, digitalization has caused the emergence of virtual organizations as new work environments, called e-environments, new patterns of leadership, called e-leadership, and new boundaries for leader-follower relationships [42]. Additionally, as traditional organizations increase their online presence, the roles, responsibilities, functions, and behaviors of followers and leaders are changing. The traditional gap between leaders and followers of the industrial era, leaders doing leadership and followers doing followership, does not exist anymore. Followers seem to act and behave as leaders in the virtual world. Conversely, the power dynamics between leaders and followers are changing due to distant and remote interactions. The digital platform seems to foster interdependent collaboration and has swiped away some of the organizational power and privileges from leaders and empowered and emboldened followers to lead [43].

The following contextual factors have contributed to the change of power dynamics between leaders and followers in virtual organizations.

First, physical reality has been replaced by virtual reality. What is real has become a philosophical debate in the digital age. Leadership attributes based on one's physical appearance (e.g., physical strengths, manner and mannerism, age, race, gender, etc.) have less meaning in the leadership process than before.

Second, human interactions have moved from face-to-face to electronic communication. This has impacted the way traditional business and education is conducted. Virtual classrooms and workplaces have become the new norms for the digital age.

Third, digitization and automation have eliminated numerous managerial positions in today's digital economy. Virtual company workers nowadays need less managerial and direct supervision. The 40-hour workweek and most HR ethical conduct policies for face-to-face interactions do not apply to virtual organizations anymore. As a result, business relationships between leaders and followers have changed from top-down, or vertically influenced, to horizontal mutual collaborations and interactions.

Fourth, the era of scientific management, of "I am my job," has yielded to rapidly changing and evolving multi-tasking and collaborative job descriptions. Today's employees are expected to use multiple skills for multiple tasks to remain competitive in the job market. For instance, as the coal and fossil fuel industries are being replaced by new alternative energy enterprises, coal miners are expected to develop new technical and soft skills to be able to perform jobs that are available in today's digital economy.

Fifth, the replacement of the physical with digital interactions between leaders and followers in organizations has created new challenges for both parties. Holland et al. [44], who examined electronic leadership challenges in healthcare organizations, have learned that global virtual leaders and teams face challenges such as isolation, confusion, language barriers, cultural differences, and technological breakdowns. They seem to echo Antonakis and Atwater [45], who found that leader distance affects leadership outcome. Furthermore, a study conducted by Howell et al. showed that physical distance negatively moderates the relationship between transformational leaders and followers' performance in a business unit [46].

Sixth, the roles and functional differences between organizational leaders and followers in virtual organizations have become blurrier. Nowadays, followers have

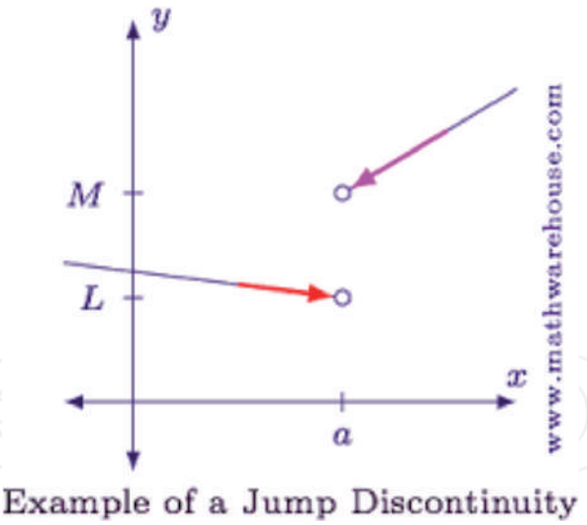

Figure 1.
A jump discontinuity in piecewise function.

opportunities to lead, and leaders are challenged to follow their supervisors, followers, and the constantly growing organizational policies and procedures in the workplace.

Seventh, digital natives and digital immigrants seem to speak different languages and represent different cultures. As a result, the worldview and communication gap between these generations has created new intergenerational tensions and challenges in the current digital age.

Above-mentioned seven contextual factors not only changed power dynamics between leaders and followers but also disrupted the "business as usual" mindset in organizations by created a discontinuity gap between the traditional and contemporary leadership understanding and practice. This disruptive phenomenon in mathematics is known as "jump discontinuity" within *piecewise function*s. **Figure 1** below is an example of a function that is discontinuous at x = a, because there is a gap between L and M.[5]

Both ends of the functional lines have limitations and different values.

$$\text{Lim } f(x) = L \text{ and Lim } f(x) = M \tag{1}$$

$$x \to a^{-}\ x \to a^{+} \tag{2}$$

The discontinuity of Lim f(x) = L may represent the traditional leadership function, while Lim f(x) = M—the contemporary leadership in the digital age. To make the traditional leadership L and the contemporary leadership M work as a continuous function, the L-M gap must be bridged. See the use of the discontinuity gap in 9.1. Application of LFT model to Digital Leader-Followership.

7. Literature on digital leadership

Literature on leadership implemented with digital technology can be placed into four major categories: (1) leadership in the digital age, (2) digital leadership, (3) e-leadership, and (4) cyber leadership.

[5] Read more at https://www.mathwarehouse.com/calculus/continuity/what-are-types-of-discontinuities.php#ixzz5zkep0JfR
Use by the discretion of fair use policy: Section 107 of the Copyright Act (http://www.dmlp.org/legal-guide/fair-use)

7.1 Leadership in the digital age

Leadership in the digital age refers to "leadership in any institution or sector embedded in the broader transitions toward a more knowledge intensive society" through the use of ICT [47]. This transition brings new constraints and opportunities to the traditional understanding and practices of leadership in various organizations. To understand leadership in the digital age, it is important to note the effect of digitization on leadership in the virtual space. Khan [48] distinguishes six characteristics of digitization:

1. *Interconnectedness* through digital communication and interactions that allow participants to share knowledge and practices for a structured environment while "unleashing creativity, innovation, dynamic networking, and participation in unstructured settings" [49].

2. *Diminishing time lag and abundance of information* through a shortened timeframe of decision-making and increased speed of information and forms of interaction.

3. *Increased transparency and complexity.* As organizational structures become more complex and interconnected, the virtual space requires increased transparency.

4. *Hierarchy removal and dissolving of personal barriers* as a result of organizations and relationships becoming more fluid. For instance, "reverse mentoring programs" [50] break the boundaries of corporate positions for top managers and senior executives (i.e., digital immigrants), who learn from or are led by the younger generation (i.e., digital natives).

5. *Decision enabling and integrity enhancing*. Digitization allows making leadership decisions much faster and fosters personal integrity to maintain trust among participants.

6. *Humanising effect*. Digitization enables virtual collaborators to freely interact and interlink through virtual platforms and tools in a symbiotic way "in which virtually everyone and everything are mutually interdependent" [51].

7.2 Digital leadership

Digital leadership refers to leadership in the core sectors of the knowledge society—the three "C's of computing, communications and content (broadcasting and print), and now multi-media" [52]. Narbona defines digital leadership as "human quality of leadership exercised with digital tools in the virtual world" [53]. Others define it as "doing the right things for the strategic success of digitalization" for organizations that require different mindsets, skillsets, and workplaces [54]. Digital leadership is relational leadership because the relationships between leaders and followers in the social media platform (e.g., Twitter) occupy the prominent role [55]. Digital leadership is also occasional, unpredictable, and organic. In a matter of hours, days, or weeks, one may gain an enormous influence through verbal or visual messages via the World Wide Web. For instance, those who gain more followers in their Twitter, Facebook, or YouTube accounts rise to a level of influence that humans have never seen before. Thus, digital leadership is not static positional leadership but rather spontaneous, fluid, short-lived, and role-based.

7.3 E-leadership

Avolio et al. define *e-leadership* as "a social influence process mediated by AIT [advanced information technology] to produce a change in attitudes, feelings, thinking, behavior, and/or performance with individuals, groups, and/or organizations" [56]. According to DasGupta's literature review on e-leadership, it has the same issues as traditional leadership (i.e., vision, direction, motivation, inspiration, trust). However, some challenges that e-leaders face are as follows: effective communication, conveying enthusiasm digitally, (b) building trust without face-to-face interactions, (c) creating presence, (d) inspiring, (e) mentoring, (f) monitoring and controlling social loafing, (g) fostering technical competence, and (h) finding work-life balance [57].

7.4 Cyber leadership

Cyber leadership refers to a responsibility that enhances the organizational mission, business processes, and functions "by leveraging resources, information and information technology to deliver solutions that are effective, efficient, and secure" [58]. The essence of cyber leadership is to deal with information warfare, cybersecurity threats, and defense against cyberattacks in the virtual world. In a sense, cyber leadership is a digital version of military leadership with an effort to transform military leaders into cyber-strategic leaders [59]. Francesca Spidalieri argues:

> *Cyber defense requires not only IT experts with computer science, electrical engineering, and software security skills, but also professionals with an understanding of political theory, institutional theory, behavioral psychology, ethics, international law, international relations, and additional social sciences…the pillars of our society…are often led by individuals with extremely limited exposure to cyber issues and the existential threats they pose [60].*

8. Alternative approaches to digital leader-followership

The literature clearly indicates the leader-centeredness of all four characteristics of digital leadership, while little or no mention is given to the role of digital followers in the digital age. However, what is intriguing is that the digital environment, as a new organizational structure, abolishes the traditional hierarchical structures and relationships between static and positional leaders and followers by turning them into fluid leader-followers and authentic humans. Additionally, definitions and concepts of digital leadership seem to equally apply to those who lead and those who follow in virtual organizations. For instance, to overcome the challenges and paradoxes of e-leadership, such as the individual vs. the community, swiftness vs. mindfulness, top-down vs. grassroots, micro vs. macro perspectives, and flexible vs. steady, Pulley and Sessa suggest that people in organizations ought to participate in leadership at all levels [61]. This means that digital leadership (and followership) is and should be everyone's business, not just the positional leader of the organization [62, 63].

Furthermore, Annunzio [64] seems to advocate for inter-generational collaborations between e-leaders among Boomers, Gen Xers, and Gen Yers to sustain the traditional structures of corporate America. As seen above, the digitization has already created a shared platform for intergenerational collaboration because digital immigrants (often employers) will always need the support of digital natives (often employees) to transform organizations to meet the challenges of the digital age.

There is a significant and growing body of literature on followership, multiple-role identities, and process-based, distributed, "shared," "collective," "collaborative," "relational," and "co-" leadership [65] that are more follower-inclusive and relational-based, including inclusive and adapted leadership. They will be considered below as alternative approaches to leader-followership in the digital age. These models seem to best apply to virtual and cyber situations that organizations and communities face in today's digital age.

8.1 Followership

Followership research investigates "the nature and impact of followers and following in the leadership process" [66]. It emphasizes the importance of the role of the followers in organizations and how various types of followership behaviors can be observed in response to leader behaviors [8, 67, 68]. Other scholars discuss how follower identities and behaviors influence and shape leadership behaviors and outcomes [69–71]. Followers' and leaders' roles are not static. The static role of the "leader" and the "follower" seems unnatural because one does not lead like a lion or follow like a sheep at all times [8, 72]. One may lead in one and follow in another situation [30].

Thus, the followership research may explain how the digital followership may work in virtual context if it refuses to follow the same one-sided attitude of the leadership research that intentionally focused on the leader behavior and omitted the follower behavior as one continuum or the two sides of the one coin [73]. Rather, by studying the leading-following "tang" between leaders and followers,[6] it offers a more balanced understanding of the leadership process, one that involves (1) "leading-following double interacts," (2) stimulates "the construction of leader and follower identities," and takes into account the fact that (3) leading-following interactions are developed "within an environment and context that are endogenous ... to the leading-following process," that (4) "the leading-following process is fluid," and (5) that the dynamic environment plays a crucial role in nurturing fluid leading-following interactions [74].

8.2 Leader-follower multi-role identities

In today's information and digital age, single identity ("I am a leader" or "I am a follower") of the industrial leadership era has shifted to *multiple-role identity* paradigm of leader-followership ("I function as a leader and a follower"). Multiple-role identity theories explain how multiple roles may function in today's multifunctional and diverse workforce. For instance, individuals often occupy more than one social position and play more than one role in society. Hence, people develop multiple identities (e.g., parent, worker, volunteer, etc.) that are naturally activated in various social interactions. Burke and Stets put it this way: "A person could be a student in one context, a friend in another, a mother, a daughter, a teacher, a blood donor, a homeowner, and so on" [75]. Multiple [role] identities, according to them, "function together within the self [through internal framework] and within the overall identity verification process [external framework]" [75]. Multiple identities exist within the person and across persons [76]. These multiple identities among multiple individuals may interact in a given situation (e.g., individuals working together to accomplish a group task). Thus, multiple-role identity theories explain how one may operate in both leader and follower roles and multiple competencies in organizations, especially in the digital age.

[6] Watch a video on "Leadership and followership: What tango teaches us about these roles in life" at https://www.youtube.com/watch?v=Cswrnc1dggg.

8.3 Process-based leadership

Leadership and organizational studies in the West moved from a leader-focused to a process-based understanding of leader-follower relationships in organizations in the last 20 years [69, 71, 77–83]. It is no longer about the leader but the process of leading and following, where individuals may function as both leaders and followers based on personal strengths or competencies. This shift may result in increased reciprocity or exchange of leading and following behaviors, roles, and functions and a decrease of static leader and follower positions in organizations. Thus, the *process-based* approach to leadership asserts that leadership is no longer about the positional leader, but the dynamic and dialectic process of leader-follower multi-dimensional human interactions [77, 84, 85]. This approach may well be applied to digital leadership in virtual organizations where the uncertainty and the unpredictability of situations may demand non-leaders engage in the leadership process by exercising their strengths or competencies for organizational goal achievement.

8.4 Distributed leadership

Distributed leadership "recognizes individual and collective agency, and the reciprocal nature of the practice of leadership" [86], which is more important than the particular leadership roles or the specific leadership function. It implies that "leadership tasks are dispersed rather than delegated and that such dispersal is widely enacted across organizations" [86]. Therefore, distributed leadership is best understood as a practice distributed over leaders, followers, and their situation, which incorporates the activities of multiple groups of individuals. Harris et al. argue, "where leadership is distributed then inevitably the forces of power, authority and control are also distributed and shared" [86].

Distributed leadership faces two challenges: (1) establishing collective trust toward a common goal and (2) actively engaging and guiding those who have yet to form mutual trusting relationships [86]. For distributed leadership to occur, trust and empathy are needed for authentic collaboration, information sharing, and interdependent idea generation [87]. Nevertheless, the distributed paradigm of leadership tolerates uncertainty, diversity of perspectives, flexibility, functionality, and role exchange between leading and following. It is open to global challenges and solutions, is eager to acquire new knowledge, exhibits a constant learning attitude, and, unlike earlier leadership approaches, maintains an egalitarian and results-oriented approach [47]. Thus, distributed leadership may be useful for digital native generations in the digital era. The challenge that distributed leadership may pose to complex digital teams is that it lacks fluidity between simultaneous leading and following actions in group and organizational settings [88].

8.5 Shared leadership

Shared leadership, viewed as "different individuals enact leader and follower roles at different points in time" [89], challenges the traditional understanding of leadership in teams where the focus has been shifted from a single static leader or follower and vertical, one-directional influence to multiple and dynamic leaders and followers and horizontal, leading-following, reciprocal influence processes and their impact on team outcomes [88–91]. Unlike traditional leadership theories that focus on the role of formal, appointed leaders, shared leadership focuses on the leading and following processes of team members [92]. This is a shift in the leadership paradigm from an individual to a collective [93].

The digital age requires a team approach to complex leadership problems that often involve multiple organizations, societies, cultures, and nations sharing knowledge, skills, and expertise. No single leader possesses the necessary knowledge, skills, and disposition to address global leadership challenges in today's virtual world. Thus, shared leadership allows the sharing of leading and following responsibilities not only among the team members, but also with other teams. For instance, team members with certain specialized skillsets might engage in leadership behavior in one domain and adopt a follower role in another domain [94, 95]. Thus, shared leadership, which also assumes shared followership [88], may meet the leading and following needs for the digital natives in virtual organizations, as they grew up in a sharing environment where knowledge, experiences, perspectives, and electronic files were freely shared for learning and business across the oceans [96].

8.6 Collective leadership

Collective leadership refers to "a dynamic leadership process in which a defined leader, or set of leaders, selectively utilize skills and expertise within a network, effectively distributing elements of the leadership role as the situation or problem at hand requires" [97]. Collective leadership assumes that each member of the team selectively performs leadership roles that match her or his skills and expertise and that when the situation or the problem at hand changes, members of the team effectively distribute elements of the leadership role to others [98].

Collective leadership, unlike the traditional hierarchical models of leadership, is also applicable to global leadership in the digital age. For instance, to address global issues such as climate change, where many international governmental agencies and private organizations are involved, a new model of leadership is expected. Goodchild and Associates are convinced that "any effort to develop a next-generation Digital Earth will require new governance models" [99].[7]

Collective leadership may be effectively used in cyber leadership where multiple and various skills and expertise are required to engage in cybersecurity or cyber defense.

8.7 Adaptive leadership

Adaptive leadership is another follower-centered approach to the leadership process. However, the earlier theories of adaptive leadership continue to be leader-centered. For example, adaptive leadership has portrayed the tasks of the static leader as helping static followers adapt to the challenges they encounter in a given situation, changing and adjusting to new circumstances, and grappling with the problems at hand [100]. Moreover, the adaptive leadership process incorporates four standpoints: systems, biological, service, and psychotherapy perspectives [101]. The task of the static leader, then, is to recognize the complexities of

[7] Michael F. Goodchild and Associates (Huadong Guob, Alessandro Annoni, Ling Bian, Kees de Bie, Frederick Campbell, Max Craglia, Manfred Ehlers, John van Genderen, Davina Jackson, Anthony J. Lewis, Martino Pesaresi, Gábor Remetey-Fülopp, Richard Simpson, Andrew Skidmore, Changlin Wang, and Peter Woodgate) produced a paper in 2012 entitled "Next-generation digital earth", published in the Proceedings of the National Academy of Sciences, as the outcome of the workshop on next-generation Digital Earth held in Beijing in March 2011 hosted by the Center for Earth Observation and Digital Earth of the Chinese Academy of Sciences and the Secretariat of the International Society for Digital Earth (ISDE).

leadership situations and enable followers to adapt to complex leadership and organizational changes. Similarly, it is the leader who makes followers aware of biological changes for adaptation and, by using her or his positional leadership authority, serves followers' needs by finding solutions to their problems. Finally, by using the psychotherapy perspective, the leader then creates a supportive environment for successful adaptation [100]. This approach is an old paradigm of the Boomer generation that does not fit with the demands of the digital age.

Thus, I propose DeRue's *adaptive leadership theory*, which advocates for dynamic and fluid leading-following adaptive processes where individuals cultivate leader-follower identities through simultaneous and interchangeable leading and following actions within the group. This theory challenges the traditional "individualistic, hierarchical, one-directional and de-contextualized notions of leadership" [88]. Furthermore, DeRue rightly noted, "the nature of work in organizations is changing to include more interdependent work, more fluid and less centralized work structures, and a greater emphasis on the need for leadership at all levels of an organization" [28]. Thus, the aforementioned adaptive leadership theory seems most relevant to digital natives because it provides a theoretical basis to adapt and succeed in leading and following double interactions between and by all members of groups in virtual organizations.

9. A conceptual framework for the digital leader-followership

As seen above, current interdisciplinary studies on leader-follower relationships and identity formation provide new and fresh theoretical perspectives for individuals to develop multiple leader and follower role identities, becoming a leader in one situation and a follower in another. Thus, the industrial paradigm of the leader and the follower as static and separate social identities must be replaced by hybrid leader-follower multiple-role identities to make leadership (the process of leading and following) applicable for a digital environment. In other words, no one is a leader or a follower all the time and in all circumstances. Everyone is and should see herself or himself as a leader and a follower in different situations and contexts for the social construct of leadership to occur. Thus, leadership should not be perceived as a title for a privileged minority and followership as a title for a less-privileged majority in organizations, especially in today's digital age.

The leader-follower trade (LFT) approach offers a conceptual framework to address the century-long social identity segregation between powerful leaders and powerless followers [30]. The model encourages everyone to cultivate leading and following multiple-role identities and acquire both skills to exercise fluidity in leading and following. Such a symbiotic process of leading and following between individuals with multiple roles may create dynamic and healthy work conditions for (1) situational and context-based leaders and followers to build mutual trust and respect; (2) a fair distribution of power and resources among the members of the organization based on mutual influence; (3) cultivating self-awareness and self-discovery of personal strengths among team members as hybrid individuals capable of leading and following; and (4) mutually accountable relationships between multiple teams and members through transparent and authentic organizational communication.

LFT is particularly effective in cyber leadership, where a shorter time is necessary for decision-making or responding to cyberattacks. Since leading and following responsibilities are shared and exchanged among team members based on their

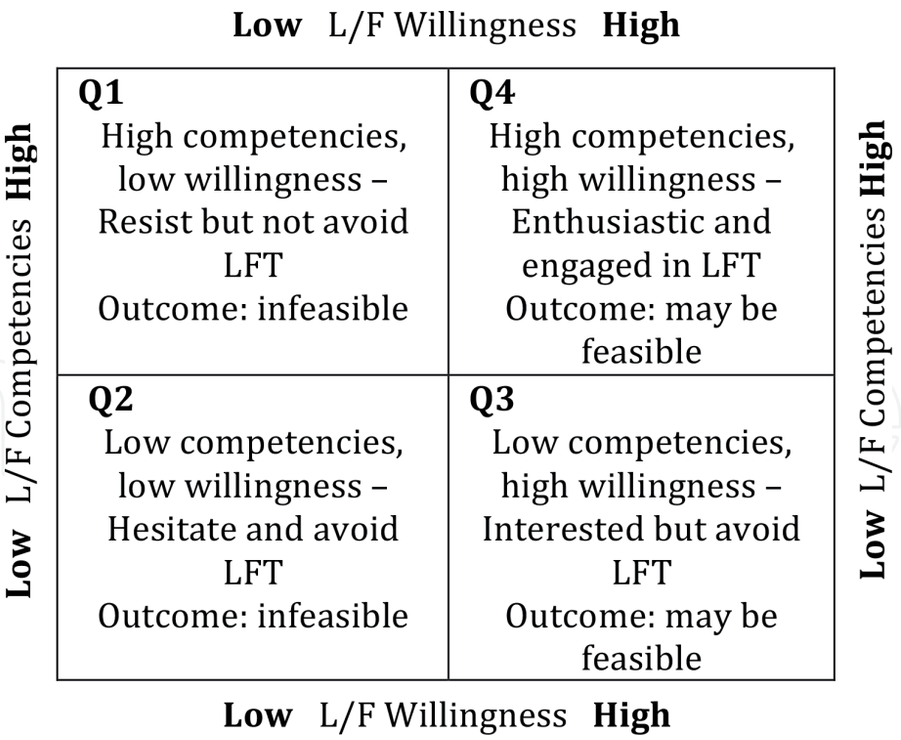

Figure 2.
The feasibility quadrants of the LFT approach.

expertise, a hierarchical and top-down leadership becomes unnecessary, and the positional barriers may be easily dissolved to achieve the desired outcome. In this case, the one who makes the decision takes personal responsibility for the outcome of her or his decision.

The LFT approach may be realized in virtual organizations when there is a high level of *willingness* and *competency* to interchangeably shift roles from leading to following and from following to leading based on one's expertise, personal preference, strengths, and organizational goals. **Figure 2** illustrates the feasibility of the LFT approach from the perspectives of leading-following competencies and willingness to trade leading and following roles simultaneously or interchangeably.

Quadrant 1: When leader-follower competencies are high but the willingness is low, it is more likely that digital leader-followers resist but do not avoid LFT. Thus, the LFT approach may be feasible.

Quadrant 2: When leader-follower willingness and competencies are low, it is more likely that digital leader-followers hesitate and avoid LFT. Thus, the LFT approach is infeasible.

Quadrant 3: When the leader-follower competencies are low but the willingness is high, it is more likely that leaders and followers are interested but avoid LFT. Thus, the LFT approach may be feasible.

Quadrant 4: When the leader-follower competencies and willingness are high, it is more likely that leaders and followers may enthusiastically engage in LFT. Thus, the LFT approach is feasible.

From the quadrant analysis, it is apparent that the LFT approach is achievable only if (1) digital leaders acquire following skills and digital followers acquire leadership skills and (2) both digital leaders and followers are willing to trade their roles by cultivating multiple leading-following identities.

What are the personal and group incentives for the applicability of the LFT approach in the digital age?

Leading and following competencies:

a. Many leaders fail. Thus, followers lose their trust in them. This factor may motivate followers to get involved in the leadership process and aspire to lead.

b. The culture has shifted emphasis from powerful leaders to powerful followers who elect and select their leaders through democratic processes (e.g., a vote of confidence or an election).

c. Leadership education and resources are available to today's digital followers to learn how to lead effectively and ethically if they so choose. Similarly, the lack of digital competencies among *digital immigrants* may motivate them to follow and learn from *digital natives*.

Willingness to trade leading and following roles:

a. Leading roles are stressful and harmful to human health. The research on multiple-identity theories indicates that those who have multiple roles in society live healthier lives than those who have one role. Thus, the exchange of leading and following roles may prevent burnout and psychological distress.

b. Shared responsibilities assume shared accountability. Thus, it is not fair that organizational leaders take full responsibility for those who are not willing to participate in the leadership process. Followers should also be held accountable for participating in the decision-making processes.

c. Sharing leadership responsibilities also may mean sharing the profits and benefits of leadership. This may motivate followers and facilitate a fair distribution of wages and compensation.

9.1 Application of LFT model for digital leader-followership

As mentioned in "The Context of the Digital Era," the emerging digital leadership defers from the traditional hierarchical leadership on many areas such as socio-cultural, theoretical, philosophical, and generational. The disruptive and unpredicted nature of the digital leadership seems to cause an on-going change and discontinuity among leading and following functional patterns in today's organizations who are in a transition from industrial to information and digital age.

The LFT approach may well serve as a bridge model between the traditional and emerging leadership paradigms in the digital age. For instance, by fostering leader-follower competences and wiliness to trade leading and following roles between digital immigrant and digital native generations, the existing L-M gap may be bridged. Examples of bridge building:

- Salkowitz offers to close the digital gap and build intergenerational bridges by empowering the younger generation to educate older workers in information technology [102].

- Chaudhuri and Ghosh recommend reverse mentoring programs for Boomer and Millennial generations to keep the former engaged and the latter committed [103].

- To bridge the gap between generations, Kornelsen suggests leading with Millennials in a VUCA-world (volatile, uncertain, complex, and ambiguous) [104].

10. Addressing leadership problems in the digital age

The number one problem in the digital age continues to be the abuse of power and position, which seem to nurture selfish and narcissistic human instincts that are destructive for leaders, society, and even for the world.[8] Leadership should not focus on the person in the leadership position but rather on the process of leading and following with appropriate checks and balances.

The number two problem in the digital age is the lack of appreciation for following. We do not teach followership and what it means to be a good and responsible follower. As a result, followers are easily misled, manipulated, or even deceived by their leaders. Thus, followership must be taught and practiced in schools and universities because followers are the change-agents and the power holders in the digital age.

11. Conclusion

The post-industrial and post-structuralist era of leader-followership has set the stage for multiple leader-follower identities and new organizational structures to emerge. In today's virtual reality, individuals should be able to freely exchange leading and following roles according to organizational or contextual needs. Such a mindset may lay the groundwork for mutual accountability between situational and role-based leaders and encourage multiple-role identity leader-followers to emerge [76]. In other words, followers can become leaders and leaders can become followers [105–107] because one does not exist without the other [30, 88]. Thus, a new generation of hybrid leader-followers and less-hierarchical organizational structures are on the horizon, where the members of virtual organizations may lead and follow not based on their static positions or positional authority but according to their skills, expertise, and competencies.

11.1 Limitations

This study has source and topical limitations. The *sources* used in this chapter are limited to available peer-reviewed and research-based articles, books, thesis, and dissertations in the following digital databases: Google.com, Scholar.google.com, ABI/INFORM Complete (ProQuest), Academic Search Complete (EBSCO), Business Source Premier (EBSCO), Communication & Mass Media Complete, JSTOR Business Collection, ProQuest Dissertations & Theses Global, SAGE Premier, and Springer e-Journals. Additionally, due to the chapter limitation, the following *topics* have not been addressed in this study: cybersecurity leadership, leadership in game-based environments, leadership in the Second Life, leader identity in the virtual world (avatars vs. authentic leaders), automation, robotization, and leadership, artificial intelligence and leadership.

[8] Examples of destructive leadership: Spartacus's slave rebellion from 73 to 71 BCE; Crusades from 1096 to 1192; Protestants Reformation from 1517 to 1648; French Revolution from 1789 to 1799; American Civil War from 1861 to 1865; World War I from 1914 to 1918; Russian Bolshevik Revolution from 1917 to 1918; World War II from 1941 to 1945.

11.2 Implications for future research

Literature on all four categories of digital leadership discussed in this chapter is scarce particularly when it comes to comparing theoretical and practical differences between leadership in pre-digital and digital age. More empirical data is necessary to measure the effectiveness of contemporary models of leadership such distributed, shared, collective, and adaptive approaches for the digital age. Also, further research is needed in the following areas:

- The power dynamics among e-leaders and e-followers in virtual organizations.
- How leader and follower identities are formed in the virtual world and their sustainability over time.
- Whether or not the process-based understudying of leadership is more applicable and relevant to leadership in the digital age.
- Feasibility of the LFT conceptual framework in cyber leadership for maximum fluidity and flexibility in decision-making processes.

Conflict of interest

The author declares no conflict of interest.

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Chapter

Complex Adaptive Team Systems (CATS): Scaling of a Team Leadership Development Model

John R. Turner, Rose M. Baker and Kerry Romine

Abstract

Complex adaptive systems (CAS) have been identified as being hard to comprehend, composed of multiple interacting components acting interdependently with overlapping functions aimed at adapting to external/environmental forces. The current theoretical model utilized the natural functions of teams, viewing teams as a complex adaptive system, to develop the structure of the theory of complex adaptive team systems (CATS). The CATS model was formulated around the components of complexity theory (interactions, nonlinearity, interdependency, heterogeneity, complex systems, emergence, self-organizing, and adaptability) to show its utility across multiple domains (the role of leadership, organizational learning, organizational change, collective cognitive structures, innovation, cross-business-unit collaborations). In theorizing the CATS model, a new level of analysis was implemented, the interactions between agents as a move toward emergence in complex systems. The CATS model ultimately provides a model for organizations/institutions to drive knowledge creation and innovation while operating in today's complexity.

Keywords: complexity, teams, complex adaptive systems, complex adaptive team systems, interactions

1. Introduction

With team research becoming more prevalent across disciplines [1], there remain some unresolved issues. One unresolved issue is in conceptualizing or theorizing teams as complex adaptive systems (CAS; [1]). Even though this advancement in conceptualizing teams as CAS has started to gain momentum, empirical research has yet to catch up [1]. One advantage of viewing teams as CAS is that it better positions research and theory building efforts in a team's natural setting, occurring closer to the phenomena [1]. Complex adaptive systems adapt and change due to environmental conditions thus making them dynamic and challenging to understand [2]. Due to this self-organizing adaptation, models of CAS are lacking and are "hard to formulate" [2]. Complex adaptive systems are also hard to comprehend in that these systems are not just the aggregate of the actions of the individual parts; it is the composite of the interactions of the parts [2]. deMattos et al. [3] expressed this by highlighting complexity as the result of "the inter-relationship, inter-action, and inter-connectivity of elements within a system". To better understand CAS we must be able to understand how behaviors emerge from these interactions [2].

The composite of these interactions within CAS is often a function of leadership. Leadership in CAS is based on driving and facilitating these interactions. Leadership, in this perspective, "is about inter-action, influencing others, and encompasses a relationality that is dyadic and networked" [4]. Within CAS, leadership often takes the form of shared leadership in which individuals, or team members, share power and roles with other members based on task and situational demands [5]. Leadership for CAS has also been found in boundary spanning in which the leader establishes required interactions with team members and external agents when needed [5]. For each type of leadership style, leading in CAS requires a change in focus, redirecting the flow of practice toward new interactions and in new directions [4].

The current theoretical article provides a model for CAS by utilizing an existing team model, the Team Emergence Leadership Development and Evaluation (TELDE) model [6]. Identifying teams as CAS, the TELDE model helps to conceptualize the behaviors and interactions that take place in a team setting to understand, drive, and predict these emergent transformations. As emergent transformations are a response to environmental forces, teams are better able to adapt and share resources to achieve a new entity to better manage these new external changes, thus requiring leadership to also share roles and resources. The theoretical model presented in the current article utilizes naturally occurring team functions as the structure (TELDE) for CAS. Collectively, these CAS that utilize the TELDE model as its structure has the potential of scaling to the broader organizational, industrial, or community levels. The theoretical model presented here is titled Complex Adaptive Team Systems (CATS). The CATS model utilizes natural occurring team functions to drive more substantial organizational activities, such as the implementing knowledge management functions [7].

The style of theorizing for the current article is the narrative style of theorizing [8, 9]. The narrative style to theorizing is in response to recent calls from researchers to add more diversity to theory development styles that are currently published [8]. Also, the narrative style to theorizing is advantageous when the goal is to show patterns and to make broad connections, providing the ability to "see the big picture" [9].

The following sections provide a review of complexity theory and some of its key components. Next, a coverage of CAS is provided with a look at utilizing interactions as the level of analysis when viewing CAS. Finally, a review of the TELDE model is presented along with a model of CAS that utilizes the TELDE model and natural occurring team processes. This model, the Complex Adaptive Team System (CATS) model, provides the structure that organizations can implement when addressing today's complexity.

2. Complexity theory

Borzillo and Kaminska-Labbe [10] highlighted enabling leadership for communities of practice, indicating the role of leadership is to create situations that increase the social interactions of individuals. Here complexity theory addresses knowledge creation by facilitating the number of interactions or connections among agents. Within organizational settings and from a learning organization perspective, Borzillo and Kaminska-Labbe [10] identified the leaders' role as being one that increases connectivity for the enhancement of cooperation and learning. Complexity theory has seen growth within the leadership literature: strategic leadership [11]; managerial leadership [12]; organizational leadership [13]; in viewing leadership as an *emergent, interactive dynamic* [14]; and for viewing the dynamic and distributed nature of leadership [15].

2.1 Complexity theory primary components

2.1.1 Interactions

Anderson et al. [16] identified complexity in the interactions between individual parts of an open system and to the unpredictable patterns that emerged from these interactions. Antonacopoulou and Chiva [17] identified both interaction and interdependence processes across different levels (i.e., individual, team, department, organization) as being critical to emergence in complex systems. These functions highlight individual agents and their social structures as being synonymous with fractals, they have the potential to operate both as a part of the system and as a whole at the same time [17]. Understanding complexity and the systems that make up social complex systems is essential in making sense of the dynamics leading to the interactions, resulting in interdependence between agents or systems [17]. Complexity theory, or complexity science, is viewed as being one method to investigate the properties and behaviors of these non-linear dynamic systems [3].

2.1.2 Non-linear distributive pattern formations

A distinction between complex and chaos systems is in order. Complex systems are non-deterministic whereas chaos systems are deterministic [13], however both are non-linear systems. Non-deterministic systems provide no means of predicting future states while deterministic systems allow for prediction of future states. Complexity theory is:

> *A study of changing patterns of order, self-organization or constrained diversity. Complexity arises from chaos theory [18] which first identified how order can be found in disorder (chaos). Chaos theory, in this sense, describes a mathematical concept that delineates how within different systems, patterns appear but in a random fashion. [16]*

Complexity theory is also useful for understanding nonlinear systems [13, 19, 20]. Similarly, complex systems have been described as exhibiting *butterfly effects* in which a small change in the system could potentially lead to a large change overall [12, 13, 19]. Likewise, Crawford and Kreiser [21] identified the power law effect in which changes at one level can result in extreme changes at other levels within the system and Hammer et al. [22] described complexity as being a "perturbation, or disturbance, to a system". Burgelman and Grove [23] identified nonlinearity as being a property in which the magnitude of the output is not linearly related to the input.

2.1.3 Interdependent, heterogeneous, and autonomous agents

Complexity theory provides a framework for understanding complex systems by identifying and recognizing the behaviors of interdependent, heterogeneous, and autonomous agents or systems. Here it is the patterns of the interactions from autonomous agents acting interdependently within a network or system that are under investigation [10]. Hunt et al. [12] identified emergence resulting from the interdependence of agents and their components. Hanseth and Lyytinen [24] placed complexity in the field of information technology (IT) as being related to increasing heterogeneous components and their relationships, dynamics, and interactions. Likewise, Uhl-Bien et al. [14] highlighted heterogeneous agents interacting in networks that produce patterns of behavior.

2.1.4 Complex versus complicated systems

Bode and Wagner [25] defined complex systems as those with a variety of parts that interact in unpredictable ways. Expanding upon this definition, Bode and Wagner [25] separated complexity into two conceptualizations, structural and behavioral. Structural complexity related to the number and variety of the elements while dynamic complexity (behavioral) related to the interactions between the systems' parts or elements [25]. Similarly, Mowles [26] identified three kinds of social problems when viewed from the lens of complexity theory: simple, complicated, and complex. Simple problems relate to those that can be solved using known recipes, complicated problems consist of many sub-problems that can be resolved collectively to solve a bigger problem, and complex problems have no recipe or formula with changing variables [26] and often require dynamic solutions as the problem's variables change.

Anderson et al. [16] acknowledged that complex systems present a lack of predictability due to the interactions that take place among the components of a system. These interactions produce unexpected change compared to complicated systems that do not involve multiple and multi-level interactions within and among the system components, thus reducing the potential for systemic change from occurring. Complicated systems are predictable, and their components are either managed or designed to perform specific functions [16]. Bode and Wagner [25] identified that the more complex a system, the number of elements increase along with a rise in the number of potential interactions between the elements, resulting in a variety of different states that the system could exhibit at any one time.

Complex systems also produce higher levels of uncertainty or ambiguity. Mowles [26] identified four levels of uncertainty as being: a clear enough future, alternative future, a range of future, and true ambiguity. The latter levels of having either a range of futures or true ambiguity relate to the dynamics of complexity [26]. As the level of uncertainty and ambiguity increase, strategy requires processes to become intertwined [26] due to the interconnections and dynamism within the sub-systems [16]. As the level of complexity increases, it becomes more essential for leadership to be more distributed among agents of the CAS as no one individual can be expected to be an expert on all tasks and activities required of the CAS [27].

2.1.5 Emergence

Different domains can emerge within the same system, organization, or institution given the right circumstances. Richardson [28] described a domain as an autonomous structure that is different from the whole, also identified as *noise*. Domains emerge under differing circumstances and environmental factors, each with their life cycle [28]. These domains appear to be spontaneous with no structure or organizing features. However, through closer investigation these emerging entities, or domains, have structure, are self-organizing, develop distinct patterns [28], and persist until its usefulness abstains or a new emergent entity replaces it. A domain's structure moves from equilibrium to a state of disequilibrium, changing its original adaptive functions, during this emergence [29]. The literature also described this phenomenon as *adaptive tension* that differentiates energy between the system and its environment as factors that drive self-organizing and emergent functions [10, 15]. Being able to arrange one's components autonomously in response to external disturbances, using self–organizing functions as opposed to top–down directives, describes the phenomenon of emergence best [29]. Here, Beck and Plowman [29] connected self-organizing systems with emergence, meaning that a system must be self-organizing (open) before it can experience emergence. Uhl-Bien et al. [14]

described two characteristics of emergence, the reformulation of existing structures into new elements and its ability to be self-organizing [12].

While CAS (e.g., teams, organizations) operate between the state of equilibrium and disequilibrium, they may appear to be operating randomly. However, this false perception of random behavior is the emergence that "guides agent-based systems to potential new levels of collective behavior" [11]. Complex adaptive systems have been viewed as a *complexity region* operating between the "edge of order" and the "edge of chaos" [10]. These CAS transcend or evolve when on the edge of chaos, also identified as *limited instability* [30], and as *the paradox of control* [15], up to the point where some form of equilibrium sustains between stability and chaos. This emergence cannot be programmed or managed into the elements of a system; rather emergence is a product of the interaction between the elements [19].

This concept of emergent domains can be both positive as well as negative. For example, teams are utilized in the workplace to perform functions that individuals are unable to do on their own. The resources, collective experience and knowledge, afforded by functional teams, aid in the team's overall outcome. In some cases, this outcome is not only better than expected, but it can often be unexpected as well, making the team process one of emergence. Likewise, emergence can also be detrimental, making things more complicated. Take for example the concept of wicked problems. Aagaard [31] identified wicked problems developing through turbulent environments with continually changing expectations and solutions. These constant fluctuations present problems with ever–changing variables being derived based on the current environmental conditions, as environmental conditions change so to do the variables. These cyclical dynamics could be viewed as a form of emergence that reformulates a problem organically as environmental conditions fluctuate. Addressing wicked problems requires organizations and institutions to become more adaptive in their problem-solving methodologies [31]. Wicked problems have been viewed as being influenced by CAS where institutions, "such as nations, oil companies, and utilities are important actors" [32]. Traditional problem defining practices are not practical when addressing wicked problems. Here, one addresses wicked problems with an understanding of adaptability, emergence, and interconnectivity.

2.1.6 Self-organizing and adaptability

The function of self-organizing is a process [33], one in which the components of the system communicate with each other and cooperate in their coordinated efforts. This self-organizing process is critical to the emergence outcome, a co-creator of emergence [33]. Adaptability is vital in that self-organizing processes allow for systems to become adaptable and react to both external (environmental changes) and internal (organizational policies and processes) forces, leading closer to emergence. Also, this adaptability leads to a system being open and non-linear as compared to a closed and linear system. Chiva et al. [30] described adaptability as a "system's capacity to adjust to changes in the environment without endangering its essential organizational features". Adaptability is what differentiates closed systems from open systems; closed systems maintain the status quo while open systems adapt to external forces [34]. This distinction, between closed and open systems, is an important one. Closed systems can be self-organizing; however only open systems can be adaptive through self-organization without any external (managerial) intervention. However, there are times when an organization's features do change after adaptability forces react, this is where emergence comes into play. Emergence changes the system's structure to a new transformed structure allowing it to better adapt to external forces.

3. Complex adaptive systems (CAS)

Organizations are complex systems made up of interdependent agents [11, 29] with overlapping functions. These complex systems can often be identified as networks, projects, hierarchies [31], teams, task forces, and departments to name only a few. Anderson et al. [16] identified entrepreneurship as being a complex system in which individual entrepreneurship efforts aggregate into the macroeconomy, with each micro process being unique, self-organizing, and different from the next. Alternatively, Aritua et al. [35] called on the profession of project management to develop new techniques and methodologies by viewing multi-projects as CAS. They identified one problem was with the field treating multi-projects as the aggregate of single project techniques and methodologies, which has not been very successful.

Complex adaptive systems are composed of individual actors acting interdependently, and autonomously [19], toward common goals. These CAS also learn through interactions and adapt behaviors based on this new knowledge [29], with the ability to evolve and self-organize [24]. Complex adaptive systems are the building blocks for higher level agents or systems (e.g., organizations, economies) while continuously adapting to environmental changes, called *phase transitions* [33]. They are dynamic and direct energy to sustain the system's activities and structures [19]. Simon defined a complex system as "one made up of a large number of parts that interact in a non-simple way" (as cited in [36]) while utilizing heterogeneous interactions among one another and external elements [30]. The following definitions of complex adaptive systems from the literature follow.

3.1 Definitions of CAS

Complex adaptive systems are responsive systems consisting of multiple agents that "cannot be created, designed or controlled by individual actors. But the system can be influenced, nurtured and exploited by a group of actors" [31]. This responsive aspect refers to the ability of the agents to act freely [16], interdependently [31], to learn and adapt [3, 29], and are linked dynamically [14]. Agents within CAS interact in response to internal and external threats, producing both complex and adaptive behavior patterns [11]. The interactivity among independent agents makes complex systems difficult to predict [36]. Patterns, or outcomes, are unpredictable and non-linear [21] due to the nature of complexity involved and the interconnectivity across the sub-systems. Emergence results from these interactions in which a new system evolves from constant revising and rearranging the system components [33], providing the system with new capabilities of addressing internal and external threats.

The following definition for CAS will guide the theoretical model presented in the current research:

> *Neural-like networks of interacting, interdependent agents who are bonded in a cooperative dynamic by common goal, outlook, need, etc. They are changeable structures with multiple, overlapping hierarchies, and like the individuals that comprise them, CAS are linked with one another in a dynamic, interactive network [14].*

3.2 Characteristics of CAS

Complex adaptive systems, in its purest form, have been characterized as systems exhibiting characteristics of complexity theory [35]. For example, within the strategic management literature researchers identified the concept of strategic renewal as: "The incremental process through which an organization continuously

adapts to the environment and explores opportunities to invoke change in its activity choices and outputs" [36]. As an evolutionary process, renewal occurs from relational exchanges (interactions) that provide organizations with systematic methods of addressing environmental change [37]. Strategic renewal views activity systems (e.g., CAS) from either an inertial view or from an adaptive view [36, 37]. The inertial view concentrates on the distribution of interdependencies (pattern) while the adaptive view focuses on information and resource flows (rules):

1. the interdependency pattern, the relative distribution of interdependencies among a focal firm's activities, and

2. the interdependency rules, the prescriptive guidance of resource and information flows among interdependent activities [36].

Within the strategic management literature, it is the interdependency that enables strategic renewal in organizations [36]. Activity systems are complicated, in part due to their degree of modularity, concentration, and openness [36]. Modularity involves the number of subsystems within each system, concentration involves central control in one subsystem affecting other peripheral systems, and openness relates to one system's dependency in making its own decisions, procedures, and policies separate from the other systems [36]. The more interdependent and interactive these components become, the more complex the system.

In the organizational learning literature, Antonacopoulou and Chiva [17] highlighted something similar to strategic renewal. They described the process of interdependence as a balancing act in which agents co-exist and co-evolve simultaneously. Interdependence allows processes to navigate between stability and change as part of an adaptive process. Complex adaptive systems have been identified as having the following essential components: "diversity and individuality of components, localized interactions among those components, and an autonomous process that uses the outcomes of those interactions to select a subset of those components for replication or enhancement" [3]. Similarly, Gregory et al. [38] and Hammer et al. [22] identified a total of 16 characteristics of CAS categorized into four facets: continuous varying interactions (CVI), patterns development (PD), people factors (PF), and self-organization (SO). The CVI facet involves types of interactions, the PD represents patterns that emerge from these interactions, the PF represents humans as social systems and, SO is constantly present in the background of the CAS [22].

Inter-relationships are common in social systems when taking a systems theory point of view. However, while systems theory mainly addresses closed and simple systems, complexity theory addresses complexity in open systems via CAS. In contrast to closed systems that do not interact with their external environment, open systems do. The more open a system becomes, the more it is affected by changes in its external environment. Just as individuals act in similar ways to those in proximity, the same could be said about other systems. Groups act similarly to other groups in proximity (i.e., organizational departments, executive boards), organizations act similarly to other organizations in proximity (i.e., industry, sector), communities act similarly to other communities in proximity (i.e., sister cities, smart cities), and so on. Emergence occurs when a set of individuals, as in a team setting, combine efforts to develop something positive, innovative, and unexpected. The same is true when multiple groups get together, when organizations get together, when governments get together, and so on. This perspective, that emergence can yield from interactions among collectives, has been highlighted in the literature: "Complex adaptive systems show that surprising and innovative behaviors can emerge from the interaction of groups of agents, seemingly without the necessity of centralized control" [11].

Although having a positive result is desired, negative results could also occur (i.e., riots, war), but the focus for the current article is on positive emergence. Feedback is a key component to any system, open or closed, in that it supports learning within the system and aids in identifying new properties when emergence occurs. Having the ability to adapt and learn is one primary characteristic of a CAS [3].

Open systems operating in complexity are, by definition, non-linear. Changes within and external of the system affect all other parts of the system in unpredictable (non-linear) ways. These non-linear states of dis-equilibrium do not behave randomly either; they operate on the edge of chaos [11]. With too much order the system tends to revert toward the original state of equilibrium, while too little order causes the system to potentially reach its undesirable state of chaos [39]. Given the right amount of complexity, systems can self-organize [39] and find their optimal balance.

Waldrop provided seven conditions that must be present for CAS:

- A network of many agents acting in parallel.
- Control is highly dispersed.
- Coherent behavior in the system arising from competition and co-operation among the agents themselves.
- Many levels of organization, with agents at one level serving as the building blocks for agents as a higher level.
- Constant revising and rearranging of their building blocks as they gain experience.
- Constant testing of its implicit or explicit assumptions about the way things are out there.
- Exploitation of the many niches in the system by agents adapted to fill those niches [33].

These seven conditions [33] expand upon Holland's [2] original conception of the essential components of CAS: parallelism, competition, and recombination. Other literature identified the following four critical characteristics of CAS as being; nonlinearity, order emerges from interactions, irreversibility, and unpredictable outcomes [24]. These four characteristics are described below:

1. nonlinearity, that is small changes in the input or the initial state can lead to order of magnitude differences in the output or the final state
2. order emerges from complex interactions
3. irreversibility of system states, that is, that change is path dependent; and
4. unpredictability of system outcomes. [24]

4. Complex adaptive team system (CATS)

A leader facilitating the interactions that take place within and among CAS needs to begin at the individual level and work their way up to the organizational,

industry, or network level, depending on the goal of the interaction or change initiative. This bottom-up approach is the desired approach when leading CAS. The following mechanisms are ways in which leadership can alter and support CAS. Leadership has the ability to alter:

- the size of the system and the number of sub-units within it (N),
- the interdependence among component units (K),
- the collective schema of members (P), and
- the interdependence of the system on others (C) [12].

Here, fostering and leading CAS is a function of the structure of the system, its interdependence, its collective cognitive structure, and its interdependence (f [N + K + P + C]). To facilitate the structure of a CAS the current research utilized Turner and Baker's [6] TELDE model. Within the TELDE model the systems components act interdependently (K), team members develop collective cognitive structures (P), while operating interdependently (C) to obtain the team's task. The size of the system and its sub-units (N), as identified by Hunt et al. [12], is a function of the number of TELDE models operating in succession. Collectively, the TELDE model along with the facilitating functions of [K + P + C] is presented in the following theoretical model as the Complex Adaptive Team System (CATS). The CATS model can be structured as a multi-team model or as a larger networking model, depending on the structure and the number of sub-units (TELDE models) in the CATS model. The CATS model provides a tool for organizations to recombine organizational resources, or to re-architect their business unit portfolios (40), when adapting to changing markets.

The following sections provide a review of Turner and Baker's [6] TELDE model and its components, presents interactions as a new level of analysis for the CATS model, identifies the different CATS levels, discusses the role that leadership plays in implementing CATS, and places the CATS model in context (OL/LO, Organizational Change, Collective Cognitive Structures, Innovation, Cross-Business-Unit Collaborations).

5. The team emergence leadership development and evaluation (TELDE) model

The Team Emergence Leadership Development and Evaluation Model (TELDE) provides a visual representation of leadership development that derives natural, organic, leadership growth and team learning [6]. Typically, teams are not structured in a way that allow each group member to share in the team's leadership role, provide feedback to other members during their leadership role, and reflect on their personal performance during their tenure as the team leader. While it is typical for team members to learn from other team members during teamwork (e.g., achieving the team's tasks), it is rare for team members to learn both individually and collectively during these teamwork episodes (e.g., transition from one task to the next). Teams have historically consisted of a single leader with members relying on the leader for direction and guidance, this traditional model is still widely used today [11]. The TELDE model presents an approach in which each team member, regardless of rank within the organization, acts as the team leader for one of the team's task-episodes (sub-task), ultimately resulting in all team members taking a

leadership position while observing and providing feedback to other team members during their leadership tenure. This model provides the characteristic of "leadership development, team development, shared leadership, coaching, self-organizing and practice" [6], the characteristics of leadership development is also achieved by each team member by them taking a leadership role during one of the team's task-episodes.

The model, as shown in **Figure 1**, illustrates a four-member team performing a project with four task-episodes (one task, four subtasks). The tasks are shown on the X-axis with the team members on the y-axis. As team member one takes ownership of his/her task and begins to drive it to completion, they are building their own leadership skills, as well as displaying leadership traits and characteristics for the rest of the team. As the first task concludes and team member two is taking over for the next task, a phenomenon known as transference occurs, where team member two is applying and growing in their own leadership capabilities by applying what they learned from team member one, further adapting to their own task situation. This same pattern continues for team members three and four, each member learning from the previous leader's task achievement and eventually bringing the project to completion. At the height of each team member's development there is a point known as leadership emergence [6]. This is the peak of adaptation to the leadership role and the high point of application of their new skills that the team members experience in their time as task leader.

The TELDE model focused on leadership development at the individual level (team members) while addressing leadership as a group construct [6]. The TELDE model was presented as a model for organizational leadership development and leadership; however, this model has far-reaching potential in obtaining other organizational developmental objectives. This model could be implemented to achieve organizational change initiatives, to implement organizational culture

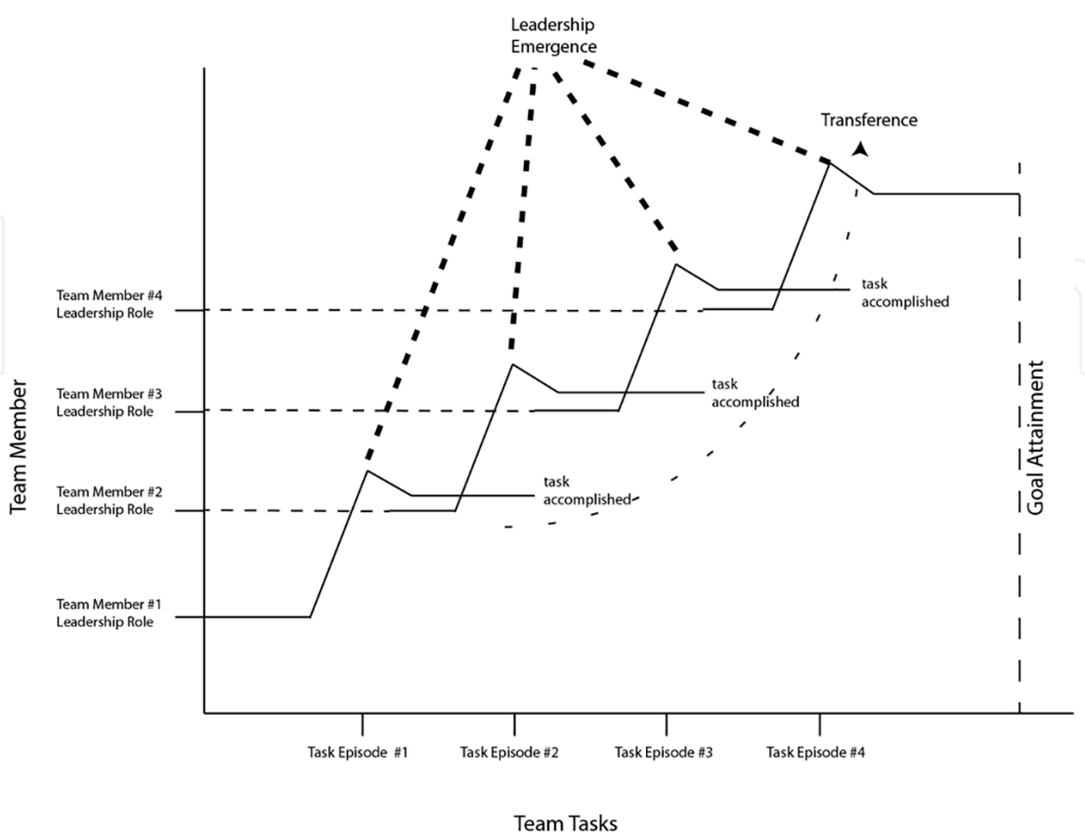

Figure 1.
The Team Emergence Leadership Development & Evaluation (TELDE) Model. Note: From Turner and Baker [63].

interventions, as a means of adopting a new organizational policy, to training or onboarding new employees. The TELDE model's utility is further expanded upon in the current research by incorporating it as the fundamental structure for the CATS model due to it being a CAS with individual agents working independently and interdependently toward a common goal while adapting and operating in a self-organizing manner toward emergence.

6. Interactions: level of analysis

Complex adaptive systems are non-linear by definition, with an unlimited number of ways to abstract its processes. Richardson [28] highlighted this point by stating:

> *Because of the nature of nonlinearity there is a huge number of ways to abstract a (nonlinear) problem in such a way that will easily be confirmed by our limited empirical evidence, i.e., there is one way to 'curve-fit' a linear problem (assuming a fixed number of dimensions) but there is an infinite number of ways to 'curve-fit' a non-linear problem.*

Richardson [28] continued by indicating that there is no one right abstraction or model when addressing non-linear models. Here, the only way to accurately model non-linear models, as in CAS, is to construct the CAS from the bottom up [28]. Rather than working backwards from some desired state of which we have limited knowledge [28], CAS should be addressed from what is known, the interactions that lead to complex patterns and emergence [12]. The function of leadership when operating in CAS is to foster and direct these interactions, leadership is inter-actional [4] through shared roles and responsibilities among the agents, resulting in a bottom-up process.

6.1 Complexity takes a connectionist perspective

The CATS model takes the connectionist perspective for viewing, understanding, and predicting CAS. The level of analysis does not take place at either the macro level (i.e., team, department, organization) or the micro level (individual). The level of analysis identified here is new; it views the interactions between two independent agents within a system as a level of analysis worth considering. This dyadic event becomes the beginning of the overall process that leads toward emergence; thus, it should be considered as a means of better identifying and representing this process. The current article defines interactions as "the network of linkages across which information flows and connects" [14]. While the rules of engagement among individual agents in a system are critical factors of emergence in that individuals act to form these interactions, the individual and the interaction are considered two separate levels of analysis. The CATS model presents a theoretical model that provides an approach to understanding and guiding CAS. This theoretical model concentrates on the outcome that results from these interactions moving toward emergence rather than on the rules-based approach trying to understand the rules of engagement that led to these interactions.

This interaction level is believed to be the driving factor that fosters emergence that takes place in, and spans across, all levels, rather than the levels driving interaction. This interaction level is where leadership should focus a large portion of their efforts toward when operating in CAS. Concerning CAS, and more importantly to the CATS model, interactions that begin at the individual level within the TELDE model hold the potential to emerge into larger organizational, and even global, patterns.

6.2 CATS levels

As identified, it is the interaction between the agents of CATS that result in individual learning, the formation of new cognitive structures that contribute to emergent properties. Also, interactions among CATS produce much needed emergent properties; organizational learning and learning organization properties that allow organizations to better address wicked problems and to operate in today's complex globalized environment. In viewing the level of analysis as the interaction, we identified four different CATS interaction levels: one to one/dyad, dyad to many/team, team to team/organization, and organization to network/industry. **Figure 2** identifies each of these interaction levels.

Each of these four interaction levels consist of variations on micro- and macro-level perspectives. Micro-level represents the lower or smaller entity when compared to a higher or larger, macro entity. These micro- and macro-levels are utilized when representing multilevel models or theories. When a higher level affects a lower level, for example when new governmental regulations affect organizational policies, this process is identified as being top-down. Likewise, when a lower level affects a higher level as in poor employee engagement affecting organizational performance, this is identified as being a bottom-up process. Kozlowski and Klein [41] identified top-down processes as macro-levels exerting influence over micro-levels. Alternatively, bottom-up processes were defined as higher emergent properties that originated at lower levels [41]. In sum, top-down processes provide influence (e.g., mission statement, vision) while bottom-up processes have the potential of producing emergent properties. Because emergent properties come from bottom-up processes, and these processes are driven by the interactions among the agents involved, the focal point when addressing interactions as the level of analysis should be at bottom-up processes. However, even though the interactions and emergence come from bottom-up processes, the influence from the macro-level onto the micro-level (top-down) should not be disregarded. Both the bottom-up and the

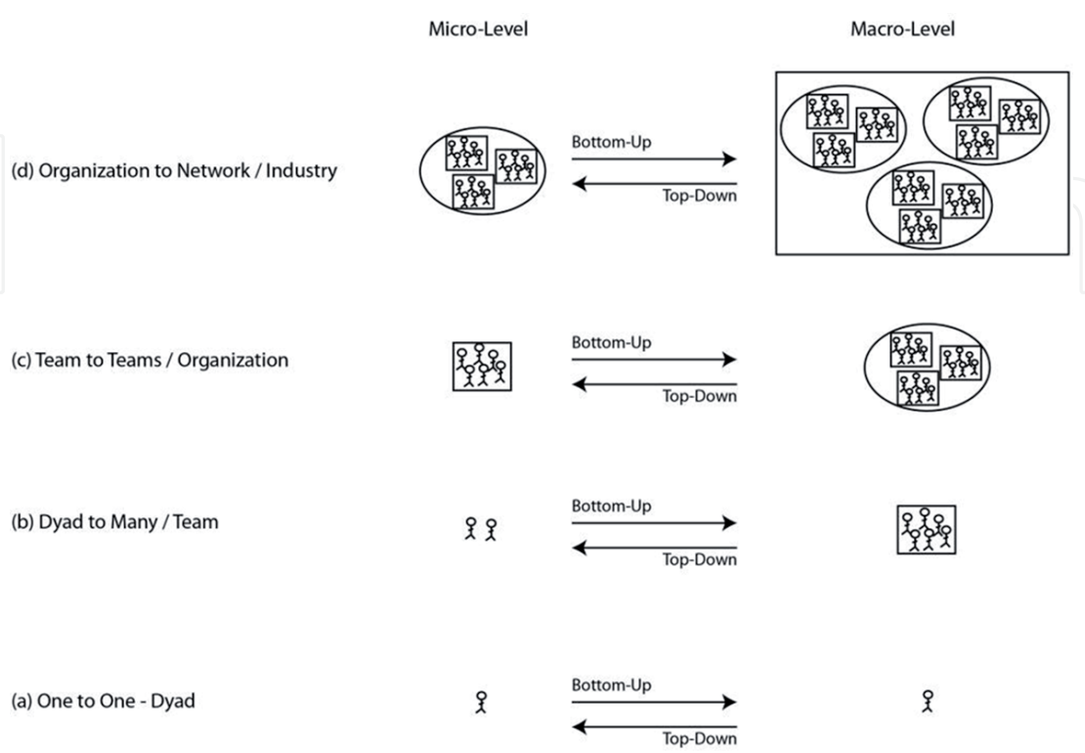

Figure 2.
Reciprocal Interactions at Various Organizational Levels.

top-down processes should be considered in totality. This is depicted in **Figure 2** by the arrows, an arrow from a micro-level to a macro-level represent emergent, bottom-up, processes. Likewise, an arrow from a macro-level to a micro-level represents influential, top-down, processes.

These levels of interaction are similar to the enabling functions identified by Uhl-Bien and Marion [15]. Their enabling functions began at the micro level (individual level) and aggregate into macro levels which, in turn, also affect the messo level. **Figure 3** provides a representation of how these different interactions would take place within a single organization, inter-organizationally. In **Figure 3**, interactions take place at the individual level within each TELDE model, intra-team. Also, with multiple TELDE models operating sequentially (the CATS model) interactions take place across each team, inter-team to represent the macro-level.

In the inter-organizational model (**Figure 3**), each system (TELDE model) has peripheral influence over other, adjacent, systems. Here modularity is present as identified by [36].

The aggregate of the micro- and macro-level interactions, along with replication of the CATS model in additional organizations or entities, represents the messo-level interactions. These messo-level interactions are best represented in **Figure 4** in which the CATS model is replicated, resulting in interactions inter-organizationally or across different networks (messo-level interactions). He et al. [42] provided one example of this when the researchers looked at how industrial clusters (CAS) formed, they formed through the interactions of the micro-organizations: "clusters form from micro-interactions and spontaneously evolve over time without any intervention". These micro-interactions emerged across the micro-organizations

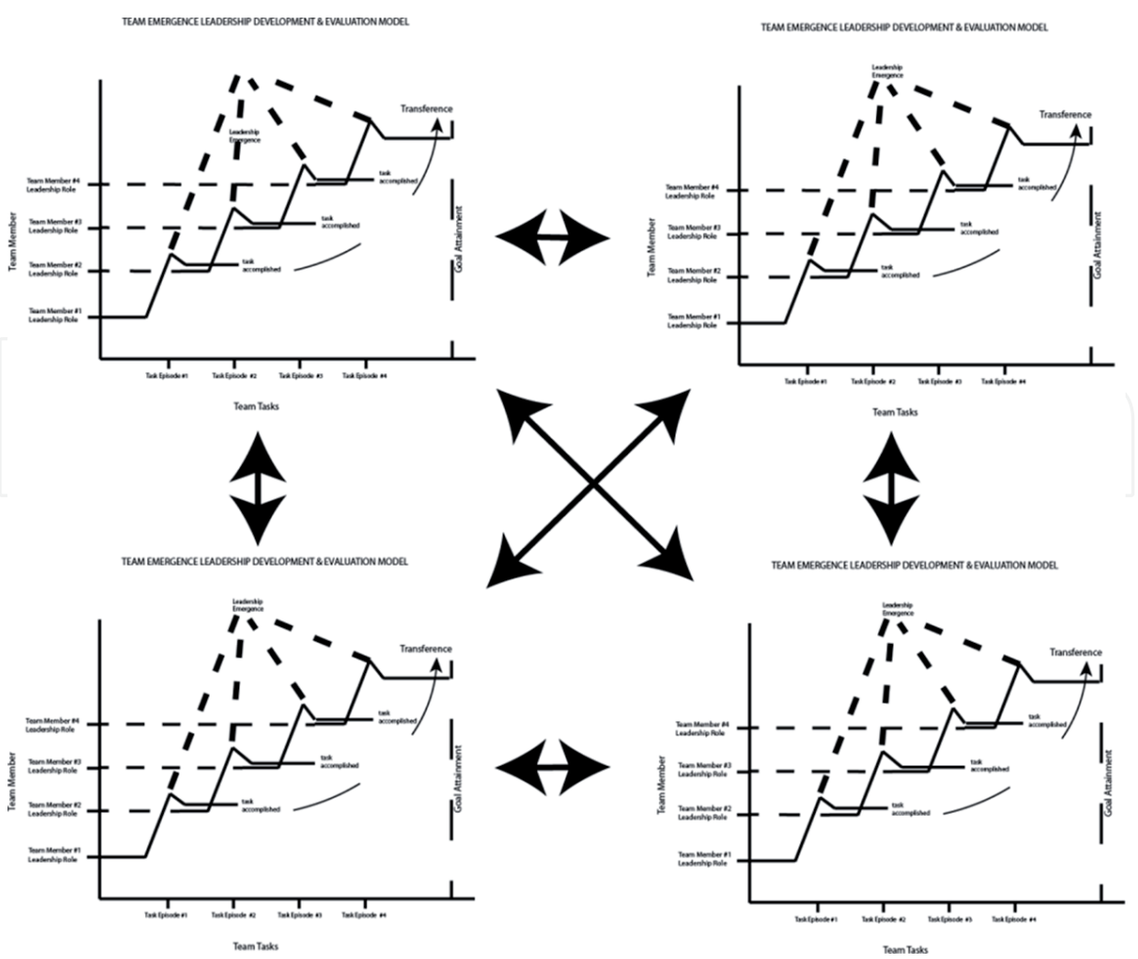

Figure 3.
CATS Model: Multiple TELDE Models Acting Inter-Organizationally.

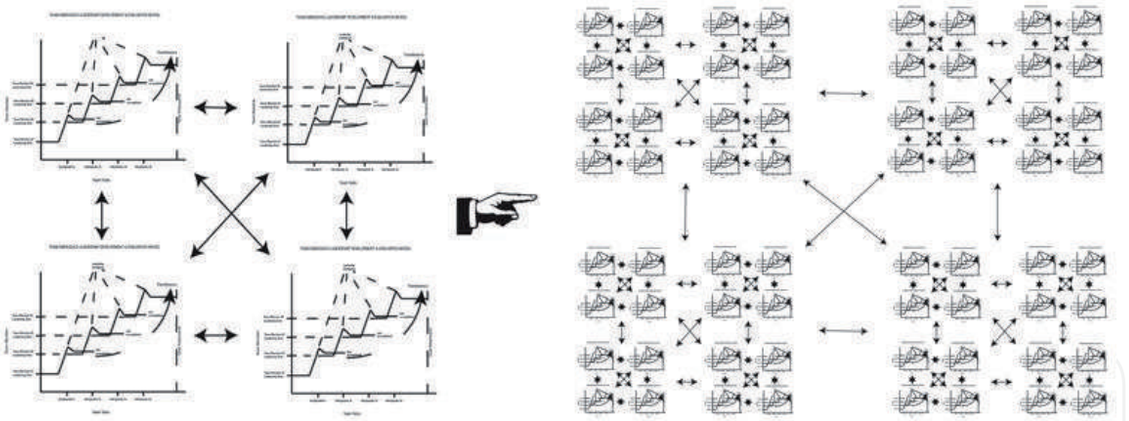

Figure 4.
CATS Model Intra-Organizationally or Across Networks (Globally).

and eventually influenced the formation of industrial clusters. In essence it is the initial dynamics that evolve into an organization's adaptability [15], this set of interactive dynamics should be facilitated, not managed, by utilizing the CATS model.

7. The role of leadership

The best way to manage CATS is to promote and flourish the interactions that take place within and between TELDE systems. Luoma [43] stressed that managers must be capable of leading in times of rapid change. Managements' role within complex systems expands beyond traditional human relation functions to one that manages systems and networks [44]. Facilitating these interactions and acting as a change agent within such systems is another function of management. However, this function can only guide emergent processes and cannot control it due to its non-linear and non-predictable nature. A successful agent succeeds by triggering change to meet its own systemic needs [33]. Bovaird [33] identified this process as a *self-reinforcing spiral*, operating similar to how the knowledge management literature [45–47] described *knowledge creating spirals* and how He et al. [42] described *knowledge spillover*. Even if attempts to manage the emergence is taken, causal mechanisms remain unknown due to the complexity and number of interactions that cannot be accounted for. This is similar to punctuated equilibrium in which some causes are weakly associated to certain effects, but not all effects have associated or knowable causes [33].

Organizations and systems are unable to remain in a state of equilibrium, successful organizations and systems avoid equilibrium [33] in favor of operating on the edge of chaos. Organizations should, due to this *run toward chaos*, build structures and systems that expedite self-transformation and create conditions for change that lead to self-organizing systems [33]. Granted, however, even though it may seem that self-organizing systems come free to organizations in which they do not need to be managed, this thinking is counter-intuitive. Lindberg and Schneider [20] identified that order is not free when talking about self-organizing systems. Instead, leadership must be able to achieve the right balance between equilibrium and chaos without hampering the emergent processes that come from self-organizing systems [20]. Luoma [43] warned against efforts that try to eliminate this disorder, by eliminating this run toward chaos leaders can destroy the system's self-organizing capabilities. Here leadership plays a critical role in the self-organizing function [20], facilitating interactions with the system [48].

Organizations need to view leadership as an emerging construct that facilitates self-organizing behavior to achieve desirable outcomes [20]. Leadership also needs to take a more integrated approach that accounts for both inter-system (e.g., inter-team, inter-organization, inter-network) and intra-system (e.g., intra-team, intra-organization, intra-network) dynamics [49]. Tong and Arvey [44] identified three managerial behaviors for leading in complexity; enabling, sensmaking, and facilitating shared leadership. Enabling behaviors allow leaders to enable adaptive outcomes rather than control them, sensmaking relates to a leader's ability to identify what information is important and where a team's attention needs to be focused, and facilitating shared leadership involves collective leadership compared to one overarching leader [44]. The CATS model enables members to adapt as needed, allowing the system to emerge in response to internal and external environmental forces. Sensemaking results in the collection of individual accounts [44], which is inherent in the CATS model. The CATS model provides the collective leadership needed in that it views the team as the leader in the TELDE model [6].

This transformation to a new leadership is in alignment with the *Law of Requisite Complexity* [14, 50]: "It takes complexity to defeat complexity—a system must possess complexity equal to that of its environment in order to function effectively" [14]. He et al. [42] explained that complexity requires a great deal of abstraction to predict general patterns of change. The CATS model aids this new leadership in facilitating and managing this complexity.

8. CATS model in context

8.1 Organizational learning, learning organization

Antonacopoulou and Chiva [17] identified social complexity to highlight the need for learning in OL processes. They highlighted learning as being central to complexity because learning highlights the conditions of, and the outcomes from, interactions that fosters self-organizing activities which lead to emergence. Mowles [26] introduced this process as *learning through* complexity. Boal and Schultz [11] described learning in complex systems as being related to information flow within these social systems, driven by the interaction patterns of the agents within the system and the interaction patterns between systems. Learning is a process that cannot be controlled when identified as a dynamic and complex process [17]. Learning in complex systems is a product of the connections and interactions of the individual agents that result, or contribute to, emergence. At the more macro level, learning is a product of the connections through interactions across systems, such is the case in OL practices when learning occurs in cross-functional groups. This learning through systemic interactions is an area that needs to be further developed and researched through different organizational settings to determine if fostering interactions at various levels result in emergence, thus mediating OL/LO or organizational performance.

8.2 Organizational change

Organizational change is often delayed due to four primary processes: structural, institutional, political, and learning processes [51]. The CATS model provides a model that potentially addresses all four delayed processes. The CATS model provides a structural model (structure) for driving organizational change as a bottom-up, self-organizing, process (learning) while achieving organizational and stakeholder objectives (institutional) in response to any environmental forces from the community, the government, or due to globalization (political).

Organizational change has been identified as occurring in cascades where change leads to additional change which, in turn, leads to even more change [51]. Here cascades occur within each TELDE model, ultimately resulting in organizational change through the aggregate from the CATS model.

At the network level, as shown in **Figure 4**, community ecology looks at the interdependence among differing organizations in which an organization's legitimacy is related to its similarity and proximity to already legitimate organizations [52]. This network model, supported by the CATS model, provides a platform for collectives to structure similar cognitive spaces. This network model is representative of organizational interdependence models in that it provides interdependence between systems while also providing a proximate association. Organizational interdependence occurs at all levels of analysis; networks, populations, communities, global [52]. In addition to providing a model for organizational interdependence, identifying the interaction as the level of analysis for these network systems aid organizations, communities, and governments with a new architecture to facilitate global change. Further research is needed to test the CATS model to determine its impact on organizational change and organizational interdependence.

8.3 Collective cognitive structures

Learning within dynamic and complex systems, agents have the capability of being emergent and transformative [53], similar to the concept of transference in Turner and Baker's [6] TELDE model. Through observation, practice, feedback, and reflection individual agents learn individually as well as collectively. This process was described by Boal and Schultz [11] as shared schemas where interactions lead to the development of similar cognitive structures or schemas. Likewise, Borzillo and Kaminska-Labbe [10] contrasted individual intelligence (interconnected neurons) with collective corporate intelligence (interconnectedness among agents). Turner et al. [54] identified similar team or group cognition models that explain how information is structured and processed collectively: shared mental models, SMM [55]; team mental models, TMM [56, 57]; information sharing, IS [58] transitive memory systems, TMS [59]; cognitive consensus, [60]; and group learning, [61, 62]. Using complexity science to understand corporate entrepreneurship strategy, Crawford and Kreiser [21] identified two organizational antecedents: "the *cognitions of the individuals within the focal firm* and the firm's *external environmental conditions*" (emphasis in original). The shared cognition among the agents within the CATS aids in their capability of becoming more adaptable. At this point, learning becomes collective and emergence begins to develop. Further research is needed to determine the impact that the CATS model might have on shared cognition in teams and small groups, as well as assessing its influence on small networks.

8.4 Innovation

Chiva et al. [30] associated OL with competitive issues such as innovation. They identified innovation as involving new organizational processes along with more traditional concepts: new products, new services, and new knowledge [30]. Innovation is presented as being a collective construct, requiring the organization to learn and to develop new knowledge for the innovative product or process while, at the same time, learn from the innovative processes through feedback channels [30]. This reciprocal process includes both bottom-up and top-down processes at the same time. The CATS model needs to be tested to determine its impact on organizational innovation. The CATS model is one tool that could be

utilized to manage innovative processes within organizations, providing self-organizing systems to be innovative (bottom-up) while addressing organizational problems (top-down).

8.5 Cross-business-unit collaborations

Martin and Eisenhardt [40] introduced restructuring as one method for organizations to address changes in the market. One such effort is in cross-business-unit collaborations. Unfortunately, there is a lack of theoretical models and research addressing "how executives create high-performing cross-BU collaborations" [40]. Their research showed that executive decision-making was effective in multi-business settings when executives were part of a multibusiness team, acting collectively while consensually agreeing to decisions. These multibusiness teams act in a manner that is consistent with the TELDE model which could foster future research efforts. When these multibusiness teams operate across different businesses or industries, they act similarly to the CATS model. The CATS theory adds to the multibusiness organization literature by including a model that incorporates complexity theory and complex adaptive systems. Thus, making a fundamental contribution and meeting the requirements of a new theory [40].

9. Summary

The Columbia response effort began as "idiosyncratic local organizing actions" [29] among the participating agencies (i.e., NASA, FEMA, DOD, EPA). In order to respond quickly and to organize efforts between the multiple agencies that became involved, Beck and Plowman [29] identified four main categories that led to the successful collaborative efforts that came from the initial chaos:

1. Initial contextual conditions precipitated the collaborative effort.

2. The organizing actions taken by independent agencies.

3. The development of trust.

4. The development of a collective identity.

Success from the Columbia response effort resulted, not from any one agency being in charge, but from the in-charge agency (FEMA) acting as an enabler for the other agencies [29]. Their case study exemplified the support function from the host organization as a means for self-organization to take place. This support function included providing guidance, resources, and tools to the team/group as needed so they could complete their tasks. Also, the interactions that took place within the CAS were facilitated by the host organization. By providing the right direction and resources, the team/group could focus more attention on self-organizing activities aimed toward goal attainment, and in some cases, emergence. The agents involved in the Columbia response effort practiced an aggregated form of the CATS model in which agents acted interdependently toward one common goal that was facilitated by FEMA.

Complexity theory takes a different perspective when viewing systems. Rather than examining systems using reductionistic methods, complexity takes a connectionist perspective in understanding that emerging properties arise from the interactions among and between the system's elements. As systems evolve from being complicated to being complex, typically by increases in the number of components

and interactions within a system, CAS are formed requiring leadership to be distributed. Linearity is often associated with models that provide predictability and causal relationships [43] while CAS are associated with non-linearity, open systems, and non-predictablility. One method of facilitating and managing CAS is through the implementation of Turner and Baker's [6] TELDE model. A CAS that utilizes the TELDE model as a means of driving change is known as the CATS model.

Micro-level activity and interactions aggregate, and eventually reflect higher-level activities [21]. This results in organizational outcomes being the result of micro-level adaptive and emergent forces through CAS and CATS. Crawford and Kreiser [21] explained: "Unless a new activity pattern emerges or is imposed by top-down tensions, the higher level aggregate activity will *exactly* [emphasis added] reflect and resemble the scaling pattern of the micro-level pattern". When viewing CAS, Boal and Schultz [11] stressed that leaders must create the structures and interactions that occur in CAS, allowing them to self-organize and emerge, as in the CATS model presented in this chapter. It was also stressed that strategic leaders should be the catalyst for adaptive systems [11]. Uhl-Bien et al. [14] presented the concept of *enabling leadership* for their complex leadership theory in which leadership should concentrate their efforts to foster interactions and interdependency while injecting adaptive tension. Campbell-Hunt [19] acknowledged that leaders should be a participant in the flow of events that take place in CAS/CATS as opposed to just trying to control the flow of events. Leaders should make available organizational resources while releasing control of the CAS/CATS in order to allow the system to self-organize and emerge into a new order [19]. This active participation on the part of leadership was identified by Campbell-Hunt [19] as being "an epistemology of engagement with the challenge of an unknowable emergent order" and is presented here in the CATS model.

Chiva et al. [30] presented innovation as introducing either new products, processes, markets, or organizational innovations. Organizational innovation involves incorporating new organizational methods, such as in implementing the TELDE model as the foundation of building CATS to drive organizational initiatives such as leadership development, new employee orientation, change initiatives, diversity training, organizational culture exercises, and new technology orientation, to only name a few. Today's new leadership is best identified as being capable of influencing systems [12]. This influence comes, in part, through leaders' managing the interactions between teams and agents as depicted in the CATS model. Leaders' focusing on these interactions result in building connections and connecting agents, providing a new direction for leaders in today's complexity: "What might get lost in leadership in the flow of practice is the basic connection (relationships) between the organizational agents" [4]. Utilizing and implementing CATS as standard practice to drive knowledge creation and innovation, and in making new connections within organizations, is one tool that is available for today's leaders to operate in today's complex and challenging environment.

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Chapter

The Digitization in the Spanish Publishing Industry

Marta Magadán-Díaz and Jesús Rivas-García

Abstract

The purpose of this chapter is to analyze the impacts of technological change in the Spanish publishing industry and see how it is adapting to the new digital environment. This work provides a deep insight into the Spanish publishing industry through the collection of available data, mainly from secondary sources of information, both public and private, and from a review of a great number of documents from different sources, grouping all the data obtained to generate a time series, allowing to glimpse the state and evolution of digitization in the Spanish publishing industry along these almost 20 years. This chapter refers to the new business models emerging from digitalization, ending with some conclusions, recommendations, and future lines of research. This chapter is not just trying to be a journey through the past, present, and future of the book industry in Spain, but it pretends being the first step to continue investigating these and other aspects in a deeper way.

Keywords: digitization, publishing industry, innovation, print on demand, business model, digital content, e-publishing, e-book, Spain

1. Introduction

As with music [1, 2], film industry [3], and advertising [4, 5], publishing industry is living a relevant process of technological change: the transition from analog to digital formats [6–8]. As a matter of fact, it is undergoing a profound transformation as a result of the step to digital world, as much in terms of new products offering technical changes operated on processes of production and market distribution, and extended along the whole value chain [8–12]: from the very definition of what can be understood as a book to the different ways of producing and distributing it [13]. This change challenges existing business models and encourages companies to re-examine as much their product portfolios as their core competencies [14, 15]. Despite the examples of digitization in other creative industries, what is not clear for the publishing one is the model to follow in its digitalization process [7, 14, 15], notwithstanding that publishing companies will not be impervious to technical change and that, therefore, current publishing ways will be modified in future [8, 16, 17]. Specifically, many companies operating within have had to face the new challenges posed by all the innovations and technological changes associated with the Internet, the e-book, or print on demand, among others [18, 19].

At the present time, due to new technologies and the chance of outsourcing both services and industrial processes, the possibility of publishing a book becomes increasingly achievable [19]. Digital publishing is a new mode of publishing where content is created, published, and produced using only digital technology, and

digital products or services are broadcast online [20, 21]. It offers the possibility of having the content in various formats (paper book and e-book) and display modes, depending on customer's preferences [19, 22]. In short, on-demand publishing and e-books have caused, since Gutenberg and his printing press, the greatest transformation in the publishing industry [6].

Technology plays a key role in the current structure of the publishing sector. Publishers are adapting their strategies both to the new demand for digital content and the new emerging technological devices, but not leading this evolutionary process [14, 23].

Over the last 5 years, within the publishing sector, new players have emerged offering innovative solutions to aggregate and distribute the content, establishing marketing and transaction terms suited to this new framework [19]. Hence, the weight of technology equals the weight of intermediaries [24] and economic agents supporting them: Google, Amazon, and Apple are representative examples.

The Spanish publishing sector has an important weight within the so-called cultural industries, due to its return, jobs offered, and its power of growth and development from the innovations and technological changes assumed.

The Spanish publishing industry is among the most powerful in Europe, being one of the most internationally renowned [14]. Spain remains among the world's leading publishing powers, ranked as the fourth largest publishing power in the world (both in production and in turnover), followed by the United States, the United Kingdom, and Germany [14].

Among the cultural industries in Spain, the publishing sector is the one generating the greatest wealth. According to data from the [25], the annual revenues obtained in 2016 by Spanish publishing companies amounted to 2317.20 million euros and generated 12,608 direct jobs. To this figure, the indirect employment linked to the rest of the activities associated with the book chain should be added. The publishing sector is, in fact, an important source of employment: in 2015, the cultural employment in Spain, as a whole, provided 515,000 jobs, which is 2.9% of total employment in Spain. Direct employment in publishing companies increased yearly until 2008, when, as a result of the great crisis, it began to decrease until 2015, at which point a slight upward trend in job creation appeared to be confirmed.

At present, nearly 40 Spanish publishers have subsidiaries in 32 countries [14], mostly in Latin America (80%) and Europe (13.3%). On the other hand, within the ranking of the 56 most important publishers in the world by turnover, we have two Spanish groups: the Planeta group and the Santillana group, ranked 10 and 36, respectively, according to the data corresponding to 2016.

There are more than 3000 publishing companies of private capital in Spain, although the vast majority publishes less than 10 titles per year, and the sectoral structure is mainly comprised of small and medium enterprises, and where more than a quarter belongs to a business group.

The turnover of the publishing sector in the domestic market exceeds 2000 million euros and, whether one takes into account the size of the publishing companies is noted where large publishers generate 61.5% of turnover, the medium ones 25.9%, and the smallest publishers accumulate about 12.6%.

Despite technological advances and the development of electronic commerce, 52% of sales of paper books are channeled through bookshops and chains of bookstores. Only 1% is sold through the Internet. Nevertheless, the market dynamic and the emergence of the Internet have brought the sector about a direct distribution, namely toward a reduction of middlemen in supply chain or the redefinition of their roles.

The main goal of this chapter is to analyze the impacts of technological changes in the Spanish publishing industry and see how it is adapting to the new digital environment. For that purpose, a descriptive study on the sectoral structure of the Spanish publishing industry is conducted to underline the paramount qualitative changes operated within it, such as the emergence of e-books, publishing on demand, and the new business models.

2. Structure of the Spanish publishing sector

There are very different businesses in size (both in size and in turnover), productive specialization, in terms of working conditions and the model of labor relations within the Spanish publishing sector, where it coexists from large multinational groups to small companies of almost artisanal production.

Regarding the market share by size, it can be observed that (a) small publishing houses only represented 37% of the Spanish publishing structure in 1996, while two decades later, they accounted for 75% of the total, (b) medium publishers lost one percentage point, going from 11.7% in 1996 to 10.9% in 2016, (c) large publishers remain very stable, representing around 3%, and (d) only 26.7% of the total of publishers belongs to some business groups.

In 2017, the Spanish publishing production was developed by 3032 publishing agents. Nonetheless, during these last 20 years, the outgoing companies are much higher than the new ingoing ones. This is due to the fact that technological changes are challenging the existing business models and encourage companies to re-examine their product portfolios and their basic competencies [14, 15], which implies that many of the companies decide leaving the market not adapting to the new changes.

As shown in **Figure 1**, since 1996, there are 9% fewer publishers in Spain, a trend that will be continued in future.

Figure 2 shows the annual evolution of the average print run per title published in Spain from 1996 to 2017 (in thousands of copies) which, as can be seen, has been progressively decreasing: in 2017, the average print run was of 2743 copies, while in

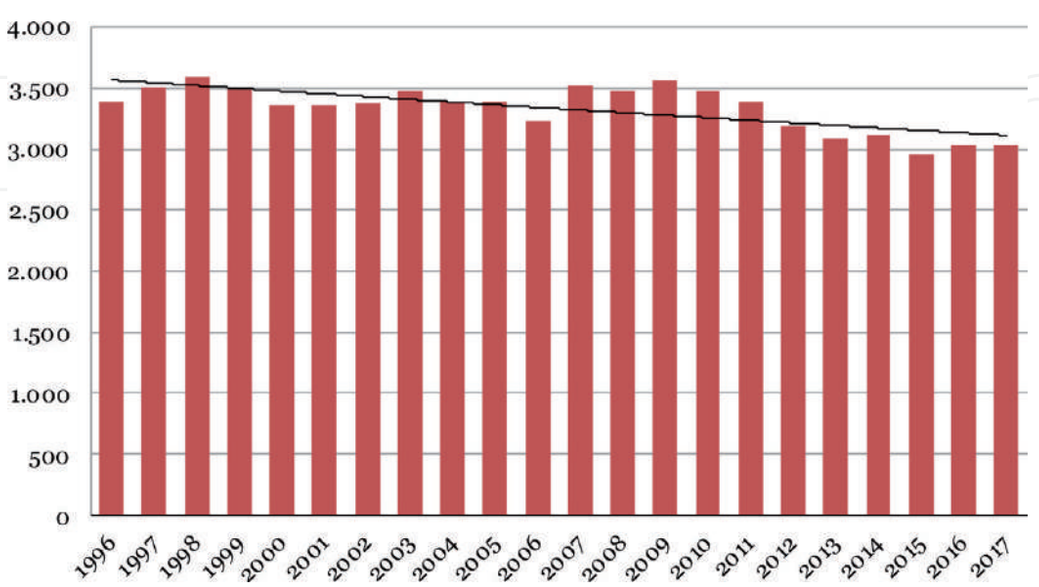

Figure 1.
Number of Spanish publishing companies (1996–2017). Source: own elaboration based on the data published in the Panorama of the Spanish edition (Ministry of Culture and Observatory of the Book in Spain).

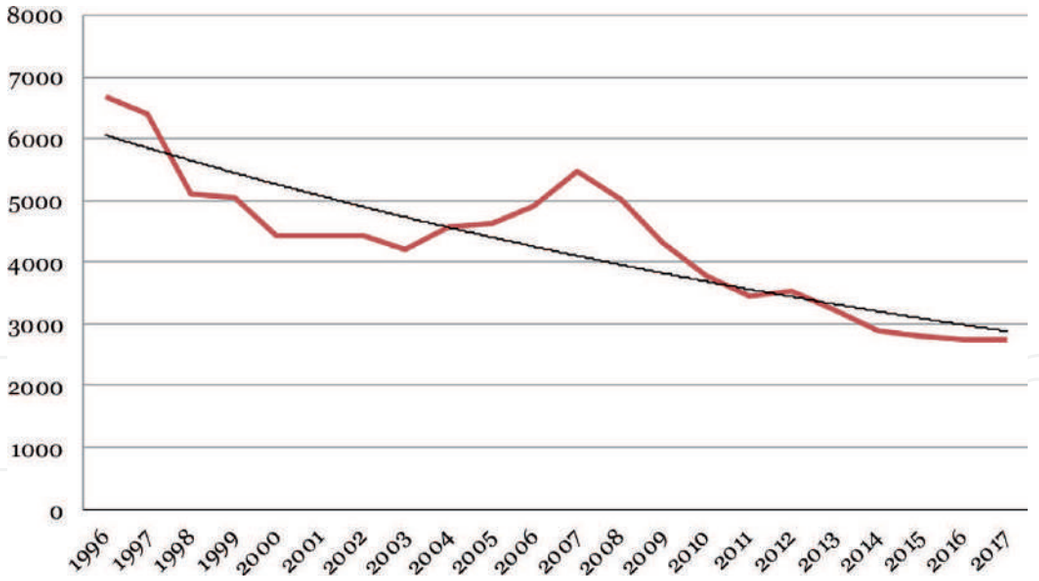

Figure 2.
Annual trend of the average print runs per title published in Spain (1996–2017). Source: own elaboration based on the data published in the Panorama of the Spanish edition (Ministry of Culture and Observatory of the Book in Spain).

1996, it was of 6670 copies, which meant a reduction by 59% for the period considered. However, there is a circumstance that, in the Spanish publishing market, works with significantly large print runs coexisting with other ones that barely reach 1000 copies.

Analyzing the data of the Spanish ISBN agency, it should be noted that it registered, for the first time in 2000, titles in the form of Internet file, but it is from 2012 when the new technologies burst with force, with the use of new formats. Since 2010, the number of publishing companies producing in electronic format has increased by 70%. In case of Spain, the electronic publishing experienced a significant increase in recent years, mainly in the Internet archives segment. New publishers emerge exclusively devoted to digital books, while many others publish in both formats. In 2017, 87% of titles published in digital format were also published on paper, and only 13% were published solely in digital format. These figures lead to the following conclusion: there is a duality in the publishing work, due to the same title frequently published in both the formats.

Figure 3 shows the annual evolution of the number of e-books published in Spain between 2007 and 2017. In 2017, 28,433 digital books were registered in Spain, representing almost 30% of publishing production, while in 2008, it only represented 2.4%.

The development level of the e-book market in Spain follows a similar line to that of many other countries in our environment, with the exception of the United Kingdom, the leading country behind the United States [14]. In the case of Spain, the e-publishing experienced a significant increase in recent years.

It is concluded that the Spanish publishing activity shows a series of trends taking hold in recent years. In particular, it is worth highlighting: (a) the progressive shortening of the life cycle of books in the market; (b) the existence of more titles, but also fewer copies, that is, the decrease of the average print run; (c) the decline in printing and publishing, as a result of the growing commitment to digital publishing; (d) the reduction of public and private publishers; and (e) the diminished number of copies sold.

Therefore, the appearance and popularization of e-books, reading on digital media, the emergence of self-publishing and distribution platforms, the possibility of making short print runs on demand, or the birth of exclusive e-publishing houses [6] provides the basis for a reorganization not yet completed [19].

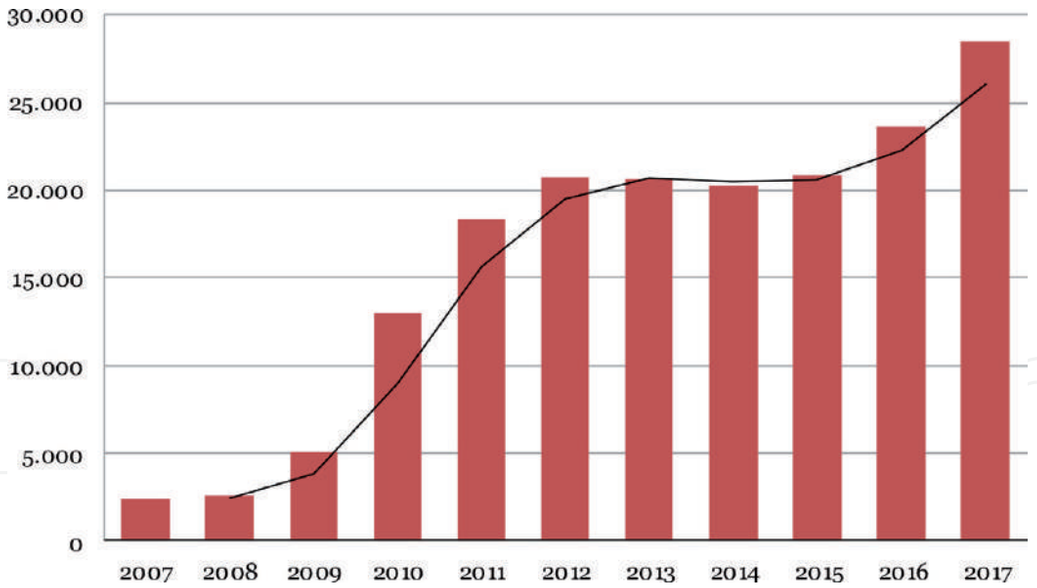

Figure 3.
Annual trend of the number of e-books published in Spain (2007–2017). Source: own elaboration based on the data published in the Panorama of the Spanish edition (Ministry of Culture and Observatory of the Book in Spain).

3. Qualitative changes in the Spanish publishing sector

The new environment of the Spanish publishing sector goes hand in hand with technology evolution [14]. Digital technology eliminates geographical boundaries inherent in printed publication, and the physical distribution channels associated with traditional publishing models are modified [10]. New productive processes are incorporated, leaving room for new ways of understanding the book. Finally, the contents have been disconnected from support [26].

However, not only innovations have taken place in the way of materializing the publishing work, that is, in the chosen support or format, but also in the production processes: the appearance of digital printing on demand (POD) is also modifying the way of publishing the printed books [27].

The POD is transforming the way publishers offer paper books; that is, it is no longer necessary to print several copies from a title and wait for them to be sold: with this system, any title can be offered in a library or platform, where an order is produced, then it is printed, and sent to the client [28]. In this way, the publisher need not make a significant investment in production, reducing, in this way, the business risk. In addition, a publisher does not need to store the remaining unsold print runs, avoiding returns from bookstores and distributors [29].

The Spanish publishing sector could not be understood, currently, without linking both process and product innovation. On the one hand, new products are developed, such as e-books, but on the other hand, the production processes of the books are improved, both in terms of paper and electronic formats, to which new features are also added, such as augmented reality and printing on demand, thus integrating design and manufacturing technologies [19, 30–32].

3.1 e-Book

In a seminal sense, the book is the raw material of knowledge, culture, and information [19]. Therefore, the essence of the book would lie in its content, not in its form [21].

There are multiple definitions of e-books [33, 34]. An electronic book can be considered: (a) a digitized version of a book in paper form to be viewed on a specific

e-device [35], (b) any work readable on the screen [6], (c) the reading device in itself [6], and (d) any digitized file capable of being downloaded and decoded in e-devices for reading and viewing [36].

In short, an e-book is a digital file that needs two integrated elements in order to be decoded: a physical reading device—hardware—and a decoding program—software—enabling to interpret the content of the file [20].

The book, as a way of communication whose traditional form has been paper, is currently at a crossroads due to the defiant and disruptive emergence from e-books, challenging the existing business models in publishing industry and promoting organizations to re-examine as much their product portfolios as their core competencies [6, 14].

Regardless of its qualities as a product, the e-book has changed both the way of reading and the way in which a reader can approach a text. In case of Spain, e-publishing experienced a significant increase in recent years, mainly in the Internet archives segment [37]. It will be with the launch of the Amazon Kindle and the Apple iPad when the distribution and commercialization of the e-book begins to develop [38, 39], suggesting that one of the constraining factors, within the digital publishing industry, was the lack of an e-reader sufficiently sophisticated to attract readers to the digital domain [20].

In addition to the product innovation boosted by e-book, in recent years, other product innovations have also been adopted [39], such as: (a) audio books and (b) "bridge" books. Regarding the improvement of the characteristics of such publishing products, the following must be highlighted: (a) the augmented reality, in both forms—printed and electronic forms, and (b) the QR codes, in printed books [19].

An audio book is the recording of the contents of a book read aloud. It can be narrated with actors and be dramatized, adding sound effects. It can also be narrated by a computer program with electronic voice. According to the global e-book report in Spanish-speaking markets, the audio book is breaking out with force and there are initiatives supporting strongly this format. According to the same report, more than 77% of the audio books available in Spanish are fiction versus 23% nonfiction [19].

A "bridge" book consists of putting together a paper book with an iPad with synchronized content. While browsing the pages of the book, the device will display additional digital contents. Augmented reality enables the instantaneous superposition of images, markers, or information generated virtually on real-world images. Through a webcam and a PC, it is possible to see 3D graphics displayed by means of computer-programmed codes or marks [19].

A QR code is a module for storing information in a dot matrix or in a two-dimensional bar code. For example, QR codes can be placed on books, either on its spine, on the cover, on the back cover, or somewhere where the user can quickly identify it. In this way, it can provide complementary information: Website of the book, book trailer, synopsis, works of the author, or any other hyperlinks [19].

In any case, the weight of e-book turnover continues to be quite low—compared to the rest of the formats, but books on Law and Economic Sciences, included within the Social Sciences category and Humanities [17].

Figure 4 shows the turnover of the Spanish e-book industry between 2009 and 2017, expressed in millions of euros, which meant an increase of approximately 2 million with respect to the figure recorded the previous year. The turnover from e-books reached 119.1 million euros in 2017, 1.8% more than in 2016. Although the turnover generated through e-books continues to rise, this does not suppose more than 5% from the total turnover of the Spanish publishing companies [40].

Despite the increasing production of e-books, its turnover continues to be a residual, it does not represent more than 5% of the total annual turnover, which is

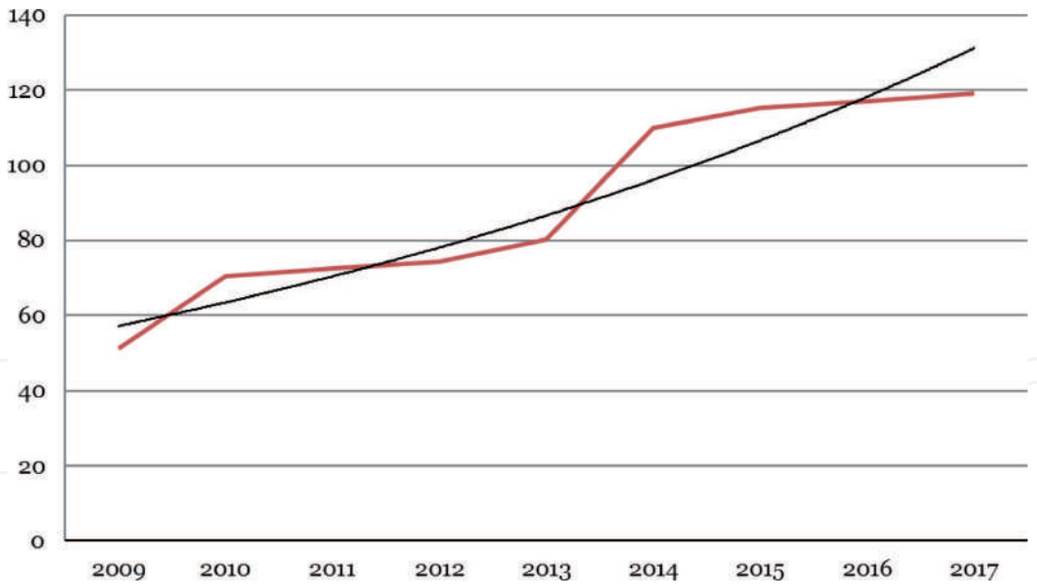

Figure 4.
Trend of the turnover from e-book in Spain (from 2007 to 2017), in millions of euros. Source: own elaboration based on the Domestic Commerce of the book (FGEE).

mainly channeled (79.5%) through digital platforms and distributors, like Amazon (with a share of 22.6% in 2017), Casa del Libro, Google or Apple Store, among others. **Figure 5** shows the income from the e-book sales in Spain in 2017, classified by commercial distribution platform and in thousands of euros. In that year, the turnover from e-books in the country through Amazon approached 27.04 million euros [41].

Some of the factors responsible for the low turnover of e-books in Spain are: (i) the high price of e-books, which is almost always close to or even higher than that of printed books as a consequence, mainly, of the different tax treatment between both [42], (ii) the high price of e-readers with an uncompetitive cost-benefit ratio [43], (iii) the incompatibility between the different reading platforms [44], (iv) the strict control of copyright [45], (v) the existence of illegal download platforms [46], and (vi) the lack of integration between suppliers of content [47].

As in paper format, Spanish publishers export a lot of digital content: 60% of digital downloads of Spanish books are made outside Spain, mainly in Latin America and the United States, consolidating the export trend of the Spanish publishers' production.

Throughout the year 2017, 53% of e-book sales of the Spanish publishers took place in Spain, while the rest of the sales took place in Latin America (33%), the United States (9%), Europe (4%), and the rest of the world (1%).

With respect to e-book distribution, most new players come from the technology industry and have few links to the world of publishing. In short, hardware manufacturers and Internet service providers have entered the book industry and can outperform the traditional players in creating new business models for digital content [14, 19].

3.2 Publishing on demand

The inrush of digital printing has given graphic arts workshops much more agile tools—mainly in time—to respond to new demands: short print runs, printing on demand—increasingly frequent—and personalization of copies that is modifying the way to produce the printed books [27, 48]. Publishing on demand (POD) is nothing more than applying the philosophy of Just in Time to publishing sector or, in other words, producing what is going to be sold, thus avoiding overproduction.

POD is transforming the way publishers offer paper books, and as a consequence, it is no longer necessary to print several units of a title and wait for them to be sold [49], and it allows printing a book formerly shown in a virtual library, produced by an order and starting from one single copy [28]. POD eases publishers to have a title available indefinitely from a printed publishing and replenish the market in a short period of time without incurring logistic costs.

Due to this system, any title can be offered in a bookstore or platform: an order is produced, then it is printed, and sent to the client [19, 28]. So, publishers reduce their business risks and, in addition, do not need to store the remaining print run, avoiding the returning of books from bookstores and distributors [29].

Figure 6 shows how the POD process is carried out, beginning with a publisher entering a title on the platform until it reaches the reader.

Many platforms, such as Amazon, have launched printing on demand, combining printing, distribution, and sale from their Websites anywhere in the world. POD has erased barriers to market entry and has provided a solution for small publishers to access a global market, linking to a wholesaler or retailer with the means of performing POD.

Unlike the production of very short print runs (from 50 to 100 copies), POD allows the production of a book as a specific response to a customer order, avoiding

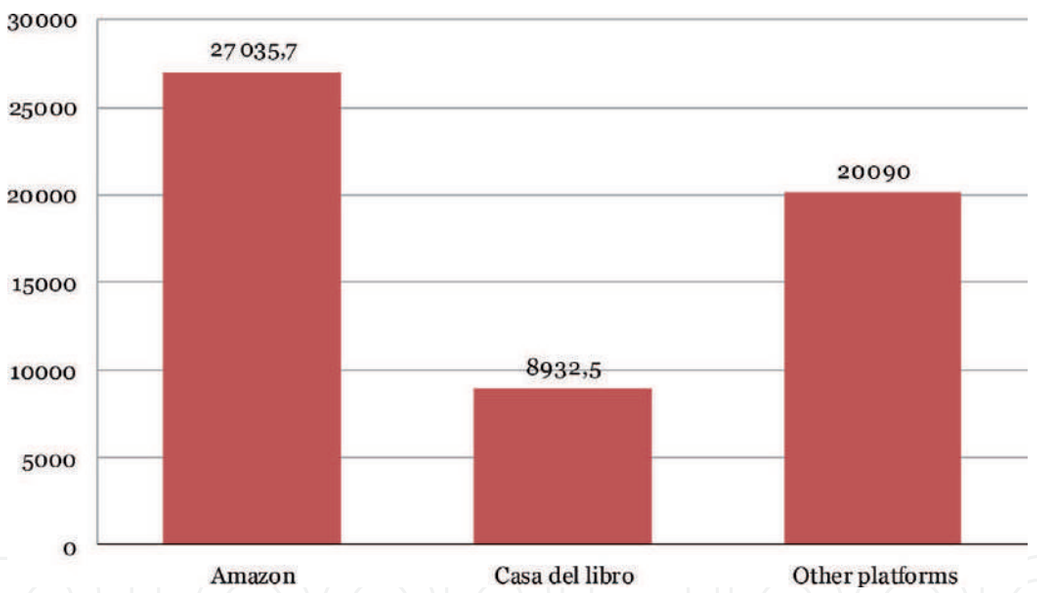

Figure 5.
Revenues generated by e-book sales published in Spain in 2017, classified by commercial distribution platform (in thousands of euros). Source: own elaboration based on the data published in the Panorama of the Spanish edition (Ministry of Culture and Observatory of the Book in Spain).

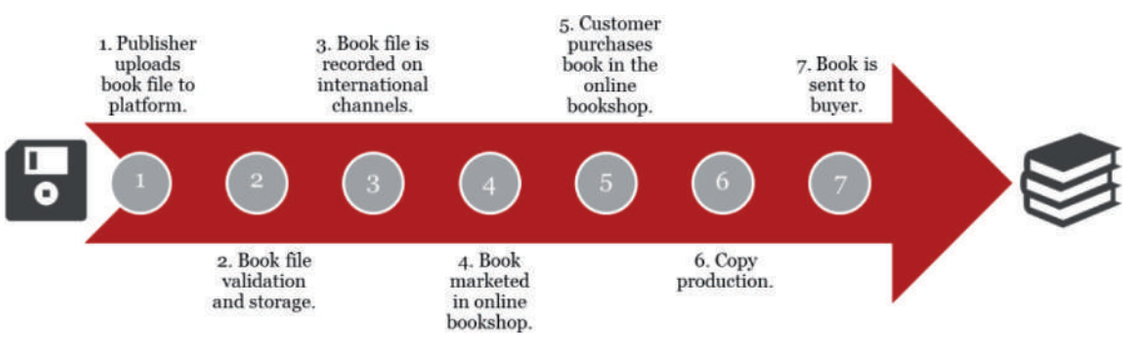

Figure 6.
The POD process. Source: own elaboration.

overproduction. In the same way, by facilitating reprinting "on demand," titles never get exhausted. With a model that implies to sell the copy first and then produce it (a converse process to the traditional one), any publisher can offer a title both on its Website and in other global distribution and sale platforms.

POD represents only 0.5% of the total published on paper in Spain. This is because many publishers only use it as an alternative for the reprinting of discontinued titles. This 1:1 printing model could serve to guarantee replenishment and sale by drip, mainly in medium- and small-sized publishers [19].

The technological change experimented by the Spanish publishing sector gives rise to the development of new business models arising from the adaptation within their productive structures of those innovations emerging from information and communication technologies.

For example, Logista Books, the largest independent book distributor in Spain, has recently launched a new integrated service of POD and distribution jointly with Lantia Publishing, a leading company in the application of new technologies in the publishing sector.

In 2016, the Spanish Confederation of Booksellers (CEGAL) incorporates the printing on demand in its alliance with Podiprint so that bookstores throughout Spain can incorporate more than 5000 titles up to now inaccessible for them.

The contracting of printing services and on-demand distribution is an increasing practice among Spanish publishers, mainly to meet the international demand [50].

4. New business models in the Spanish publishing industry

Every business model must be built on a logical plan to bring a product to market and make profits [14]. Accordingly, companies have to innovate in their respective business models with new manners of creating and capturing value for their stakeholders [51, 52].

Business models not only provide the logical architecture behind the production and supply of a product, but also a comprehension and response by companies to markets and their needs [15, 53–55].

Digitization in the publishing sector offers new ways of presenting content [19, 56] and eases new business models to be developed [21, 57–59], adopting innovations arising from information and communication technologies [60–62] in order to expand their product portfolio [63].

There is no denying that the change in the business model exists, although the printed book remains, for the moment, the most profitable product within the portfolio of publishing products. Among the possible business models that Spanish publishing companies are currently testing, the following is highlighted: the fragmented content, the payment for consumption or content on demand, the subscription model, membership, crowdfunding, gamification, direct sales, and self-publishing [14, 19].

The sale of fragmented content on the Internet started with music, through iTunes, which offered loose songs on the margin of the original album. This fragmentation is spreading through all the cultural industry, including the publishing one. In Spain, the Gestión 2000 label of Grupo Planeta was a pioneer in selling individual chapters of books, and Random House Mondadori created, within the Debate publishing house, a collection called "enDebate" to publish short nonfiction texts of some 10,000 words in digital format.

Payment for consumption or content on demand is based on offering the client the possibility of paying for what is really consumed. As a result of this type of

initiatives and awareness on the existing demand—especially in nonfiction books for the consultation and acquisition of chapters or parts of it, "Slicebooks" emerged. The Planeta group has launched the Planetahipermedia.com initiative, a Website for business training through videos and short textual materials on a specific topic.

Subscription is a model adopted mainly because it entails very interesting advantages from the business point of view, including having a database with information from customers and with a fixed and preestablished income stream, which makes it possible to adapt the supply to the demand, so it is also good for business planning. The subscription models reached the publishing sector through subscriptions of legal content and technical books. Today, there are different generalist platforms in Spain offering this service to the reader such as 24Symbols and Nubico. In the Spanish digital market, the pioneer company to introduce this model was 24Symbols (10 years later, in 2011). To this, it added streaming reading from any device with access to a browser, relying on cloud computing. Although sales derived from online bookstores such as Amazon, Apple, and Kobo, among others continue to be one of the priority sale channels for Spanish publishers, sales derived from subscription platforms in 2017, especially in the United States, Germany, Spain and Mexico, are becoming more relevant for publishers, reaching 6% of total digital sales compared to 5% that represented in 2016. The sale of licenses of e-books to libraries reached 3% of the total digital sales in 2017 compared to the 2% achieved in 2016. All these figures show the consolidation of the subscription model.

Membership consists of forming a part as a member from a group or service, which implies in our analysis belonging to a group of clients that, in terms of exchange, is linked to a set of services and contents offered by a company whose affiliation may or may not entail an economic payment. Within this model, others may be included, such as payment for consumption, or, what is more usual, the subscription to certain services or contents. However, in principle, they are two different models, and although they are close, they should not be confused and should be considered separately. In the Spanish publishing world, Círculo de Lectores is the benchmark for using this business model in paper format since 1962 and continues with it when in 2010, it was acquired by Grupo Planeta. Belonging to said club has no cost, but there is an obligation to stay at least for 2 years and, during that time, acquire at least one product regardless of the value of each of the seven paper magazines received per year. In exchange for belonging to this group, users receive special offers, of up to 30% off, not only in books, but also in other services, which can be negotiated or obtained thanks to the volume of members, which currently exceeds 1 million.

The essence of crowdfunding is the financial support of the crowd (micropatronage), which allows publishing works to be addressed, regardless of conventional financing channels, in exchange for a share in the benefits or through a free or more advantageous access to the service or product from the publishing work. In Spain, the Libros.com platform has based its business on crowdfunding, so it is a publishing company that ensures quality, design, and distribution at no cost to authors.

Crowdfunding in the publishing industry opens its business models to customers, co-creating with them a value proposition [64]. The co-creation means a collaborative action between client and organization for the generation of value: (a) creating new products or services, or (b) improving the existing ones. In the publishing industry, crowdfunding is a driving force for new titles or works financially supported by a part of the market that wants to access them and, therefore, gives them a value, allowing collective financers to take an active role in the publishing process. This opening not only has the goal of getting funds for those publishing works linked to a high financial risk or that, merely, would not find the support of

conventional financing channels, but also that allows both publishers and authors to validate such publishing works and interact with readers [65, 66].

It can be noted that (a) crowdfunding is used by those publishers facing publishing works exceeding their limits to obtain the necessary resources through traditional channels; (b) the most common form is the modality of rewards; (c) the impact of crowdfunding is not limited to financing, but also has global effects throughout the value chain, altering the relationships between the interested parties within the industry; (d) crowdfunding in the publishing sector appears as a halfway alternative between traditional publishing and self-publishing; (e) with crowdfunding, publishers and authors assume lower financial risks, and (f) the profile of the publishing company employing this formula might be said to be that of small publishing companies or one of the recent foundations [64].

From 2012 to 2017, crowdfunding has financed publishing works in Spain of very diverse nature for a value close to 400 million euros, and the trend is that, in the coming years, this financing mechanism will be used more and more. Only in 2017, crowdfunding in Spain captured resources for a value of € 101,651,284 compared to € 73,172,388, experiencing a percentage variation of 38.92% [67].

Within crowdfunding and during 2017, the loan platforms are the ones that have raised the most (€ 35,916,516), followed by investment platforms (€ 23,196,229), real estate (€ 23,148,200), rewards (€ 11,581,603), and donation (€ 7,808,736) [67].

After 6 years of development and consolidation of crowdfunding in Spain, some of these platforms already show leadership in their respective sectors: for example, Kickstarter, Verkami, or Goteo, in the crowdfunding of rewards [67].

Established in 2010, Verkami.com emerges as the first cultural and social crowdfunding platform in Spain, aimed mainly at creators, artists, designers, and other creative collectives. Since its creation, it has financed 6484 publishing works with a success rate of 72% and has collected 32.7 million euros. Using the platform and the support services and personalized advice of Verkami, it costs up to 5% of what the publishing works collect and the maximum duration of the campaign is 40 days.

In Spain, at least, two relevant crowdfunding platforms in the world of books can be pointed out: Libros.com and Pentian.com.

The Libros.com platform is, in fact, a publishing company that ensures quality, design, and distribution at no cost to authors, and therefore, completely transforms its business model by turning all operations and publishing processes around crowdfunding, offering authors a co-publishing format based on this model: the production of the book is budgeted, the investment offer is published with its corresponding rewards, and if the necessary funds are obtained, Libros.com proceeds to the publication of the book, sharing with the author 50% royalties.

Another platform devoted solely to the book sector is Pentian.com. As in the previous case, it is also a publishing company that fully adopts the crowdfunding model: authors present their works, patrons support the book, making its publication possible, and all participate in the profits generated by the sales. The Pentian.com publishing model shares royalties among authors (40%), patrons (50%), and the publishers of the same name (10%). The timing of the campaign is 60 days. In this case, patrons become partners of authors, sharing benefits, but have no influence in making decisions about the content of the book or its commercial strategy.

The concept of gamification deals with the use of game in a context other than solely being an entertainment—in fact, it is also called serious games—with the intention, for example, of acquiring skills and competencies in areas such as education or professional development, among others. One of the first guidelines of gamification in the publishing sector has been the development of relational marketing, which seeks to increase the active participation in business social networks of potential customers who browse the Internet.

Direct sales continue to rise as another possible income channel that complements the traditional sales model through third parties and consists of distributing and selling products directly to consumers without any type of intermediary or distributor (B2C model). Direct sales through the Internet do not reach 1% of the turnover in the publishing companies, but it can facilitate the integration of all the B2B sale processes—which takes years for the traditional distribution channel—through their Web platforms, offering better prices and more personalized services, suggestions based on the individual history of purchases or viewing, and discounts on content related to the interests of the user, among others. The strength of direct sales lies in the direct knowledge of customers and their behavior throughout the purchase process, to which is added the possibility of analyzing their consumption patterns. In this field, Bookmobile makes it easier for publishers to create and manage stores or platforms for direct sales without the need for third parties. Within these opportunities, there are other cases, such as Pubsoft, which offers the necessary software for the management of all online content promotion and sale processes. With this platform in the cloud, publishers and authors are able to autonomously manage author accounts, load e-books, and sell directly to readers.

Publishers can become their own booksellers through their Webs, while authors can help publishers market their titles online: for example, through social networks [68].

The main channel for the distribution and sale of e-books in Spain is specific digital distribution platforms (79.5%), especially through generic commercial platforms such as Amazon, Google Play, Casa del Libro, and App store, among others, being the specific distribution platforms, the medium that condenses the highest turnover.

Direct sales from the publisher's Website gain weight and account for 19% of turnover. For its part, the sale through bookstores loses ground only representing 1.5%. Inherent in this scenario is, also, the fact that publishers lose control over content; and they can even become a link, less and less necessary if authors choose to assume the entire publication process in the new digital context [20].

In the preparation and distribution of e-books, most publishers are compelled to interact mainly with companies in the technology sector—with hardly any links to the world of publishing—to address the problems and challenges arising from technological and sociocultural changes in which they are immersed [69–71].

With regard to the reading devices for which the digital work is commercialized, according to the Internal Book Trade in Spain, the computer has lost its ground substantially with respect to previous years, decreasing by 24.9%. The results show a greater tendency toward the commercialization of contents for e-readers—31.8% of digital works have been marketed for reading on these devices and tablets (5.2%), although the sale of contents also increases for streaming reading (4.4%).

In recent years, publishers and booksellers are firmly committed to becoming a space in the world of desktop publishing, as one more line in their business. The self-publishing platforms linked to publishing houses could redefine the boundaries, so far established, between writers and aspiring ones (indie authors) in the world of books [19].

In Spain, Bubok is a pioneering platform of online self-publishing that allows publishing, publishing and selling books on demand, both in paper and digital formats. Likewise, Bubok is also an online and offline book store, as it recently opened a physical store in Madrid.

The book Country of Penguin Random House has designed a space to discover new books and authors, discuss, share tips and experiences, and learn about the publishing industry. In Spain, the same publishing group has created "I like to write," a social network for writers where, in addition to including resources for

writers, tips or news, they offer self-publishing services ranging from design or ortho-typographical review to promotion and marketing.

In March 2017, the Planeta group has launched the "Universo de las letras," a new professional desktop publishing platform that was born to serve those who wish to fulfill the dream of seeing their books published [19]. In addition, it will function as an observation platform that encourages the discovery of new authors, so those works that stand out for their dissemination will be valued for possible publishing.

Some bookstore chains have also opted for self-publishing, such as Casa del Libro through Tagus, a platform that allows users to publish their books independently, but with offering the features and quality of a traditional publishing house [19]. The most successful books at this stage are selected by Tagus in order to make, subsequently, new publishing and develope promotional actions.

5. Conclusions

Technological changes and innovations play a key role in the current structure of the publishing sector. Spanish publishers are fitting their publishing strategy to the new needs of digital demand and the new emerging technological devices. In these moments, the old business models coexist with the new emerging ones. However, some publishers do not adapt to technological changes or do so at a slower pace than would be desirable. Mainly, in the last 5 years, Spanish publishers have been getting digital knowledge and trying to position themselves to respond adequately to changes both in the market and to the changing technologies [19]. Nonetheless, digital products are still seen as secondary to paper books. In point of fact, the distribution systems developed around the e-book, such as the Libranda platform, replicate the traditional chain of paper books.

In light of the figures of the publishing sector in Spain, it can be pointed out that the development of the Internet and new technologies is modifying business models and causing organizational changes in companies within the publishing sector. Technological change modifies the way of producing the content and its distribution, affecting the value chain of the publishing sector.

Despite the progressive evolution of the weight of the digital publishing on the global production, the proportion of titles available in digital formats is still reduced in relation to the number of titles published on paper, which may be due to: (a) lack of economic resources and specialized personnel that limits the digital publishing, (b) some risk aversion or fear of piracy, underpinning them in the predominant traditional business model of paper, (c) high uncertainty associated with technical aspects (dominant formats and processes), and (d) lack of institutional support to stimulate their digital transition and the redefinition of their respective business models [19].

The opportunities generated by the new information and communication technologies also have an impact on the urgent need to review the regulations governing the publishing markets, particularly copyright protection regulations, in order to safeguard intellectual property of the creations that are disseminated through the various channels currently available, both on paper and in electronic format. Publishing contracts will have to be reformulated to adapt them as much to the new needs as business models. Digital economy has complicated the context in which publishing companies move, which has caused a disruptive effect on them and their business models.

Despite the distinction between process and product innovation, which is included in the literature on innovation management [72, 73], it is important to

have an integrated vision [74]. The current publishing sector could not be understood without connecting both processes. Frequently, innovating organizations in product must wait for the appearance of those innovations in process that allow them to advance in their better adaptation of the product or service to the requirements of the market, that is, to their potential clients. Damanpour and Gopalakrishnan [75] concluded that the adoption of both types of innovations happens in a more synchronized way, since it is difficult to separate the introduction of new products from the processes on which they are based. In this sense, publishing organizations follow this pattern.

Innovations that occurred in the Spanish publishing sector were adopted progressively and with caution by the industry in the face of reluctance derived from the observation of other sectors, such as music or film, and analysis of the experience distilled in other countries. The e-book has not just become commercially a more profitable alternative than the traditional book, but, however, none of the companies in the sector want to be left out of this innovation. Even, publishers start to emerge exclusively oriented to the production of electronic books. To these reluctance or caution of the industry, it follows an interest on the part of the authors to continue seeing his work published on paper and a clear attitude of the readers to continue betting on the traditional books instead of assuming the acquisition of a device of reading e-books. The e-book, rather than being a substitute for the traditional paper book, is being managed by publishing companies as a complement.

For the time being, Spanish publishers are focusing mostly on publishing digital versions of their paper books on digital distribution platforms, in an attempt to minimize risks by betting on positively contrasted works in the traditional business model. This strategic decision leads, at least, in the short term, technological companies, such as Apple or Google, with enough financial resources and specialized knowledge to control the distribution and sale of the digital books [41].

Despite the progressive evolution of the weight of the digital edition on the global production, the proportion of titles available in digital formats is still lower in relation to the number of titles published on paper. It may be due to: (a) lack of economic resources and specialized personnel that limit the digital publishing, (b) some aversion to risk or fear of piracy, which underpins them in the predominant traditional business model of paper book, (c) high uncertainty associated with the technical aspects (dominant formats and processes), and (d) lack of institutional support to stimulate their digital transition and the redefinition of their respective business models [14].

The potential from the new information and communication technologies also has an impact on the urgent need to review the regulations ruling the publishing markets, particularly the copyright protection ones, to safeguard intellectual property of the creations disseminated through the various channels currently available [41].

From all the analysis carried out in this study, a series of conclusions and implications for the Spanish publishing sector can be established.

Firstly, the Spanish publishing sector presents two lines of business that coexist as complementary and not as substitutes: on the one hand, the paper book and on the other, the electronic book.

Secondly, for the moment, publishers have limited themselves to making a simple change in book format: from paper to electronic form, and have not advanced or driven the development of all those possibilities that new technologies can offer as links to Websites, hyperlinks, and images, among others. It is necessary that publishers should not limit themselves to making a simple change in book format (from paper to electronic), but they should promote the development of all those possibilities that new technologies can offer, leading the digital transition in the book industry [19].

Thirdly, the lack of joint digital initiatives is causing new actors outside the sector, such as Amazon, to enter the book industry and overcome the traditional actors (publishers, distributors, and bookstores) of the industry in the creation of new business models for digital content. The publishers considered have already assumed so many commercial and esthetic risks when creating new contents that they cannot face additional technical risks. As a result, publishers are reluctant to invest directly in R & D projects and prefer to adopt proven technical solutions. This process is giving rise to an involuntary dependence on external innovations that determine the real evolution of the sector [14].

Finally, in fourth place, the development of the digital publishing will require companies to adapt to a new virtual and global commercial environment. The electronic book requires a new treatment of the content—from production to distribution—that in the digital era, it is forced by the new technologies and commercial relationships, marked, in turn, by the virtual and global sale platforms.

The implications derived from the conclusions previously exposed for companies in the Spanish publishing sector are the following: (a) favoring entrepreneurship aimed at the creation of new companies in the sector that are capable of linking the technological base with creativity and knowledge; (b) rethinking its business model in the face of transformations and changes in processes and products; (c) betting definitively—together with the printing presses—for digital printing, new materials, online sales, and developing 1:1 printing; (d) rethinking their business model looking for a way to link both realities: the paper book and the digital book; they must be aware what is truly relevant, what adds value is the content, and not the medium in which that is expressed; (e) redefining the new role of distributors in the face of changes in the marketing channel; (f) joining physical and digital sales at the points of retail marketing, and (g) adapting the regulatory framework to the new changes for the adequate protection of copyright.

To conclude, it is necessary to highlight that this work is a sample from the past and present of the Spanish publishing sector, but it would involve the first step to continue exploring partial aspects in a deeper way.

The following future lines of research derived from this study are pointed out: firstly, an in-depth analysis of the role of e-books in the Spanish publishing sector is proposed. Secondly, the reasons why publishers of medium and small size do not implement formulas to collaborate in the development of digital platforms must be analyzed. Thirdly, it is suggested to study the new business models arising in the Spanish publishing sector. Finally, it is needed to research the potential of the Internet as an effective export channel both for Spanish printers and publishers.

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Chapter

Islamic Leadership: Comparisons and Qualities

Ahmad Rafiki

Abstract

This chapter explores the concept and principles Islamic leadership which generate qualities. These qualities differentiate the Islamic leadership with other leadership concepts. The fundamental sources of Islamic leadership and guidance for the Muslim leaders are Al-Qur'an and Hadith. The sub-topics related to the Islamic leadership elaborate all attributes (traits, skills, power, authority) needed by the leaders. This content analysis method is based on a review of literature and other secondary data. The information in this chapter expectedly will give understanding on the importance of the Islamic leadership concept and can be useful or as a reference for further studies.

Keywords: traits and skills, power and authority, Islamic model of leadership, leadership styles, Qalb leaderships

1. Introduction

Leadership is a subject that had been discussed by many groups of people particularly academician, practitioners and government officers/public servants. They were exploring the styles or approaches of leadership that can be adopted in various fields. However, finding the suitable one is not an easy task but must go through practical experiences of some cases and places.

The common practices of leadership introduced by the Western scholars which are applied in most of the countries including in many Muslim countries. Somehow, the Muslim neglect the leadership theories based on the Islamic perspective which were implemented earlier by the Prophet Muhammad (PBUH) and the four main leaders called *khalifa ar-rasydin* who governed the countries/territories for 50 years (611–661). All people were protected, served, guided, represented and inspired by their leaders during that period. These are the best concepts and examples of Islamic leadership derived from Al-Qur'an and Hadith that must be followed particularly by all Muslim worldwide.

Ironically, several options of Western leadership's concepts are debatable and still not proven which one is the best and sustainable leadership's construct. Some countries were adopted certain leadership's approach because they were forced to follow or they were still trying to find the suitable one. It starts with Great Man Theory (1840s), Trait Theory (1930's–1940's), Behavioural Theories (1940's–1950's) which has related theories of The Managerial Grid Model/Leadership Grid and Role Theory, Contingency Theories (1960's), Transactional leadership Theories (1970's) which has related theories of Leader-member Exchange (LMX),

Transformational Leadership Theories (1970s) which has related theories of Burns Transformational Leadership Theory, Bass Transformational Leadership Theory, and Kouzes and Posner's Leadership Participation Inventory. Studies were conducted ongoingly to examine the practicality and effectiveness of the mentioned leadership concepts in various countries.

This chapter conducts a qualitative method using content analysis based on a review of literature from academic research journals, websites, social media platforms, electronic databases (secondary data), and other relevant sources. This chapter expectedly can elaborate and compare comprehensively the comparisons and qualities of Islamic leadership and other leaderships' concepts.

2. Literature review

2.1 Previous studies in the area of leadership styles

There are studies that discussed on the impact of leadership styles' in the organization and society. Below is a summary of those studies (**Table 1**):

Author/ Year	Country	Findings
[1]	United States	• The transformational and *laissez-faire* leadership styles influenced employees' additional attempts. • Transformational and transactional leadership styles generated employees' satisfaction, and all three leadership styles of transformational, transactional and the *laissez-faire* leadership styles attested to give a greater effect to management effectiveness.
[2]	United States	• Transformational leadership style has the strongest impact on effective commitment and has a significant and positive effect on normative commitment. • The transactional leadership style has a significant and positive effect on continuous commitment and the *laissez-faire* leadership style has a significant but negative effect on affective commitment.
[3]	Malaysia	• The academic librarians mostly practice the transformational leadership style, followed by the *laissez-faire* leadership style, and the transactional leadership style as the least practiced style.
[4]	China	• The highest score goes to transformational leadership style, followed by the transactional leadership style, and the lowest score is the *laissez-faire* leadership style. • A positive correlation between emotional intelligence and the transformational leadership style.
[5]	Pakistan	• A very high score for the transformational leadership style, ordinary and average scores for the transactional leadership style and a very low score to the *laissez-faire* leadership style.
[6]	Australia	• Context invariably is problematic for leadership. • Leadership cannot be studied fruitfully out of context. • A challenge for Islamic leadership is to reconstitute the context of the organization.
[7]	Malaysia	• It was found that academic administrators were imbued with Islamic leadership principles. • The research also showed that servant-leadership approach is preferably used in conjunction with alternative transactional and transformational styles, while the revealed sources of knowledge (*Quran* and *Sunnah*) were given the highest priority as sources of developing leadership principles.

Author/ Year	Country	Findings
[8]	Oman	• Islamic leadership does not rely for its legitimacy upon traditional authority, but rather on rational–legal systems based on unity of purpose, acknowledgement of the one God, and the foundational example of Prophet Muhammad, whose referent and charismatic authority lives on in discussions of the sunnah and the hadith.

Table 1.
A summary of studies on leadership styles.

Some previous studies compared transactional and transformational leadership styles. The transactional leadership style is based on the leader's legitimate authority that is concerned with goals and outcomes, tasks, rewards and punishments. Such leadership is said to be more appropriate to stable environments and businesses. Transformational leaders, on the other hand, seek to motivate and gain the commitment of followers. This is achieved by sharing a vision, raising expectations and creating a feeling of trust so that followers will perform to a level exceeding their own expectations of what they had considered possible [9]. Below is a summary of those studies (**Table 2**):

Author/ Year	Country	Findings
[10]	United States	• It is found that the transformational and transactional leadership styles are widely applied where both have significant impact on quality management and quality performance.
[11]	United States	• The transactional leadership style of the managers was more frequently, strongly and inversely related to the employees' behavior as compared to that of the transformational style.
[12]	Kuwait	• It was found that both transformational and transactional leadership styles were applied in a high level, and there was no significant difference of applications between both leadership styles.
[13]	United Arab of Emirates	• Revealed that the transformational and contingent reward leadership styles had low ratings than the other styles.
[14]	Pakistan	• It is found that the transformational and transactional leadership styles were effective on employee's performance; notwithstanding, the transactional leadership style was more significant than the transformational leadership style. • There was no significant effect on job satisfaction under the transactional leadership style, but it had a considerable effect for the transformational leadership style.
[15]	Nigeria	• Both transactional and transformational leadership styles have a significant influence on the organizational performance. • The transformational leadership style had a stronger positive impact compared with that of the transactional leadership style, which represented a reasonably weaker impact on the organizational performance as such.
[16]	Slovenia	• The influence of both transformational and the transactional leadership styles is strong and positive to all the four constructs (information acquisition, distribution, interpretation and organizational memory) of the organizational learning process.

Table 2.
A summary of studies on transactional and transformational leadership styles.

Furthermore, there are also some studies that compared between transactional and *laissez-faire* leadership styles. A study by [17] investigated on the transactional and the *laissez-faire* leadership styles and their impact on employees' motivation within the banking sector in Pakistan (n = 278). The descriptive and correlational studies' results have affirmed that the transactional leadership style has a positive, strong and significant association with commitment, but the motivational level was low and insignificant in the *laissez-faire* leadership style.

2.2 Islamic leadership

Islam is a religion that governs all matters including leadership. Leadership is an important subject that had been used to disseminate the Islamic teaching or *da'wah* and as the most significant instrument for the realization of an ideal society which is based on justice and compassion [18]. Both elements are interrelated and as main reference in leadership. Leaders must enforce and promote justice continuously as it is been instructed in verse of Al-Qur'an:

> *"Indeed Allah commands you to deliver the trusts to their [rightful] owners, and, when you judge between people, to judge with fairness. Excellent indeed is what Allah advises you. Indeed Allah is all-hearing, all-seeing." (An-Nisa' 4:58)*

The basis of leadership consists of religion, moral and human sources. All the three components are based on spirit of fear to God (Allah SWT) [19]. The history of Islamic leaders give inspirations to all leaders on how they successfully lead in multiple groups of people and many territories. Leadership is about offering oneself and one's spirit [20], thus in Islam, the spirituality becomes a crucial factor in addition of psychological, technical-rational and professional factors.

There is a study by [21] on Islamic leadership which conducted in the Republic of Yemen using the concept of *taqwa* which operationalized to two distinct components: a spirituality with three dimensions of *iman* (belief), *ibadah* (rituals) and *tawbah* (repentance), and a responsibility with six dimensions of emotional control, *sadaqah*, forgiveness, integrity, patience and justice. With a mediating influence of the trust variable, the results show that a leaders' level of *taqwa* influences his/her effectiveness, where one dimension of spirituality which is belief, and three dimensions of responsibility; *sadaqah*, integrity and emotional control, were found to predicate business leadership effectiveness, whereas trust was found to positively influence leadership effectiveness. Moreover, trust was found to fully mediate the relationship between *iman* and leadership effectiveness; on the other hand, trust was found to partially mediate the relationship between responsibility and leadership effectiveness. Moreover, [22] mentioned that the quality of Islamic leadership can positively influence the attitudes of followers and bring higher levels of satisfaction, motivation, performance, positive energy and organizational loyalty, while [23] asserted that the quality of Islamic leadership serves as an important human resource that offers value for organizational performance.

Numerous articles discussed by on Islamic leadership [24–32]. Some studies have also focused on Islamic leadership from a religious point of view [27, 33, 34].

2.2.1 Basic competencies of leadership

2.2.1.1 Explaining on leadership

Leaders is a man to be followed and obeyed and he must refer to Al-Qur'an and Hadith as guidance before making any decisions. Moreover, Islamic stated the characteristics to become a leader, among others must be abundantly with

knowledge and bodily prowess, with that can lead successfully. Below are the instructions from the verses of Al-Qur'an:

> *"O you who believe! Obey Allah, and obey the Messanger and those charged with authority among you. If you differ in anything among yourselves, refer it to Allah and the Messenger, if you have believed in Allah and the Last Day. That is best, and most suitable for final determination." (An-Nisaa' 4:59)*

> *Their Prophet said to them: "Allah hath appointed Talut as king over you." They said: "How can he exercise authority over us when we are better fitted than he to exercise authority, and he is not even gifted, with wealth in abundance?" He said: "Allah hath Chosen him above you, and hath gifted him abundantly with knowledge and bodily prowess: Allah Granteth His authority to whom He pleaseth. Allah careth for all, and He knoweth all things." (al-Baqarah 2: 247)*

2.2.1.2 Identification of leaders' requirements

In selecting the leaders, the people must do it carefully and seriously because the leaders have to protect the religion and not play with it. The leaders in Islam are encourage to learn and understand the concept of Islamic teachings, thus they keep the interests of Islam as a priority. This is had been stated in verses of Al-Qur'an below:

> *"O ye who believe! take not for friends and protectors those who take your religion for a mockery or sport, - whether among those who received the Scripture before you, or among those who reject Faith; but fear ye Allah, if ye have faith (indeed)." (al-Maaidah 5: 57)*

> *"But the faithful, men and women, are comrades of one another: they bid what is right and forbid what is wrong and maintain the prayer, give the zakāt, and obey Allah and His Messanger. It is they to whom Allah will soon grant His mercy. Indeed Allah is all-mighty, all-wise." (At-Taubah 9:71)*

2.2.1.3 The leader's duties and responsibilities

The leaders in Islam must deliver the mandate or *amanah* to whom suppose receiving it and enforce the law with justice. Both outcome of *amanah* and justice are the most difficult duties of the leaders and with that, the people can be governed proportionately and professionally. This is had been highlighted in the verses of Al-Qur'an below:

> *"Indeed Allah commands you to deliver the trusts to their [rightful] owners, and, when you judge between people, to judge with fairness. Excellent indeed is what Allah advises you. Indeed Allah is all-hearing, all-seeing." (An-Nisaa' 4: 58)*

2.3 Leadership, power, and authority in Islam

A leader has power and authority. Both attributes are useful to influence the followers or people. A good leaders who can manage the power accordingly and authority appropriately. [35] mentioned that power is a contingent, multifaceted resource which involves the ability to influence or control others, while authority can be characterized as the right to wield power or to influence people.

The ultimate power is possessed by Allah Almighty, while the power of the leaders is for temporary moments which will end after certain period. The power in Islam is useful in bringing prosperity for the ummah (society) and protecting

people from harmness. As an example shown by the second caliphs of Islam; Umar bin Khattab, although he has dominant power in some continents but he always to take care each individual and ensure that he/she receives an adequate food or decent place to live. The power makes Umar bin Khattab more down to earth and humble person. The more power he has, the more lower he put himself in front of others or adherents. Everyone knows how strong he is, how tough he is and how sturdy he is but he will use those superiorities only for the enemy of Islam and not for his people. He never abuse his power for individual or family matters. All of these contributions of Umar bin Khattab acknowledged by the Prophet Muhammad (PBUH) particularly on how he used his power according to the Islamic teachings which then the Prophet (PBUH) told His companion that "If there is an upcoming Prophet after me, He will be Umar bin Khattab."

Moreover, the authority of the Prophet (PBUH) and four caliphs comprises many aspects, not only as a leader who in charge of government administration but include religion, education, financial, sciences, agricultural, water, and economy affairs. Their authority is legitimated and monitored by Allah SWT and the adherents, means that they are responsible in this world and the here after. Authority is related to *amanah* which is an important element in Islamic leadership concept. One of the caliphs, Abu Bakar As-Siddiq also called *al-Amin*, means that a person who always hold an *amanah*. Although he only leads the Muslim for 2 years (632–634) but he left a legacy of proceeding the mandates of disseminating Islamic teachings in sad and bad situations after the death of the Prophet (PBUH). He is a companion and adviser to the Prophet (PBUH) who spent his life in distress and pleasure moments. He received and kept the authority accordingly till he was handed over to Umar bin Khattab. This is a good reference for Muslims leaders in their approaches, decisions and actions or called as referent authority.

As it is mentioned by [36], the Prophet (PBUH) was an extraordinary human being - spiritual leader, judge, political reformer, governor, orator and arbiter. The hadith obviously captures the struggles, triumphs, wit and humanity of the man - and his charisma shines through the texts. Muslims consider the Prophet (PBUH) to be the perfect example of a human being, and the greatest of all leaders, as proved by the genuine zeal and astonishment with which adherents around the world excerpt His words and examples [18]. Below is a chart of the history of great leaders in Islam (**Figure 1**).

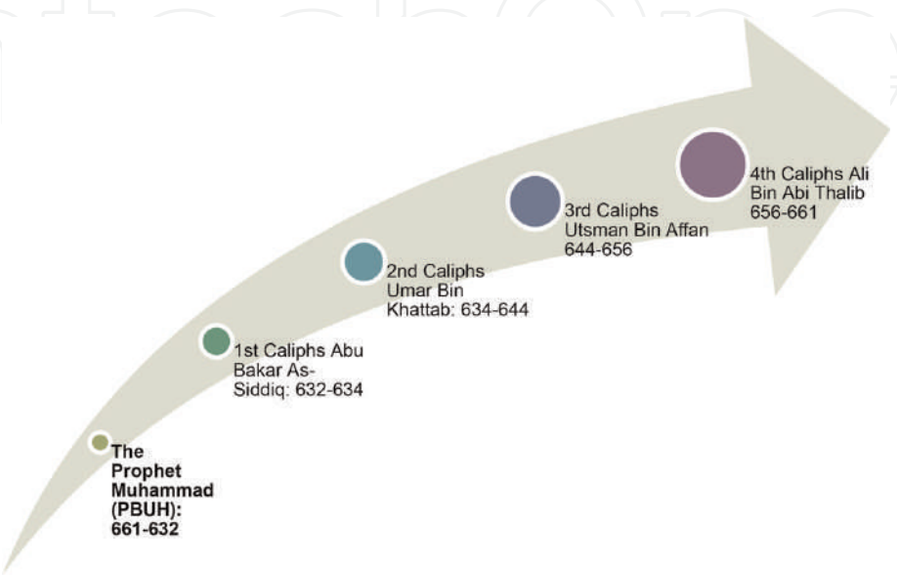

Figure 1.
The history of great leaders in Islam (author's figure).

2.4 Leadership traits and skills

Numerous researches of leadership emphasize on specific attributes [37–39]. Those attributes can be used to distinguish the effective and ineffective leaders [18]. Therefore, some researchers focus on social and historical relations [40, 41] and based on a relational and perceptual phenomenon [42–44] as the important contexts in leadership concept.

Ref. [45] revealed the importance of traits and qualities of leaders in Islamic thoughts. He elaborated based on the past history in the Islamic state that the Muslim leaders possess distinctive attributes as shows below:

Ability to reason or act rationally	Not appointing the non-faithful as deputies	Free from hatred and envy	Not listening to slanderers and backbiters
Knowledgeable (Ma'rifah)	Generous	Flexible	Being cunning
Mentally stable	Wise (wisdom)	Abiding by promises	Patient (Sabr) and endurance
Courage and determination	Forgiving	Honest	Thankful
In control of desires	Caring	Able to keep secrets	Diplomatic
Acting decisively	Humble	In control of his temper	Relying on evidence
Following up and processing work	Receptive and willing to give advice	Attentive	A good organizer
Rewarding and recognizing achievers	Respectable in their appearance	Begin from the possible	Enterprise (Iqdam)
See advantage in disadvantage	Turn minus into plus	Eloquence (Fasah)	Justice (Al-'Adalah) and compassion
Superior communication	Humility	Leniency (Lin)	Conviction (Yaqin)
Gradualism instead of radicalism	Morality and piety (honesty and trust)	Equality (Al-Musawat)	Self-sacrifice (Tadhyah)
Mutual consultation and unity (fraternity and brotherhood)	Faith and belief	Sovereignty (Al-Siyadah)	Lifelong endeavor
To be pragmatic in controversial matters	Freedom (Al-Hurriyyah)	Commitment and sacrifice	Gratitude and prayers
Enjoining the right and forbidding the evil	Make a friend out of an enemy	Encourage the power of peace	Not to be a dichotomous thinker

Source: [18, 46–53].

Meanwhile, in the commercial context, [54] provided two categories of traits and qualities that a leader must have moral discipline. However, these attributes associated with moral, must be accompanied by the attributes related to the avoidance. Below is a figure positioned the attributes (**Figure 2**).

Moreover, [54] added some attributes related to traits for a leader in achieving an effective conduct of doing business as follows (**Figure 3**).

Most of the above qualities and traits used to help the leaders in attaining their objectives. The qualities of the leaders in Islamic thoughts meant for nurturing healthy organizations and resulted the followers become united and faithful. The identified qualities seem to be crucial leadership traits, although not all leaders show these qualities simultaneously. In fact, the history of successive Muslim states had been adopted essential qualities of mercy, kindness, and justice.

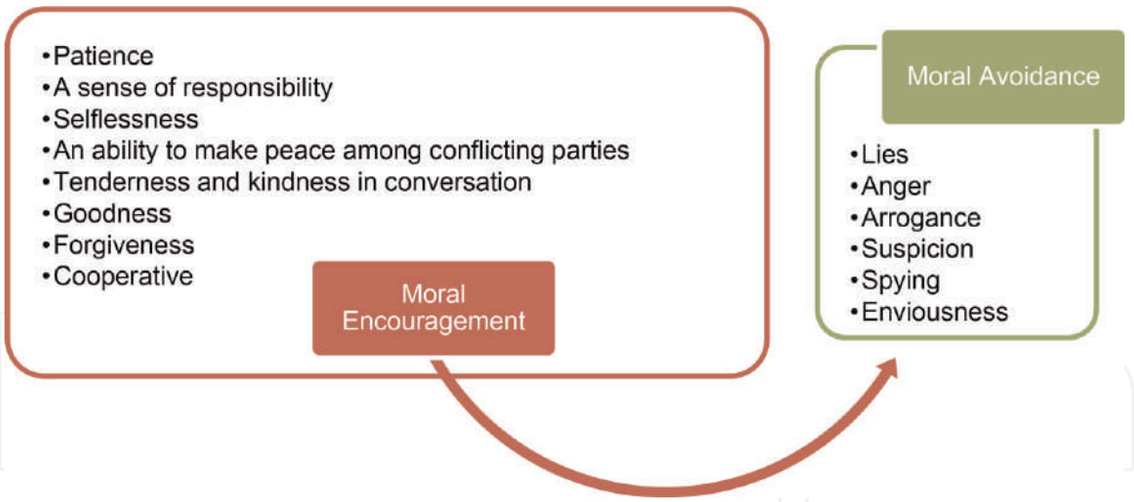

Figure 2.
The moral encouragement and avoidance for the leaders (author's figure).

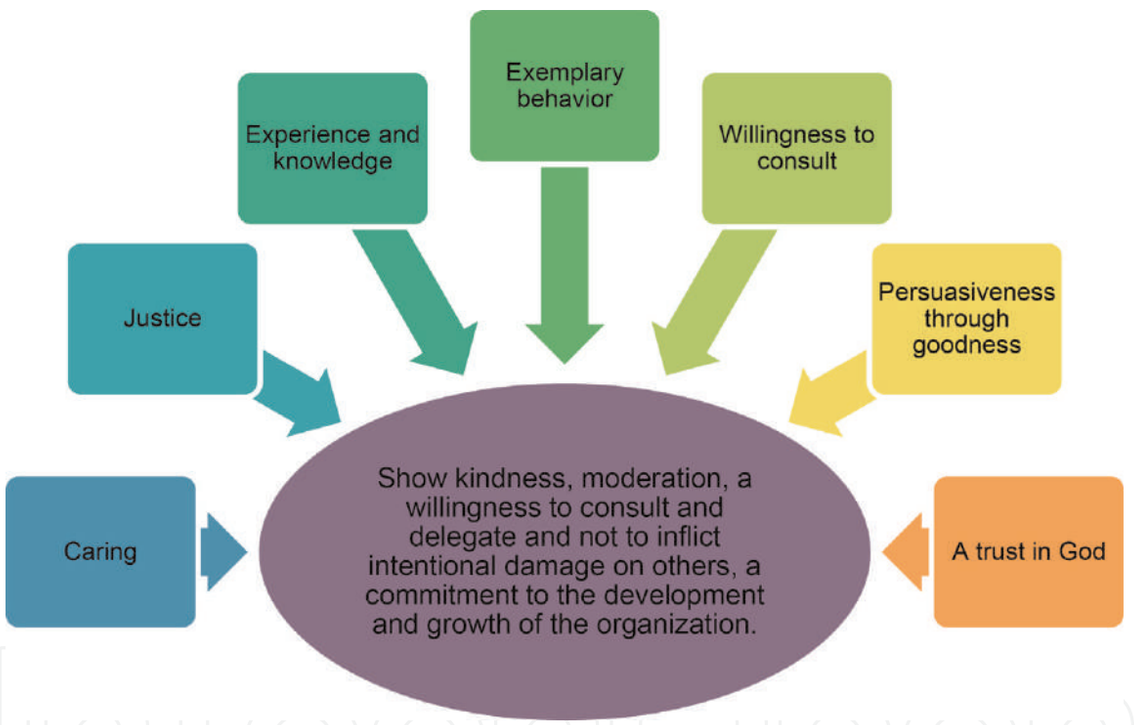

Figure 3.
The leaders' traits for effective conduct of doing business (author's figure).

All the leaders' qualities in Islam dedicated to serve the adherent or followers, and this is an *ibadah* to gain pleasure (ridha) from Allah SWT. It is true that the leaders reflect the quality of their people. One possible trigger that can create qualities among the leaders is by possession the knowledge. A qualified leader through education may have decent quality to lead the followers. They can learn the situation and handle many problems calmly especially when they always see all matters are under their responsibility that one day will be asked by the God (Allah SWT) in the here after.

2.5 Islamic model of leadership

This model introduced by [18, 55] that explains two primary types of leaders. The model has four elements: personalism, idealism, great expectation and culture.

Personalism is related to the tendency of person in communicating with others in a friendly and warm manner. This is importantly needed to have a high value on personal relationships, reputation in the community and societal norms. Meanwhile, idealism is defined as an aspiration to attain and an infatuation with the highest possible state of existence or perfection. In idealism, absolute perfection is sought and considered to be a virtue. The interplay of personalism and idealism produces great expectations within society. Moreover, in a culture that is characterized by deeply held and widely shared beliefs and values the great expectation generates an environment conducive for positive and clear vision, involvement and cohesiveness, receptiveness and tolerance. In a weak culture where beliefs and value are not widely and deeply shared, great expectations are more likely to translate into apathy, indifference, frustration and fragmentation. Below is a figure of Islamic model of leadership (**Figure 4**).

2.6 *Qalb* leadership

This Qalb leadership approach is more on the purposes of the leaders which derived from the heart. Heart is Arabic term is Qalb. The leaders in Islam must begin with a good intention (niyyah) from their heart to fulfill the responsibilities from the God (Allah SWT) and the men that appointed the leader. If the leaders lead their followers based on brain or other factors/fundamentals, it bring burden for them where they try to satisfy all expectations and requests. However, when the leaders lead with their heart, they will plan and decide based on their limitation and shortcomings. It is not easy to accomplish the mandate (amanah) which given through the trust. [56] asserted that the leadership in Islam centers on trust and *amanah*. It represents a psychological contract between leaders and their followers that they will try their best to guide, protect, and treat their followers justly. It revolves on doing good deeds for the sake of Allah SWT, the Muslim community and humankind.

Ref. [56] added that the leadership in Islam must oriented on *Al-Imamah Taklif Wa La Tashrif*, means that leadership is a responsibility an not an honor, thus no leaders will not abuse their power. The leaders also should undertake or endure in whatever tasks and functions which bound with the basic principle of fulfilling the trust/*amanah* bestowed upon mankind as vicegerent. Allah SWT says:

> *We did indeed offer the Trust to the Heavens and the Earth and the Mountains; but they refused to undertake it, being afraid thereof: but man undertook it;—he was indeed unjust and foolish. (Al-Ahzab 33: 72)*

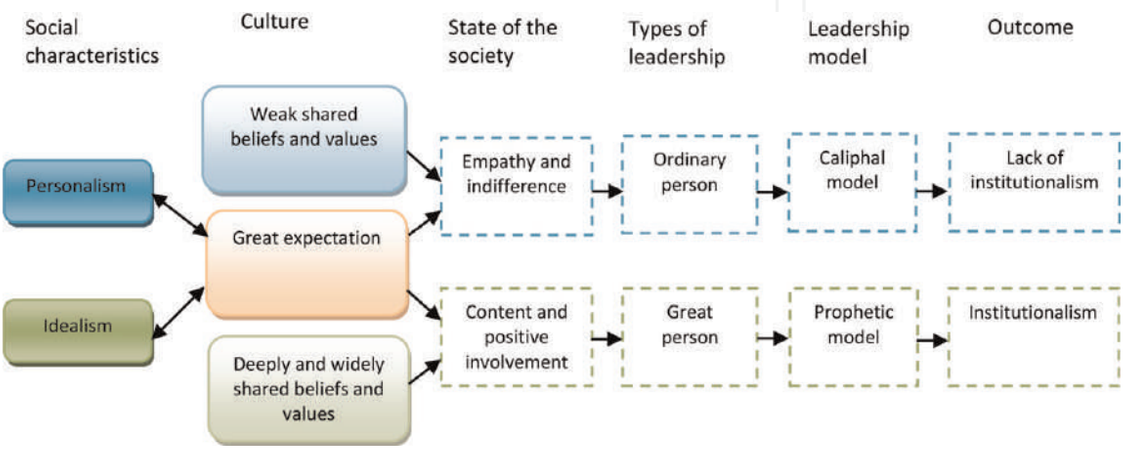

Figure 4.
Islamic model of leadership [55].

Meanwhile, Al-Qur'ān has described the criteria of a good leader. Allah SWT said:

> *"And We made them leaders guiding by Our command. And We inspired to them the doing of good deeds, establishment of prayer, and giving of zakah; and they were worshippers of Us". (Al-Anbiya' 21: 73)*

> *"When they entered upon David and he was alarmed by them? They said, "Fear not. [We are] two adversaries, one of whom has wronged the other, so judge between us with truth and do not exceed [it] and guide us to the sound path". (Sad 38: 22)*

> *"And We made from among them leaders guiding by Our command when they were patient and [when] they were certain of Our signs". (As-Sajdah 32: 24)*

> *"The only statement of the [true] believers when they are called to Allah and His Messenger to judge between them is that they say, "We hear and we obey." And those are the successful". (An-Nur 24: 51)*

> *"And let the People of the Gospel judge by what Allah has revealed therein. And whoever does not judge by what Allah has revealed - then it is those who are the defiantly disobedient". (Al-Maidah 5: 47)*

The responsibility of the leaders must follow the main principles or the usul al-din of Islam and not against it. This is been reminded many times by the Prophet Muhammad (PBUH) about disobedience and its grave punishment. One of these hadiths, as narrated by Imam Muslim r.a.:

> *He who refused obedience on a leader, disavowed the Jama'ah (the mainstream Muslims), and then died, died on Jahiliyyah. And he who fought blindly under a banner, getting angry for a prejudicial group, inviting to blind solidarity, or helped a prejudicial group and was killed then, his death was a Jahiliyyah death (n.d. Hadith no. 4892. Vol. 6. p. 20)*

Thus, identifying desirable, stable, and effective behaviors of leaders are important in Islam. In today's modern era, the understanding of leadership in Islam has always be confused with the misbehaviours of Muslim leaders' themselves. Most importantly, the behaviors of leadership in Islam should also be consistent with the positive behaviors of organizational leaders that have been found on multiple observations conducted in organizations across the globe [57].

According to [53], *Qalb* leadership traits as relatively stable and coherent integrations of personal characteristics that are based on the correct functions of *Qalb* that cover the right understanding of being and actions. These characteristics are reflected by the conditions of heart which consist the components of god awareness, motives, intelligence, and understandings of being and actions, and values [57]. The *Qalb* leadership traits embedded in the framework of Imam Ghazali's 'On Disciplining the Soul', a specific chapter in his book 'Revival of Islamic Sciences', soul is a concept that stands on the four basic virtues. This provides the basis of important universal leader traits or wisdom, justice, courage, and temperance which provide the foundations of other effective leadership traits. Examples of the behaviors and practices of the leaders are wise decision making (wisdom), clear in direction (wisdom), articulating the right thoughts (wisdom and courage), supporting equality (justice) and establishing positive work environment (temperance and wisdom).

3. Conclusion

With the comprehensive explanations of Islamic leadership concept, the leaders can be an idol, a reference or a role model that give good impression to all the followers/adherents. They are holding the amanah based on the given trust, thus do not abuse their power. They realized that the power is given temporarily to bring *maslahah* to the society (not only Muslim population) and will hand it over to someone else at anytime.

There are studies explored the comparison of the three leadership styles; transformational, transactional and *laissez-faire* in various countries. Some of these styles have relationship to the effectiveness of leadership in organization and some are not. Meanwhile, the Islamic leadership approach give a positive impact to the leaders, followers and the organization. It is revealed that the Islamic leadership concept is superior than other leadership concept that consist of the current and future purposes. The current purpose refers to the interests in this world, while the future purpose associated with the here after. Moreover, the Islamic leadership emphasized on establishing trust and delivering *amanah* which then made the people/adherents can support the leaders to create conductive and sustainable environment.

Ref. [56] added that the leadership in Islam must oriented on *Al-Imamah Taklif Wa La Tashrif*. It tells that the leaders are carrying responsibilities and not an honor. Leaders should serve the people and not expecting to be treated. As the leaders, there are tasks to be completed in certain situation and time. The success of completing the tasks depends on the relationship of the leaders with men and their God (Allah SWT). Men or people will help the leaders if they are sincerely guide and lead them to the betterment. While God (Allah SWT) will always guide the leaders in their leadership based on their good intention (niyyah) and obedience to the Islamic law or *shariah*.

Islam also concern on the power and authority of the leaders. Both attributes must be used accordingly which give as much benefits to the society (ummah). The principles of Islam are strictly highlighted the use of power and authority which been shown by the Prophet (PBUH) and four caliphs (khulafa ar-rasyidin). Meanwhile, numerous researches of leadership emphasize on specific attributes [37–39, 58, 59]. Those attributes can be used to distinguish the effective and ineffective leaders [18]. [45] asserted the importance of traits and qualities of leaders in Islamic thoughts. He mentioned based on the past history in the Islamic state that the Muslim leaders possess distinctive attributes There are authors highlighted the traits and skills of Islamic leaders such as [18, 46–53, 60, 61].

Moreover [55] introduced the two primary types of leaders in his model of Islamic leadership. The model has four elements: personalism, idealism, great expectation and culture, which can be adapted by particularly the Muslim leaders. Meanwhile, the basic thought of heartful leadership approach which drawn by the Imam Al-Ghazali, back 900 years ago, suggested the leaders to behave based on Justice, Wisdom, Courage, and Temperance. With these elaborations of this Islamic leadership concept, the Muslim leaders must be guided and adopted all attributes, principles and models to attain the goals in this world and the here after.

There are many aspects related to Islamic leadership need to be explored especially on the leaders' traits and behaviors. Meanwhile, the challenges of the leaders in this 4.0 industry era will make them more careful in planning and organizing the team and its resources. Islam should has a comprehensive guidance on capitalizing or more involvement in this era, thus every Muslim shouldn't worry about the shariah compliance on it. Muslim leaders will be asked to balance up and accommodate certain barriers to have a smooth transformation. This elaboration on qualities and comparisons of Islamic leadership can be used as a reference for all the readers.

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Chapter

Digitalizing South African Universities: Exploring Benefits, Barriers and Risks

Bethuel Sibongiseni Ngcamu

Abstract

University leaders in South Africa have employed various leadership styles which focus on improving employee, departmental, faculty and organizational performance. However, digital leadership style is not popular and applied by leaders in universities in South Africa despite compelling benefits associated with digital leadership in universities which include improvement in communication with the key university stakeholders, enhancing the learning and teaching process, quality research outputs, community engagement, leadership and management. The present study aims to provide an understanding of the digital leadership in relation to other seminal leadership approaches which are pertinent in universities. This study further ascertains the benefits, challenges and risks in digitalizing campuses in the epoch of the Fourth Industrial Revolution. It significantly shapes university policies on digital technology, practices and theories on leadership styles which can bring radical changes in universities. This chapter equips university leaders to harness digital leadership style benefits and capacitate university leaders on risks associated by leading with technology. Application of the digital leadership style will assist university leaders in different employment categories to digitally improve employee and organizational performance, eliminate wastage and provide smooth communication channels and regular feedback.

Keywords: benefits, desktop analyses, digital leadership, risks, stakeholder, universities

1. Introduction

Universities in South Africa are failing to meet the needs of digital learners as academic leaders mostly follow outmoded practices, systems, business processes and educational models which are not client focussed. This situation has been exacerbated by the fact that both academic and nonacademic staff members' technological skills are neither non-existing nor obsolete, while manual and physical interaction is discouraged by the budget cuts. These universities run the further risk of being irrelevant to students, society, industry, donors and government conversely discouraging economic success in the country.

Hill et al. [1] opines that universities are celebrated as a vehicle for economic success through digitalization which has increased student access into these institutions of higher learning. Previously published literature by a plethora of

researchers suggests that the digitalization of universities have created inequality amongst students. For instance, [2] explored a proposal for an off-line e-learning platform that will provide a bridge for digitally unconnected students and educators to join the contemporary information- and communication technology-intensive world. The author observed that individual remote and unconnected learners encounter challenges for engaging with contemporary e-learning offerings and on ICT-intensified learning materials. The latter conundrum has been confirmed by [3] that the digital divide has narrowed with regard to one definition of access to technology by taking into consideration the binary view of the "haves" and "have not". Students in this epoch students are being perceived as "digital natives" referring to those growing up with technology in the 1980s and 1990s by a plethora of researchers [4, 5], "digital immigrants" those who were born into the digital world [4] and with a globally accepted concept as called "digital leaners" [6]. The aforementioned research literature mainly focusses on the e-learning and its challenges in universities which is not associated with the application of digital leadership in universities with an emphasis on its benefits, challenges and risks. This book chapter is therefore closing a void in the research literature by espousing benefits which is associated with digital leadership as an approach in implementing e-learning and other digital strategies in South African universities in this era of the Fourth Industrial Revolution. It further interrogates emerging digital trends, risks and mitigating strategies on universities' digitalization.

The application of the digital leadership approach is desperately needed in South African universities to improve communication amongst the key stakeholders including students: promote team work, accountability, transparency and productivity and eliminate wastage. The digital age has influenced the entire society to be reliant on technology. [7] ponders that university leaders should harness opportunities that are driven by digital technological advancements. Such digital tools have advantages as they are creating digitally driven university cultures, as well as an inspiring, engaging, relevant and transparent environment. Technological advancement reforms challenging ill-informed conceptions associated with technology, outmoded practices, systems, standardization and the status quo are needed. This technology-focussed era ensures that the university systems, business processes and practices are client (student), employee and society focussed.

In this epoch, university students are clients who pay for the service rendered and expect the return on investment and to see the value for money that has been invested. These digital learners have a set of expectations and demands which the university should meet. The digital revolution has brought new challenges and opportunities which have not been harnessed by end users in the value chain. Meanwhile, a plethora of services and core businesses has gone digital in universities including learning and teaching, research and working conditions, and rewards have changed dramatically.

What follows next is the perspective on digital leadership as a concept in relationship to other leadership styles, the Fourth Industrial Revolution and the digitalization of campuses effects, benefits, barriers and risk associated with digital leadership. This chapter concludes by providing pertinent conclusions, recommendations, limitations and advice for future researchers.

2. Conceptualization of digital leadership

Digital leadership encompasses nurturing a knowledge society and the dissemination of research aimed at influencing global policy and practice, whereas digital

leadership is perceived in universities as a chance savvy which is aimed at enhancing leaders' professional practice to change and augment university culture through the utilization of technology. It also combines mind-set, behaviors and skills in order to enhance leadership to transform practices, systems and the business processes through the use of technology. The digital leadership approach which is seminal in this epoch acknowledges change as building universities to be ubiquitous, to increase connectivity, to provide open sources technology and to utilize mobile devices and personalization of data.

Meanwhile, digital leadership borrows some facets of other leadership styles such as transformational. It is centered on enabling leaders to provide direction, influence subordinates and other leaders to perform better, establish internal and external relationships with stakeholders and initiate sustainable change through the access to information. Meanwhile, [8] defines "digital leadership as requiring reflection on online self-awareness and congruence, grappling with the controversy that comes with cyber civility and how to be a digital citizen prepared to inspire positive social change".

Figure 1 depicts the facets of digital leadership in conjunction with the features of leadership and the leadership styles that are prevalent in universities. The digital leadership is in cahoots with themes central to the concept of leadership, as well as other leadership styles, which influence employees to achieve organizational goals. However, digital leadership is unique as it provides direction, initiating sustainable change, as well as establishing relationships amongst key stakeholders. While digital leadership partly influences employees, its locus and focus are on changing the university culture by creating and sustaining a digital culture. Prevalent leadership styles in universities' goals are on behavioral change, performance, freedom of expression, knowledge acquisition and distribution and exchange of rewards, the digital leader ensures that there is a relationship of trust between students and

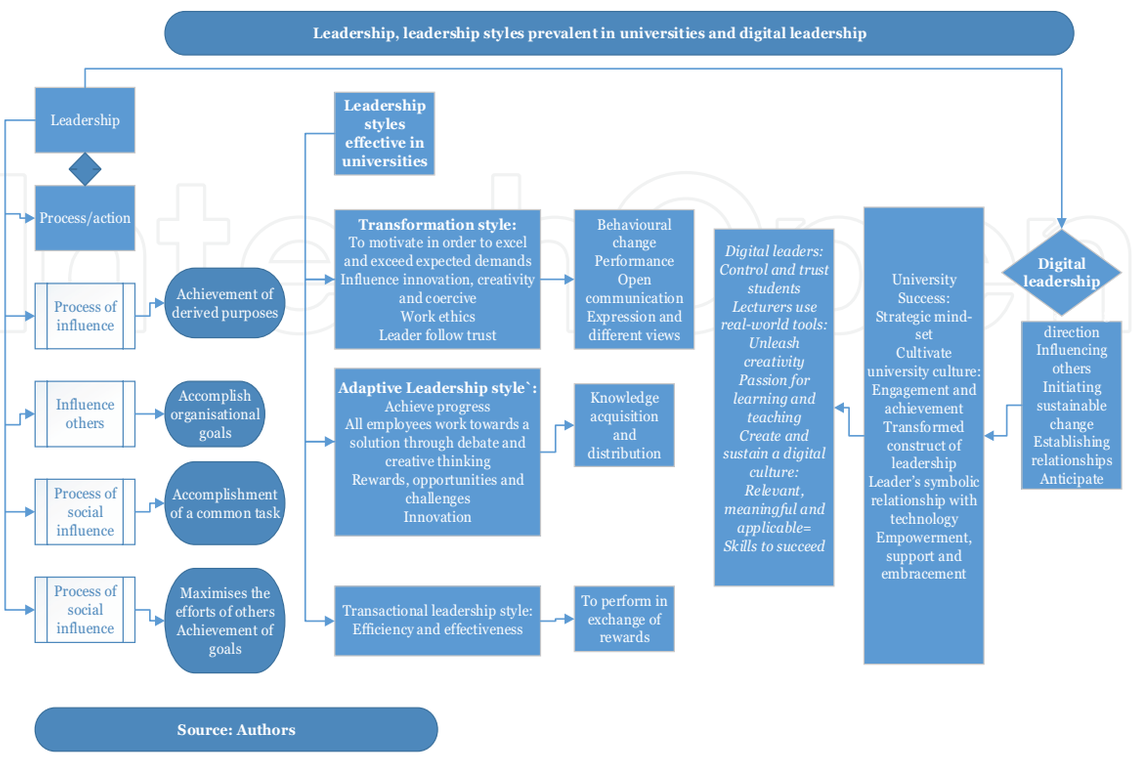

Figure 1.
Leadership, leadership styles prevalent in universities and digital leadership.

academics; learning and teaching are digitally led by creativity, problem-solving and novelty with employees possessing adequate skills for the university to succeed in the epoch of the Fourth Industrial Revolution.

3. The fourth industrial revolution and university digitalization

This digital period in history is triggered by the Fourth Industrial Revolution which necessitates the university system to transform in order to tap into opportunities that are brought about by this era. While the global community is driven by the Fourth Industrial Revolution with first-world countries and some leading emerging economies driving the agenda, South Africa is no exception although it is partly trapped, limited and imbibed to brick and mortar. This has been exemplified by an increase in building new universities and new campuses as well as extending the existing ones while the university funding shrinks. This epoch is characterized by a fusion of technologies which is transforming the political and economic landscape, business and society. The digital revolution has improved information and communication skills which necessitate universities to adapt to technology. A number of jobs nowadays are performed by intelligence systems which mandate academics to interrogate current curriculum, teaching strategies, philosophies and the graduate attributes which will determine the graduate profile that universities aim to produce. This era equips students to be creative with advanced skills in maths and statistics and the capability to preprocess and analyze data. Creativity and innovation are at the center stage of this revolution where graduates can create models, frameworks and designs. Furthermore, this digital revolution converges multidisciplines and makes graduates multi-skilled, entrepreneurial and employable. Students with artificial intelligence are marketable and control the world with their organizations that have the edge over their competitors as data is crucial.

4. Digitalizing campuses: the triggers

Digital technology influences and disrupts both academic and nonacademic staff members' systems, business processes and practices, as well as the pedagogy on how students learn and are taught. In South Africa, meanwhile, there is a dire need for digital technology in learning and teaching, research, community engagement, administration, management and leadership. During and in the aftermath of the broadly publicized student riots which were triggered by a plethora of movements such as the "Fees Must Fall", "Decolonized Curriculum" and "Rhodes must Fall", the need for digitalizing an academic enterprise was aroused. During the latter chaotic and turbulent period in the history of the South African universities, it was difficult for the academics to have contact with students as there were anarchy and riots on the campuses. This situation was perpetuated by the available digital tools which favored students who were economically viable and sustainable, hence, disadvantaging the "poor students" (previously disadvantaged). Universities in South Africa are exploring appropriate and user-friendly technologies (digital) which can accommodate highly diverse students with diverse economic and social backgrounds. Hence, universities are also grappling with implementing and making digital technology to the administrative staff members as they are also diverse as the majority of universities are merged and incorporated between the previously advantaged and disadvantaged institutions with unrealizable lofty goals. Furthermore, the biographical

profile for the staff members is diverse in terms of age groups with younger employees being digital native as compared to their old counterparts.

5. Digital technologies and leadership in universities

Universities across the globe are competing for students, attracting quality staffing and funding with their clear focus to those who leverage new digital capabilities. These competitive universities are mostly internationally ranked and attract quality students, and academics have adopted new emerging business models including digital leadership. These universities have embarked on the development of digital strategies and linked them to the university strategic plans. The digitalization of the university enterprise is driven by the university leadership through their digitally orientated strategic vision (refer to **Figure 2**).

There is a multiplicity of digital technologies which form part of digital leadership including social media. Social media enhances traditional aspects of leadership in the form of management, instruction and commination which directly initiate change, thus transforming institutions. A leading player in the knowledge economy in this epoch has been the convergence of social media, mobile and the web which is called "digital". Mobile technology is necessary in universities as more than half of the world's population own technological devices such as smartphones. Due to the fact that a plethora of university-based applications of digital leadership exists, the latter leadership style cannot be escaped. **Figure 2** depicts various digital leadership applications which include student and employee's recruitment, selection and experiences. The digital leadership is considered to be output-orientated in South African universities as it is focusing on the digitally driven student recruitment and selection, as well as delivery of the learning and teaching, academic enterprise and the student life experience. The chapter draws on the experience of university leaders within student support services who have reinvented the way they engage students in view of the latest technologies. This is coupled with concerted efforts

	Line functions	Activities	Impact
Digital leaders	HR	▪ Online recruitment and selection ▪ Digital skill development ▪ Digital literacy skills ▪ New digital learning technologies	Digitalising universities in South Africa
	IT	▪ Track new technology trends ▪ Review policies and procedures ▪ Access to information and systems ▪ Leverage cloud technologies	
	Marketing and Communication	▪ Digital branding ▪ Relinquish control on social media	
Strategic vision	Finance	▪ Develop a budget that leverage cloud technologies	
	Estate Facilities	▪ Access to video screens and power ▪ Good wireless connectivity	
	Procurement	▪ Digital contracting models and framework	
	Admissions	▪ Online admissions	
	International office	▪ Digital channel use to help overseas students ▪ Liaise with overseas students through digital channels	
	Faculty and Schools	▪ All modules to promote digital literacy ▪ Support academics development of digital skills ▪ Develop support networks with digital technology	
	Library	▪ Creation of digital literacy support networks for students	

Figure 2.
A digital blueprint in universities. Source: Author.

made by South African faculty leaders to utilize social media and the latest teaching and learning technologies to respond to student needs.

6. Emerging trends in digital leadership

South African universities have explored and implemented a plethora of digital learning platforms which have been invented by the South African EdTech companies. These digital platforms include GetSmarter, Obami and Suits and Sneakers University. Such digital platforms are intended to provide modern course content. Hence, the unavailability of the free internet or hotspots and areas with Wi-Fi and data at exorbitant prices by the mobile networks makes it impossible to utilize such platforms. Students in universities are no longer restricted to campus, school programmes, textbooks and desks as the digital revolution is infinite. The smooth application of digital tools is practical and user-friendly in geographical areas where there are accessible and reliable internet connectivity or hotspots, as well as to financially viable students.

A number of student movements in South Africa such as the "Fees Must Fall", Rhodes Must Fall" and "Decolonizing Curriculum" have influenced university academic leaders to use technology as a form of innovative teaching techniques that are underpinned by digital technologies. Some public universities have embarked on massive online open courses (MOOCs) which have attracted a number of students. Students have taken this opportunity of using such new digital tools including social media and apps. The digitalization of academia has yielded good results such as improved academic performance, employability rates, student retention and throughput and increased employees' productivity. These new and emerging technologies such as Smart mobile, wearable devices and sensors, cloud-based IT and advanced analytics have transformed the university industry. While the universities in South Africa have failed to intertwine digital technologies into their transformation agenda, and the academic enterprise is digitally inclined, universities have not yet considered the digital epoch as a major player in transforming universities during this period of contested space and political-infested institutions.

These new technologies have improved student life on campuses, residences through activities including teaching and learning, research and working on with other virtual universities and partner organizations including donors, research collaborators and investors, for instance, a "Digital Campus" which serves when students, tutors, professors and other university staff are on and off campus. Innovative teaching techniques such as flipped classrooms, distance learning experiences and hybrid teaching models have been enabled by digital technology. In the South African context, universities have invested in learning platforms such as Blackboard, Canvas or Moodle.

Universities are embarking on branding their faculties and departments in order for their clients (students) to embrace, recognize and support which is significant to the success of the digital footprint. For instance, social media has been utilized to stamp for academic departments footprints and create a brand. Students in various settings have engaged in technology-rich aspects which have changed the trajectory for both rural and urban universities. The use of social media by these universities have enhanced and effectively communicated with the community of stakeholders including business with students seeing digital footprint and resources flourishing. Digital leadership transforms a leader's way of thinking and approach on things during this turbulent period in South African universities. It further provides lecturers as leaders to have autonomy in the lecture halls and the lecturers' application

of concepts, seek their methodologies and technological applications and bring stakeholders to a better place.

7. Effects of digital leadership in universities

Academics as leaders in their own right should adapt and rethink how to acquire, develop, transform and share knowledge in the digital era. The academic enterprise should prepare students to be digitally orientated which would increase their employability. The World Economic Forum suggests that more than 1.5 million jobs by 2020 will be digitally based. In the era of a digital economy, academics are perceived as very significant in playing leading and productive roles as they are employed to plan and prepare students for the digital economy. Major trends have emerged such as the "virtual university" which is digitalized and requires leaders with very strong information and communication technology (ICT) capabilities. [8] suggests that to have a competitive edge, collaboration, strategic partners, joint ventures and managed networks are pivotal in universities. These authors further argue that the digitalization of universities requires a leadership style that is distinctive and cooperative as opposed to the vertically integrated style seen in universities which are informed by the hierarchical structures. The traditional university is often seen as an institution with library facilities, where teaching takes place in face-to-face settings, where there are residential facilities for students who are mainly based in a particular residential area organized according to faculties. However, there is a rise in virtual organizations that encourage students to learn anywhere and at any time. This is coupled with rapid and easy access to information from different parts of the world. Institutions of higher learning have a responsibility to harness these developments for the benefit of society and the world as a whole and require leaders who are not only aware but who appreciate and value emerging organizational models.

There is an acknowledgement that different eras in history produce or require a different set of leadership styles. As the world transitions from the Third Industrial Revolution to the Fourth Industrial Revolution, there is more emphasis on not just access to technology but also quality use of technology. The question that is being asked is how leaders should respond to the current challenges which include global competitiveness in a digitalized world, new technological literacies, resistance to technological changes by academics, meaningful application of technological advances in education and how to transform education by employing technology. [9] argues that "it seems a great irony that while it espouses to be a society's epicenter of new information and ideas, the education sector continues to represent a condition of stasis that has remained outside a long period of innovation within other sectors". This view underlines one of the main challenges that are faced by leaders in higher education which is to align higher education institution with the rapidly changing technological advances. Whereas the application of the digital leadership style in universities has been overlooked, **Figure 3** depicts its impact in the university context.

Figure 3 suggests that the application of the digital leadership in universities have a multiplicity of effects which includes research knowledge dissemination and intelligence, influencing global thinking, responsiveness and sharing of good practices by using digital platforms.

Social media applications, including Facebook, Twitter and Instagram, are utilized in universities in South Africa by different stakeholders and are mainstreamed into daily business operations, challenging roles and responsibilities globally and without boundaries. Hence, there are deficiencies in university leaders

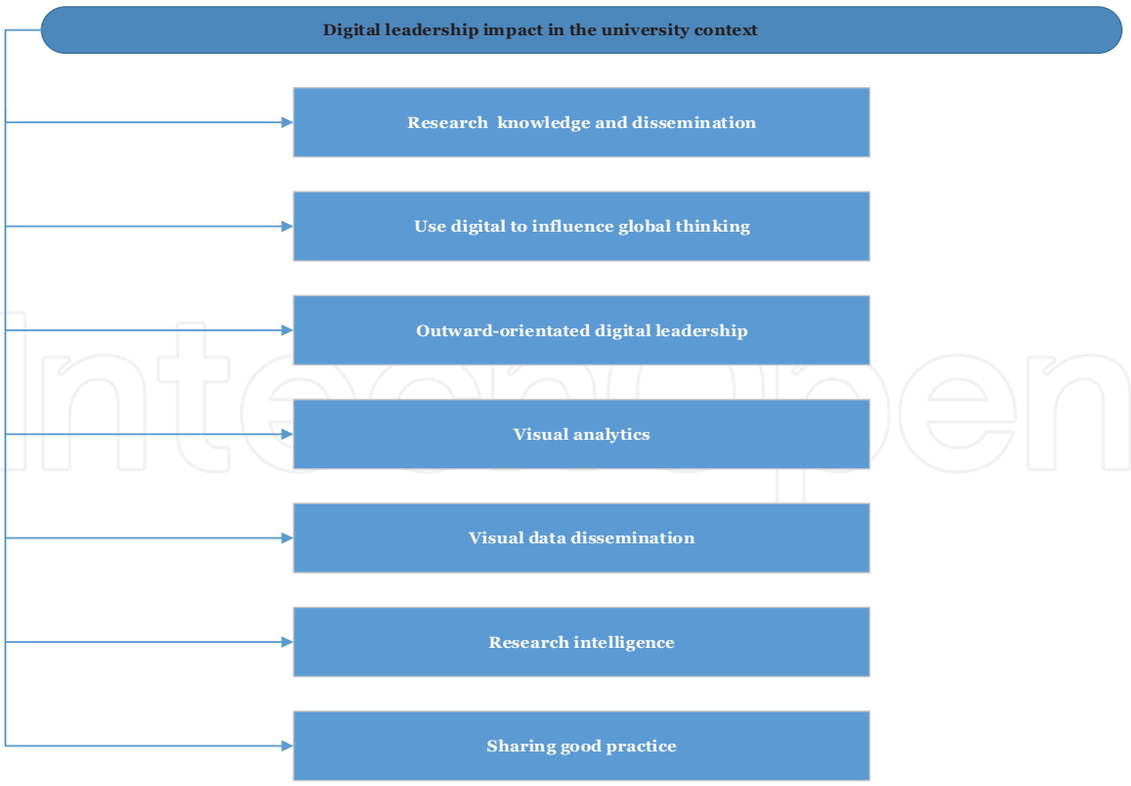

Figure 3.
Digital leadership impact in the university context. Source: Author.

in transforming universities and leading change using social media. This necessitates the university leaders to be capacitated and possess digital competencies to their practices. Social media as a powerful digital instrument has an opportunity and a potential to change, transform and reform a university leader's pathway. The university leaders should have leadership capabilities and must be orientated to digital trends, emerging tools and media platforms in order to achieve their institutional vision and goals.

Furthermore, emerging digital tools and trends and social media platforms should be ingrained in leadership development programmes and practices. Meanwhile, academics have a task to assist students in universities to employ social media as instruments that educate and strengthen commitments and contribute to social change. University leaders can have a digital impact in universities in South Africa by being digitally literate. Digital literacy should be central to the leaders' daily operations in order to attain digital skills. Digital literacies can enable university leaders to master the new semiotic language for communication, to acclimatize to newly invented and emerged technologies. The digital literacy encapsulates an intersection of technical (online interfaces, applications), cognitive (critical thinking) and social–emotional (netiquette, safety) dimensions.

Moreover, digital citizenship enables university leaders to make a digital impact. The university leaders should enrol a curriculum called digital citizenship which is an extension to leadership development evolving around digital technologies. The digital citizenship dimensions include digital etiquette, communication, access, literacy, commerce, law, rights and responsibilities, health and wellness and digital security. The following competencies should be possessed by leaders in universities [10]:

- Emerging/new technological/digital tools and platforms.

- Digital content analysis skills.

- False or misinterpreted information sorted and ensure that data is accurate and with quality.
- Digital profile should reflect a leader's true reflection.
- Develop personal boundaries including wellness, privacy and time management.
- Establishing online branding which is professional, strategic and diplomatic.
- Establishing a personal learning network through collaboration.
- Leadership in the university to be integrated with digital technologies.
- Resolution and mediation on cyber conflict.
- Constructive, authentic and positive digital decision-making.
- Social media utilization for citizenship (social good).

The latest South African Social Media Landscape Report for 2018 has shared the latest local figures for the biggest social media platforms in the country for 2016–2017. The use of Facebook increased to 16.0 million in 2017 from 13.5 million in 2016; Twitter 8.0 million (2017) from 7.7 million (2016); LinkedIn 6.1 million from 5.5 million (2016) and Instagram 3.8 million (2017) from 3.5 million (2016). The South African high-tech student in 2013 conducted a research study amongst 1425 university and college students. The research findings espoused that over 59% of students have confirmed that they were addicted to social media and 16% very addicted. A total of 85% indicated that the use of social media improved their studies and 83% enhanced their social lives.

8. Benefits and risks of digital leadership

8.1 Benefits of digital leadership

The digital leadership is founded on very balanced pillars which are ingrained on management and leadership principles. These pillars include the following:

- Communication: providing key stakeholders with relevant and up-to-date information through devices.
- Public relations: leaders to be storytellers through using free social media tools.
- Branding: a positive brand to be created by social media tools.
- Student engagement or learning: student's crucial skills are enhanced by issuing integrated and effective technology that is cost-effective.
- Problem-solving, critical thinking and analysis, connectedness globally, literacy on media, collaboration and creativity as well as communication.
- Professional growth/development:

- Leaders forming their personal learning networks (PLN)
- Acquisition of resources
- Accessibility to both tacit and explicit knowledge
- Provide and receive continuous feedback
- Establish partnership with subject experts and community of practice

Digital leadership style's application in universities in South Africa has yielded a range of benefits to the learning and teaching, research, community engagement, management and administration. The universities subscribed to the style of leadership saw leaders and managers embrace change, demonstrate transparency, increase engagement, embrace collaboration, knowledge and resource sharing, developed international networks and dialogues and contributed to society. Digital leadership brought a myriad of benefits to universities which include, *inter alia*:

- Harnessing the power of digital technologies
- Providing a strategic mind-set
- Shifts leadership to be grounded on empowerment, support and embracement
- Leaders' preparedness to digital application
- Leadership's mastering of the fear of the unknown, misinformation and misconception of the utilization of technology including the social media and digital devices
- Leadership facets improvement by developing a vision for effective, efficient and appropriate utilization of technology and digital tools
- Increased educational technology
- Enhancing learning and teaching technology
- Community engagement benefiting communities
- Improving communication with students

In addition to the above benefits, digital leadership enable university leaders to have access to the new and emerging digital tools and trends, research and new knowledge in the discipline.

Digital education is essential to university leaders as the country as a whole is clinging to an outmoded and fragmented education system with some unresponsive curricula at the core.

9. Barriers and risks of digital leadership

While there are widely shared benefits and opportunities of the digitalization of the university academic enterprise, there are also equal risks. For instance, by

digitalizing the academic enterprise could lead to fragmentation of the curriculum, as well as increasing disparities amongst students as they come from diverse socio-economic and geographical backgrounds.

The universities in South Africa mostly invest in IT systems that failed to harness the benefits and outcomes that are well-known in other sectors that are business orientated. Such failure is associated with the lack of the digitally orientated strategic vision, university capabilities, commitment and buy-in by different stakeholders to implement new technologies effectively, efficiently and economically. Furthermore, the universities de-marry university strategies and digital strategies which makes the business strategy a misfit for the digital age. To achieve sustainable change in universities is not feasible, as a plethora of key stakeholders including students and employees lack digital literacy perpetuated by absent support networks. Another hindrance is the university leadership's failure to equip themselves to adapt to the digital era.

Universities including in South Africa are failing to understand a new breed of their clients including students, partners, donors and funders. They also fail to scan the environment in order to determine the digital strengths of their competitors. This situation is worsened by the aforementioned key stakeholder's lack of clarity of vision of the effect of the digital era and their failure to respond to the distinct needs of the university. Furthermore, universities are failing to concurrently adapt and evolve from the AS-IS business processes and practices into the new digitally orientated techniques, tools and capabilities. Failure by the universities to adapt is exacerbated by aging leaders, occupying strategic positions in universities, who lack trust in digital services and cloud technologies and fear the unknown, reliability, security, risks and resilience of the new technological inventions. Both academic and nonacademic staff members fear the use of digital tools, with the older members lacking confidence and being uncomfortable and nervous about engaging in digital spaces.

The majority of the academic staff members are digitally illiterate in terms of knowledge, skills and competencies. They also feel disadvantaged by students who are regarded as "digital natives/indigenous" who are informed of digital transformation. The conundrum which is presented above is aggravated by inflexible policies, aging infrastructure and inexperience with working digital technologies. This conundrum further hampers initiatives taking place amongst the academic staff and students who try to use technology. Such inventions are discouraged by unreliable, unethical and ineffective IT departments at universities which are mostly underfunded. Both staff and students are not afforded an opportunity for autonomy and flexibility in applying digital technology. The staff members mostly do not use technologies, including social media, for the benefit of the university and its clients. The university clients who mostly are students are destructive towards the university and its staff members on social media platforms which discourage employees from participating in such platforms. There are also no control measures to track and discipline those who are abusing the digital tools to further their personal vendettas.

10. Conclusions

The digital leadership as a style is found to share similar characteristics with other leadership styles although it is distinct as it is central to sustaining a "digital culture" at universities. Universities with a competitive edge to others leverage new digital capabilities in attracting both quality students and staff members. This

chapter concludes by suggesting that university leaders should have digital competencies and that digital tools should be ingrained into leadership development programmes.

This chapter concludes that South African universities attract digitally native or immigrant students (or later digital learners) who demand digital channels, while leaders are digitally obsolete and illiterate. This negatively impacts on students' academic performance, as well as on their quality of life on campuses as their value for money and return on investments are not realized. This implies that academics as leaders can play a pivotal role in applying digital tools in their learning and teaching strategies with direct impacts to learners' academic performance, marketability and employability. Furthermore, digital leaders sustain a digital culture on campuses through building relationship of trust between students and academics. What is noteworthy in this book chapter are the leaders who are preaching digitalization while practices, systems, business processes and educational models are being outmoded. This implies that digital technologies are not ingrained in the university strategic plans nor centralized by senior management with the minimal chances of being cascaded to lower levels. The latter originates from the fragmented and vertical university structures which paralyzes digital movement which is influenced by the Fourth Industrial Revolution. Conversely, the social media has been observed in this book chapter to have been utilized in universities in South Africa which have transformed the university landscape by increasing students' flexibility as digital tools are infinite as well as the academic performance and retention. Moreover, academic staff members should transform the curriculum and infuse digital technologies into it with clear digitally orientated graduate attributes for all qualifications. Such radical transformation will increase student's creativity, problem-solving skills and novelty which will drastically change the country's political and economic landscape.

Furthermore, university strategic plans should be intertwined with technology and should be digitally led. This book chapter acknowledges risks associated with emerging digital tools at universities. Such risks are aggravated by a reactionary approach by university leaders to capacitate employees in all employment categories (senior, middle and junior) on how to manage risks which are brought by digital technologies on campuses. However, the risks associated with digital technologies do not supersede its benefits to students, employees, internal and external stakeholders which are immense and immeasurable. The university leaders in different employment categories should conduct a digital knowledge, skills and competencies audit to all staff members in order to identify the digital deficiencies. Universities in South Africa should develop an instrument in order to test the digital competencies for all leaders in different employment categories.

A significant limitation of this book chapter is methodological as it is not empirical which necessitates future researchers to conduct empirical studies at universities in South Africa on the student and academic staff members' perceptions and experiences on digitalization of learning, content and assessment. Furthermore, this research study is not informed by any theory which is a further limitation of this study. Future researchers should conduct empirical studies at universities on employees' readiness to apply digital tools in their daily operations.

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