

Sustaining the life insurance industry in the Fourth Industrial Revolution: building a foundation for change

By Lynne Molloy and Linda Ronnie

Presented at the Actuarial Society of South Africa's 2019 Convention
22–23 October 2019, Sandton Convention Centre

ABSTRACT

The Fourth Industrial Revolution is upon us and leadership teams the world over are grappling with means to respond to the unprecedented impacts that are beginning to emerge. The strategies that have offered success in the past are no longer effective, and yet an inevitable wave of creative destruction and the increasing speed of change do not allow the luxury to 'wait and see'. With little adaptation, the South African life insurance industry has remained remarkably resilient. However, the industry protection mechanisms that have supported a false sense of security are beginning to weaken. The actuarial profession, as a dominant and powerful director of the life insurance industry, faces an analogous threat to its relevance and efficacy. Change is imminent and adaptation is vital to sustaining relevance in the future. Strategy and innovation literature tend to focus on large-scale transformational strategies, but before these can be executed, and particularly in the context of the humanistic Fourth Industrial Revolution, the foundational human element must be fortified. This research aimed to examine those embedded beliefs and capabilities that underlie business activities so as to identify those that both encourage and undermine adaptation. Data were collected using a qualitative approach through semi-structured interviews with executives and senior leaders spanning the industry, and synthesised using an inductive process. The results reveal that a pervasive belief in the importance of people as distinct from technology, an unwavering belief in the power and influence of leadership and a widespread desire to engage with partners are apparent across the industry and should be leveraged to grease the wheel of change. Conversely, an equally apparent lingering lack of urgency, a deep desire for agility but a widespread inability to enact it and a distrusting and protectionist attitude also emerge from the research and should be proactively ring-fenced and eradicated.

KEYWORDS

Fourth Industrial Revolution; life insurance; strategy; leadership; agility

CONTACT DETAILS

Mrs Lynne Molloy, Cape Town; Email: lynnemk@gmail.com

1. INTRODUCTION

1.1 The prominence and influence of technological innovation is progressing beyond the simple automation and digitisation of the late 1990s and early 2000s to a large-scale, multi-sectoral coalescence of technologies that aspire to elevate our way of life. This shift is increasingly being referred to as the Fourth Industrial Revolution (4IR) (Schwab, 2016a; Shook & Knickrehm, 2017; Spelman & Weinelt, 2018). The 4IR is not only radically changing the way that people live, work and interact but is challenging tried and tested organisational strategies that have offered success in the past (Anthony et al., 2017; Christensen, 1997; Ismail et al., 2014; Reeves et al., 2015). In order to sustain success in the transition to this new era, businesses need to formulate new ways of operating. The organisations that thrive in the early movement of this new era are not the stable and reliable brands that were trusted by prior generations, but instead the technology-fuelled start-ups and technology giants like Google, Amazon and Facebook.

1.2 One industry that has managed to evade the wave of change is the life insurance industry (Bose & Bastid, 2018; Catlin & Lorenz, 2017; Malherbe & Dixon, 2017). Although similar buzzwords are frequently exchanged, and insurtech has emerged as this industry's own technology-enabled, disruptive entity, the operations and mechanics of the industry have remained largely unchanged (Bose & Bastid, 2018; Malherbe & Dixon, 2017; Shi et al., 2016). This is largely attributed to the sheltering effects of two idiosyncrasies specific to this arena that have served to discourage both newcomers and disruptive forces: industry protection mechanisms and a precarious trust positioning. Industry protection mechanisms include complexity, dense legislation, sophisticated distribution models, large and entrenched incumbents and significant capital requirements (Catlin & Lorenz, 2017). Trust is deeply woven into the fabric of the life insurance industry. A life insurance contract is ultimately a trust transaction, where customers pay premiums to facilitate protection in the event of an occurrence which may only happen many years in the future, or not at all. However, the extent and vehemence of the social outrage caused by the recent Ganas claim (Daniels, 2018; Khumalo, 2018; Modise, 2018) indicates that trust remains a major obstacle for the industry. A recent IBM survey showed that only 43 percent of insurance customers trust the insurance industry and the portion of customers that do trust their insurance provider has consistently remained below 50 percent since 2007 (Kesterson-Townes, 2015). This feature offers a dual barrier to innovation; it hampers incumbent insurers'

appetite for innovation and exploration given that failure may further threaten the precarious relationship with customers, and it paradoxically serves to hamper the success of new entrants relative to long-standing incumbents who have a proven track record of honouring their trust transactions (Malherbe & Dixon, 2017; Swiss Re, 2017). However, given the all-embracing and transformative impact of the 4IR, the protection offered by these sheltering features will likely weaken and change is inevitable. Underlying the threat to the industry, is a further threat to the industry's foremost profession: actuaries. Actuaries are increasingly holding positions of power (Brown, 2018; O'Brien et al., 2016; Stefan, 2010) and therefore face the offensive prospect of industry failure under their cautious guidance.

1.3 The purpose of this research was to ascertain how South African life insurance companies can retain relevance in the context of the oncoming 4IR. Countless transformational strategies are promoted and yet many ignore the embedded beliefs, capabilities and biases that can serve to ultimately undermine them. This research sought to interrogate the status quo as a means to conceive a solid foundation for change which is relevant to the current position of the South African life insurance industry. Senior executives and influencers were consulted across the industry to explore the foundational beliefs and capabilities that abound within this arena – both those that reinforce an inherent aversion to change and those that offer the means to embrace change. By quelling the former and cultivating the latter, the South African life insurance industry can decisively begin its transformation journey.

2. LITERATURE REVIEW

2.1 The Fourth Industrial Revolution

2.1.1 A DEPARTURE FROM LINEAR THINKING

2.1.1.1 Over the past 300 years, three distinct technological breakthroughs have boosted economic and social development. The First Industrial Revolution leveraged the innovation of steam power to mechanise production and initiated a fundamental societal shift from agriculture to industry. The second was driven by electrical power and supported a leap from basic industrialisation to mass production as well as increasing urbanisation. The invention of the microchip in 1971 and the resulting boom in electronics and information technology triggered the Digital Revolution or the Third Industrial Revolution, which has served to significantly boost productivity through automation (Dombrowski & Wagner, 2014; Schwab, 2016a). The world finds itself in the final stages of the Digital Revolution with the first traces of the succeeding Fourth Industrial Revolution (4IR) beginning to emerge. Basic digitisation is being enriched through rapidly falling technology costs and the combinatorial effect of blending technologies (Spelman & Weinelt, 2018). Although following in the designated sequence of its predecessors, the 4IR displays a distinctly different flavour. Rather than supporting a purely industrial or environmental advancement, the 4IR is initiating a radical change in the way that humans engage with technology and “is

blurring the lines between the physical, digital and biological spheres” (Schwab, 2016b, para. 2). Brynjolfsson & McAfee (2015) explains that “[d]igital technologies are doing for human brainpower what the steam engine and related technologies did for human muscle power” (p. 68). Both Schwab and McAfee recognise that whereas steam, electricity and microchips offered mankind empowering tools, the power delivered by the 4IR is the far more expansive power of human augmentation delivered through human-technology collaboration (Brynjolfsson & McAfee, 2015; Schwab, 2016a; Shook & Knickrehm, 2017).

2.1.1.2 Previous industrial revolutions have offered mankind notable leaps in productivity. However, to date, the 4IR has offered contraction evidenced by slowing growth in global labour productivity (Brynjolfsson & McAfee, 2015; Shook & Knickrehm, 2017). Both Shook and Knickrehm (2017) and Davis (2016) suggest that this anomaly is the result of a general lack of both appropriate skills and workplace ecosystems to adequately exploit the power introduced by the 4IR. Davis (2016) further highlights the inhibiting role played by business leadership who seemingly miss the opportunity to truly thrive within this new paradigm by focusing on isolated fragments of technology rather than recognising the transcendent role that people introduce by effectively collaborating with the technology. Kane et al. (2015) have found that a technology-focused approach is an indication of maturity whereby “[l]ess digitally mature organizations tend to focus on individual technologies and have strategies that are decidedly operational in focus” (p. 3).

2.1.1.3 The prevalent state of business uncertainty coupled with negative global economic trends highlights a clear imperative for change and yet business leaders, particularly those in the life insurance industry, have struggled to visualise a future target state in order to frame their planning (Brynjolfsson & McAfee, 2015; Curran et al., 2017; Davis, 2017; Kane et al., 2015). In order to leverage the complex and systemic changes introduced by the 4IR, leaders need to adopt a mindset shift whereby technology is used to augment corporate identity and purpose rather than implemented through sequential and linear technology upgrades as may have been successful in the past. As Catlin and Lorenz (2017) suggest in relation to the global insurance industry, “[w]hat is actually required is a fundamental rethink of the corporation, for which digital technology is but the catalyst” (p. 1).

2.1.2 THE SPEED OF CHANGE

2.1.2.1 Counter to the perception of an industry that avoids technology, insurance companies in South Africa and the world over have been seeking to drive digital capabilities in their businesses by leveraging technologies like large-scale data analytics, the internet of things, artificial intelligence, machine learning and wearable devices (Bose & Bastid, 2018; Catlin & Lorenz, 2017; Kane et al., 2015; Malherbe & Dixon, 2017; Willmott & Jose, 2015). However, the sheer breadth and volume of new technologies

that appear to be continuously arising is overwhelming and the result is an industry that has cultivated several peripheral innovations but has failed to shift its fundamental business model or its prevailing organisational appetite for change. The most significant impediment to implementing and sustaining digital innovation is often the organisation itself. Davis (2017) suggests that the power structures and decision-making protocols embedded within many companies today will obstruct a transition to this new era, which requires speed, agility and innovation. The speed of change also appears to be preventing business leaders from formulating a clearly articulated strategy to respond, with 37 percent of business leaders stating that a “lack of clear digital strategy” and 35 percent that “moving too slowly” have been the biggest mistakes that companies are making regarding digital transformation (Davis, 2017, p. 5).

2.1.2.2 In scenarios of high uncertainty, leaders may be hesitant to take actions that threaten their existing success and seek to wait for more information to emerge. However, this runs starkly counter to the increasing speed of change and therefore the required urgency of response proposed by experts (Anthony et al., 2017; Bose & Bastid, 2018; Camarate et al., 2017; Ismail et al., 2014). Reeves et al. (2015) provide the example of Kodak to clearly illustrate the risk of sluggishness to incumbents. Kodak swung from being the leader of its industry in the 1990s to filing for bankruptcy in 2012 as a result of failing to position themselves for the rapid growth of digital cameras. In fact, Kodak had been the first organisation to develop and patent the digital camera in 1975 but had decided to set this aside and exploit the film business for as long as possible. A source from Kodak is quoted by Reeves et al. (2015) as saying “we wanted to put money into the new technology, but we’d gotten some false security because the speed of technology substitution had been historically slow. When, in the early 2000s, quality, cost, and usability aligned, we were unprepared” (p. 72). According to Klaus Schwab, founder and Executive Chairman of the World Economic Forum, “in the new world, it is not the big fish which eats the small fish, it’s the fast fish which eats the slow fish” (Malherbe & Dixon, 2017, p. 42).

2.1.3 THE EMERGENCE OF ECOSYSTEMS

2.1.3.1 An increasingly prominent feature of the 4IR is the emergence of platforms and ecosystems that link strategically specialised service providers to partners in both the traditional and emerging business spheres (Bose & Bastid, 2018; Catlin et al., 2018; Curran et al., 2017; Kashyap et al., 2017). At the root of this feature is what Davis (2016) describes as the reconstitution of value chains “as organisations and industries blend and combine in an emerging digital context” (p. 6). Ecosystems effectively provide a technological scaffold to support value chain disaggregation as increasingly specialised roles and functions become valued as stand-alone entities. These configurations are becoming increasingly observed across the broader financial services industry but are yet to be fully embraced by the life insurance industry (Bose & Bastid, 2018; Catlin et al., 2018; Curran et al., 2017; Kashyap et al., 2017).

2.1.3.2 Ecosystems provide a clear opportunity for leaders who face increasing uncertainty – like the life insurance industry that has been predominantly sheltered from the changing global business environment – to partner with individuals or organisations that convey greater knowledge or expertise in a particular area and use this as an opportunity to learn and adjust (Bose & Bastid, 2018; Bughin et al., 2018; Camarate et al., 2017; Kane et al., 2015; Malherbe & Dixon, 2017). In fact, there has been a notable increase in the rate at which organisations have entered into collaborative relationships since the 1980s as organisations focus on specialising and leveraging the strengths of specialists in other fields to optimise solution delivery (Gulati et al., 2012). In their 2018 assessment of the state of the world insurance industry, Bose and Bastid (2018) explain that digital agility can be nurtured by proactively developing win-win partnerships with InsurTech companies and thereby cultivating InsurTech capabilities whilst at the same time moving from legacy infrastructure to cloud-based solutions that better enable speed and scalability.

2.1.3.3 This tactic has amassed credibility through being accepted across the broader, global financial services industry, as illustrated in PwC’s Global FinTech Survey 2017, with 45 percent of incumbents indicating that they are currently partnering with fintech companies and 82 percent indicating that they are planning to increase partnerships with fintechs in the next three to five years (Kashyap et al., 2017, p. 6). Reiterating the need to view the 4IR as an expansive movement, Curran et al. (2017) emphasise that it is vital for organisations to think beyond the application of individual technologies as well as beyond the confines of the organisation itself. Ecosystems provide the means to do so.

2.1.4 SKILLS RELEVANCE

2.1.4.1 A common, yet cynical, view of the future workplace shaped by the 4IR is one associated with extensive job losses as a result of automation and robotisation (Schwab, 2016a; Shook & Knickrehm, 2017). However, Brynjolfsson and McAfee (2015) have identified that rather than an all-encompassing Armageddon, it is a particular segment of the workforce that appears to be most significantly affected. Their analysis shows that although real GDP per capita and labour productivity have continued to climb (albeit at a decreasing rate), median family income and the rate of private employment have levelled off since the turn of the century. This disparity demonstrates a decoupling of what Brynjolfsson and McAfee (2015) refer to as the “two halves of the cycle of prosperity” (p. 69), or The Great Decoupling. The root cause for this divergence is what economists call skills-biased technical change (Violante, 2008), a decreasing demand for lower skilled information workers coupled with an increasing demand for highly skilled information workers, ultimately leading to a hollowing out of the middle class and increasing income inequality (Brynjolfsson & McAfee, 2015). This trend could lead to a devastating social outcome that Schwab (2016a, 2016b, 2019) has regularly cautioned against.

2.1.4.2 In step with the increasing demand for highly skilled information work, a persistent and widening skills gap is noted across the literature (Gratton, 2011; Shook & Knickrehm, 2017). Davis (2016) found that 94 percent of executives surveyed in 2015 believed that a moderate or severe digital skills gap was impeding their ability to reach their digital future (p. 4). The skills gap is amplified through both supply- and demand-side dynamics: slow and inflexible educational systems producing graduates with skills that are no longer relevant (Shook & Knickrehm, 2017) coupled with an increasingly dynamic demand for skills as the business environment transforms. In order to access the limited group that do possess the required skills, businesses will need to position themselves as attractive workplaces for the digitally elite (Davis, 2016). Kane et al. (2015) argue that, regardless of skill, the majority of employees want to work in businesses that are digitally focused.

2.1.4.3 A more optimistic view of the future workplace is adopted through acknowledging that humans remain superior in certain essential skills including creativity, emotion/interpersonal relations and dexterity (Brynjolfsson & McAfee, 2015; Davis, 2016; Shook & Knickrehm, 2017). Having noted the same decoupling pattern articulated by Brynjolfsson and McAfee (2015), Shook and Knickrehm (2017) have demonstrated that by doubling the current rate at which workers are able to acquire relevant skills, the occurrence of jobs that are at risk of total automation decreases significantly, e.g. a reduction in risk of over 80 percent for Germany by 2035 (p. 9). Importantly, the ability to enhance technological outputs through human collaboration and hence capture the full value offered by the 4IR still requires human technical ability.

2.1.4.4 A significant and largely overlooked opportunity for upskilling exists within the current workforce. Rather than being fearful about the changing technological landscape, a 2016 Accenture survey of 10,527 workers across ten countries found that 87 percent of workers were optimistic about the future, expecting that their work experience would improve over the next five years (Shook & Knickrehm, 2017, p. 8). Fifty-eight percent of workers indicated an awareness of the need to develop their skills in order to remain relevant and 85 percent of these said that they were willing to invest their free time in order to learn new skills (p. 8). This provides a sizeable opportunity for business leaders to organically deliver the skills that they so desperately need. Rather than relying on an external, largely independent education system to deliver the required skills, experts suggest that in order to keep pace with the rate of change, leaders and workers need to adjust their mindset to one of continuous learning at all levels of the business (Bender & Willmott, 2017; Shook & Knickrehm, 2017; Spelman & Weinelt, 2018). Schwab (2016b) predicts that this will enable humanity to reach “a new collective and moral consciousness based on a shared sense of destiny” (para. 31), similarly echoed by Gratton (2011) in her supposition that technological advancement will enable a “‘global consciousness’ that has never been seen before” (p. 28).

2.1.5 DIGITAL TRANSFORMATION AND DIGITAL INNOVATION

2.1.5.1 The digital revolution continues to advance automation through sequential technology upgrades, whereas the emerging 4IR serves to amplify this linear progression through cleaving together multiple technologies and elevating their impact through human-technology collaboration. This understanding of how both the digital and fourth industrial revolutions are shaping the business landscape enables an appreciation of two distinct strategic ambitions that are required to retain relevance – digital transformation and digital innovation. Whereas human-technology collaboration is an overarching ethos; achieving digital transformation and digital innovation are practical organisational objectives. Digital transformation involves adapting business operations to changes in technology, whereas digital innovation involves proactively instigating new changes (Kletzkiene, 2018; Newman, 2017). Where digital transformation is about meeting the rising standard of parity, digital innovation is about aspiring to break new ground. Given the increasing speed of change, both objectives are needed to achieve sustained success in this new era. However, research suggests that the skills needed to enact each of these objectives are vastly different and as a result, many organisations continue to grapple with them.

2.1.5.2 The significance of digital transformation was firmly established when in 2015, the World Economic Forum in partnership with Accenture, launched their Digital Transformation Initiative (DTI) (Spelman & Weinelt, 2018). The DTI seeks to provide a central information repository that brings public and private experts together to untangle the complexity of upcoming digital technologies and determine their impact and value on society and across a range of industries. An underlying motive expressed by the DTI is to shepherd the progress of digital transformation to ensure that its benefits are “fairly and widely shared” (Spelman & Weinelt, 2018, p. 5). This appears to link directly to the heightened inequality concerns raised by Schwab (2016a) and Brynjolfsson and McAfee (2015).

2.1.5.3 In spite of the increasing interest in digital transformation, PWC’s Digital IQ, which provides “the measurement of an organisation’s abilities to harness and profit from technology” (p. 2), has declined over the past ten years (Curran et al., 2017). This, Curran et al. (2017) believe, is indicative of the struggle for business to keep up with the ever-accelerating rate of change and is consistent with the prevailing theme of uncertainty highlighted by Schwab (2016a). Further, rather than bolster financial performance, at first sight, research by Bughin et al. (2017) shows that digital transformation efforts appear to have eroded average revenue and earnings growth figures across multiple industries by reducing barriers to entry and increasing competition with further downward pressure expected as digital penetration deepens. However, by dissecting these averages, it becomes clear that companies with strong digital capabilities continue to outperform. It is the digital laggards that pull down the averages by struggling to respond to competition and contributing to a long tail of

poor performance with on average 48%, but up to 70%, of companies across industries either generating negative returns or failing to return their cost of capital on digital initiatives. (Bughin et al., 2017, p. 5).

2.1.5.4 These results reinforce the difference between digital transformation and digital innovation, whereby successful transformation efforts at best offer parity with competitors rather than a competitive advantage. Leading strategy scholar, Michael Porter (1996), originally suggested that scrambling to imitate and hedge the risk of being wrong or left behind speaks to honing operational effectiveness rather than delivering a sustainable competitive advantage. Casadesus-Masanell (2014) specifically addresses the issue of technology as an enabler rather than a source of competitive advantage by explaining that the deployment of robust technology and innovation are both important, but cannot be mistaken for strategy. Curran et al.'s (2017) insight that businesses are struggling to keep up with technological change and Bughin et al. (2017) finding that digitisation is eroding value are both strong indicators that the 4IR is rapidly raising the bar on what is considered sufficient to achieve parity with competitors. Hence digital transformation is required first and foremost to retain relevance before digital innovation efforts can be applied to seek out opportunities to differentiate and sustain relevance.

2.2 A context of creative destruction

2.2.1 In many ways, the 4IR introduces new and unprecedented challenges to the business community. However, when contrasting the business considerations raised by these challenges against strategy and innovation literature, it becomes clear that the 4IR echoes the fundamental challenges that have been identified and studied by scholars for almost a century. Through understanding the 4IR in the broader context of the groundwork that has been laid by our predecessors rather than studying it as an isolated occurrence, these problems and challenges become clearer.

2.2.2 THE BUSINESS LIFE CYCLE: A PATH TO DESTRUCTION

2.2.2.1 The 'godfather' of innovation studies, Joseph Schumpeter, coined the term "creative destruction" in 1942. This referred to the enduring search for profits that drives a repeating process by which new ideas and innovations continuously emerge, destroying the existing equilibrium systems and establishing new ones (Tidd et al., 2005). Tushman and O'Reilly (1996) describe this more simply as the consistent pattern across industries by which success precedes failure. In current terms, this is demonstrated by the turnover of companies on the S&P500. Creative destruction is supported by the traditional business life cycle and its inadvertent outcomes. The standard pattern of organisational evolution is commonly illustrated in the form of the "S-curve" as shown in Figure 1.

2.2.2.2 The curve demonstrates how organisations evolve from a position of novelty and innovation when they first enter a market, to one of differentiation as competition

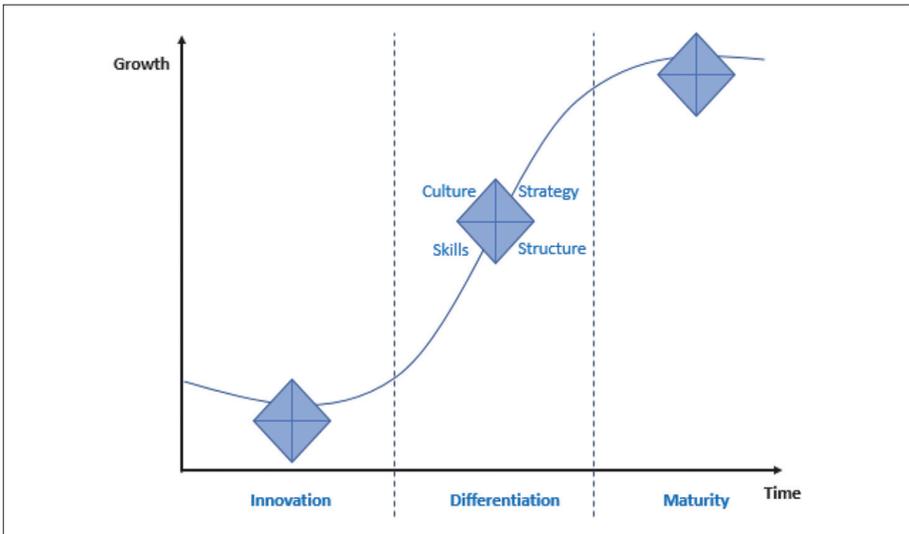


FIGURE 1 Organisational evolution S-curve (adapted from Tushman & O'Reilly, 1996)

increases, and finally to a position of maturity that is focused on efficiency, control and cost reduction. Throughout this evolution, strategy, structure, skills and culture within the organisation evolve consistently to enable and optimise the required position and ultimately lead to the success syndrome and the cultural paradox, which inhibit the company's ability to adapt and can lead to its demise.

2.2.2.3 The success syndrome describes the natural tendency for organisations to seek feedback from the market in order to refine their organisational processes and optimise their ability to achieve their mission. Tushman and O'Reilly (1996) further suggest that since the alignment of strategy, structure, people and processes is never perfectly consistent, aspiring towards congruence is an ongoing process of enhancement and incremental change. This kind of evolutionary change is a vital component of success in the short term. However, the flipside of this optimisation process is that, as systems and processes are developed to efficiently manage the complexity associated with a growing organisation, structural and cultural inertia are produced. Structural inertia is "a resistance to change rooted in the size, complexity, and inter-dependence in the organisation's structures, systems, procedures, and processes" (Tushman & O'Reilly, 1996, p. 18), whereas cultural inertia, a far more tenacious force, is the shared experience of how things are done which becomes deeply embedded within the organisation over time.

2.2.2.4 The culture paradox emerges when the culture which has supported an organisation's prior success becomes the chief obstacle that prevents required change

and leads to its downfall. Jack Welch, legendary CEO of General Electric between 1981 and 2001, acknowledged this paradox in the early 1990s and is quoted as saying “In the nineties the heroes, the winners, will be entire companies that have developed cultures that instead of fearing the pace of change, relish it” (Tushman & O’Reilly, 1996, p. 20).

2.2.3 INEVITABLE DILEMMAS

2.2.3.1 Echoing these unintended outcomes that are produced along the business lifecycle, William Abernathy famously proposed that creative destruction is sustained by the *productivity dilemma* by which organisations develop short-term efficiency at the expense of long-term adaptability (Adler et al., 2009). Using a consistent rationale, Christensen (1997) published the globally acclaimed *Innovator’s Dilemma* that explains that great companies fail due to an embedded bias that leads them to focus on exploiting their customers’ current needs and discounting the value of new technologies and innovations that meet their future needs.

2.2.3.2 A further consequence of Christensen’s (1997) work is the recognition that the failure of great companies is not necessarily the result of failing to anticipate change – in fact incumbents are often the ones that identify and develop new technologies – it is the result of great companies consistently undervaluing and de-prioritising these innovations and ultimately being left behind. Incumbents are regularly early to identify change, as in the case of Kodak, but lose their footing due to failing to prioritise change efforts until the market has moved and structural and cultural inertia prevent a swift response. The repercussions of this organisational mentality, paired with the increased levels of uncertainty and increasing rate of change spurred by the 4IR (Anthony et al., 2017; Bose & Bastid, 2018; Camarate et al., 2017; Ismail et al., 2014) are clearly reflected in the increasing turnover rate of S&P500 companies. According to Anthony et al. (2018), the average lifespan of companies on the S&P500 in 1964 was 33 years, reducing to 24 years in 2016 and is projected to reduce further to 10 years by 2027 (p. 2). These tangible results emphasise an undeniable sense of urgency for organisational leaders to act.

2.2.4 A SIMPLE, BUT TROUBLESOME SOLUTION

2.2.4.1 The incongruence between pursuing exploitative or business-as-usual and explorative or innovative activities was explored in detail by March (1991) who sought to develop an understanding of the adaptive processes that allowed organisations to respond to creative destruction by balancing the exploration of new ideas and innovations against the exploitation of established activities. As he explained, the fundamental problem facing all organisations is a need to dedicate efforts to exploitation as a means to ensure their current viability whilst simultaneously devoting enough energy to exploration so as to ensure their future viability. In his research, March (1991) found that, given the predictability of returns associated with exploitative

activities as opposed to the uncertainty of those associated with exploratory activities, adaptive processes tend to prioritise exploitation and although this is more effective in the short term, it becomes self-destructive over a longer period.

2.2.4.2 Many researchers have sought to identify the means to foster success within the pervasive context described by Schumpeter and facing the dilemmas described by Abernathy (Adler et al., 2009) and Christensen (1997; Christensen & Overdorf, 2000) by successfully executing a range of business models, including notable examples from recent literature: McKinsey's *Three Horizons of Growth* (Baghai et al., 1999), *Exponential Organizations* (Ismail et al., 2014), *Your Strategy Needs a Strategy* (Reeves et al., 2015) and *Dual Transformation* (Anthony et al., 2017). A commonality across these models is the recognition that in order to sustain long-term success and ride the wave of creative destruction, organisations need to exploit existing capabilities as well as explore new capabilities and innovate. This may be a simple concept but the means and capability of cultivating an appropriate balance between these two activities is the fundamental challenge that continues to provoke debate. Some experts have even argued that although desirable, given the paradoxical competencies required for exploring and exploiting, effectively managing the trade-offs between these two activities is impossible, particularly for large, established incumbents (Adler et al., 2009; Christensen, 1997; O'Reilly & Tushman, 2004, 2008; Raisch et al., 2009).

2.3 Dynamic capabilities and a paradoxical mindset

2.3.1 The means to break the creative destruction cycle and achieve sustained success is through averting a bias towards incremental optimisation and cultivating an ability to balance both exploitative and exploratory activities. This broadly derived recommendation aligns compellingly with the specific capabilities of digital transformation and digital innovation identified as a means for organisations to sustain success in response to the changes instigated by the digital and fourth industrial revolutions. Tushman and O'Reilly (1996) provide practical and proven means to do this in their conceptualisation of the ambidextrous organisation model that has since emerged as a compelling, new research paradigm (Adler et al., 2009; O'Reilly & Tushman, 2004, 2008, 2011, 2013; Raisch et al., 2009; Sinha, 2016; Smith et al., 2010; Smith et al., 2016; Tushman, 2017; Tushman & Euchner, 2015; Tushman et al., 2015). Ambidexterity “challenges the widely held assumption that innovation and efficiency are orthogonal, and trade-offs must always sacrifice one for the other” (O'Reilly & Tushman, 2008, p. 202). It provides a practical and proven solution – through the likes of organisations like IBM, USA Today and Ciba Vision – to enable businesses to pioneer disruptive innovations while continuing to pursue incremental gains (O'Reilly & Tushman, 2004, 2008, 2011, 2013; Raisch et al., 2009; Smith et al., 2010; Tushman & O'Reilly, 1996).

2.3.2 For the purposes of this research, one pivotal aspect of the ambidextrous model is focused on: securing a leadership team who exhibit the dynamic capabilities to balance and integrate the paradoxical requirements of the established and emerging business activities. According to O'Reilly and Tushman (2008) "dynamic capabilities are reflected in the organization's ability, manifest in the decisions of senior management, to maintain ecological fitness and, when necessary, to reconfigure existing assets and develop the new skills needed to address emerging threats and opportunities" (p. 189). This capability is vital to achieving sustained success given that organisations need to have the competencies and organisational structures to compete successfully in existing markets, but also an ability to reconfigure assets and structures to adapt to emerging markets and technologies.

2.3.3 Smith et al. (2016) describe the tensions or opposing goals that leaders constantly grapple with and how, in order to adopt dynamic capabilities, the leaders need to be able to adopt a paradoxical mindset. Notable opposing goals include, *innovation paradoxes*, closely aligned to March's (1991) research, that encompass tensions between current and future needs, existing and new offerings, stability and change, *globalisation paradoxes* that capture the tensions between local needs and global interconnection, attaining depth and breadth, balancing competition and collaboration, and *obligation paradoxes* that involve tensions between focusing on value creation for shareholders, employees, customers or society, particularly as social responsibility concerns become increasingly topical. In order to adopt a paradoxical mindset and balance these tensions, leaders must be able to counteract a dogmatic inclination towards consistency, stability and zero-sum thinking which are entrenched in traditional leadership and management theory.

2.3.4 Consistency speaks to a way of thinking whereby if one course of action is "right", then the opposite must be "wrong". Smith et al. (2016) suggest that a hostility towards contradiction is a pervasive dogma in the Western world. Psychologist Leon Festinger describes the gnawing feeling of discomfort associated with taking actions that are inconsistent with our perception of the truth as cognitive dissonance (Smith et al., 2016). In practice, and particularly when developing ambidextrous organisations, leaders need to be able to accept and support multiple, conflicting truths. Asserting control and seeking to minimise complexity as a means to counter instability and uncertainty within an organisation is an established leadership competence advocated by traditional leadership theorists who have been heavily influenced by studies of the military (Smith et al., 2016). However, in the context of an environment that is experiencing an increasing rate of change, avoiding uncertainty can be detrimental to achieving sustained success. Leaders are increasingly required to embrace dynamism and change, and to create an environment within their organisations that encourages experimentation and embraces failure for the value of the lessons learned. Finally, a traditional leadership mindset is frequently underpinned by the belief that resources

are limited. This naturally drives leaders to look for sources of constraint, often in the form of competitor threats or market expectations, and ultimately results in zero-sum thinking and conflict as different business units compete for resources. Rather than aiming to cut the pie thinner and thinner, leaders need to adopt value-creating mindsets that seek to grow the pie and thereby enable exploration of new partnerships, new technologies and new ways of working.

2.4 The influence of actuaries

2.4.1 Life insurance is a traditional area of practice for actuaries, and remains the industry that boasts the highest involvement by actuaries (Institute and Faculty of Actuaries, 2019). In 2018, 56% of the Actuarial Society of South Africa's (ASSA) fellow members operated in the life insurance industry (Actuarial Society of South Africa, 2018). This dwarfed the next largest practice area by almost three times. Although the roles of actuaries are changing in the life insurance space, changes in regulations and an increasing regard for the parallel field of data science, ensure that actuaries are increasingly occupying positions of leadership and influence (Brown, 2018; O'Brien et al., 2016; Stefan, 2010). In 2019, the Casualty Actuarial Society in the United States recorded 411 members in CEO and other c-suite positions (Casualty Actuarial Society, 2019). In South Africa, 805 fellows and 976 other members of ASSA were operating in the life insurance industry in 2018 (ASSA, 2018). This indicates that actuaries have significant potential to direct the course of the life insurance industry locally, particularly those in leadership positions.

2.4.2 Countering the increased appreciation for actuarial skillsets fuelled by changing regulations and an increased esteem for data science, the environmental changes triggered by the 4IR appear to be favouring alternative skillsets which exist outside of the actuarial sphere. Jewell and Thomson (2014) demonstrated how the actuarial function has evolved at a local, leading life insurance player, with 71% of the function supported by actuarial skills in 2006, dropping to 52% in 2014 (p. 7). This transition was largely steered by an increasing need for technology skillsets (Jewell & Thomson, 2014). At the time, Jewell and Thomson (2014) recommended that the profession "must get actuaries out of the actuarial corner" through augmenting existing skillsets and experiential learning (p. 12). This was echoed in the same year by Lowther and McMillan (2014), who sought to modernise ASSA's continuous professional development (CPD) programme as a means to sustain the relevance of actuarial skillsets.

2.4.3 ASSA fellows are formally bound to provide relevant and up-to-date actuarial services through its Code of Professional Conduct (2012). Like many professional bodies, ASSA subscribes to a self-reported and randomly audited CPD programme which seeks to ensure that members maintain a relevant and up-to-date skillset. Following research by Lowther and McMillan (2014), ASSA has begun to transition

from a rigid time-based system to a more fluid outcomes-based system, which seeks to more closely match CPD efforts with intentionally identified required skills and active learning. The outcomes-based system aligns well with the continuous learning model supported by the 4IR literature.

3. RESEARCH PROBLEM

3.1 The life insurance industry is widely held to be slow, staid and averse to change (Bose & Bastid, 2018; Catlin et al., 2018; Malherbe & Dixon, 2017). This runs counter to the increasing speed of change and the associated need for continuous adaptation that have become the stable state across other business communities. And yet, to date, the insurance industry has remained remarkably resilient and this has served to soothe insurance leaders and reinforce a backward-looking business model. However, investigating the root cause of this resilience reveals that rather than affirming the reactionary strategies of the past, the industry has benefited from a set of distinctive industry protection mechanisms, including high capital requirements, complexity, dense regulation, highly specialised skillsets and carefully honed distribution networks (Catlin & Lorenz, 2017), and the pervasive impact of trust incongruities. Although these features remain, their potency is being increasingly eroded through the intensifying effects of the 4IR. As value chains disaggregate and recombine into ecosystems, specialised services become more readily available, complexity is deconstructed into manageable fragments and new means of distribution become increasingly apparent. As distinct and complementary technologies coalesce and costs reduce, existing organisational functions can be performed both more cheaply and more effectively and new capabilities can be developed that delight customers and upend the limitations of the past.

3.2 It follows that the progression of the 4IR is nearing the tipping point, where historical industry protection mechanisms will no longer be enough to sustain existing businesses. In order to retain relevance, both insurers and actuaries need to act quickly and correct course. In support of this, this research seeks to explore the views and positions of executives and influencers across the South African life insurance industry to identify existing beliefs and capabilities, both those that inhibit adaptation and must be curtailed and those that enable reinvention and should be leveraged to accelerate the industry's transformation. This aligns to the core consequence of the 4IR literature: where the mechanism underlying the revolution is the proliferation, amalgamation and increasing accessibility of technologies but the ultimate outcome is attained through human capability and human-technology collaboration.

4. RESEARCH METHODOLOGY

4.1 The research adopted an exploratory qualitative approach. Gray (2017) suggests that exploratory studies seek to delve into a phenomenon in search of understanding and are particularly useful when little is known about the phenomenon which is true

of this study. A qualitative approach was used to gather data as the purpose of the research was to describe, explain, and explore (Leedy & Ormrod, 2016). This purpose aligned well with the intent of this study. An inductive approach complemented the qualitative research and exploratory design and was used to synthesise the data collected to formulate meaning.

4.2 Sample selection

With regard to determining the breadth and number of individuals to interview, Leedy and Ormrod (2016) offer suggestions to guide decision-making. With these suggestions in mind, the following bounds were applied to the selection criteria for the study: participants were selected from a range of organisations in terms of the organisation's level of technology engagement, as evidenced by publicly available information across the life insurance industry; although the research focused on executive-level decision-making, interviews with subordinates were included from each organisation, where possible. Further, interviews were conducted both with those that are directly involved in technology advancement within the organisation as well as those that are not; and, in order to formulate a broad, contextual view of the industry, participants were selected from both large, established insurers as well as smaller, emerging insurers. In their analysis to determine the optimal sample size when using non-probabilistic sampling, Guest et al. (2006) show that 12 interviews provide data saturation. Twelve selected interviewees included representatives from eight organisations; five large and established and three small-to-medium-sized, emergent or start-up organisations. In addition, interviewees occupied a range of roles including three CEOs, two technology executives, four senior leaders focused on established business operations and three senior leaders focused on emerging business operations. Half of interviewees were fellow members of the actuarial community.

4.3 Data collection

Interviews were conducted in a quiet and neutral space to avoid distraction, allow an informal space to build rapport (Gray, 2017), and create a safe space in which the interviewer felt comfortable (Quinlan et al., 2015). An audio recording was made of all interviews and stored securely on file. The audio recordings were transcribed in order to facilitate coding and assessment. Notes were made during interviews and as part of post-interview reflections in order to capture nuanced information relating to body language, facial expressions and the manner in which questions were answered (Quinlan et al., 2015). Questions were carefully crafted to avoid directing interviewees or pre-empting certain responses and a pilot interview helped to highlight any potentially leading wording.

4.4 Data analysis

A prescribed and established process was used to analyse the data. Creswell's (2013) 'data analysis spiral' enabled the following process:

4.4.1 ORGANISING THE DATA

The data, including interview transcriptions and researcher notes, were collected digitally and ordered within a digital database. Thereafter large bodies of text were reduced into smaller units, for example, words, sentences or short stories. This technique enabled a more granular appreciation of potential emerging themes.

4.4.2 PERUSING THE ENTIRE DATA SET SEVERAL TIMES

This process enables the researcher to formulate a general sense of the data and what it contains as a whole. Notes were made throughout this process and contributed to the construction of an initial coding template.

4.4.3 DATA CLASSIFICATION

Leveraging the approach recommended by King and Brooks (2017), an initial coding template was developed with reference to the first six interviews. By leveraging the general sense of the data acquired, general categories and themes could be identified, and possible subcategories and subthemes. Colour coding was used to assist with separating categories and themes. Through this process, the researchers were able to begin to develop a sense of patterns and underlying meanings within the dataset. The initial coding template provided a starting point for the final coding template which was developed by incorporating the remaining six interviews and cycling iteratively through all interviews.

4.4.4 SYNTHESIS OF DATA LEADING TO INTEGRATION AND SUMMARISATION

In this phase, the overarching themes were developed that linked the various codes and categories and contributed to the area of research. Themes were carefully defined in order to be consistent with interviewee responses and adequately capture the required concept. This provided another means to check both the relevance and distinctiveness of each theme. The synthesis process enabled the move from specific outcomes to a more general and holistic understanding and application that formed a basis for deliberation and reasoning to develop conclusions and recommendations.

4.5 Validity

Two tools used to strengthen internal validity included involving interviewees in checking the data for accuracy and faithfulness of representation (Gray, 2017), and clearly distinguishing between transcribed data and researcher memos in order to keep interpretations and observations separate (Leedy & Ormrod, 2016).

4.6 Research ethics

Ethical considerations were applied in all conduct and interaction with interviewees to ensure the integrity of the research. Prior to commencement of the study, ethical clearance was sought and granted by the University of Cape Town, the relevant university. The identities of all participating employees and their organisations were

kept confidential and pseudonyms have been used in the results. All employees participated in the study on a voluntary and informed basis as ensured through completing an interview consent form.

5. DISCUSSION OF RESULTS

5.1 Introduction

Distinctive themes were derived through identifying patterns and underlying meanings within the dataset. Results emerged within two distinct categories; enabling and inhibiting beliefs and capabilities as illustrated in Figure 2. This section seeks to evaluate each category in detail.

5.2 Enabling beliefs and capabilities

5.2.1 PARTNERSHIPS AND ECOSYSTEMS

5.2.1.1 Adoption of a partnership mindset involves leveraging both internal and external networks to develop and execute exploration or innovation endeavours. Eight interviewees noted a partnership mindset as a fundamental aspect of the 4IR. A more granular analysis of wording emphasised the prominence of this theme and showed that associated terms such as ‘partnership’, ‘collaboration’ and ‘relationship’ as well as their related forms were used 103 times across all interviews. Within the context of a partnership mindset, the word ‘ecosystem’ emerged distinctly, being cited by six interviewees. Clark (medium insurer, established business focus) described an ecosystem as “a collaborative network of people in different domains” including “Fintechs, accelerators, incubators, academic institutions, industry think tanks and global partners in financial services who are non-competing”. Brad (large insurer, technology executive) further linked ecosystem and a partnership mindset as follows, “I think in future we will see more crowd-sourced innovations potentially leveraging

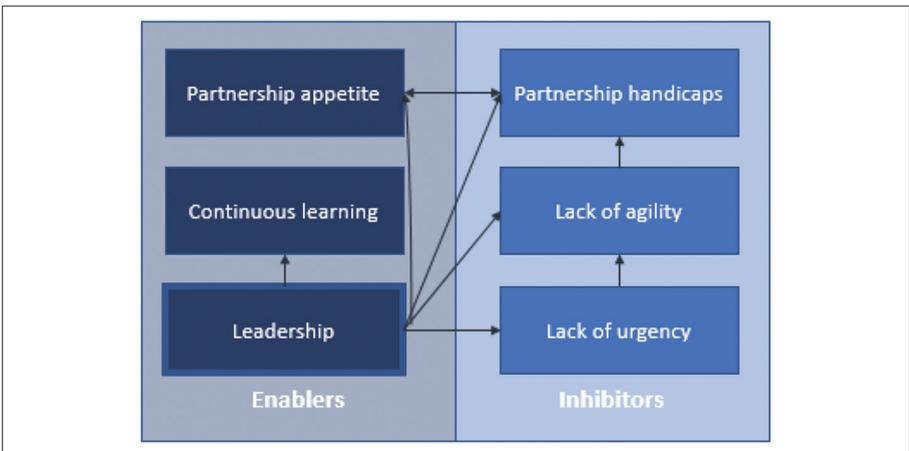


FIGURE 2 Enabling and inhibiting beliefs and capabilities, with relationships

an ecosystem of innovation partners to provide a richer offering”. Whereas the ecosystem refers to the network, typically considered to emphasise external, cross-industry parties, the partnership mindset refers to an organisation’s ability to draw value from this network by adopting a collaborative and mutually beneficial approach.

5.2.1.2 An inclination towards partnerships and leveraging ecosystems as a means to formulate partnerships came across strongly from interviewees. This demonstrates an acceptance that the expertise needed to innovate and/or adequately respond to the 4IR is not necessarily found within the confines of the incumbent insurance industry, and further highlights an awareness of the emergence of cross-industry networks and their value in cultivating a comprehensive response. Seeking partnerships aligns to the tactical direction recommended in the literature as an interim means for incumbents to learn and develop in their changing context, and which is increasingly leveraged across the global financial services industry (Bose & Bastid, 2018; Camarate et al., 2017; Catlin et al., 2018; Curran et al., 2017; Kane et al., 2015; Malherbe & Dixon, 2017). This broadly accepted awareness offers the industry a clear means to begin its adaptation journey.

5.2.2 LEADERSHIP AS THE ROOT OF CHANGE

5.2.2.1 All interviewees noted the importance of insurance leaders in navigating the changing business environment. However, although confident with leadership’s ability to prioritise and steer business-as-usual, nine interviewees raised concerns about their ability to promote exploratory activities and radical change. Brad (large insurer, technology executive) explained this in relation to his own organisation by asserting that, “we’ve got a very capable team, but not necessarily fully bought into a transformed way of working”. Greg (large insurer, technology executive) linked this lack of internalisation across leadership teams to change aversion as well as a destabilising increase in the rate of change, “humans don’t like change, so our tendency is to be more incremental. Many leaders have come from a world where change was something that you went through and then it finished and there was stability. We now live in a world where change is constant”. This, highlights both an opportunity and a threat; leaders appear to have the power and influence to guide a transformation of the industry, but will be unable to do so until they recognise and authentically promote the need for transformation.

5.2.2.2 In addition to prioritising business-as-usual, a third of interviewees expressed a view that general risk aversion across the life insurance industry is linked to the prevalence of actuaries in leadership or other influential positions. Risk aversion is investigated in more detail in Section 5.3.2 below, but within the context of leadership influence it is clear that leadership biases in the life insurance industry are nuanced by a prevailing actuarial mindset and hence shifting those biases will require that the actuarial community accepts and assimilates the need for change.

5.2.2.3 A embedded bias towards business-as-usual and prioritising short-term wins aligns seamlessly with Abernathy's productivity dilemma that sustains the cycle of creative destruction that has destroyed countless organisations (Adler et al., 2009), and Christensen's (1997) innovator's dilemma which leads organisations to under-prioritise the technologies and innovations that require investment to meet customer's emerging needs. It is worth emphasising that there is a stark difference between identifying a required action and enacting it, and it is the latter that received priority in this research. Leaders may publicly declare their commitment to innovation and the future orientation of their businesses, but what both the productivity dilemma and the innovator's dilemma speak to, what March (1991) empirically verified, and consistently demonstrated in this research, is that there is a natural inertia which draws leaders and businesses away from these stated intentions to over-prioritise short-term, less uncertain activities. The means to achieve sustained success, even more so in the context of the 4IR, is by cultivating an unswerving dual focus on both the now or business-as-usual and the future or exploration.

5.2.3 A PEOPLE FOCUS AND CONTINUOUS LEARNING

5.2.3.1 Eight interviewees linked the optimal functioning of an organisation with the people within the organisation; more specifically, the strength and capabilities of these people and their ability to drive or inspire action across the business. Reference to people as a primary enabler was most commonly mentioned when discussing exploration or innovation efforts. Andrew (small insurer, CEO) believes that organisations should place their "best people" within their innovation units, with Frank (large insurer, established business focus) expanding on this to say that these people should be those that "are looking for opportunities and can live with the ambiguity and the uncertainty that comes with it".

5.2.3.2 This people focus resonates powerfully with the literature that emphasises the importance of people in accessing the full potential offered by the 4IR. The awareness of the importance of people does suggest a trait which might help to empower the South African life insurance industry to transition effectively within its changing environment. However, the focus offered by interviewees leaned towards sourcing people with adequate skills and expertise as per the digital gig economy rather than recognising the potential within an existing staff base and seeking to cultivate these skills organically. This runs counter to the continuous learning mindset encouraged by the literature (Bender & Willmott, 2017; Brynjolfsson & McAfee, 2015; Gratton, 2011; Shook & Knickrehm, 2017; Spelman & Weinelt, 2018). According to Davis (2016, p. 5), "The digital era will rely on machines, but winning will require – perhaps more than ever – talent pools that can thrive in an increasingly digitised economy." By proactively maintaining relevant skills, for actuaries by leveraging the enabling outcomes-based CPD programme, whilst fully acknowledging and leveraging uniquely human skills, humanity can secure their

continued relevance in the workplace, and by doing so, further enable the 4IR to achieve the ultimate goal of human augmentation.

5.3 Inhibiting beliefs and capabilities

5.3.1 LACK OF URGENCY

5.3.1.1 All interviewees agreed that the life insurance industry has been slow to respond to the changes and opportunities presented by the 4IR, with half of interviewees acknowledging that this is a disappointment and the other half considering this to be a deliberate and carefully considered strategy. This runs counter to the speed of change and required urgency of response noted across the literature (Bose & Bastid, 2018; Christensen, 1997; Ismail et al., 2014; Reeves et al., 2015) and demonstrated by the falling average lifespans of S&P500 companies (Anthony et al., 2018). More concerning, a lack of urgency echoes the story of Kodak whose leadership team recognised the value in digital cameras but underestimated the speed of change within their industry and took the decision to focus on exploiting their existing, successful film business. By the time digital cameras had captured the market, even with their early experience with digital, Kodak was unable to effectively respond and was forced to declare bankruptcy (Reeves et al., 2012).

5.3.1.2 A lack of market readiness for change was provided as a justification for this measured approach by four interviewees. Kelvin (large insurer, emerging business focus) explained that insurers “need to go at a pace that the customer is used to. So radicalising technology before a market is ready for it is a wasted use of your energy”. Further, both the generally lower levels of social and economic development in South Africa that are associated with poor financial literacy and limited access to technology, and the older age profile of the intermediary force and dominant form of distribution were suggested to contribute to a lack of consumer readiness. Clark (medium insurer, established business focus) explained that “we can do exciting stuff on a computer and an iPad, but it seems that a lot of brokers still want paper”. Although valid as contributing considerations to a broader strategy, locking into these limited justifications as a means to avoid change alludes to a common linear and all-or-nothing view of technology and the opportunities facilitated by the 4IR that has inhibited leaders across the globe (Brynjolfsson & McAfee, 2015; Davis, 2016; Shook & Knickrehm, 2017). The power of the 4IR is not only found in the most advanced and radical technologies, but also in opportunities which are unlocked by the combinatorial effect of multiple smaller and less drastic technologies, and the transcendental value produced by true human-technology collaboration. The South African market may exhibit limiting features, but this does not negate the global trend of changing customer expectations as a result of advancements made across other industries (Catlin et al., 2018; Malherbe & Dixon, 2017) nor does it exclude the use of emerging technologies, ecosystems and human augmentation to improve the industry’s effectiveness at meeting its customers’ current and future needs.

5.3.2 LACK OF AGILITY

5.3.2.1 When probing the reasons for the industry's slow response to change, a pervasive lack of agility across the life insurance industry emerged from the data as the primary inhibitor, being cited by 11 interviewees. Lack of agility refers to an inability to respond quickly to business challenges and opportunities as they arise. Dan (large insurer, emerging business focus) expressed his overall sense of this across the life insurance industry by explaining that "there's lots of opportunity, but nobody is really grabbing the bull by the horns". So, although interviewees may underestimate the rate of change as discussed above, it is promising to note that they do recognise the need to operate with urgency and flexibility as suggested by the literature (Bose & Bastid, 2018; Christensen, 1997; Ismail et al., 2014; Reeves et al., 2015). A clear awareness of the need for agility coupled with a widespread inability to enact it indicates a deeper incongruence that must be uncovered and addressed to move forward.

5.3.2.2 Four characteristics emerged as key contributors to a lack of agility: structural inertia [cited by 8], cultural inertia [5], risk aversion [5] and execution ability [6]. Frank (large insurer, established business focus) highlighted how structural inertia inhibits progress whereby "quite often we are trying so hard just to keep the wheels turning in the current world, that it's hard to imagine what the future world is going to look like". In describing why his organisation struggles with innovation, Hugo (large insurer, emerging business focus) explained that this is "because of the dual forces of the antiquated systems and the cultures in which they operate", and thereby linking the often times coordinating forces of structural and cultural inertia. Alluding to both cultural inertia and how this is reinforced by vested interests from individuals excelling in the current operating environment, Dan (large insurer, emerging business focus) warned that, "you end up with a lot of stone throwers – people who will try and take this thing down because it's a threat to what they're doing". These anecdotes dovetail closely with the work of Tushman and O'Reilly (1996) who describe how the success syndrome creates structural and cultural inertia within an organisation which serves to reinforce the existing way of operating and limit organisations from accessing the means to operate differently.

5.3.2.3 Risk aversion refers to a resistance to undertake activities that are associated with risk or uncertainty. Although risk aversion converges comfortably with efficiency, optimisation and business-as-usual type activities, this mindset runs counter to the future-looking and variance-increasing activities associated with exploration and innovation (Adler et al., 2009; Dorado, 2002; Smith et al., 2010). Four interviewees linked this aversion to a dominant actuarial mindset within the industry. Frank (large insurer, established business focus) indicated that this presents a significant barrier to change, giving an example of his perception of a typical response from an actuary as, "I'm not going to do anything until I have 20 years of experience behind me that proves this". This was described by Hugo (large insurer, emerging business focus) as "that

rational, highly cynical actuarial mindset”. Although risk aversion and fear of change are prevalent across persons and industries, the life insurance industry demonstrates a particular bias as a result of the prevalence of actuaries in leadership or other influential positions. This bias is considered by a third of interviewees to accentuate risk aversion and hence thwart the industry’s ability to respond to change. An established belief that actuaries are either unable to grasp the changing risk profile introduced by the 4IR, or show a bias towards general risk avoidance is a concerning finding for a profession whose value is derived from their distinctive ability to assess, understand and manage risk.

5.3.2.4 As was demonstrated in the case of Kodak, an awareness of change does not necessarily equate to effective responsiveness (Reeves et al., 2015). Although the insurance industry recognises the need for agility, six interviewees identified a concerning inability to execute and complete projects or plans. Clark (medium insurer, established business focus) noted that the insurance industry is generally not short of analyses and new ideas, but that “innovation is only 20 percent of the problem, execution is the other 80 percent”.

5.3.2.5 In addition to the importance of agility as a general capability encouraged by innovation literature, it is particularly important for the local insurance industry who have largely chosen to adopt a transitional strategy in response to the 4IR. This involves maintaining a focus on the core business whilst innovating at the fringe with the intention of scaling quickly where a viable opportunity presents itself. The strategy is logical; however, it is only realistically achievable where agility is present. Without this capability to quickly action change, the transitional strategy becomes a non-starter and the precarious position of incumbent insurers becomes even more concerning.

5.3.3 PARTNERSHIPS HANDICAPS

5.3.3.1 Although leveraging partnerships was recognised by two thirds of interviewees as a fundamental means to succeed in the 4IR, interviewees struggled with enactment of this objective. Three themes emerged as primary drivers for this dissonance: lack of trust, a strong protectionist attitude and the tone set by leadership. Half of the interviewees observed that a lack of trust across the industry limits insurers’ ability to respond to challenge and opportunities. Intriguingly, trust impacts the industry in two distinct but connected dimensions. The first is an outward-looking and well-documented lack of trust that insurers experience from customers and potential customers (Kesterson-Townes, 2015; Malherbe & Dixon, 2017; Swiss Re, 2017), with Frank (large insurer, established business focus), explaining that “people are not particularly trusting of insurers because they don’t understand what they do – ‘how is it possible that I give you R200 a month and you give me R2mil?’ It sounds shaky”. The second is an inward-looking lack of trust that relates to the hesitance of industry players to cultivate trust among partners, and thereby inhibits the formation

and fruition of enabling partnerships. This second dimension of trust is rooted in the first in that it is the precarious relationship with customers and the fear of further weakening it that makes failure particularly unpalatable.

5.3.3.2 A corporate protectionist attitude was raised by five interviewees and appears to reinforce the inward-looking lack of trust. John (large insurer, established business focus) explained that “in a corporate environment, we’re being schooled to think that if you don’t protect your IP [Intellectual Property], someone will steal it”. Hugo (large insurer, emerging business focus) expands on this by explaining that, “the corporate mindset is zero-sum – they focus on making sure that they don’t get done in, and they get that little bit more than you do”. Bose and Bastid (2018) specifically note the importance of developing “win-win partnerships” (p. 5). A pervasive lack of trust bolstered by a protectionist attitude hamper the development of partnerships in the insurance industry through a hesitance to trust partners and relinquish control for fear of being undermined. In spite of the underlying motivation to protect trust, this behaviour further threatens customer trust and leads to a focus on short-term value maximisation at the expense of longer-term learning and sustained value-creation.

5.3.3.3 Finally, the enactment of a partnership mindset was linked to the tone set by leadership, whereby leaders seek to drive change through partnering with others, internally and externally, rather than assuming an isolated position of power. Ewan (large insurer, established business focus) presented confidence in his leadership team to adopt a partnership mindset, “I’ve got huge confidence from a leadership perspective. I think they’re onto the right issues, they are investing the right amount of resources into it and they are leveraging the right clout internationally in terms of partnerships including the giants of technology who we’re chosen as global partners”. Conversely, Dan (large insurer, emerging business focus) explained his experience in organisations struggling to embrace a partnership mindset, particularly with regard to fintech, “people need to stop seeing fintech as such a threat, but see them as an enabler or a potential partner”. Although leadership credence was noted as important to supporting a partnership mindset, it was felt to be inconsistently enacted across represented organisations. The inconsistency between acknowledging a need for partnerships to access external expertise and a resistance to commit to such partnerships fully and openly is likely to further inhibit the industry’s ability to respond to its changing environment.

6. CONCLUSION AND KEY FINDINGS

6.1 The insurance industry has remained remarkably resilient throughout the early diffusion of the 4IR, but this has been largely as a result of industry protection mechanisms and other idiosyncrasies of the industry rather than through the success of the transitional strategy that is widely followed by industry players. As the 4IR gains

momentum, the effectiveness of these mechanisms and idiosyncrasies will be eroded and adaptableness of the industry will be put to the test. Researchers offer numerous tools and models to support change and advancement, but without the right beliefs and capabilities at their foundation, most strategies are likely to fall short. This research sought to uncover those fundamental and existing beliefs and capabilities that might be amplified to support insurers on their 4IR journey, as well as those that serve to undermine this journey and need to be curtailed. This provides a foundation on which to build an effective transformation strategy going forward.

6.2 The insurance industry demonstrated a range of enabling, inhibiting and sometimes contradictory beliefs and capabilities. Those that provide a guiding beacon are: a desire to leverage the emerging ecosystem framework and engage with partners, capitalising on the powerful influence of leadership to initiate and reinforce change across the industry and recognising the importance of people as distinct from technology, and cultivating the required skills through a top-down mindset of continuous learning. Conversely, a number of beliefs and capabilities play an inhibiting role in the 4IR journey: the illusion of time and a lack of urgency, a pervasive lack of agility and a distrusting and protectionist attitude that hampers the ability to achieve the full benefit from potential partnerships that contradicts the underlying desire to tap into the emerging ecosystem.

7. IMPLICATIONS AND RECOMMENDATIONS

7.1 From intention to action

7.1.1 All represented organisations have adopted some form of a ‘wait-and-see’ strategy in response to the 4IR. Half of interviewees ascribe this to an intentional and carefully considered transitional strategy. However, the success of this strategy rests on an ability to act quickly, and yet the vast majority of interviewees admit that agility continues to evade the life insurance industry. These strategies have been falsely validated in the past through continued resilience of the industry in the face of change, since the source of the resilience – industry protection mechanisms and other idiosyncrasies – are largely sustained externally. More concerningly, these mechanisms are being eroded and it is only a matter of time before the adopted strategies are truly tested.

7.1.2 In order to successfully action the transitional strategy, insurers need to cultivate agility and remove the barriers that continue to inhibit this capability. This includes an honest and severe review of the structures, systems and processes as well as the narratives, attitudes and behaviours that continue to sustain a backward-looking way of operating. In addition, insurance leaders as well as the influential actuarial community, need to reassess their appetite for risk within the new paradigm. This does not suggest extravagant and unnecessary pursuit of risk, but rather requires leaders to shift their organisations along the risk appetite spectrum to a point of stability that is better suited to the changing context in which they exist. Actuaries must question whether their

skillset is keeping pace with the changing risk profile that they need to contend with and, importantly, whether their training has embedded an unbalanced aversion to risk. Finally, insurers need to challenge the execution gap. Onerous compliance, regulation and decision protocols provide a real barrier, but leaders might look to overcome these by actively identifying and rewarding those that are able to surmount the execution gap and learning from their experiences to identify extrapolatable solutions.

7.2 The time is now

Identifying the time to act is a long-standing leadership challenge. Too late and the organisation risks being disrupted; too soon and it risks losing its position and profitability in the existing market without sufficient upside emerging from the new opportunity to sustain it. This question lies at the root of the innovation paradox and the innovator's dilemma and has led to the downfall of countless organisations. Leading thinkers in innovation and strategy have shown the importance of leading proactive punctuated change and the detrimental impact of deferring change and being forced to respond reactively and sub-optimally. A lack of market readiness is a valid consideration but is potentially a pretext that insurers are able to use to justify a lack of urgency. As technological capabilities expand, value chains disaggregate and ecosystems emerge, industry protective mechanisms will fade. Arguably these mechanisms have allowed insurers to become sluggish and comfortable with squeezing returns from their antiquated profit streams. The change is upon us and, particularly given the industry's challenge with agility, requires action now. The responsibility for finding a way to balance the old and the new world lies firmly with leadership.

7.3 Set the right tone from the top

7.3.1 Meeting this next wave of creative destruction requires leaders of the insurance industry to promote a dual focus, prioritising the needs of existing and emerging businesses not by the current profit stream or certainty of outcomes, but by the part that each can play in sustaining the industry into the long term. The existing business cannot be forgotten – this will provide the fuel to carry the organisation to its next milestone – but this cannot be prioritised ahead of activities that offer the means to ensuring future relevance. Balancing the diverse and often conflicting needs of established and emerging businesses is an exceptional skill and one that runs counter to decades of leadership literature that prize consistency, stability and zero-sum thinking. It is not possible to expect every person in an organisation to manage this paradox and it therefore rests with those that are most influential in guiding the industry and navigating the 4IR: executive leadership.

7.3.2 Consequently, as prominent influencers, the actuarial profession has an opportunity to meaningfully shape the industry's transformation. Developing dynamic capabilities requires intentional effort, continuous learning and active engagement to maintain it. Leaders that belong to the actuarial profession and have transitioned to

the outcomes-based CPD framework are at an advantage in that continuous learning is already baked into their professional ethos. A recommendation would be for actuarial leaders to dedicate a portion of their CPD training to specifically develop and hone their dynamic capabilities and potentially to build industry forums or other such outlets to further this endeavour at a broader level.

7.4 Leverage the power of partnerships

For an industry that recognises that it does not have all the answers, the emergence of ecosystems provides a powerful means to learn and adapt. Partnering with ecosystem players enables experimentation in carefully confined facets of the business where risk is minimised or shared and therefore supports a sense of freedom and creativity essential for effective exploration and innovation activity. Industry players recognise this opportunity and are eager to embrace it. However fully leveraging this framework requires a true partnership mindset and a shift away from the zero-sum thinking and protectionist beliefs that lurk across the industry. The root of these stubborn beliefs that deny fulfilment of the stated intentions and aspirations is a lack of trust that is deeply woven into the fabric of the life insurance industry: both an outward-looking lack of trust from customers and the knock-on inward-looking lack of risk for others, and severe risk aversion that inhibits insurers from developing win-win relationships. Proactive action needs to be taken. Insurers must acknowledge this inhibitor and invest time and energy to find comfort with the adoption of a partnership mindset. This may mean finding means to be more open with collaborators, potentially by incorporating legal protections, as well as accepting a focus on future growth potential by forgoing an obsession with short term value extraction and maximisation. As with cultivating dynamic capabilities, leadership can play a significantly enabling role at the helm of reimagining partnership dynamics and are encouraged to focus efforts on correcting this deficiency.

7.5 Strengthen the foundations

7.5.1 The 4IR is a complex and multi-faceted beast, and it is easy to ascribe a limited view of it as the emergence of topical technologies like the Internet of Things, machine learning, cloud computing, and so on. Far more than this, realisation of the full promise of the 4IR is a transformed way of life whereby humans are able to expand their potential and impact through human-technology collaboration. Technology can only go so far in isolation. Grasping the full benefit of the changing context requires that humans remain at the cutting-edge of this revolution. Organisations that are able to appreciate the foundational importance of people in their 4IR strategies will undoubtedly outperform their peers. The initial recognition of the power and need for the right people is clearly present in the insurance industry and provides an advantageous point of departure. The insight currently missing is that the right people are already in organisations and searching externally for experts will only fill a very small part of the gap. The solution is a large-scale remodelling of our attitudes

towards skills at all levels of the organisation. Ensuring that the life insurance industry remains relevant requires that its actors remain relevant themselves. The increasing rate of change associated with the 4IR and the resulting continuously evolving needs of businesses means that learning can never be completed and needs to become a continuous ambition. Organisations should begin to instil this continuous learning mindset within their businesses. The sooner this transition is made, the sooner organisations will be able to vault the skills gap and forge the path towards sustained success.

7.5.2 The spotlight shines even more brightly on the life insurance industry's foremost profession. Actuaries, particularly those in leadership positions, operate from a position of particular influence and yet the actuarial mindset is perceived to thwart the industry's ability to change. This raises uncomfortable questions about the profession's ability to sustain the relevance of its members' skillsets within the current and future business environment. Gone are the days where a professional qualification was enough to secure one's future in the working world. A successful transition through the 4IR requires that every organisation and every individual within the organisation continuously monitor their skillset against the evolving skillset required, and take intentional steps towards aligning these. The ASSA's intent to address this is clearly evidenced by an emerging outcomes-based CPD programme which aligns well with the continuous learning mindset. However, the onus of enactment rests on the shoulders of each of its members, who ultimately determine where to allocate their learning efforts. A key recommendation emerging from this research, for both actuaries and broader industry actors, is to not only embrace the continuous learning mindset but take intentional and carefully considered steps to enact it.

7.5.3 The secondary benefits of this transition towards continuous learning are also not to be ignored – with employees increasingly looking to employers to provide opportunities for growth and development, and Millennials and Generation Z's in particular favouring organisations that offer synchronicity with their own technology infused lives.

REFERENCES

- Actuarial Society of South Africa (2012). Code of professional conduct. Actuarial Society of South Africa.
- Actuarial Society of South Africa (2018). Member statistics. Data File. Retrieved from location: Member Services
- Adler, PS, Benner, M, James, D, Paul, J, Osono, E, Staats, BR, ... Tushman, ML (2009). Perspectives on the productivity dilemma. *Journal of Operations Management*, 27, 99–113. <https://doi.org/10.1016/j.jom.2009.01.004>
- Anthony, SD, Gilbert, CG & Johnson, MW (2017). *Dual transformation: How to reposition today's business and create the future*. Boston, MA: Harvard Business Review Press.
- Anthony, SD, Viguierie, P, Schwartz, EI & Van Landeghem, J (2018). 2018 Corporate longevity forecast: Creative destruction is accelerating. Lexington, MA: Innosight. Retrieved from <https://www.innosight.com/insight/creative-destruction/>
- Baghai, M, Coley, S & White, D (1999). *The alchemy of growth*. New York, NY: Perseus Publishing.
- Bender, M & Willmott, P (2017). Digital Reinvention. McKinsey & Company. Retrieved from <https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/digital-reinvention>
- Bose, A & Bastid, V (2018). World insurance report 2018. Capgemini, Efma. Retrieved from <https://worldinsurancereport.com/resources/world-insurance-report-2018/>
- Brown, BZ (2018, May 4). It's a great time to be an actuary. *Actuarial Review*. Retrieved from <https://ar.casact.org/its-a-great-time-to-be-an-actuary/>
- Brynjolfsson, E & McAfee, A (2015). The great decoupling. *Harvard Business Review*, (June), 66–75. Retrieved from <https://hbr.org/2015/06/the-great-decoupling>
- Bughin, J, Catlin, T, Hirt, M & Willmott, P (2018). Why digital strategies fail. *McKinsey Quarterly*. Retrieved from <https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/why-digital-strategies-fail>
- Bughin, J, Laberge, L & Mellbye, A (2017). The case for digital reinvention. McKinsey & Company. Retrieved from <https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/the-case-for-digital-reinvention>
- Camarate, J, Smit, V, Van Rooyen, R & Chimbuya, A (2017). Life insurance in the digital age: The omnichannel revolution. PwC. Retrieved from <https://www.pwc.co.za/en/publications/strategy-and.html>
- Casadesus-Masanell, R (2014). *Introduction to strategy*. Boston, MA: Harvard Business Publishing.
- Casualty Actuarial Society (2019). Actuaries in c-suite positions at 7 June 2019. Data File. Retrieved from location: CAS Executive Director
- Catlin, T & Lorenz, J-T (2017). Digital disruption in insurance: Cutting through the noise. McKinsey & Company. Retrieved from <https://www.mckinsey.com/industries/financial-services/our-insights/digital-insurance>

- Catlin, T, Lorenz, J, Nandan, J, Sharma, S & Waschto, A (2018). Insurance beyond digital: The rise of ecosystems and platforms. McKinsey & Company. Retrieved from <https://www.mckinsey.com/industries/financial-services/our-insights/insurance-beyond-digital-the-rise-of-ecosystems-and-platforms>
- Christensen, CM (1997). *The innovator's dilemma: When new technologies cause great firms to fail*. Boston, MA: Harvard Business School Press.
- Christensen, CM & Overdorf, M (2000). Meeting the challenge of disruptive change. *Harvard Business Review*, (March–April), 66–76. Retrieved from <https://hbr.org/2000/03/meeting-the-challenge-of-disruptive-change>
- Creswell, JW (2013). *Qualitative inquiry and research design: Choosing among five approaches* (3rd ed.). Thousand Oaks, CA: Sage.
- Curran, C, Garrett, D & Puthiyamadam, T (2017). A decade of digital – keeping pace with transformation. 2017 global digital IQ survey: 10th anniversary edition. PwC. Retrieved from <https://www.pwc.com/us/en/advisory-services/digital-iq/assets/pwc-digital-iq-report.pdf>
- Daniels, L-A (2018, November 21). #Momentum's decision to pay R2.4m claim illustrates the power of social media. *IOL*. Retrieved from <https://www.iol.co.za/news/opinion/momentums-decision-to-pay-r24m-claim-illustrates-the-power-of-social-media-18207245>
- Davis, E (2016). People — not just machines — will power digital innovation. Keep challenging. Retrieved from <https://www.cognizant.com/futureofwork/whitepaper/people-not-just-machines-will-power-digital-innovation>
- Davis, E (2017). Relearning leadership in the second machine age. Teaneck, U.S.: Cognizant. Retrieved from <https://www.cognizant.com/futureofwork/article/relearning-leadership-in-the-second-machine-age>
- Dombrowski, U & Wagner, T (2014). Mental strain as field of action in the 4th industrial revolution. In *Procedia CIRP* (Vol. 17, pp. 100–105). Elsevier B.V. <https://doi.org/10.1016/j.procir.2014.01.077>
- Dorado, S (2002). Institutional entrepreneurship, partaking, and convening. *Organization Studies*, 26(3), 385–414. <https://doi.org/10.1177/0170840605050873>
- Gratton, L (2011). *The shift: The future of work is already here*. London, UK: Harper Collins.
- Gray, DE (2017). *Doing research in the business world* (J Seaman, ed.). London, UK: Sage.
- Guest, G, Bunce, A & Johnson, L (2006). How many interviews are enough? An experiment with data saturation and variability. *Family Health International*, 18(1), 59–82. <https://doi.org/10.1177/1525822X05279903>
- Gulati, R, Puranam, P & Tushman, ML (2012). Meta-organization design: Rethinking design in interorganizational and community contexts. *Strategic Management Journal*, 33(6), 571–586. <https://doi.org/10.1002/smj.1975>
- Institute and Faculty of Actuaries (2019). About life. Retrieved June 21, 2019, from <https://www.actuaries.org.uk/practice-areas/life/about-life>
- Ismail, S, Malone, MS & van Geest, Y (2014). *Exponential organizations: Why new organizations are ten times better, faster, and cheaper than yours (and what to do about it)*. New York, NY: Diversion Books.

- Jewell, D & Thomson, A (2014). The changing role of actuaries in life insurance. In 2014 Actuarial Society Convention. Cape Town, SA.
- Kane, GC, Palmer, D, Phillips, AN, Kiron, D & Buckley, N (2015). Strategy, not technology, drives digital transformation: Becoming a digitally mature enterprise. *MIT Sloan Management Review* (Vol. July). Retrieved from <https://sloanreview.mit.edu/projects/strategy-drives-digital-transformation/>
- Kashyap, M, Davies, S & Garfinkel, H (2017). Redrawing the lines: FinTech's growing influence on financial services. PwC. Retrieved from <https://www.pwc.com/gx/en/industries/financial-services/fintech-survey/report.html>
- Kesterson-Townes, L (2015, September 22). Do you trust your insurance company? IBM Watson Customer Engagement. Retrieved from <https://www.ibm.com/blogs/watson-customer-engagement/2015/09/22/do-you-trust-your-insurance-company/>
- Khumalo, S (2018, November 19). Momentum sticks to its guns despite outrage over R2.4m life policy claim. *Fin24*. Retrieved from <https://www.fin24.com/Companies/Financial-Services/momentum-we-rejected-r24m-life-insurance-claim-for-the-sake-of-our-other-clients-20181119>
- King, N & Brooks, JM (2017). *Template analysis for business and management students*. (D Martinez-Alfonso, ed.). London, UK: Sage.
- Kletzkine, J (2018, May 31). Digital transformation doesn't mean innovation. *Forbes*. Retrieved from <https://www.forbes.com/sites/startupnationcentral/2018/05/31/digital-transformation-doesnt-mean-innovation/#641506447c0f>
- Leedy, PD & Ormrod, JE (2016). *Practical research: Planning and design* (11th ed.). Essex, UK: Pearson Education Limited.
- Lowther, BMW & McMillan, WJ (2014). Authentic professional development: Key to quality service delivery. *South African Actuarial Journal*, pp. 1–18.
- Malherbe, A & Dixon, G (2017). The South African insurance industry survey 2017: Evolve. KPMG Inc. Retrieved from <https://home.kpmg/za/en/home/campaigns/2017/06/2017-south-africa-insurance-industry-survey.html>
- March, JG (1991). Exploration and exploitation in organisational learning. *Organizational Science*, 2(1), 71–87. <https://doi.org/1047-7039/91/0201/0071>
- Modise, K (2018, November 22). Insurance ombud stands by ruling in Denise Ganas claim. EWN. Retrieved from <https://ewn.co.za/2018/11/22/long-term-insurance-ombud-laws-around-non-disclosure-need-to-be-relooked>
- Newman, D (2017, February 16). Innovation vs. transformation: The difference in a digital world. *Forbes*. Retrieved from <https://www.forbes.com/sites/danielnewman/2017/02/16/innovation-vs-transformation-the-difference-in-a-digital-world/#7af257d265e8>
- O'Brien, CD, Gallagher, GA, Green, RJ, Hughes, DW, Liang, F, Robinson, SA, ... Tay, AJW (2016). The roles of actuaries in UK life offices: Changes and challenges. *British Actuarial Journal*, 21(1), 134–164.
- O'Reilly, CA & Tushman, ML (2004, April). The ambidextrous organization. *Harvard Business Review*. Retrieved from <https://hbr.org/2004/04/the-ambidextrous-organization>

- O'Reilly, CA & Tushman, ML (2008). Ambidexterity as a dynamic capability: Resolving the innovator's dilemma. *Organizational Behavior*, 28, 185–206. <https://doi.org/10.1016/j.riob.2008.06.002>
- O'Reilly, CA & Tushman, ML (2011). Organizational ambidexterity in action: How managers explore and exploit. *California Management Review*, 53(4), 5–22. <https://doi.org/10.1525/cm.2011.53.4.5>
- O'Reilly, CA & Tushman, ML (2013). Organizational ambidexterity: Past, present and future. *Academy of Management Perspectives*, 27(4), 324–338. <https://doi.org/10.5465/amp.2013.0025>
- Porter, ME (1996). What is strategy? *Harvard Business Review*, 61–78. Retrieved from <https://hbr.org/1996/11/what-is-strategy>
- Quinlan, C, Babin, B, Carr, J, Griffin, M & Zikmund, WG (2015). *Business research methods*. (J Grene, ed.) (1st ed.). Andover, UK: Cengage Learning EMEA.
- Raisch, S, Birkinshaw, J, Probst, G & Tushman, ML (2009). Organizational ambidexterity: Balancing exploitation and exploration for sustained performance. *Organizational Science*, 20(4), 685–695. <https://doi.org/10.1287/orsc.1090.0428>
- Reeves, M, Hannaes, K & Sinha, J (2015). *Your strategy needs a strategy: How to choose and execute the right approach*. Boston, MA: Harvard Business Review Press.
- Reeves, M, Love, C & Tillmanns, P (2012, September). Your strategy needs a strategy. *Harvard Business Review*, (September). Retrieved from <https://hbr.org/2012/09/your-strategy-needs-a-strategy>
- Schwab, K (2016a). *The Fourth Industrial Revolution*. Geneva, Switzerland: World Economic Forum.
- Schwab, K (2016b, January 13). The Fourth Industrial Revolution: what it means, how to respond. World Economic Forum. Retrieved from <https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond>
- Schwab, K (2019). Foreword. *Journal of International Affairs*, 72(1), 13–16. Retrieved from <https://www.jstor.org/stable/26588338>
- Shi, P, Balasubramanian, R & Wilms, H (2016). Harnessing the power of digital in life insurance. Retrieved from <https://www.mckinsey.com/industries/financial-services/our-insights/harnessing-the-power-of-digital-in-life-insurance>
- Shook, E & Knickrehm, M (2017). Harnessing revolution: Creating the future workforce. Accenture. Retrieved from <https://www.accenture.com/za-en/insight-future-workforce-today>
- Sinha, S (2016). Managing an ambidextrous organization: Balancing innovation and efficiency. *Strategic Direction*, 32(10), 35–37. <https://doi.org/10.1108/SD-05-2016-0061>
- Smith, WK, Binns, A & Tushman, ML (2010). Complex business models: Managing strategic paradoxes simultaneously. *Long Range Planning*, 43(2–3), 448–461. <https://doi.org/10.1016/j.lrp.2009.12.003>
- Smith, WK, Lewis, MW & Tushman, ML (2016, May). “Both/And” leadership: Don't worry so much about being consistent. *Harvard Business Review*. Retrieved from <https://hbr.org/2016/05/both-and-leadership>

- Spelman, M & Weinelt, B (2018). Digital transformation initiative. Retrieved from <http://reports.weforum.org/digital-transformation>
- Stefan, M (2010). Careers: Breaking the actuarial ceiling. *The Actuary*. Retrieved from <https://www.theactuary.com/archive/old-articles/part-6/careers-3A-breaking-the-actuarial-ceiling/>
- Swiss Re (2017). Insurance: Adding value to development in emerging markets. Zurich, Switzerland: Swiss Re Management Ltd. Retrieved from http://media.swissre.com/documents/sigma4_2017_en.pdf
- Tidd, J, Bessant, J & Pavitt, K (2005). *Managing innovation: Integrating technological, market and organizational change (Third)*. London, UK: John Wiley & Sons.
- Tushman, ML (2017). Innovation streams and executive leadership. *Research-Technology Management*, 60(6), 42–47. <https://doi.org/10.1080/08956308.2017.1373050>
- Tushman, ML & Euchner, J (2015). The challenges of ambidextrous leadership: An interview with Michael Tushman. *Research-Technology Management*, 58(3), 16–20.
- Tushman, ML & O'Reilly, CA (1996). Ambidextrous organizations: Managing evolutionary and revolutionary change. *California Management Review*, 38(4), 8–30. <https://doi.org/10.2307/41165852>
- Tushman, ML, O'Reilly, CA & Harreld, B (2015). Leading proactive punctuated change: An organizational perspective. In R Henderson, R Gulati & ML Tushman (eds.), *Leading sustainable change* (pp. 249–270). London, UK: Oxford University Press.
- Violante, GL (2008). Skill-biased technical change. In S Durlauf & L Blume (eds.), *The New Palgrave Dictionary of Economics* (2nd ed., pp. 1–6). New York, NY: Palgrave Macmillan. https://doi.org/10.1057/978-1-349-95121-5_2388-1
- Willmott, P & Jose, CS (2015, June). Raise your digital quotient. *McKinsey Quarterly*, (3), 30–43. Retrieved from <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/raising-your-digital-quotient>