INTEGRATING DEEPER FUTURES STUDIES APPROACHES AND METHODOLOGIES FOR STRENGTHENING STRATEGIC PLANNING AND POLICY IN SOUTH AFRICA

Key Takeaways

1. This policy brief provides policymakers and planners with insights into futures studies approaches and methodologies, with the aim of equipping them with tools for better preparing for an uncertain future.

2. Futures studies is a process-based form of inquiry into alternative futures, in terms of what is probable, possible, preferable and plausible, with the aim of anticipating and influencing those futures. It is characterised as a transdisciplinary, transnational and multi-sectoral social science that combines creativity with empirical evidence and includes the analysis of worldviews and myths that underline different futures.

3. Integrating deeper futures approaches that go beyond “normal”, narrow predictions of the future has four broad benefits for supporting and improving strategic planning and policy processes:
   i. Extends time horizons and looks far ahead into the future;
   ii. Provides critical information and intelligence for improved decision making, while taking systemic complexity and second and third order consequences into account;
   iii. Supports policy implementation through embedding participation into policymaking; and
   iv. Creates new capabilities by reconfiguring policy processes to better address long-term, complex and uncertain challenges and opportunities.

4. South African policymakers and planners are encouraged to integrate a deeper futures approach into their strategic planning and policy processes. Understanding the broader context, considering alternative cultural and worldviews, and integrating more imaginative solutions will strengthen strategic plans and policies, making them more resilient and flexible in an increasingly unpredictable future.

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“Both (futures and policy) are idealistic activities seeking to make people’s futures more secure and more fulfilling. Many futurists wish that their dreams could be implemented, and many planners dream that their work could be less short sighted and parochial. If only to fulfil these needs, these groups should pay more attention to each other.” Cole (2007, p. 372)
INTRODUCTION

The world is moving into uncharted territory. Climate change and technological disruptions will contribute to the uncertainty and complexity of future socio-economic, environmental and geo-political challenges. It is, therefore, critical that we deepen our understanding of not only the past and present but the future as well. Yet how do we prepare for the unknown – for black swan events? How can we strengthen national and sub-national plans and policies to deal with the ever increasing uncertainties of climate change and technological disruption? Can we go further than simply reacting to the future and in fact mould and define our own desirable futures?

Futures studies provides us with a means of addressing uncertainties of the future. It allows us to imagine, develop and create our own preferred futures that are beneficial for both people and the natural world. Futures studies provides policymakers and planners with a tool kit for strengthening and developing ever more flexible and resilient national and sub-national plans and policies to avoid turbulent and warmer waters.

Futures approaches and methodologies have the potential to support the implementation of strategic plans and policies (Schmidt, 2015; Van der Steen & Van Twist, 2013; van Dorsser, et al., 2018). Engaging critical stakeholders, understanding their assumptions, overcoming any differences or contestations, encouraging collaboration and creating shared ownership of strategic plans and policies can increase their effectiveness for delivering preferred futures (Gidley, 2016). This is especially important for South Africa – a country with a substantial policy implementation deficit; chronic unemployment, poverty and inequality; and one that is particularly vulnerability to the physical and socio-economic impacts of climate change and technology disruptions. Integrating deeper futures approaches into strategic planning and policy process to better understand, anticipate and influence these challenges could not come at a more critical time in South Africa’s history.

The following policy brief provides policymakers and planners with insight into futures studies approaches and methodologies. It discusses the benefits of greater futures studies integration into strategic planning and policy processes beyond the “normal” predictive-empirical based approach to the future already widely employed by planners and policymakers. This includes a review of various futures studies approaches and methodologies of relevance to strategic planning and policy development and analysis.

While many government organisations attempt to predict the future within planning and policy processes, these predictions tend to be limited to narrower, empirical forecasts. Such single-stream predictions are only one among several approaches within the field of futures studies and are almost always ineffective in the face of uncertainty (Schmidt, 2015; Van der Steen & Van Twist, 2013).

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1 “Black swan” events are highly improbable, unpredictable, unexpected and rare events that carry wide-spread and severe, society changing impacts and consequences (Taleb, 2007; Foden, 2007). The term “black swan” is a catch-all phrase for “outliers” - truly unexpected events or processes - such as 9/11 or the success of Google. The underlying probability of a black swan event occurring is essentially “mispriced” as if they were undervalued stocks. However, after the fact, we are quick to concoct an explanation that makes a black swan appear more predictable and less random than it actually was (Taleb, 2007; Foden, 2007).
Futures studies, therefore, has a great deal to offer South African planners and policy-makers who are encouraged to utilise and incorporate a deeper futures approach into their profession. In doing so, both national and sub-national plans and policies, and their implementation, will be strengthened in the face of uncertainty (Schmidt, 2015; Van der Steen & Van Twist, 2013; Cole, 2007; Battistella & Pillon, 2016; van Dorsser, et al., 2018).

FUTURES STUDIES

Futures studies, or futures research, is a process-based form of inquiry into alternative future possibilities (or futures) in terms of what is probable, possible, preferable and, most importantly, plausible, with the aim of anticipating and influencing those futures (Kubik, 2009; Schmidt, 2015; van Dorsser, et al., 2018). It is characterised as a transdisciplinary, transnational and multi-sectoral social science that includes the analysis of worldviews and myths that underline each possible future (Inayatullah, 2008; Gidley, et al., 2009; Bengston, et al., 2012; Schmidt, 2015).

A central principle of futures studies is the significance of exploring and anticipating multiple futures (Figure 1) using multiple approaches, rather than a singular future that is considered most likely (Bengston, et al., 2012; Saritas & Burmaoglu, 2015; WFSF, 2018). The plural term “futures” and “studies” is used to encourage and support this inherent pluralistic approach. It reflects the diversity of probable, possible, preferred and plausible futures and involves diverse groups of people, cultures and worldviews. Futures studies avoids the notion of only one future, which is politically and conceptually limited since the future is fundamentally uncertain (Bengston, et al., 2012; Saritas & Burmaoglu, 2015; WFSF, 2018; van Dorsser, et al., 2018). Figure 1 illustrates this concept of multiple futures and is referred to as the Futures Cone (van Dorsser, et al., 2018).

OPENING UP ALTERNATIVE FUTURES

Potential futures include everything beyond the present moment, since the future is undetermined and ‘open’.

Possible futures include futures that may or might happen and encapsulates everything we could possibly imagine, regardless of how unlikely they might be.

Plausible futures include futures that could happen based on our current knowledge and understanding of how the world works. An important ‘test’ for good futures work is plausibility.

Probable futures include futures that are likely to happen, based on the current situation, historical trends and extrapolation of those trends.

Projected futures are limited to a continuation of business-as-usual, or the past, and could be considered as the most probable of the Probable futures, if the future is assumed to be a continuation of the past.

Preferable futures include those that we desire or want to happen in the future.

Sourced from: Hancock and Bezold (1994); Habegger (2010); Gidley (2016) and van Dorsser et al. (2018)
Figure 1: The Futures Cone
Sourced from Van Dorsser et al. (2018, p. 6)

A common misconception is that futures studies is an attempt to predict the future based on the extrapolation of historical trends. This empirical or predictive approach is only one of five broad futures approaches (discussed on the following page), which can often underestimate uncertainty and complexity, and can provide a very narrow view of the future (illustrated by the thin narrow projection in the centre of Figure 1) (Inayatullah, 2008; WFSF, 2018; Gidley, et al., 2009; Schmidt, 2015).

Rather, futures research attempts to extend the boundaries of perception and move from the known into the unknown - where we know we do not know enough or little at all (Habegger, 2010; Recker, 2015). It is an attempt to understand, explain and anticipate the unknown – to build resilience against black swan events, rather than predict them, and take advantage of positive future opportunities. Recker (2015) explains that the best way to do so is to move from “known knowns” to “unknown unknowns”. This concept is illustrated in Figure 2 and provides a pathway for exploring what we cannot yet anticipate.

In this framework, research of the past is separated from research of the future (on the x-axis), effectively separating what we know from what we don’t know (Recker, 2015). Reactive research, which confirms known knowns and known unknowns (what we know we know and what we know we don’t know) is separated from proactive research (on the y-axis). Proactive research, which is required for exploring unknowns, helps us identify what we didn’t know we knew and what we don’t know that we don’t know (Recker, 2015). This last stage is indeed the most challenging to understand and anticipate but where we might find the most interesting findings. Futures studies provides a tool kit of methodologies and techniques that can assist us in moving from the known into the unknown.

Figure 2: Known knowns and unknown unknowns
Sourced from Recker (2015, p. 5)

However, futures studies is not without its limitations. Findings and conclusions can, at times, be laced with uncertainty since the various relationships within complex systems might not be fully reviewed or teased out. It may also not be “values-free” in that deliberations and questioning of the past, present and future are influenced by individual values, worldviews and culture (Gidley, et al., 2009).

For example, liberal environmentalists that value the natural environment are likely to place it at the top of their future(s) agenda, while conservative individuals might place personal security at the top of their future(s) agenda.
There is also a need to balance imagination with reality. On the one hand, futures studies could rely on too much imagination and creativity, losing touch with reality and thus credibility. On the other hand, however, futures studies can concentrate too much on historical trends and become swamped with empirical and data rich information, potentially ignoring black swan events (Cole, 2007; Inayatullah, 2008). Therefore, a balance between imagination and reality is required.

FIVE FUTURES APPROACHES

There are five broad futures epistemologies or approaches that provide a coherent analytical framework for better understanding how we approach studying the future(s) (Inayatullah, 2008; Gidley, et al., 2009; Bengston, et al., 2012; Gidley, 2016). These approaches are not mutually exclusive; neither should their numerical taxonomy imply linear development. Various futures studies methodologies employ these approaches in some way or another and in varying degrees, implying there are no hard and fast boundaries between the five approaches.

The five futures approaches summarized below should not be confused as being futures methodologies but rather be seen as a means of understanding futures studies and contextualising some of the strengths and weaknesses of different methodologies employed in futures studies. Policymakers and planners, for example, are encouraged to utilise methodologies that go beyond only a predictive-empirical approach (which generally make up the traditional future-facing elements of strategic planning and policy development and analysis) to those encapsulating more of the other futures approaches.

THE PREDICTIVE-EMPIRICAL APPROACH

Futures methodologies that take a more predictive-empirical approach focus on predicting the most “probable future” based on empirical and historical trends (Inayatullah, 2008; Schmidt, 2015; Gidley, 2016). Methodologies such as linear forecasting, regression models, econometrics and factor analysis utilise a stronger predictive-empirical approach (Inayatullah, 2008). Here, empirical data and information are highly valued, since the more information or data one has, the more accurate one’s predictions tend to be.
Language is also considered to be neutral, in that it serves only to describe reality objectively and provides a link between data and theory without necessarily being policy prescriptive (Inayatullah, 2008; Gidley, et al., 2009; Gidley, 2016).

A strength of more predictive-empirical based methodologies is their assumption that the future can be known based on what has occurred in the past, giving it perceived objectivity and neutrality. For example, we can use more predictive-empirical based methodologies to fairly accurately measure and model rising global temperatures and their impacts around the world. We can also measure the difference between a 1.5°C and a 2°C average global temperature change using more predictive-empirical based methodologies (IPCC, 2014; IPCC, 2018).

However, methodologies that take a stronger predictive-empirical approach can suffer from an overly narrow focus and lack of contextual awareness (Gidley, 2016). For example, the negative impacts on oil prices caused by the recent outbreak of the coronavirus (COVID-19) in China might be perceived by the oil industry as a black swan event (Rapier, 2020). However, oil markets have seen virus-induced demand impacts before, such as the SARS outbreak in 2003 (Rapier, 2020). In contrast, understanding the COVID-19 outbreak from a world health context would suggest that such an outbreak is more of a gray rhino than a black swan event. The threat of new virus or disease outbreaks across the world in the medium- to long-term are not mere possibilities, they are very real threats, often ignored by the international community. The only real uncertainty is when and where such outbreaks will occur (WHO, 2018).

The same argument can be made for the devastating wildfires in Australia in that they were gray rhino events, rather than black swan events — the largely ignored threat of climate change is well-known to bring about higher temperatures, more intense droughts, and stronger winds thereby increasing the plausibility of such devastating fires across the world.

Predictive-empirical based futures methodologies can also be disempowering in a sense that they imply trends are inescapable — that one cannot escape the negative trend of gray rhino events like climate change, or take advantage of any beneficial opportunities they might present. Therefore, going beyond predictive-empirical based futures methodologies is critical for opening up alternative futures, understanding different contexts addressing gray rhinos and better preparing for black swans.

**THE CRITICAL-POSTMODERN APPROACH**

Rather than purely focusing on predicating the future, methodologies that take a stronger critical-postmodern approach also attempt to disrupt the future through questioning units of measurement, deconstructing the past, and distancing from the present to open-up alternative futures (Inayatullah, 2008; Gidley, 2016). When applying this approach to carbon prices, for example, the notion of pricing environmental goods and services, or natural capital accounting\(^3\), itself should be questioned. That is, to question them both as a neoliberal economic concept and in terms of how different civilisations or cultures understand and value environmental goods and services, including pollution, such as GHG emissions (Inayatullah, 2008).

Natural capital accounting and carbon pricing, for example, aim to measure and value (in monetary terms) natural capital; ecosystem goods and services and/or pollution (SANBI & Stats SA, 2018). Simply put, the idea behind this is to translate the conservation of these goods and services into a language that

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\(^{2}\) Gray rhinos are highly probable events or processes that carry wide-ranging and severe impacts, but which are often neglected (Wucker, 2016). Gray rhinos are somewhere in between the “elephant in the room” and the unpredictable “black swan”. They are not random, surprise events, but can carry a large body of evidence and occur after a series of warnings. Climate change, for example, can be considered a gray rhino (Wucker, 2016).

\(^{3}\) Natural capital accounting "refers to the use of an accounting framework to provide a systematic way to measure and report on stocks and flows of natural capital, analogous to accounts for other forms of capital. It is a broad term that includes accounting for individual environmental assets or resources, both biotic and abiotic (such as water, minerals, energy, timber, fish), as well as accounting for ecosystem assets and ecosystem services (SANBI & Stats SA, 2018, p. 3).
policymakers, CEOs and economists understand (Büscher & Fletcher, 2016). However, this concept has been criticised for putting nature to work for capitalist growth and its fundamental flaw of comparing the limitlessness of money to the limits of natural capital (Büscher & Fletcher, 2016).

Methodologies that utilise a more critical-postmodern approach also attempt to deconstruct the past to identify and understand how a particular discourse, and therefore a particular future, became dominant within a certain political context (Inayatullah, 2008). For example, one must deconstruct the past to understand how neoliberal economics was established as the authoritative economic discourse of the twenty-first century. This can then allow for a broader range of alternative futures to be identified (Inayatullah, 2008; Gidley, 2016). For example, how might an alternative economic discourse, whatever that might be, treat or value natural capital and GHG emissions to combat climate change in the future?

Finally, understanding that the present is a fragile outcome of particular past events, distancing transforms a scenario analysis, for example, from a forecast into a critique of the present, giving rise to a variety of alternative futures (Inayatullah, 2008; Cole, 2007; Gidley, 2016). Distancing can be achieved through visualising utopias or absolutes, for example.

Questioning, deconstructing and distancing are considered some of the strengths among methodologies that utilise a stronger critical-postmodern approach. However, such methodologies can potentially be highly subjective, influenced by an individual’s worldview and can lead to excessive relativism – arguably a weakness of this approach (Gidley, et al., 2009; Gidley, 2016).

THE CULTURAL-INTERPRETIVE APPROACH

Methodologies that utilise more of a cultural-interpretive approach evolved, somewhat, by questioning the future(s) from the non-Western cultures’ understandings of the future to evoke a deeper understanding and consideration of alternative futures (Gidley, 2016; Inayatullah, 2008). Applying different national, cultural, ethnic or gender lenses over images of the future(s) allows one to develop insight into different and alternative futures, outside of dominant Western or male dominated discourses (Inayatullah, 2008).

For example, we can apply a gender lens to the climate crisis to open up the future(s) of climate change and better understand climate challenges (and potential solutions) from a different point of view. We can do the same with different cultural lenses as Crona et al. (2013) did in their cross-cultural analysis of climate change. They investigated different cultures from six different countries to see if there were any differences in how those cultures perceived climate change. The study found that climate change is recognised cross-culturally, suggesting the emergence of a ‘global cross-culture mental model’ on climate change. Such cultural analyses allow us to better understand how different cultures perceive and understand climate change (Crona, et al., 2013). The pervasive nature of climate change and the increasingly important need for mitigation makes such cross-culture analyses critical for effectively combatting climate change (Crona, et al., 2013).
Methodologies that follow a cultural-interpretive approach are considered relatively less technical compared to other futures methodologies and rely on mythology and metaphors as much as mathematics. Images and visions of the future are generally central to more cultural-interpretative based methodologies, along with structures of different social relations (Inayatullah, 2008). Allowing for creativity and examination of multiple social perspectives is considered to be a strength of cultural-interpretive based methodologies, yet they can, at times, lack feasibility and/or plausibility (Gidley, et al., 2009; Gidley, 2016).

THE PARTICIPATORY OR EMPOWERMENT-ACTIVIST APPROACH

Futures methodologies that follow a more participatory or empowerment-activist approach generally seek to empower and transform through engagement with, and participation by key stakeholders. In short, such methodologies attempt to constructprobable, possible, preferred and plausible futures based on different stakeholders' views and opinions (Inayatullah, 2008; Gidley, 2016).

As the name suggests, methodologies that follow this approach look to enable participatory policy and strategic planning development and can facilitate shared ownership for the implementation of policies, strategies and plans (Gidley, 2016). This is particularly important in developing countries where there is a significant implementation gap on account of limited institutional capacity.

Stakeholder participation can improve awareness and understanding of emerging trends, issues, developments, other stakeholder assumptions and points of contestation and/or agreement. In doing so, participatory based methodologies can facilitate mutual-learning, collective visioning and collective decision-making and action (Saritas & Burmaoğlu, 2015). Engaging stakeholders in research and empowering them to question, deconstruct, develop and act on alternative futures is often cited as a strength of participatory based methodologies. However, some participatory methodologies do not always allow for empirical research to compliment stakeholder knowledge, or vice versa, which may compromise its legitimacy (Gidley, et al., 2009; Gidley, 2016). This highlights the need to employ methodologies that utilise and balance different futures approaches to best suit a particular investigation.

THE PARTICIPATORY FUTURES APPROACH IN ACTION

The participatory futures approach has seen successful application in climate-vulnerable, rural farming communities in Australia. Communities in the Hamilton region of Victoria were engaged in a collaborative scenario writing and community visioning exercise. Engaging with these communities through open dialogue allowed researchers to identify what was currently understood about climate change and climate change adaptation issues. It also helped gather their adaptation ideas and build awareness of the many possible futures that climate change, and the actions taken by the community, could present.

A series of scenarios were co-developed by the community which provided important information to policymakers and government educators who could use them to identify knowledge gaps and common misunderstandings around climate change issues within the community. These gaps could then be narrowed by targeted capacity and information building. This participatory futures approach also aided climate change adaptation policy implementation, since the communities had a shared sense of ownership over those particular policies.

The participatory futures approach can be used more widely in climate-vulnerable communities around the world to identify knowledge gaps and misconceptions, and empower threatened communities. In addition, the approach enables important social learning that can assist with active and co-evolutionary adaption within these communities (Gidley, et al., 2009).
THE INTEGRATIVE-HOLISTIC APPROACH

Futures methodologies that integrate aspects of the previous four approaches (Gidley, 2016) and specifically draw on a range of skills and specialities can be referred to as following more of an integrative-holistic approach. For example, any futures project focusing on complex issues such as climate change or plastic pollution could require a broad range of expertise and skills, including environmental, economic, social and technological/engineering specialists, amongst others. Therefore, in many instances, futures research becomes an integrative undertaking that must call upon and bring together different skills and expertise — somewhat along the lines of multidisciplinary or inter-disciplinary studies – a strength of integrative-holistic based methodologies (Cole, 2007; Gidley, 2016).

The following two examples illustrate the wide spectrum of skills and expertise utilised within the integrative-holistic based methodologies. Firstly, Pereira et al. (2018) conducted a three-day “Anthropocene Visioning Workshop” in Cape Town, which developed four radical visions of good Anthropocenes in southern Africa. Twenty-three specialists and experts were selected to participate in the workshop. These included: change makers; futurists and scientists from political, cultural, economic and natural sciences, such as ecology and geography. The workshop also drew on the expertise of artists, such as visual and landscape artists and dancers; social entrepreneurs and even a chef. All of which embodied a diverse range of cultures, genders, ages and experiences (Pereira, et al., 2018). The critical learning that came from this exercise was the importance of diversity and the need for imagination required for pushing the boundaries of and promoting transformative thinking.

Secondly, Raudsepp-Hearne et al. (2019) conducted a seed scenario workshop for “Envisioning and creating a good Anthropocene in Northern Europe”, which was based on the same methodology from Pereira et al. (2018). Twenty-six specialists were divided into groups of four, each consisting of an artist, scientist, seed representative and a facilitator.

GLOBAL INITIATIVES THAT UTILISE THE INTEGRATIVE-HOLISTIC APPROACH

The Future Earth Initiative: aims to “accelerate transformations to global sustainability through research and innovation”, and does so through four main activities that all draw on wide range of disciplines and expertise. These include: facilitating and amplifying research; convening and mobilising networks; promoting innovation and turning knowledge into action (Future Earth, N.d).

The Arctic Futures Initiative: aims to support sustainable decision making for the Arctic in different social, environmental, technological and economic contexts (Reissell, et al., 2015).

The Mistra Geopolitics Research Programme: an integrative-holistic initiative that seeks to investigate and address the dynamic interlinkages between environmental change and new social, political and economic patterns (Mistra Geopolitics, 2018).

Welcome to the Anthropocene: An educational web portal about the Anthropocene, which aims to educate, inspire and engage people on the interactions between humans and the natural world (Anthropocene, N.d.).

Seed of a Good Anthropocene: is a collaborative project led by McGill University in Canada, the Stockholm Resilience Centre at Stockholm University and the Centre for Complex Systems in Transition (CST) at the University of Stellenbosch. It is a Future Earth funded project that aims to counterbalance apocalyptic visions of the future that may be reducing our ability to move towards a positive and more desirable future. It does so by exploring and developing positive visions of a future “Good Anthropocene” that is just and sustainable (Seeds of Good Anthropocenes, 2019).

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1 The seed scenario workshop is a unique approach that “builds scenarios from ‘seeds’ of positive futures, i.e., real-world agents of current social-ecological transformation that are currently marginal, but have the potential to grow in impact” (Raudsepp-Hearne, et al., 2019, p. 2). The seeds used in the workshop were selected from the “seeds of good Anthropocenes” database (https://goodanthropocenes.net).

2 Seed representatives consisted of important individuals from a diverse group of sustainability innovations.
Artists assisted with creative engagement and included a graphic artist; a science writer; a designer and a science fiction author. The group of scientists was made up of both social and natural scientists, including experts on socio-ecological transformation and scenario specialists (Raudsepp-Hearne, et al., 2019). Again, diversity across participants was critical in developing positive futures for Northern Europe and credible pathways to achieve them. Starting with existing, marginal initiatives, participants were able to identify key system characteristics (such as gender, inequity or governance) that could play an important role in a sustainability transition and which are often overlooked by other global environmental scenarios (Raudsepp-Hearne, et al., 2019). The methodology can be used across a variety of applications to explore what transitions to desirable futures in other places or contexts might look like.

It is important to remember and emphasise that these five futures approaches are not mutually exclusive, and do not follow a linear order. They are simply an attempt to better understand and classify different futures studies methodologies into different approaches that can be used as pathways for examining the future(s) (Gidley, et al., 2009; Gidley, 2016).

**FUTURES METHODOLOGIES**

Futures studies is a multidisciplinary field of inquiry and as such, a number of methodologies and techniques have been developed which can be used in isolation or in combination with each other. To take advantage of their various strengths and different approaches to studying the future, a comprehensive futures analysis usually employs several methodologies, the selection of which should be tailored to meet the specific objectives and context of the project (Bengston, et al., 2012; Popper, 2008).

**FORESIGHT DIAMOND**

There is no “ideal” framework for identifying and selecting the “best” combination of futures methodologies but Popper’s Foresight Diamond (Popper, 2008) provides a practical framework of commonly used futures methodologies for decision making (Popper, 2008).

Futures methodologies are grouped and positioned in the diamond according to the core knowledge sources, or approaches, on which they are based, including: creativity, interaction, evidence, expertise, (Figure 3). These knowledge sources, as with the five futures approaches, are not mutually exclusive or independent from one another and can overlap. The style of font within the diamond also represents the type of research technique used, either qualitative, semi-qualitative and quantitative (Popper, 2008).

**CREATIVITY-BASED METHODOLOGIES**

Creativity-based methodologies are characterised by a mixture of both imaginative and original thinking, possibly employing more of a cultural-interpretive approach. Common methodologies within this domain include genius forecasting, backcasting or essays and rely on the inventiveness of individuals such as science fiction writers, or inspiration from groups of people involved in brainstorming. These methodologies can
potentially also take more of a participatory or integrative-holistic approach (Popper, 2008).

**INTERACTION-BASED METHODOLOGIES**

Interaction-based methodologies can be characterised by a more participatory approach and have two main benefits. The first is that they bring experts together and challenge them to debate and articulate their arguments with other experts (and non-expert stakeholders), often leading to valuable insight. The second is that they can add legitimacy through ‘bottom-up’, inclusive and participatory activities rather than relying on evidence and experts, which are said to be liable to selective bias. Methodologies such as voting and polling and scenario workshops are some of the more interaction-based methodologies within the Foresight Diamond (Popper, 2008).

**EVIDENCE-BASED METHODOLOGIES**

Evidence-based methodologies try to explain or forecast a particular pattern or phenomenon using reliable data, documentation and means of analysis. These methodologies can, therefore, take a on a more predictive-empirical approach. They are helpful in identifying and understanding the state of development of a particular issue and rely on more **quantitative** research techniques such as modelling, benchmarking and data mining (Popper, 2008).

**EXPERTISE-BASED METHODOLOGIES**

Expertise-based methodologies can be characterised by relying on the knowledge and skills of experts in a particular field and are often used to provide advice and recommendations and to support top-down decision making. They can also be used to stimulate creativity by challenging conventional wisdom and encouraging debate among experts of different fields, cultures, genders and religions. These methodologies, therefore, could potentially make use of any of the five futures approaches, depending on the context and objectives of the particular investigation (Popper, 2008).

It is suggested that a thorough futures research project should utilise at least one methodology from each dimension of the Foresight Diamond, including those not listed in the diamond itself but which might be categorised accordingly (Popper, 2008). It’s also worth noting that the methodologies described in the diamond can be used at different stages of the futures research process and practitioners should think about how each methodology could contribute to the futures project as a whole, and ways in which different methodologies can be used in combination to complement each other (Popper, 2008).

The remainder of this section provides an overview of a selection of commonly used futures methodologies and techniques\(^6\) that speak to different futures approaches and Foresight Diamond domains.

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\(^6\) For more in-depth reviews of the methodologies both discussed in and omitted from this paper, please refer to the *Futures Research Methodology Version 3.0* (Glenn & Gordon, 2009) from The Millennium Project and/or *The Futures Toolkit* (UK Government, 2017).
**HORIZON SCANNING**

Horizon scanning speaks to a wide range of processes that seek to identify and understand emerging trends (Bengston, et al., 2012). Also referred to as environmental scanning, or critical trend analysis, this methodology serves as an early warning system for identifying important developments and for examining potential threats and opportunities (UK Government, 2017).

Scanning identifies what is likely to change, what is likely to remain constant and what is likely to consistently change, as it explores both unexpected and novel issues in conjunction with persistent trends and problems (UK Government, 2017). Trends are generally classified into different categories, such as Demography, Economy, Government, Environment, Society/culture and Technology (DEGEST) (Kolter & Keller, 2008).

Scanning is the first step in gathering intelligence about the future and provides important background information for developing resilient policies and strategies. The process typically involves extensive research from a wide range of information sources, including websites, databases, and literature reviews. In some cases it might include workshop discussions and expert panels who would undertake to share their knowledge and expertise so as to identify how new trends, issues or phenomena are likely to influence the future (UK Government, 2017).

An example of a possible emerging issue is whether artificial intelligence, or humanoid robots, might not only replace people in the workplace but have the same rights as humans. Ian McEwan’s new novel, *Machines like me*, explores such issues. Annual series such as the Millennium Project’s *State of the Future* or the World Future Society’s *Outlook* series are good examples of scanning publications that can serve as inputs to other futures projects (Bengston, et al., 2012).

**VISIONING**

Visioning is the development of preferable and desirable futures (Inayatullah, 2008; Bengston, et al., 2012; UK Government, 2017). It is an important technique for enhancing future possibilities as it drives individuals towards a common goal, providing them with a sense of what is possible and plausible (Inayatullah, 2008; Bengston, et al., 2012).

**Horizon scanning** is the process of looking for early warning signs of change and aims to gather intelligence and information about the future(s).

**A vision** is a statement of the future that a particular group or organisation wants to create based on common values and purpose. Visioning helps align individuals’ goals with those of an organisation or group (Inayatullah, 2008).

**THE VISIONING PROCESS**

Step 1: Define the current reality and provide participants with context. Present previous work or research, such as the results from a horizon scanning exercise.

Step 2: Describe the visioning process, the steps required to produce the vision and what is expected of the participants. Encourage them to “think out of the box”.

Step 3: Encourage discussion and debate among participants and start generating ideas for the desired vision.

Step 4: Discuss broad vision themes and start narrowing down to generate the desired shared vision with stakeholders, expressed as actionable points (backcasting).

Step 5: Plan for action by encouraging stakeholders to commit to implement specific actions from the vision.

Visioning is an essential step in any comprehensive futures analysis and should be designed around several key components, including clarity, understanding, strategic orientation, specific imagery and group buy-in (Hines & Bishop, 2007). The visioning process is often organised within a workshop format where participants (stakeholders, professionals, policymakers or managers) are guided to create visions of their preferred, plausible futures within a particular context (UK Government, 2017).

Visions can be backcasted by asking participants how they would achieve their vision – what needs to happen to make their vision a reality? Backcasting fills the gaps between the present and the desired future thereby making the future more achievable and plausible. In addition, one can identify the necessary steps, budget, strategy and plans required to achieve the future vision. It can also be used to avoid alternative, undesired outcomes, such as a “worst case scenario”, for example (Inayatullah, 2008). The latest draft of the South African Low Emissions Development Strategy 2050 refers to the concept of backcasting from a desired vision of a low-carbon South Africa.

An important aspect of the visioning process is to manage participants’ expectations and assist them to be aspirational in their visions. Participants should not be held back by practical, market or policy conditions of the present, but rather suspend certain aspects of reality for a time. One should aim to generate ambitious visions, even if they stray towards the improbable and unrealistic rather than visions that are too cautious or conservative (UK Government, 2017).

However, there is a fine balance between developing aspirational visions and losing participants to unrealistic or impractical visions. A good test for futures visions is testing for plausibility. Should the visioning exercise veer towards the implausible or unrealistic, acknowledge it and reground the participants in reality, reminding them of the purpose of the vision. This should enable them to self-correct.

**SCENARIO PLANNING**

Scenario planning, otherwise known as *scenario development*, is a commonly used futures research methodology (Bengston, et al., 2012). It allows decision makers (and other stakeholders) to develop a range of possible futures and solutions in a world of uncertainty (Bengston, et al., 2012).

Scenario planning produces a set of stories or narratives that describe the various ways in which the external environment can develop and change (Bengston, et al., 2012; Bennett, et al., 2003; UK Government, 2017; Bishop, et al., 2007). These narratives are not predictions, nor are there any correct or incorrect scenarios, they simply represent a range of plausible futures that help us better understand what the future might hold, within different contexts (UK Government, 2017; Bengston, et al., 2012). In doing so, scenario planning can build adaptive capacity, improve strategic decision making and enhance systems to become more resilient to change (Bennett, et al., 2003; Miller, 2006; UK Government, 2017).

Each scenario or narrative should offer interesting and challenging images of the future and allow futurists, planners or policymakers to question and critique the status quo to better inform future decisions (Inayatullah, 2008; UK Government, 2017). They should be grounded in reality but creative enough to still address various uncertainties (Bennett, et al., 2003).

The South African Long-Term Adaptation Scenarios (DEA, 2013) is a good example of more quantitative based scenario planning. Four scenarios were developed based on potential temperature and rainfall changes: (1) warmer and wetter, (2) warmer and drier, (3) hotter and wetter, and (4) hotter and drier (Table 1).
Table 1: Rainfall projections for South Africa’s six hydrological zones

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Limpopo/Olifants/Inkomati</th>
<th>Pongola-Umzimkulu</th>
<th>Vaal</th>
<th>Orange</th>
<th>Mzimvubu-Tsitsikamma</th>
<th>Breede-Gouritz/Berg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warmer/wetter</td>
<td>↑ spring and summer</td>
<td>↑ spring</td>
<td>↑ spring and summer</td>
<td>↑ in all seasons</td>
<td>↑ in all seasons</td>
<td>↓ autumn ↑ winter and spring</td>
</tr>
<tr>
<td>Warmer/drier</td>
<td>↓ summer, spring and autumn</td>
<td>↓ spring and strongly ↓ summer and autumn</td>
<td>↓ summer and strongly ↓ autumn</td>
<td>↓ summer, autumn and spring</td>
<td>↓ in all seasons, strongly ↓ summer and autumn</td>
<td>↓ in all seasons strongly ↓ in the west</td>
</tr>
<tr>
<td>Hotter and wetter</td>
<td>strongly ↑ spring and summer</td>
<td>strongly ↑ spring</td>
<td>↑ spring and summer</td>
<td>↑ in all seasons</td>
<td>strongly ↑ in all seasons</td>
<td>↓ autumn, ↑ winter and spring</td>
</tr>
<tr>
<td>Hotter and drier</td>
<td>strongly ↓ summer, spring and autumn</td>
<td>↓ spring and strongly ↓ summer and autumn</td>
<td>↓ summer and strongly ↓ autumn</td>
<td>↓ summer, autumn and spring</td>
<td>↓ all seasons strongly ↓ in summer and autumn</td>
<td>↓ all seasons strongly ↓ in the west</td>
</tr>
</tbody>
</table>

Sourced from: DEA (2013, p. 5)

There is a broad range of scenario development techniques (Table 2), each with their own nuances, but generally speaking, scenarios can be set between 10 and 20 years into the future and use both quantitative and qualitative measurables, depending on the research objectives and context.

Within the business planning and policy forecasting realms, scenario planning is often used in this empirical and quantitative manner (Inayatullah, 2008). However, such highly empirical scenario development can often be limited to projections that do not deviate significantly from each other or the status quo. Alternatively, scenarios can be more qualitative by nature, such as investigating democratic versus socialist governance, for example (Cole, 2007). Ideally, and for more meaningful scenario planning, each scenario should be fundamentally different from one another and allow one to question and critique the status quo (Inayatullah, 2008). There are a number of techniques available for scenario development, as summarised in Table 2.

SCENARIO DEVELOPMENT PROCESS
There are six general guiding steps for scenario development:

**Step 1:** Describe the status quo, i.e. what the world is like at the time of the workshop.

**Step 2:** Describe the current context of the research, for example, the current socio-economic challenges facing South Africa.

**Step 3:** Decide on the scenario approach to be followed (two variable or multivariable approach, for example).

**Step 4:** Briefly describe each scenario identifying key characteristics and uncertainties.

**Step 5:** Create a timeline of events.

**Step 6:** Name the scenario to reflect each of their key traits.

**Step 7:** Identify the main recommendations and issues for developing policy or strategy within each scenario.
Table 2: Eight broad scenario development techniques

<table>
<thead>
<tr>
<th>Scenario technique</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Judgment</td>
<td>Judgment techniques are the most common as, generally, people, including futurists, have their own judgments or biases about the future. These techniques rely on individuals or groups describing the future as they see it. While they can use information at their disposal, pure judgemental techniques have no formal methodological support.</td>
</tr>
<tr>
<td>Baseline / expected</td>
<td>Baseline scenario techniques generally produce only one scenario – the expected scenario – which is based on a projection of the status quo. It is referred to as the baseline as it is the foundation of all other scenarios which divert from the baseline.</td>
</tr>
<tr>
<td>Elaboration of fixed scenarios</td>
<td>These scenario techniques consider multiple scenarios. Instead of generating each scenario from scratch, these particular techniques begin with predefined scenarios, with the intention of elaborating the logic of each of them with simple statements of what each is about. An advantage here is that participants do not need to deal with uncertainty and can simply articulate the implications of each scenario on alternative futures.</td>
</tr>
<tr>
<td>Event sequences</td>
<td>The future can be seen as a series of events, with each future event, or each future, having a probability of occurring. Event sequences identify the probability of each different future event based on whether a prior event occurs or not. Thus, the future branches out at each of these points where certain events do or do not take place.</td>
</tr>
<tr>
<td>Backcasting</td>
<td>To avoid the weight of the past holding back future visions from their true potential one can simply place a flag in the ground somewhere in the future and work backwards from there. The first step to backcasting scenarios is to envision a future state (which can be plausible, fantastical, catastrophic or preferred) and to then work backwards from there connecting the dots - identifying what needs to happen now to get to that future state. This method can be useful when applied to climate change.</td>
</tr>
<tr>
<td>Dimensions of uncertainty</td>
<td>Scenarios are used to understand the future based on various uncertainties. The scenario techniques in this group are concerned with identifying specific sources of uncertainty as an initial step and then using those as the basis of alternative futures, depending on the outcome of those uncertainties.</td>
</tr>
<tr>
<td>Cross-impact analysis</td>
<td>Scenarios are not only useful in identifying alternative futures but also in estimating the relative probability of their occurrence. Cross-impact analysis scenarios place future events into a matrix, with each event having its own row and column. This allows the initial probability assigned to that event occurring and the probability of that event giving rise to another event to be displayed. Using these estimates, a random number between 0 and 1 is chosen and all those events above the chosen number are said to occur and those below not to occur. Running the matrix numerous times produces a distribution of probabilities for each event that can then be used to estimate the probability of that event occurring.</td>
</tr>
<tr>
<td>Modelling</td>
<td>System models are generally used to generate baseline forecasts or predict the expected future. However, any technique that can be used to generate a baseline can also be used to generate scenarios by varying the inputs and/or structure of the predictive models that generate the baseline.</td>
</tr>
</tbody>
</table>

Adapted from: Bishop et al. (2007)
CAUSAL LAYERED ANALYSIS

Causal Layered Analysis (CLA) is a multi-layered futures methodology that goes beyond conventional framing of possible futures or particular issues. It seeks to unpack and deepen the future(s) at each of its four levels (Figure 4) through interrogating the past, present and future at each level of understanding.

The first layer is the **litany**, or day-to-day level. This level reviews commonly accepted headlines of the way things are or should be, often providing short-term solutions to short-term problems (Inayatullah, 2008). An example of this might be the “stop-the-straw” campaign for addressing the plastic pollution problem.

The second layer, the **systemic** layer, focuses on the economic, social and political causes of an issue or research question, going one step deeper than the previous layer (Inayatullah, 2008). This level speaks to the systems and policies in place, being developed or required to address a particular issue. In South Africa, an example would include charging customers for plastic shopping bags rather than giving them away for free. There are also policies and regulations in other countries that place a ban on certain single-use plastics – the United Nations Environmental Programme (UNEP) recently published a report reviewing global laws and regulations on single-use plastics (UNEP, 2018). Alternatively, policies can be used to encourage a transition to a circular plastics economy model, where, for example, plastic packaging is redesigned to ensure it is 100% recyclable and made with a certain amount of recycled content.

The third level, referred to as the **worldview or cultural** layer, investigates the bigger picture that informs what we think is real and the cognitive lens through which we understand the world (Inayatullah, 2008). At this level, one would investigate how culture might influence individual behaviour in terms of plastic use and disposal. How do different cultures understand plastic waste? How do they address plastic waste and do different cultures support or conflict with the notion of reduce, re-use and recycle and a circular plastics economy?

Finally, the last layer is concerned with metaphors and/or myths – the **narrative** level (Inayatullah, 2008). Here, researchers creatively develop a narrative, linked to a metaphor or myth that encapsulates the issue or solution at hand. For single-use plastics, a metaphor might be: “Single-use plastic is suffocating our oceans”. Visual metaphors describing the issue are abundant, such as pictures of marine life being affected by plastic. Developing a metaphor for the solution to single-use plastics is somewhat more challenging and must be linked to a vision of a preferred future, where marine life and the ocean itself are free from our plastic addiction, perhaps something along the lines of: “Free the ocean from our plastic prison” or WWF’s goal of “no plastics in nature”.

Each level on its own is true and consistent, and solutions need to be established at each level and be in sync with different levels (Inayatullah, 2008). For example, at the litany level, interventions are simple to understand, data rich and often short-term oriented. At the systemic level, solutions require interventions by professionals and experts, such as public-private partnerships between business and government and other policy interventions (Inayatullah, 2008).

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**Figure 4: Causal Layered Analysis**

*Adapted from: Inayatullah (2008)*

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- **Litany**
  - Main stream; commonly accepted; short term
- **Systemic**
  - The social, economic and political causes & solutions
- **World/cultural view**
  - Long-term, investigates the cognitive lens through which we understand the world;
- **Narrative**
  - The metaphor or myth
Initiating change or identifying solutions at the third level, the cultural or worldview level, can more challenging and, indeed, long-term oriented. Solutions need to be developed outside of the framework in which the solution itself has been defined (Inayatullah, 2008). At the final level, the narrative, solutions require a new story - a rewiring of the brain so-to-speak. Investigating the future(s) at these deeper levels also implies going wider or broader in one’s understanding and can allow for enrichment by other cultural insights, social arrangements and alternative ways of knowing, thereby strengthening strategic planning and policy development and analysis (Slaughter, 2002).

Table 3 provides a short example, using the plastic pollution crisis, of how one might work through each level of CLA to develop insight and solutions.

<table>
<thead>
<tr>
<th>CLA level</th>
<th>Issue</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Litany</td>
<td>Overwhelming plastic pollution in the ocean</td>
<td>Stop the straw campaign/beach clean-ups</td>
</tr>
<tr>
<td>Systemic</td>
<td>Globalisation and over consumption of single-use plastics</td>
<td>Policies and regulations that promote 100% recyclable packaging, or ban certain single use-plastics</td>
</tr>
<tr>
<td>Worldview/cultural</td>
<td>Western consumerism and capitalism has created an over-depency on single-use plastics</td>
<td>Create and promote a refuse, reduce, reuse and recycle global culture</td>
</tr>
<tr>
<td>Metaphor/myth</td>
<td>“Single-use plastic is suffocating our oceans”</td>
<td>“Free the ocean from our plastic prison”</td>
</tr>
</tbody>
</table>

**STRATEGIC PLANNING, POLICY AND FUTURES STUDIES**

**STRATEGIC PLANNING**

Planning is defined as the activity of forecasting changes in an organisation and its environment, setting objectives and developing strategies to achieve those objectives (Boyne, 2010). Planning is generally concerned with establishing outcomes and actions to achieve them.

*Strategic planning*, by contrast, is a process of defining high-level future objectives, allocating resources and developing a very specific course of action to obtain those objectives (Inayatullah, 2008; Schmidt, 2015; Bouhali, et al., 2015).

It is a programmatic, analytical thought process intended to be rigorous, systematic, rational and explicit, and applies scientific methods to policy problems (Heracleous, 1998; Boyne, 2010). Strategic planning is deductive in nature, concerned with deconstructing a goal, increasing clarity and identifying the possible consequences or results from implementing a strategy (Mintzberg, 1994; Schmidt, 2015; Bouhali, et al., 2015).
Strategic planning often views futures studies as only a part of the process required for developing a good plan, otherwise referred to as strategic thinking7 (Voros, 2003; Inayatullah, 2008). To this end, futures techniques and methodologies are utilised as far as they are useful for developing a strategic plan. Any futures function that overly complicates, or makes the strategic plan problematic, will be avoided (Inayatullah, 2008).

**POLICY DEVELOPMENT AND ANALYSIS**

Policy is concerned with the future and is defined as a statement of a principle or course of action to be followed by an actor(s), such as government or an organisation (Schmidt, 2015; Madlen, 2015). Policies are intended to influence and determine protocols, decisions and other matters under changing and uncertain conditions (Schmidt, 2015; Walker, et al., 2001). To this end, policy shares a number of similarities with futures studies and often utilises methodologies that take more of a predictive-empirical approach to investigating the future.

*Policy development*, or policy making, is a complex process that involves a variety of actors and interests that may change over time (Madlen, 2015). The policy development process is influenced by a number of contextual factors, such as social, economic, political and even natural processes. For this reason, policies need to be designed and adapted to various context-specific needs (Madlen, 2015). However, in doing so, they can often overlook unexpected events outside of a particular context, leaving policies fragile to such unexpected events and susceptible to failure (Walker, et al., 2001).

*Policy analysis* is intended to both improve our understanding of the policy development process and provide policymakers with relevant information and knowledge about pressing economic, social and environmental concerns (Fischer, et al., 2007). It can be defined as a systematic investigation of policy problems and alternative policy options, applying a wide variety of social science methodologies of inquiry to produce policy-relevant information (Madlen, 2015; Fischer, et al., 2007). These may include both qualitative and quantitative investigations and attempt to predict the outcomes or consequences of a policy and its alternatives.

However, today policy analysis is driven by empirical evidence, geared to more managerial practices. This has narrowed its methodological framework rather than allowing for a multidisciplinary methodological perspective, as was historically intended (Fischer, et al., 2007). To this end, governments and policymakers have long been using systems analysis and projections to inform policy development and analysis.

Policy development and analysis, therefore appears to be confined to narrow predictions and forecasts, relying heavily on empirical analysis and does not necessarily question the broader context in which the policy is intended to operate (Cole, 2007; Inayatullah, 2008; Schmidt, 2015; Van der Steen & Van Twist, 2013; Cuhls, 2015). Strategic plans and policies based on such narrow estimates are typically unrealistic and can prove to be fragile when faced with unexpected events since they do not adequately account for complexity and uncertainty (Walker, et al., 2001). In addition, they overlook critical vulnerabilities, depend on assumptions that do not hold true in reality and fail to take advantage of opportunities that might arise in the future (Walker, et al., 2001).

7 While there is no clear definition of strategic thinking in the literature, it is broadly concerned with synthesis or creation of an integrated vision or developing a goal (Mintzberg, 1994; Bouhali, et al., 2015). It is similar to the futures/foresight process in that it also seeks to open up a range of perceptions (or futures) of the strategic options available to an organisation (Voros, 2003). The futures/foresight process is a form of inquiry into alternative future possibilities (or futures) in terms of what is probable, possible, preferable and plausible, with the aim of anticipating and influencing those futures (Kubik, 2009; Schmidt, 2015).
COMPARING STRATEGIC PLANNING, POLICY AND FUTURES STUDIES

There are a number of similarities between the three fields of strategic planning, policy and futures studies. All three fields are concerned with the future and must, therefore, deal with complexity and uncertainty around multifaceted and ambiguous issues. They seek to avoid unacceptable risk and attempt to improve the future through various activities, including intelligence gathering, estimating, anticipating and predicting the future. They each aim to prepare for future development paths by identifying goals or visions to work towards (Bengston, et al., 2012; Inayatullah, 2008; Cole, 2007; Roney, 2010; Battistella & Pillon, 2016).

However, they are distinct yet mutually inter-dependant activities that require different styles of thinking and are broadly differentiated by scale and scope (Voros, 2003; Cole, 2007; Inayatullah, 2008). The differences between the three fields often create a divide between them and at the expense of mutually beneficial cross-fertilisation (Cole, 2007; van Dorsser, et al., 2018). Understanding the differences between strategic planning, policy and futures studies helps us to identify how these three fields can complement, rather than compete against each other, and provide opportunities for cross-fertilisation and enrichment.

In comparison to strategic planning and policy, futures studies seeks to understand and anticipate the future by obtaining a broader overview of the issue at hand and providing important context for predictive analysis and more specific planning at a national, provincial or city level (Cole, 2007; Schmidt, 2015). Futures studies uses methodologies that can contribute to more imaginative and holistic planning to deal with a wider range of outcomes in a systematic manner (Cole, 2007; Bengston, et al., 2012).

Strategic planning and policy are said to take on a much narrower view of the future, relying heavily on empirical evidence and projections. While this suggests strategic planning and policy already incorporates futures studies, it is limited to only the predictive-empirical approach of futures studies (Cole, 2007; Inayatullah, 2008; Schmidt, 2015; Van der Steen & Van Twist, 2013; Cuhls, 2015).

Futures studies can also be disruptive by nature in that it seeks to challenge underlying assumptions and frameworks. Futures studies does not attempt to make strategic plans or policies more effective within a particular framework or under particular assumptions. For example, futures research could question the assumptions of neoliberal economic theory and its ability to effectively address climate change through pricing environmental commodities, such as GHG emissions and carbon prices. Such disruption can promote more resilient plans and policies to unexpected shocks or black swan events, making them more effective and robust (Inayatullah, 2008; Schmidt, 2015).

Strategic planning, policy and futures studies differ most notably in terms of their time horizon, where strategic planning and policy develops a course of action over a relatively short time period (Inayatullah, 2008) and futures studies focuses on a much longer time horizon (Bengston, et al., 2012; Cole, 2007). Table 4 provides a number of differences between the three fields of strategic planning, policy and futures studies.
| Table 4: Differentiating between strategic planning, policy and futures studies |
|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| **Strategic Planning**                             | **Policy development and analysis**                | **Futures Studies**                                |
| **Time scale**                                     | Concerned with medium term, 10 to 20 years, and influence by the political cycle | Considers a longer time horizon, normally from 5 to 50 years, sometimes even as long as 1,000 years |
| **View of the future**                             | Based on relatively narrow future and attempts to analyse, evaluate and study the formulation, adoption, and implementation of a principle or course of action intended to address economic, social, or other public issues | Attempts to “open-up” the future by analysing the broader context of a particular issue for more imaginative and holistic planning. The focus is on multiple futures, rather than one narrow future |
| **Approach**                                      | Is a systematic method for developing, implementing and analysing a policy, based on a clearly defined set of constraints and objectives | Disruptive by nature and seeks to challenge assumptions and frameworks |
| **Treatment of scenarios**                         | Utilises a limited range of scenarios that differ from each other and the status quo, but which are not necessarily fundamentally different | Utilises a variety of scenarios that are fundamentally different from each other and the status quo |
| **Data sources**                                  | Heavily dependent on empirical data and is highly analytical and more deductive in nature | Considers multiple interpretations of reality, including mythology, spiritual interpretations and the unconscious, rather than only relying on reality and empirical data |

Sourced from: Inayatullah (2008); Cole (2007); Bengston et al. (2012); Schmidt (2015); Saritas and Burmaoglu (2015); Walker et al. (2001); and Simon (2016)
INTEGRATING FUTURES STUDIES INTO STRATEGIC PLANNING AND POLICY PROCESSES

WHAT IS THE STATUS QUO?

While various government agencies, private business, think-tanks and NGOs have engaged and embraced some level of futures studies approaches and methodologies across the world and in South Africa, its use within strategic planning and policy remains negligible (Van der Steen & Van Twist, 2013). This is largely due to challenges for improving cross-fertilisation between the three fields (Cuhls, 2015).

Only an estimated 10% of countries worldwide have well established futures or foresight programmes within all or most of their government institutions (Berze, 2014; Schmidt, 2015). While most of these are developed countries in North America and Europe, it is not to say that other countries do not engage in futures research in some shape or form. For example, Australia publishes futures findings in White Papers, while Taiwan distributes futures knowledge through purely educational activities (Cuhls, 2015).

South Africa is no stranger to futures studies either. The development of futures studies in South Africa was closely aligned to the country’s changing political landscape during the 1980s and 1990s and focused predominantly on scenario building exercises (Fox, et al., 2012). For example, The Mont Fleur Scenarios, developed in 1992 during the multi-party negotiation process, established four scenarios for South Africa’s democratic future. The aim of these scenarios was not to present definitive truths but to rather stimulate debate on how to shape South Africa’s new democratic future (Beery, et al., 1992). Fast forward 20 years and we have a number of futures oriented publications, such as the National Development Plan: Vision for 2030 (RSA, 2011), which is arguably one of South Africa’s flagship futures investigations and plays a critical role in guiding policy and planning (Fox, et al., 2012).

An interactive map that provides a representation of countries with established foresight activities is available at: https://www.scribblemaps.com/maps/view/DaSI_ilr0Z/ (Berze, 2014).
There are also a number of futures research projects that address different aspects of the climate change crisis in South Africa. These include the Long-Term Adaptation Scenarios (LTAS) Flagship Research Programme for South Africa, which developed national and sub-national adaptation scenarios under plausible future climate conditions and development pathways (DEA, 2013). On the mitigation front, the Long Term Mitigation Scenarios (LTMS) (DEA, 2007) and the Mitigation Report (DEA, 2014) reviewed South Africa’s GHG mitigation potential across different sectors of the economy. There is also the Alternative Greenhouse Gas Emission Pathways Project, which conducted an analysis of South Africa’s GHG emissions pathways to 2050 (DEA, 2018). The National Planning Commission’s Pathways for a Just Transition (NPC, 2019) is arguably the most wide-ranging and participatory based futures project in terms of researching and achieving a low-carbon future for South Africa. From a regional point of view, Pereira et al. (2018) developed four scenarios for a good Anthropocene in southern Africa, using an integrative-holistic approach and creative visioning as discussed previously.

There are also examples of global, regional and national agencies, such as the United Nation’s and European Union, that have had success in establishing and using futures studies to improve their strategic planning and policy development (Schmidt, 2015). The Intergovernmental Panel on Climate Change (IPCC), for example, recently published a Special Report on the impacts of climate change and global warming of 1.5°C above preindustrial levels (IPCC, 2018). While this was a future oriented report, it was arguably limited to more of a predictive-empirical approach, rather than a deeper futures investigation of the plausibility and impacts of a 1.5°C warmer future(s).

The Millennium Project – a global participatory think tank, originally established under the American Council of the United Nations University – aims to improve our thinking about the future and to create a better future for humanity (The Millennium Project, 2017). The European Union initiated the European Foresight Monitoring Network (EFMN), which monitors ongoing foresight projects in Europe and across the world (Kuosa, 2011). The Futures for Regional Development (FUTURREG) created a regional policymaking futures toolkit to provide guidance on appropriate futures tools and approaches based on regional objectives, resources and priorities (Kuosa, 2011; FUTURREG, 2006). More recently, the European Commission published a White Paper on the Future of Europe (EU, 2017), which set out possible pathways for Europe’s future through the development of five different scenarios.

These examples, and others, suggest many government agencies, both in South Africa and across the world, have an appetite for greater integration of futures studies approaches and methodologies into their strategic planning and policymaking processes. However, the practice of integrating deeper futures approaches and methodologies (that go beyond predictive-empirical based methodologies) into strategic planning and policy is still problematic. This is largely due to institutional barriers (such as the need for concrete forecasts and predictions, or a lack of leadership that encourages deeper futures approaches) and their differences in both scope and scale (Cole, 2007; Van der Steen & Van Twist, 2013; Schmidt, 2015). These differences are often pronounced at the expense of cross-fertilisation, and yet it is within these differences that the opportunity for enrichment lies (Cole, 2007).
THE BENEFITS OF GREATER INTEGRATION

PROVIDING CRITICAL INFORMATION AND INTELLIGENCE FOR IMPROVED DECISION MAKING

Information and intelligence about the future (and the past) is critical for strategic planning and policy conceptualisation, design and decision making. Research needs to provide insights into the dynamics of change, future challenges and opportunities, and translate them into usable inputs for policymakers and planners (Battistella & Pillon, 2016).

However, strategic planning and policy processes have been criticised for failing to produce usable, problem oriented knowledge and need to open themselves up to alternative methods of inquiry (Fischer, et al., 2007). Futures studies provides such an alternative method of inquiry into both the past, present and future to provide the necessary information and intelligence for strengthening decision making. Futures studies also has the added benefit of extending time horizons from the typical 5 to 10 year planning and policy time horizon to between 50 and even 100 years into the future.

Futures studies approaches and methodologies can provide broader contexts for more specific policy concerns for national, regional or city policymakers and planners. They can enrich strategic planning and policymaking by introducing imaginative thinking to empirical evidence (Cole, 2007) and drawing on a broader range of knowledge sources, alternative cultures and worldviews (Battistella & Pillon, 2016; Inayatullah, 2008; Schmidt, 2015). Integrating more imagination, entertaining alternative cultures and worldviews and questioning the basic assumptions on which strategic plans and policies are built, are argued to provide more usable and problem oriented information and intelligence. With more insightful information and intelligence policymakers and planners can create more impactful, resilient and flexible plans and policies (Schmidt, 2015; Cole, 2007; Battistella & Pillon, 2016).

The CLA methodology is a good example of how futures studies methodologies can take systemic complexity into account and provide deeper insights into complex problems and uncertain futures by questioning them at each level of understanding. Participatory futures approaches can also provide important information about perceptions and understandings of key stakeholders on various issues.

BENEFITS OF GREATER FUTURES INTEGRATION

Integrating deeper futures approaches (that go beyond narrow predictions of the future) has three broad benefits for supporting and improving strategic planning and policy processes:

1. Providing critical information and intelligence for improved decision making;

2. Supporting decision implementation through embedding participation into policymaking, supporting policy definition and policy implementation; and

3. Creating new capabilities by reconfiguring policy processes to better address long-term, complex and uncertain challenges and opportunities (Battistella & Pillon, 2016).
For example, in their participatory approach to climate change adaptation policy in rural Australia, Gidley et al. (2009) were able to identify knowledge gaps, understandings, values and perceptions of key stakeholder groups to better inform climate change adaptation policies and ultimately strengthen them. Some futures studies methodologies also consider second and third order consequences of interventions and decisions and can support the identification of unintended consequences.

Futures studies approaches and methodologies can be both catalytic, in that they enhance intelligence, and a direct contributor of complementary information (Schmidt, 2015). These benefits are scalable from individual agencies, right through to national governments. Policymakers and planners should, therefore, employ deeper futures analysis for gathering information and intelligence and improving decision making.

**SUPPORTING POLICY AND DECISION IMPLEMENTATION**

Providing more relevant information for policymakers and planners, futures studies approaches and methodologies can assist them to be more proactive, while also supporting better coordination and implementation of plans and policies (Battistella & Pillon, 2016). The capacity for change within a particular policy arena can be enhanced by developing common awareness of a current situation and future challenges among stakeholders (Battistella & Pillon, 2016). For example, deliberative and participatory futures approaches have improved climate change adaptation policy implementation in rural Australia (Gidley, et al., 2009). This was achieved largely through questioning assumptions of what communities knew and understood about climate change and integrating their cultural values into climate change adaptation plans and policies. Engaging stakeholders in this way also created a sense of shared ownership over adaptation policies and hence greater buy-in by stakeholders for the successful implementation of said policies (Gidley, et al., 2009).

Engaging in deeper futures approaches also help to develop new networks and visions amongst key stakeholders, which assist with implementation (Battistella & Pillon, 2016). Futures methodologies also provide a platform for better understanding stakeholder assumptions of particular issues and overcoming any differences or contestations to support collaboration for achieving common goals or improved policy implementation (Gidley, 2016). WWF South Africa hosted a Plastics Futures Workshop with key stakeholders across the plastics value chain to achieve exactly that. The aim of the workshop was to support collaboration for achieving a common goal of reducing plastics pollution and improve participants’ understanding of different stakeholder assumptions and key uncertainties across the plastics value chain in South Africa.

The same approach can be used across different contexts, such as investigating the future of work in a low-carbon and high-tech future economy. Employing a participatory process might bring key stakeholders together that would otherwise never have connected, thus facilitating the creation of critical relationships needed for implementing policies for addressing the future of work in South Africa. Engaging stakeholders through a participatory futures platform can also play a critical role in overcoming barriers to collaboration for decarbonising the electricity sector and implementing other climate related policies, for example.

**CREATING NEW CAPABILITIES TO ADDRESS LONG-TERM CHALLENGES**

Strategic plans and policies, as discussed previously, are historically based on narrow predictions of the future or extrapolations of historical trends. Critical variables, vulnerabilities or opportunities can be overlooked, such as the impact on oil markets by the COVID-19 outbreak, while strategic plans and policies are also generally built on assumptions that do not hold true in reality. All of which, culminate into fragile strategic plans and policies that fail to address complexity and uncertainty (Walker, et al., 2001).
Integrating deeper futures approaches and methodologies into all phases of strategic planning and policy processes can better orientate strategic objectives and provide flexibility under uncertainty (Ventura, 1998; Schmidt, 2015). In doing so, strategic planning and policy systems may be enabled to create new capabilities for better addressing long-term and uncertain future challenges and taking advantages of beneficial opportunities (Battistella & Pillon, 2016).

South African policymakers and planners are, therefore, encouraged to integrate a deeper futures studies approach into their strategic planning and policy processes, and to go beyond the “normal” empirical projections of the future. Understanding the broader context, considering alternative cultural and worldviews, and incorporating more imaginative solutions will only strengthen strategic plans and policies, making them more resilient and flexible in an increasingly unpredictable future.

**BARRIERS TO GREATER INTEGRATION**

There still remains a large degree of uncertainty in how to develop and effectively exercise improved foresight capacity in strategic planning and policy processes. Indeed it is not a simple task to incorporate a deeper futures approach into strategic planning and policy as it is in itself, a disruptive process. In addition, the absence of clearly defined costs and benefits of doing so creates hesitation (Schmidt, 2015).

However, identifying some of the barriers that prevent the deeper integration of futures approaches and methodologies into strategic planning and policy provides the first step to address them (Van der Steen & Van Twist, 2013). Acknowledging that planners and policymakers are often confined to conservative roles, where concrete answers are required, it is understandable that they remain cautious not to appear too “out-of-the-box” by incorporating deeper imaginative and creative futures approaches. Testing for plausibility of futures analysis or visions can overcome this perception of futures studies being too creative and not realistic. However, in circumstances where strategic planning and policy processes need to take a long-term perspective – such as climate change or the technological disruption – it is important that underlying assumptions or prejudices are defined and that policymakers and planners work towards achieving a more “futuristic attitude” (Cole, 2007; Van der Steen & Van Twist, 2013).

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**ADVANTAGES OF DEEPER FUTURES INTEGRATION INTO STRATEGIC PLANNING AND POLICY**

- Better understanding and challenging their own planning or policy assumptions;
- Gathering information and intelligence regarding future challenges, opportunities and trends;
- Translating information and intelligence into usable inputs for strategic planning and policy conceptualisation and design;
- Identifying critical indicators through deeper inquiry of challenges/issues that strategic plans and policies seek to address;
- Anticipating probable, possible, preferable and plausible futures, including expected and unexpected consequences of strategic planning and policy decisions;
- Improving sensitivity to weak signals, disruptive wildcards and established trends;
- Enhancing the capacity for change by improving awareness and stakeholder networks;
- Garnering greater participation for improved collaboration, transparency and legitimacy;
- Developing and improving contingency strategies; and
- Responding and adapting quickly to change and unexpected or black swan events.

Sourced from: Schmidt (2015) and Battistella and Pillon (2016)
This will require time and resources to be allocated towards more futures aspects of strategic planning and policy processes and will depend on flexible leadership that encourages and promotes greater use of futures approaches and methodologies in strategic planning and policy processes (Cole, 2007; Van der Steen & Van Twist, 2013). Futures studies can also benefit from strategic planning and policy, anchoring it to reality and providing it with a clearer contextual focus (Cole, 2007; Schmidt, 2015).

**A POSSIBLE FRAMEWORK FOR INTEGRATION**

Voros’ Generic Foresight Model (Voros, 2003) provides a one possible framework for integrating deeper futures approaches and methodologies into strategic planning and policy processes. It is designed to be a general tool which can be applied to any context and at any scale (individual, workgroup, organisation, government department or broader society in general) for integrating deeper futures approaches and methodologies in decision making processes, such as strategic planning or policy processes.

The Generic Foresight Model uses a four phased approach, including: **inputs**; **foresight work** (futures research); **outputs** and **strategy** (action) (Voros, 2003). Figure 5 provides an illustration of the model, noting the type of activity or thinking required at and typical methodologies associated with each phase. The inputs phase focuses on gathering and providing critical information and intelligence for improved decision making and utilises a number different futures methodologies, such as horizon scanning (also referred to as strategic intelligence scanning), workshops, and others (Voros, 2003).

The second phase - foresight work - is further divided into three steps. The first is **analysis**, which aims to consolidate and “make sense” of the sometimes overwhelming data gathered in the previous phase. The key question here is “what seems to be happening?” and typical methodologies include trend analysis, cross-impact metrics, statistical and regression analysis, amongst other analytical tools that might use more of a predictive-empirical approach. The results from this step feed into the **interpretation** step, where the aim is to go deeper into the analysis and identify insights from the previous step. Methodologies that utilise more critical-postmodern or cultural-interpretive approaches, such as questioning, deconstructing and distancing, or CLA, are generally employed at this level in an attempt to answer the key question: “What is really happening?” (Voros, 2003).

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**BARRIERS TO DEEPER FUTURES INTEGRATION INTO STRATEGIC PLANNING AND POLICY**

- Futures studies methodologies cannot always provide “hard” or “concrete” evidence;
- Futures analysis can also falsify itself, making it problematic as a legitimate source for policy;
- Futures studies is often confused with a specific methodology, used within strategic planning processes. This prevents the deeper application and integration of futures studies across strategic planning and policy processes;
- Futures studies can be deeply political in nature;
- Futures studies approaches involve creativity and imagination, which goes beyond what is generally accepted in strategic planning and policy processes;
- Long time frames involved in futures studies often go beyond the scope of strategic plans and policies;
- Policymakers generally have a bias to the short-term due to the difficulty in adequately weighing future possibilities with present-day needs and consequences; and
- Policymakers have limited time to deliberate futures research and outcomes.

*Sourced from: Van der Steen and Van Twist (2013)*
The third step in the foresight work phase is **prospection**. This step is concerned with “the activity of purposefully looking forward to create forward views” (Voros, 2003, p. 10). In other words, this step aims to create and examine alternative futures through visioning, scenario analysis and normative methods. The key question here is “what might happen?” but which is ultimately dependant on the type of alternative future(s) being developed - possible, plausible, probable or preferable. Backcasting is also included here.

The third phase of Voros’ Generic Foresight Model is the outputs phase, where both tangible and intangible outputs from the foresight work are produced/achieved. Tangle outputs include the actual range of futures or strategic options developed through the process, while intangible outputs include changes in participants’ or stakeholders’ assumptions of and how they engage with a particular issue. The methodologies employed here do not need to be specifically futures related and a variety of methods such as reports, role-play, multi-media, film or even experimental exercises could be employed (Voros, 2003).

The final strategy phase is where outputs are handed over to decision makers for designing and developing strategic plans or policies and eventually executing them or taking action (Voros, 2003). The results of the strategy phase need to feed back into the overall framework to close the loop for continuous reassessment and correction. Participatory based futures methodologies can support policy and decision implementation as previously discussed.

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**Figure 5: Voros’ Generic Foresight Model**

*Adapted from: Voros (2003, p. 9 & 11)*
It must be noted that while the Figure 5 depicts a linear process, there are several feedback loops between the different phases to encourage continual learning and adaptation from and between phases (Voros, 2003). For the sake of simplicity, these feedback loops have been left out of Figure 5.

**CONCLUSION**

In a world facing a number of complex challenges, such as the climate emergency, advancing technology disruption and global inequality, it is critical that policymakers and planners prepare for an uncertain future. While strategic planning and policy processes are both future facing activities, their dependence on empirical evidence and narrow projections of the future are ineffective tools for preparing for the unknown. Such a narrow view of the future can overlook critical vulnerabilities, lack contextual awareness and fail to take advantage of beneficial opportunities. Therefore, it is critical that policymakers and planners go beyond the narrow predictions of the future and integrate deeper futures approaches and methodologies into planning and policymaking processes.

Futures studies approaches and methodologies provide an effective toolkit for critiquing the past and present to better prepare for an uncertain and unknown future. However, future facing analyses or methodologies are often seen as only part of the strategic planning and policy processes. Deeper futures approaches, those that go beyond the predictive-empirical approach to anticipating, preparing and influencing the future(s), are often neglected altogether. Very few countries, including South Africa, utilise futures studies approaches and methodologies to their full potential within their strategic planning and policy processes. While there are a number of excellent future facing publications and policies in South Africa, particularly in the climate change space, they do not explicitly engage in deeper futures studies methodologies beyond empirical modelling. There is still room and need for deeper integration of futures approaches and methodologies into strategic planning and policy processes in South Africa to ensure national, sub-national and local plans and policies are resilient to future uncertainties, black swan events and take advantage of any beneficial future opportunities.

This policy brief provides policymakers and planners with insight into the benefits of integrating deeper futures studies approaches and methodologies into their planning and policy processes. Deeper integration of futures studies can enrich strategic planning and policy by providing critical information and intelligence; deep diving into alternative worldviews, cultures, metaphors and myths; linking broader contexts with more specific strategic planning and policy concerns; and infusing imaginative thinking into empirical evidence. Futures methodologies can also promote participatory policy development and support improved coordination and implementation by engaging stakeholders and understanding their assumptions; creating new networks; encouraging collaboration and fostering a sense of shared ownership of strategic plans and policies. All of which have the potential to support the creation of new capabilities and the development of more robust and flexible strategic plans and policies that are capable of addressing uncertainty in the long-run.

These benefits are critical for South Africa when considering the country’s poor policy implementation track record and vulnerability to the physical and socio-economic impacts of climate change, which risk deepening the inequality divide. South African policymakers and planners are, therefore, encouraged to integrate deeper futures studies approaches and methodologies into their strategic planning and policy processes, going beyond the “normal” empirical projections of the future. Understanding the broader context, considering alternative cultural and worldviews, and integrating imaginative solutions can strengthen strategic plans and policies in the face of uncertainties emerging from climate change and technological disruption.
WWF South Africa’s Policy and Futures Unit undertakes enquiry into the possibility of a new economy that advances a sustainable future. The unit convenes, investigates, demonstrates and articulates for policymakers, industry and other players the importance of lateral and long term systemic thinking. The work of the unit is oriented towards solutions for the future of food, water, power and transport, against the backdrop of climate change, urbanisation and regional dynamics. The overarching aim is to promote and support a managed transition to a resilient future for South Africa’s people and environment. The organisation also focuses on natural resources in the areas of marine, freshwater, land, species and agriculture.

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