1 Sensing and making-sense of Futures Literacy

Towards a Futures Literacy Framework (FLF)

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Futures Literacy (FL) is a capability. A futures literate person has acquired the skills needed to decide why and how to use their imagination to introduce the non-existent future into the present. These anticipatory activities play an important role in what people see and do. Developing a detailed description of this capability to ‘use-the-future’ calls for an analytical framework that can clarify the nature of different anticipatory systems and guide both research into FL and its acquisition as a skill. Such a framework is presented in this chapter, focusing on the sub-set of anticipatory systems and processes that humans use when they consciously imagine the future.

The first section briefly presents a case study in order to introduce the key concepts of the Futures Literacy Framework (FLF). The second section spells out some of the main analytical challenges that the FLF is meant to address given that FL is as an emergent and evolving capability. The next section describes the FLF in detail, explaining the different ontological and epistemological categories that are used to map FL. The fourth and final section provides two illustrations of how the FLF can be used. The first part explains how the FLF can be used to situate and design Futures Literacy Laboratories (FLL), a general-purpose tool that reveals anticipatory assumptions (AA), and then a more specific task-oriented sub-category of FLL designed specifically for the research agenda of this project regarding novelty, the FLL-N. The second part discusses how the FLF can be used to situate the theory and practice of Future Studies (FS) in ways that clarify why particular tools are more or less appropriate for specific tasks as well as pointing to the potential to both deepen and enlarge the discipline beyond the boundaries of currently dominant theory and practice.

Searching for Futures Literacy in Sierra Leone

In early 2014, in the aftermath of a horrific civil war, but before the devastation of the Ebola epidemic, UNESCO organised a FLL-N in Freetown, Sierra Leone (Case Study 5 in Chapter 5). The Lab was designed to explore the transition from ‘youth’ to ‘adult’ in the Sierra Leone of the future. On the face of it this task involved one of the most universal ways of ‘using-the-future’: imagining ‘growing-up’. Age progression is the familiar model we apply when we imagine that a crawling baby
will learn to walk. Personal experience has forged this frame, we all know that in
due course – assuming nothing unusual happens – the baby will ‘grow-up’, which
is why we do not chastise a baby for not yet knowing how to walk. Nor do we
apply intensive remedial therapy because we are worried that crawling will impede
walking. We make sense of the crawling baby through the frame of the temporal
journey from infant to child to adolescent to adult.

This ‘growing-up’ story is accessible and perhaps even the dominant template
humans use to imagine the future. The frame of ‘growing-up’ (Goffman, 1974),
with its pictures of the tomorrows we will catch-up with or converge on, enables
us to sense and make-sense of what a baby is doing now. And it is a clear illus-
tration of how people ‘use-the-future’ by deploying an anticipatory system (AS)
to understand the present. For most people, this kind of elementary anticipation
comes automatically, without the need for explicit awareness. And since they
do not need to think explicitly about the anticipatory systems and process they
deploy to ‘use-the-future’, people rarely consider that the future can be ‘used’ for
different reasons and with different methods. For example, in the Sierra Leone
FLL-N a diverse group of participants, spanning different ages, origins and pro-
fessions, were startled when they discovered that by breaking with the simple
‘growing-up’ frame for imagining the future they could expand what they sense
and make sense of in the present.

Through a co-designed, highly context-sensitive collective intelligence process
that used different futures, the participants in the Sierra Leone FLL-N became
aware of their anticipatory assumptions (AA), making it possible to invent futures
less constrained by the frame of catching-up or converging with today’s idea of an
adult or yesterday’s idea of what it meant to ‘grow-up’. By undertaking a learning
voyage that developed their futures literacy they were able to call into question
the frames that confine the transition from youth to adult to a set of pre-existing
rites of passage along linear and hierarchical paths to old age. Instead participants
in the Sierra Leone FLL-N explored and invented alternative images, definitions
and conditions for autonomy, responsibility, trust and wisdom in their specific
post-conflict community. They challenged terms like ‘youth’ and ‘adult’ that for
them obscured more than revealed the actual lived experiences and meanings of
people’s current roles and positions in their local community.

Initially, participants were surprised that the frame of ‘growing-up’ turned
out to be inadequate, even counter-productive. But as their capacity to ‘use-
the-future’ developed they started to not only imagine different futures but also
learn that there are different kinds of anticipation. Both the meaning of ‘becom-
ing responsible’ and the avenues for getting there changed. Different imaginary
futures enabled new ways of seeing the present. As participants started to become
futures literate they began to understand the power of anticipation in shaping what
they see and do.

The sequence of the FLL-N as an action learning process unfolds as follows.

1 Participants experience and become explicitly conscious of how the future
plays a central role in what they perceive and pay attention to in the present.
By changing the way they ‘use-the-future’ participants started to realise that they can anticipate in different ways and thereby imagine different futures. By putting together the first and second insights participants begin to understand that imagining different futures changes what they could see and do in the present. By imagining different futures participants become aware of their own capacity to invent the underlying anticipatory assumptions (AA) that shape their of-necessity fictional descriptions of the later-than-now. By starting to acquire FL they become better at rooting their AA in their own history and specific socio-economic-cultural context. Participants begin to reassess their perceptions of the present, depictions of the past and aspirations for the future. Through engagement in the knowledge co-creation processes of the FLL-N participants begin to acquire the capacity to design this kind of collective intelligence process that enables them to choose why and how to anticipate, contributing to the acquisition of the skills that make up FL.

The structured processes of FLL as a general-purpose tool for revealing AA shows that people can use different kinds of future, for different reasons and by deploying different methods. The FLL-N customised for this project generated evidence that being futures literate facilitates the discovery and invention of novel phenomena in the present. Designing these processes as well as testing different hypotheses about FL requires a systematic and comprehensive analytical framework that enables both practitioners and researchers to distinguish why and how to ‘use-the-future’ for specific ends in particular contexts. This is the role of the FLF and a key step towards gaining a better understanding of the evolving capability of FL.

The challenge of mapping an emergent and evolving capability

Efforts to conduct research into defining and mapping FL need to take into account its continuously emerging and evolving aspects as well as the acquired stock of what is ‘already known’ about ‘using-the-future’. FL as a capability is reflexive, in the sense that through practice people invent and redefine the way they ‘use-the-future’, and it is constructive in so far as the constant ‘use-of-the-future’ plays a role in building up the world around us – including why and how we anticipate (Misuraca, Codagnone and Rossel, 2013). The challenge of developing an analytical framework for understanding FL, already a moving target, is compounded by the fact that many theories such as complexity and anticipatory systems theories, and practices such as action learning and collective intelligence knowledge creation (CIKC) processes that enable people to sense and make-sense of FL are only now starting to appear in explicit and coherent form.

At the outset of this effort to define and map FL then, it is important to note that both the results reported in this book and the FL Framework (FLF), elaborated in order to provide a theoretically and analytically grounded approach to
FL, are necessarily of an exploratory, preliminary, tentative, and even inventive character. Research into such emergent phenomena need to not only seek out the relevant strong- and weak-signals, but also try to account for the possibility that engaging in such inquiry can actually generate or invent new concepts, relationships, processes and even systems. As Popper argues in the following quote:

Our very understanding of the world changes the conditions of a changing world; and so do our wishes, our preferences, our motivations, our hopes, our dreams, our phantasies, our hypotheses, our theories. Even our erroneous theories change the world, although our correct theories may, as a rule have a more lasting influence. All of this amounts to the fact that determinism is simply mistaken: all of its traditional arguments have withered away and indeterminism and free will have become part of the physical and biological sciences.

(‘Two New Views of Causality’, Popper, 1990, p. 17, emphasis in original)

The FLF sketched over the following pages reflects today’s evolving conditions for thinking about the future and picks up on the research and experiences of many people, across many fields of theory and practice. In particular, the research results reported here have benefitted significantly from the work done on: anticipatory systems (Rosen, 1985; Nadin, 2010a, 2010b; Rossel, 2010; Tuomi, 2012; Miller and Poli, 2010); complexity (Ulanowicz, 1979; Rosen, 1986; Ehresmann and Vanbremersch, 1987; Kauffman, 1995; Delanda, 2006; Poli, 2009); management (Snowden, 2002; Stacey, 2007; Wilenius, 2008; Fuller, 2017); governance (Sen, 1999; Mulgan and Albury, 2003; Unger, 2007; Boyd et al., 2015); knowledge creation/management (Nonaka, 1994; Wegner, 1998; Tuomi, 1999; Lewin and Massini, 2004; Paavola, Lipponen and Hakkarainen, 2004; Latour, 2005); human agency/behaviour (Archer, 2002; Kahneman, 2012); and Futures Studies (Slaughter, 1996; Ogilvy, 2002; Bishop and Hines, 2006; Godet, 2006; Masini, 2006; Miller, 2007b; Inayatullah, 2008; Fuller, 2017; Ramírez and Wilkinson, 2016). Other fields of both practice and research, running from design thinking (Kimbell, 2011) and participatory decision-making (Scharmer, 2007; Kahane, 2012; Hassan, 2014) to the widespread implementation of action learning (Adler and Clark, 1991) and action research (Hult and Lennung, 1980; Robson and Turner, 2007) in many different contexts, have also played an important role in the discovery and elucidation of why and how people ‘use-the-future’.

Of course, FL is not the first capability to be analysed by researchers and philosophers. FL, like many such general and regularly practised capabilities, can be described from different perspectives, including philosophical and applied, cognitive and prescriptive (Sen, 1999; Nussbaum, 2011; Poli, 2015). Skills like reading and writing have been defined and analysed on the basis of different theories, such as Piaget’s Theory of Cognitive Development (Wadsworth, 1971), and practices like genre-based learning-to-write pedagogies (Rose and Martin, 2012). Widely dispersed social capabilities can also be described in macro-functional
terms (Bourdieu and Passeron, 1977; Bauman, 2013; Giddens, 1991; Beck, 1992), as in the case of the general society-wide diffusion of the basic capacity to read and write, a central aspect of the transition from peasant to industrial society (Miller, 2007a). The bottom line is that efforts to describe such cross-cutting and frequently used capabilities must go beyond static approaches that only see repositories of knowledge ready to be downloaded by receptive citizens, consumers or students. Over time, as contexts change and new phenomena emerge, the nature of a capability such as what it means to be ‘literate’ or in this case futures literate, at personal and societal levels, also evolves (Trilling and Fadel, 2009).

The need to simultaneously detect and invent FL calls for a research methodology that is capable of discerning continuity and difference in the processes and categories of ‘using-the-future’. As it turns out, addressing this kind of double or recursive analytical challenge is precisely one of the vocations of FL. ‘Using-the-future’ to understand the present already attempts to address a chicken-and-egg type conundrum. Or to use another metaphor, the effort to map FL is like having to invent the thief who is then able to catch a thief. Gregory Bateson expresses this notion of engaging in knowledge creation where there is reciprocity between ‘product as process and process as product’ by inventing a term: “metalogue” (Bateson, 2000, p. 1). Gathering evidence about why and how people ‘use-the-future’ calls for this type of ‘metalogue’ methodology, a double movement design that enables researchers “to learn from actors without imposing on them an ‘a priori’ definition of their world building capacities” (Latour, 1999, p. 20). In other words, research into FL is challenging not only because of its implicit, quasi-hidden status in today’s world but also because this type of broad capability is both reflexive and a part of so many other skills, with so many evolving facets.

In the beginning: “what is the future?”

An analysis of FL must start with a definition of what is the future. Then, on that basis, turn to the challenges of why and how to ‘use-the-future’. As already touched upon in the introduction to this book, in practical terms the future only exists in the present as some form of anticipation. The future qua future remains the potential that the later-than-now will arrive. But that future cannot exist in the present, since if it did it would no longer be the future. Hence anticipation is the only way that the future is actually expressed in the present. This shifts the focus to the systems and processes that allow anticipation to become an identifiable and active part of the present. The future therefore exists in the present as anticipation and anticipation is generated through active systems and processes.

This ontological perspective on the future matters for FL for at least two reasons. First because differences in the kinds of future being imagined generate differences in both what humans perceive and the meanings they associate with what they perceive. Second because ‘what’ matters for ‘how’. Or, to put it another way, how people try to understand the future depends on what kind of future they are trying to understand. As Poli (2011, p. 75) notes in his important work exploring the ontology of anticipation: “... elements of ontology should become part
Having identified the need to ground the future at an ontological level invites the next question: what is the basis for distinguishing different kinds of future? Here the work of the mathematical biologist Robert Rosen (Rosen, 1985) offers a crucial insight. His work considers the anticipatory systems of single-celled organisms and makes the case for integrating anticipation into the basic definition of life. Anticipation is the capacity of an organism to incorporate the later-than-now into its functioning in ways that are relevant. Focusing the relevance of the later-than-now on ‘functioning’ provides an ‘actionable dimension’ to the definition of anticipation. However, this formulation can encompass rather passive forms of action, like non-conscious sensing and conscious efforts to know – which are actions that may or may not have further consequences related to reactions, like leaves falling, or choices like deciding to take an umbrella if the weather forecast predicts rain.

This perspective throws into relief the ontological difference between conscious and non-conscious anticipation, making it evident that at a fundamental level it is feasible and meaningful to distinguish anticipatory systems that operationalise different kinds of future. The anticipation of trees or protozoa is not the same thing as anticipation by a cat or a human. Rosen’s anticipatory systems perspective not only helps to justify and motivate a search for a diversity of responses to the question: ‘what is the future?’. It also points to the need for a framework to help guide efforts to distinguish different anticipatory systems (see Chapter 2 for a discussion of the Discipline of Anticipation (DoA)).

Two kinds of future: two different anticipatory systems

When people ‘use-the-future’, what is the future that they are using? Or as we shall see: what are the futures, plural, that they are using? One fruitful approach to revealing the ontological aspects of conscious human use-of-the-future is to apply Heidegger’s “Being versus beings” distinction (Heidegger, 1962) to different kinds of explicit anticipation, specifically the difference between anticipation-for-the-future (AfF) versus anticipation-for-emergence (AfE). The ‘being’ of AfF is the future as a goal – a planned/desired future that people bet on. There are many ‘beings’ of this kind of future, ranging from when you take an umbrella to be prepared if it rains to planning to climb Mount Everest. In contrast, the ‘being’ of AfE is in a sense a non-future, from the dominant AfF perspective. The future of AfE is one that is not a goal or target meant to structure the making of preparatory and planning bets. The later-than-now imagined in AfE is a disposable construct, a throwaway non-goal that need not be constrained by probability or desirability.

AfF is the overwhelmingly prevalent form that the future takes when people use it in their everyday life. For the most part, humans have internalised the relevant anticipatory systems (AS) and related knowledge creation processes (KCP) before they can even speak. For instance, very young babies cry out when hungry, motivated by the expectation that food will then arrive, and are able to project the trajectory of a ball that is rolling along a table (Bower and Paterson, 1973; Wang, Baillargeon and Brueckner, 2004). These anticipatory capabilities
are the foundation for everyday tasks, like preparing for rain by deciding to wear a raincoat or planning to sell phones by building the relevant kind of factory. Generally, when people are asked about what kinds of futures they use they are not even aware that they constantly deploy anticipatory systems, even less that the future can be anything other than a goal (AfF).

The current monopoly of AfF as the only way to ‘use-the-future’ is evident in many different ways, particularly in terms of the frame used for human agency. AfF is what gives meaning and force to today’s ubiquitous slogan: ‘make a difference’. AfF is the frame that legitimises and incentivises the grandiose claims being made by leaders worldwide that they can impose their will on tomorrow. In a nutshell, the imperative is to colonise tomorrow with today’s idea of tomorrow. As a result, the formulation of human agency in terms of decision-making and the responsibilities that go with it focus almost exclusively on the future as a goal (AfF) and so anticipatory activities concentrate on setting and achieving this goal. Given this obsession it is not surprising that almost all the theoretical and practical knowledge that makes up fields like Future Studies (FS) are about AfF.

Of course, it may seem that this is hardly a problem or controversial. ‘Using-the-future’ in this way has worked fairly well up until now and comes to most people, even babies, quite easily. So why attempt to both discover other kinds of future and expand the kinds of future that people use? Aside from the rationale that the discovery of new or ignored aspects of reality is a worthy scientific endeavour in and of itself, the main reason is that an exclusive focus on AfF narrows human agency in two reductionist ways.

First, people do not practise diversifying their ‘uses-of-the-future’ and therefore do not develop the capacity to go beyond probability and planning futures, with an exclusive focus on the relevant ‘closed’ anticipatory systems (AS) and related knowledge creation processes (KCP). Second, by boxing-in the conception of agency AfF biases what people see and do to choices that seem less threatened by uncertainty or more ‘reasonably’ safe from uncertainty or changes in the conditions of change. Not only does this obscure the richness of complexity and the plethora of experiments that generate novelty all around us, it gives excessive weight to ‘robust’ options that often take the form of heavy investments that generate legacy systems and the burdens of path dependency.

In other words, despite the fact that the world is non-ergodic (North, 1999; Taleb, 2010; Davidson, 2012) and the conditions of change do indeed change, most AfF assumes the opposite: an ergodic world. The almost exclusive focus on AfF frames human agency in a way that biases what we see and do towards a search for certainty and comforts humanity’s currently prevalent delusions of omnipotence. And, of particular relevance here, it inhibits the development of FL because it impedes the search for anticipatory systems and processes that are outside of AfF. In a curious twist, the ergodic assumption that dominates fields like economics – an assumption of no change in the conditions of change – obscures precisely one of the key potential changes in the world around us: the way we anticipate. The ‘what-if’ being suggested here is that conscious human anticipation may be able to reframe the search for certainty and thereby the framing of human agency.
Walking on two legs

Moving beyond an AfF mono-vision or helping people to ‘walk-on-two-legs’, to use Mao’s dual-paradigm slogan (Mao, 1977) by deploying both forms of anticipation cannot start at an epistemological level because there is an inherent practical contradiction between AfF as a search for certainty and alternatives that instrumentalise a different kind of future for a different purpose. Diversifying the ways in which the future is used, beyond the AfF’s planning and preparation, calls for the recognition of another kind of future – one that is distinct at an ontological level from AfF. As already noted, this other future is called here, in an initial terminological foray, anticipation-for-emergence (AfE). Although at first this kind of future may seem quite strange, AfE is not about the future as a goal or instrument for getting to some future – any future. Rather AfE is a use of the future to sense and make sense of aspects of the present, particularly novelty, which tends to be obscured by AfF.

‘Walking on two legs’ is about becoming better able to engage in spontaneity and improvisation through acquiring the knowledge needed to sense and make-sense of emergent complexity, including its crucial specificity-unique (SU) and ephemeral dimensions. This is a critical step in becoming able to embrace complexity rather than just lamenting it as some cursed and inescapable source of ‘wicked problems’. It is about finding ways to reconcile human agency with the origins of our freedom in a creative universe (Bergson, 1998; Kauffman, 2016). Perhaps an infoverse (Wendt, 2015; Wheeler in Kobaysahi and Nihon Butsuri Gakkai, 1990) characterised by ontological expansion (Tuomi, 2017) that invites a new strategic approach to resilience by leveraging complexity and the diversification novelty affords. Clearly not today’s everyday way of ‘using-the-future’ (Miller, 2011; Ogilvy, 2011; Miller, 2015b).

Leaving aside the challenge of how to detect and make practical use of AfE, addressed in some detail in the discussion of FLL in the fourth section below and Chapters 3 to 5, the key point at this stage is that the identification of two broad categories of ontologically distinct kinds of future allows for the specification of the primary hypothesis tested at a proof-of-concept level by the research reported here. The hypothesis is this: when people engage in a knowledge creation process designed to imagine the future in the form of anticipation-for-emergence (AfE) it is easier to: (1) sense and make-sense of existing but otherwise invisible emergent-novelty, and (2) invent or innovate – the actual creation of emergent-novelty. The proposition is that imagining AfE futures makes it easier for people to: invent new words; sense and make-sense of the novel; imagine the potential for the persistence of changes that are always initially locally unique and seemingly ephemeral; and pose questions that are new because they can detect and invent phenomena that make up the emergent present, including new paradigms.

In part, AfE does this by loosening the grip of AfF on what is sensed and made-sense of. Formulated in negative terms the hypothesis is that, at a minimum, using this other kind of future (AfE) helps to deconstruct those aspects of the present that are held in place as repetition by existing expected and desired futures (AfF).
Posed positively, liberating the future through AfE gives direct access to creative novel aspects of the present that are inaccessible through AfF. Initial, proof-of-concept level evidence from efforts to test this hypothesis can be found in Chapter 5 containing the case studies that report on experiments that use AfE to identify and generate novelty. Getting people to engage with these two ways of ‘using-the-future’ – AfF and AfE – provides an opportunity to test both the negative and positive propositions: that AfF constrains perception of novelty in the present and AfE facilitates it.

The choice of what kind of future to think about also plays a critical role in making epistemological choices, the choice of the knowledge creation processes (KCP) that actually generate different kinds of imaginary futures – AfE and AfF. Furthermore, distinguishing between the ‘what’ and the ‘how’, or the ontological and the epistemological aspects of ‘using-the-future’, provides the foundation for developing a more complete analytical map of FL as a capability. This map, as depicted in Figure 1.1, outlines key aspects of a Futures Literacy Framework (FLF). The FLF is intended to serve as both an analytical structure for generating evidence and testing hypotheses as well as an inclusive ‘big tent’ for understanding and developing the capability of humans to ‘use-the-future’ (see second part of the fourth section below for a discussion of the relationship of the FLF to Futures Studies (FS)).

The Futures Literacy Framework (FLF)

The Futures Literacy Framework (FLF) as depicted in Figure 1.1 is an analytical tool for describing the different attributes of FL as a capability. As is evident when looking at Figure 1.1, the FLF being advanced here covers both different kinds of futures (ontology) and how to know these different futures (epistemology) as the basis for describing FL. The ontological categories are on the left-hand side of Figure 1.1 and the epistemological ones are on the upper right. Drawing the intersection between these two sets of characteristics of FL generates six distinct clusters of anticipatory assumptions (AA1 to AA6) in the domain of conscious human ‘use-of-the-future’.

This framework for describing why and how people ‘use-the-future’ is useful because it contributes to:

1. developing FL by helping to construct the learning processes that enable people to ‘use-the-future’ in different ways depending on aims, means and context;
2. exploring FL by helping to identify existing and new topics for research;
3. determining the best methods to conduct research into FL by helping to select the appropriate design criteria; and
4. FL as a practice by helping to determine which tools for thinking about the future are most appropriate for the kind of future being thought about in a given context.
As already touched upon in the Introduction, AA are the fundamental descriptive and analytical building blocks for understanding FL and ‘using-the-future’. The reason that AA are the basic analytical unit of the FLF is that conscious human anticipation can only occur on the basis of AA of one kind or another. AA are what enable people to describe imaginary futures. AA define the frames and models that are used to invent the content of the fictions that are conscious human anticipation. By definition therefore, being futures literate is the capacity to identify, design, target and deploy AA. Giving AA a central role also draws attention to the difference between FL as the conscious human capability to anticipate and non-conscious anticipation. When anticipation occurs without explicit conscious imagining, such as with trees or single-cell creatures or through the functioning of capitalist competition, the AA are of a different, non-volitional character. This is why the bottom of Figure 1.1 designates non-conscious anticipation as the kind of future that is relevant to fields like biology, physics, mathematics, sociology, economics, etc. In these fields, the later-than-now at an ontological, ‘what-is-it?’ level is defined and incorporated into anticipatory systems, at least up until recently, by exclusively non-volitional evolutionary processes.

Returning to conscious human anticipation, one of the virtues of designating AA as the theoretical and practical core of human anticipatory capabilities (FL) is that AA can be described and situated on the basis of the intersection of different AS and KCP, as per the FLF depicted in Figure 1.1. Such a dual coordinate approach to defining and describing anticipatory capabilities rests on the proposition that conscious human anticipation always depends on the capacity...
to imagine. In turn, this means that the relationship between AS and KCP that are relevant for FL must, in one way or another, contribute to the invention and description of different kinds of imaginary futures or, in the terms of the FLF: different anticipatory systems (AS). Conscious anticipation is fundamentally about producing fiction. As a result the KCP that are relevant is restricted to those frames (Goffman, 1974; Lakoff, 2006; Kahneman, 2012) that enable meaningful descriptions of imaginary futures.

These three terms – AA, AS and KCP – are defined in detail in this chapter as part of the FLF and used extensively to describe the customised FLL-N design that was used for the case studies presented in this volume. Overall, it is the development of the Futures Literacy Framework (FLF), as a specification of the theory of anticipatory systems (AS), knowledge creation processes (KCP) and the relationship between the two as defined by clusters of anticipatory assumptions (AA), that enables a Bateson (2000) type ‘metalogue’ approach to researching the emergence and evolution of the human capability to ‘use-the-future’ (FL).

To set the stage for the rest of the book the following sub-sections offer an initial discussion of the three distinct areas of the FLF as presented in Figure 1.1: (1) ontological; (2) epistemological; and (3) anticipatory assumptions AA1 to AA6. And, as already noted, the fourth section then turns to consideration of two examples of the application of the FLF, first to the design of the FLL-N research tool used in this project, and second to the application of the FLF to advancing the theory and practice of Future Studies (FS).

**Ontological side**

A framework for describing the capacity to ‘use-the-future’ needs to start, as already discussed, with the ontological question: what kind of future is being used? A range of answers to this question can be found on the right-hand side of Figure 1.1, covered by the overarching label: The Discipline of Anticipation (DoA). The DoA (see Chapter 2) explores the different kinds of future that are associated with distinctive sets of anticipatory systems (AS) and extends, at the bottom of Figure 1.1, to non-conscious anticipation (Rosen, 1985; Poli, 2010, 2014).

The ontological side of conscious anticipation (DoA) is divided into three categories – system, purpose, type – for defining what kind of future or the nature of the subject of the AS humans use when they are consciously ‘using-the-future’.

At a system level, there are two distinct categories: closed and semi-closed/semi-open. Closed system anticipation is defined by AA that limit the number and nature of the variables used to imagine the future. The world is assumed to be ergodic, or not subject to changes in the conditions of change (North 1999; Popper, 1990). One of the most familiar forms of this type of closed systems use-of-the-future can be found in the field of macro-economic forecasting where the assumption is explicitly *ceteris paribus* or ‘all other things being equal – or constant’. Semi-closed/semi-open systems anticipation is defined by AA that accept that the conditions of change may change and that novelty characterises
emergent reality. The difference between semi-closed and semi-open is one of degree and practical choices regarding the different levels of reality – or the extent to which a prior assumption constrains the next level assumptions (Poli, 2001, pp. 261–283). In practice, given current limitations of conscious human AS, which may change in presently unimaginable ways, humans can only use a semi-open kind of future due to our inherent linguistic and cognitive limitations. Conscious ‘use-of-the-future’ – the explicit imagining of the later-than-now – can only be done at the moment with words and cognitive framing, some of which may originate/be influenced by the ‘unconscious’. So even if humans may be capable of imagining being beyond dualisms like mortal/immortal or parts/wholes or finite/infinite we are still constrained when anticipating the future by our current forms of consciousness (Montemayor and Haladjian, 2015). For now, the range from closed to ‘semi-open’ kind of future is all that conscious human anticipation can access. However, it is worth noting that non-conscious anticipatory systems, like those found in trees or single-celled organisms, ‘use-the-future’ in a form which is not constrained by the parameters that define humanity’s capacity to imagine. Such non-conscious anticipation cannot distinguish between open and closed – instead it incorporates a kind of non-future future. Institutions and social systems may have some similar qualities, but in this book the focus is on direct human agency.

At a teleological or purpose level, already discussed above, it is contended here that humans can consciously use two basic kinds of future: anticipation-for-the-future (AfF) and anticipation-for-emergence (AfE). The key feature that distinguishes these two forms of anticipation at the applied level of AA shown in Figure 1.1 is the extent to which the imaginary futures are constrained or unconstrained by the imperatives of probability and desirability. As the discussion of the different fields of AA1 to AA6 will highlight, this is a question of degree and the boundaries are not always razor thin or airtight. Take the widespread example of imagining improvements to existing systems – this is an ‘adaptive’ or reform-oriented perspective. Imagining the realisation of endogenous changes that result in the ‘optimal’ school or hospital, one that solves all the problems on today’s agenda, can be the outcome of combining both closed and semi-open anticipatory assumptions. But the dividing line between AfF and AfE is precisely on either side of the choice of why to imagine the future and the consequences such a choice has for the selection of different kinds of closed versus more open anticipatory assumptions.

As Figure 1.1 shows, there is no overlap between closed AS and AfE, but there can be some overlap between semi-open AS and AfF. Here the degree of openness is in part a proxy for the desire for ‘inventiveness’ and in part the extent to which the assumptions used to imagine the future are constrained by continuity. All of this plays a role in determining where the imagining process starts and the extent to which the consideration of ‘creative reforms’ or ‘endogenous innovation’ run up against the boundaries of existing systems. Indeed today, given the lack of FL, most efforts to innovate fall into AA3. Turning to AfE, the lack of overlap with closed AS reflects the difference in the fundamental purpose of imagining the
future, but as already noted AfE cannot avoid making some closed assumptions due to the inescapable constraint of human framing in the here and now.

The third column under the DoA still organises different anticipatory activities based on differences in the kind of future being used. The three different types of anticipatory systems, integrating more operational or practical/organisational AA, are: AS1: Preparatory; AS2: Planning; and AS3: Novel (Miller, 2015b).

- **AS1**: In the case of preparatory futures the key ontological level anticipatory assumption is that the future(s) being imagined is amenable to both ex-ante and closed systemic definition and to preparatory and/or pre-emptive action by human agency, usually on the basis of simulation methods. Simulation is of necessity a closed framework based on given variables, ranges of variation and fixed rules governing dynamics. Ontologically such futures are contingent, occurring when there is a ‘disruption’ by an external force, which may be positive or negative. The AA in AS1 are selected with the aim of preparing for contingencies, both the ‘good’ ones and the ‘bad’.

- **AS2**: With respect to planning futures, the key ontological level anticipatory assumption is that the past determines the future and hence the conditions of change are assumed to be predictable and so future phenomenon are amenable to closed systems probabilistic estimation and, in most cases, subject to influence by human agency. This type of ‘planned future’ is defined so that it is practical to calculate the odds of successfully reaching the objective by different paths. Why choose one route over another in order to get to the top of Mount Everest, or which policy is more likely to improve the outcomes of existing school systems? These closed system, ex-ante results-based futures also include normative or ‘better/worse tomorrow’ anticipation. These are desired futures that motivate through the hope of being able to impose today’s ideas of tomorrow on tomorrow. The AA in AS2 are selected with the aim of planning the realisation of a specific future outcome – even if chosen from amongst many different possible futures – to find actionable ways to ‘colonise tomorrow’.

- **AS3**: The underpinning anticipatory assumption that defines the third operational type of anticipatory system is that the future is non-actionable from the present or, to put it another way, that actions in the present do not have a significant predictable causal relationship with future outcomes. At the ontological level of what is the future, the AA that make up AS3 constrain the construction of imaginary futures to ones that are not the outcome of probabilistic or normative causal sequential preparation and planning. The dissociation of anticipation from the future as goal (AfF) is not intended to mimic the blind evolutionary processes that shape the AS in ‘nature’ or strip humans of our capacity to act and consciously imagine. Rather AS3 is focused on the present, ‘using-the-future’ to reveal complex emergence, rich with previously unknowable unknowns (novelty). This is not meant to deny or exclude the insights into the present generated by AS1 and AS2, just assist with the invention or discovery of phenomena that are novel,
cannot immediately be associated with repetition. The futures imagined in AS3 can contribute to naming the unnamed, sensing and making-sense of the previously unknowable. The AA in AS3 are partly selected in opposition to those of AS1 and AS2 that constrain what is imagined to the preparatory and planned, and partly with the goal of liberating why we imagine the future. AfE is about futures that probe and provoke sensing and making-sense of difference in the present.

AS1 to AS3 provide a basic typology of applied conscious anticipatory systems sorted on the basis of differences of ontological status of the future in each AS. AS1 to AS3 bridge to the ‘how-to-know’ side of anticipation by offering a practical way of sorting different reasons and methods for ‘using-the-future’ – in other words different kinds of future. And, of course, it is possible to mix these different kinds of future in practice, for instance taking into account contingency (AS1) futures when thinking about planned (AS2) futures. But, as will become clear in the next section, there is less practical compatibility between AS1/AS2 and AS3.

**Epistemological side**

The right-hand side of Figure 1.1 covers the epistemological or ‘how-to-know’ methods that enable someone at a practical level to actually generate and describe different kinds of imagined futures. Like the ontological side, the definition of the epistemological aspects of FL as a capability goes beyond currently dominant and familiar categories. The task is in many ways similar to describing the world we can see, hear, feel or taste as we experience it in the present, only with the added requirement that with conscious human anticipation the future can only be imagined.

The ‘tool’ for this task as a general, all-encompassing category is knowledge creation processes (KCP). This open term was chosen because different AS and different contexts call for different ways of ‘knowing’. The reason for such agnosticism or openness regarding ‘how-to-know’ arises directly from the imaginary nature of the future as anticipation and the potential diversity of what is imagined and how it is given meaning. Sensing and making-sense of fictional worlds covers not just the physical or institutional contours of imagined tomorrows but also the emotions, colours, sounds, tastes, etc. Conscious anticipation as imagination can make use of a very wide range of methods, from the most fundamental forms of sensing and sense-making linked with basic human cognition, framing and narrative to elaborate expressions of extrapolation, superstition and fantasy. All these KCP and more may be relevant to specific anticipatory activities in specific contexts. The challenge is how, in a specific context, at a particular moment and place, to generate and give meaning to the inherently fictional descriptions of the later-than-now.

Many of the KCP applied to anticipatory activities are part of well-established traditions and sub-fields for generating knowledge about a subject. An example of a recently developed and regularly applied method for describing imaginary
Sensing and making-sense of FL futures is the field of statistics. As most people know, statistics is a way to define, gather and interpret information that describes the world according to a particular frame or model. Story-telling is an example of a very old KCP that provides a way to sense and make-sense of the world. Both of these KCP, statistics and story-telling, are familiar methods for describing the imaginary future. For instance, statistics is essential for macro-economic forecasting or climate change modelling aimed at producing probabilistic estimates or predictions of the future. Stories and allegories of gods and spirits were and still are guides to human conduct inspired by what is ‘ordained’ or in keeping with the wishes of tradition and power. Yet again, as with anticipation and ‘using-the-future’, humans are so accustomed to engaging with KCP that little attention is paid to the choice of method or how it is related to different AS.

This lack of awareness is also characteristic of the dominant institutions of the industrial era, public or private – all organised along variants of the bureaucratic division of labour and power. These administrative systems deploy a range of AS and KCP to generate imaginary futures. For instance, most people are familiar with the dedicated and highly technical systems that can be found in sectors like the military, finance, technology, health, consumer goods, infrastructure, urban planning, energy, etc. Leaving aside the AS aspects, which are overwhelmingly AfF, what is striking is that there is also a uniformity of KCP. In ‘mass-era’ descriptions of the world, priority is given to the search for scale on the supply side, and the identification of common denominators on the demand side. Past, present and future all succumb to the same descriptive framing that ignores, discards or denigrates the specific, unique and ephemeral.

Being futures literate calls for being able to cover both the General-Scalable (GS) and the Specific-Unique (SU), as presented in Figure 1.1 under KCP. From an applied perspective of ‘how-to-know’ the methods needed to generate GS and SU imaginary futures can be described as follows.

- **General-Scalable (GS).** These are methods of knowing that can range from the micro to the macro, from small-scale to large-scale phenomena, consistent with the aims of aggregation, comparability and affirming continuity (repetition). This is what can be called ‘marked-space’ (Fuller, 2017) that already has coordinates, variables and frames (Goffman, 1974). The field of statistics is a pre-eminent example of this approach to ‘knowing’ the world. Trends and forecasts are its most familiar methods for imagining and describing the future. From the perspective of the emergent present GS phenomena are those that repeat (Delanda, 2006), otherwise there is no way of knowing if such phenomena are GS.

- **Specific-Unique (SU).** These are methods of knowing that discover and invent the meaning of phenomena that are initially of “indeterminate” duration – not recognisable repetition, at least not immediately at the moment of ‘local’ emergence.4 Such methods of knowing detect or invent the initial meaning of difference in the emergent present – including ways of sensing and making-sense of process as experience. In part, all knowing contains an element of
novelty insofar as the experience of arriving at one meaning rather than another is a definitive exclusion, at that moment, of that other meaning and of a different experience. An obvious example of this kind of bifurcation, path taken/path not-taken, that alters repetition and difference in the emergent present a moment later (i.e. the future), is a fatal error. More positively ‘banal creativity’, like the realisation of ignorance or the acquisition of knowing, contains that moment of difference relative to the initial starting point. Methods that enable meaning to be attached to SU phenomena do so despite the potential that such meanings may or may not be transient, may or may not become general, may or may not have been unknowable unknowns (unmarked) prior to emergence. SU phenomena take into account that initially there is no way of knowing future states. Nevertheless, KCP for knowing the SU attach meaning, often without words, to phenomena in the emergent present.

This distinction is particularly important in light of both the deeply experiential-contextual nature of many anticipatory assumptions and the fact that grasping complexity entails a twofold recognition of the inherent time-place specificity (uniqueness) of phenomena and initial indeterminacy or openness of all phenomena from the point-of-view of ephemerality/durability. Embracing both approaches to knowing the world is important, not only because there is already an extensive ‘toolkit’ for doing so, from statistics and stories to models and intuition. But also, because ‘walking on two legs’ or ‘seeing with both eyes’ is a critical enabler for a greater appreciation of the richness of complex emergence, the value of process as experience, and learning as change (Ogilvy, 2011).

The KCP used to imagine the future must be selected on the basis of the specific goals and contexts within which the future is being used. The principle that KCP should be ‘fit for purpose’ includes the ‘rightness’ of a tool for a pre-existing task, like a hammer for a nail and screwdriver for a screw, but also extends to the appropriateness of a nail as opposed to a screw or a dowel or glue or something else when designing the storage cabinet. To stretch the metaphor even further and to push into AfE/AS3 territory, why build a storage cabinet at all? Why project one form of storage or way of being, such as a sedentary way of life and hence the need for a cabinet? The selection of KCP depends on the choice of why the future is being used and the associated kind of future, in conjunction with the specific context that determines both the actual sources of knowledge that serve as ingredients for generating the content of an imagined future and the conditions that shape the process. Someone who is highly futures literate is knowledgeable and experienced in the design of KCP that will be effective and efficient for deploying specific AS in specific contexts.

Using Figure 1.1 to map the capabilities of a futures literate person makes it clear that their ‘know-how’ calls for the ability to determine why the future is being used, what kinds of future are most appropriate for such a purpose, and then how to actually go about ‘using-the-future’ in situ given the ‘why’ and ‘what’ parameters. Readers from different futures studies (FS) and foresight communities will recognise that FL, as the capability to meet the design and implementation requirements
of a futures literate approach to ‘using-the-future’, integrates and builds on the work of FS (World Futures Studies Federation) and the wide-ranging experiences of foresight practitioners (Curry, 2012). Indeed, as discussed in more detail in the fourth section of this chapter, the FLF could assist with a more explicit mapping of current mainstream FS theories and practices to different clusters of AA and thereby enhance the field’s research and design efforts.

This book, with its focus on initial, proof-of-concept research into FL, is not the place for an exhaustive review and analysis of either KCP as a field or the relationship of KCP in general to thinking about the future. It is important, however, to underscore the diversity and contextual specificity of the methods that can accompany efforts to become futures literate (see fourth section, first part, and Chapter 4). There is no suggestion here that there is only one approach – on the contrary the thrust of developing the FLF is to enable the diversification of methods in light of a clear theoretical framework and a foundation for conducting experiments that test hypotheses about why and how humans anticipate.

*Anticipatory assumptions clusters AA1 to AA6*

Having noted this open, task- and context-sensitive approach to how knowledge is created when ‘using-the-future’, it is equally fundamental to underscore that when consciously ‘using-the-future’ the KCP humans deploy are determined by their tacit and explicit anticipatory assumptions. AA are to FL what an atom is to physics or the cell to living systems. Without abusing the parallels to other disciplines, it is clearly scientifically useful for both the theory and practice of anticipation to be able to identify a common object of inquiry that serves as a shared reference point for the exploration of different facets of the topic and the development of specialised sub-fields. For economics in the 20th century, the common topic of inquiry for theory and practice was ‘resource allocation’ (Samuelson, 1951). From macro- and micro-economics to labour market and welfare economics, the starting point for questions, hypotheses, and evidence was the nature and dynamics of the allocation of resources such as land, labour and capital to the production of income (flow) and wealth (stock). Of course, the organisation of a field into sub-disciplines around a core topic takes time. Economics, if one starts counting with Adam Smith, has had well over two centuries. Futures Studies and an understanding of FL as a capability are fields that are still in the early stages of development.

One potentially important step along the path towards building a shared language for research into FL and the FLL-N case studies reported in Chapter 5 is to begin detailing the characteristics of different clusters of AA. The FLF provides a starting point for analysing people’s AA on the basis of the six clusters defined by the intersection of the ontological and epistemological categories in the FLF. Looking at Figure 1.1 it is obvious that each cluster can be distinguished based on key assumptions about what kind of future is being imagined and whether it is being imagined in GS or SU terms. Much of the time, given the widespread lack of FL, people do not make explicit choices about which AA to adopt.
They nevertheless can be induced, through the action learning/research processes deployed in FLL, to reveal why and how they anticipate. By getting people to reveal why and how they anticipate, FLL generate indicators that can be associated with different clusters of AA.

**AA1 Closed/AfF and General-Scalable: ‘forecasting’**

In AA1, general aspects of imaginary futures are identified and constructed on the basis of closed models. Typical examples are macro-economic and climate change forecasting that extrapolate from the past. The currently dominant epistemological tools for describing AA1 imaginary futures include statistics and benchmarking that use aggregation type common denominators. Indicators that the ways people are ‘using-the-future’ fall into AA1 include: point forecasts with risk calculation, actuarial tables, trends/mega-trends, deterministic utopias/dystopias, fortune-telling and expert prognostication, which are all part of imagining generalisable probabilistic or normative futures. Totalising deterministic imagination. Doing. Colonisation of tomorrow. Insurance for tomorrow.

**AA2 Closed/AfF and Specific-Unique: ‘destiny’**

In AA2, specific-unique aspects of imaginary futures are generated and assimilated on the basis of existing fatalistic or deterministic stories, preordained outcomes or entrenched myths. The imaginary futures in AA2 are foretold. Indicators that the ways people are ‘using-the-future’ fall into AA2 include: attributes and content of processes for thinking about the future that are confined to generating signs of congruence or affirmation of religious and/or ideologically pre-determined futures. Doing. Atrophy of the imagination. Fatalism.

**AA3 Semi-open/AfF and General-Scalable: ‘creative reform’**

In AA3 imaginary futures are harnessed to solving known, even if ‘wicked’, problems in innovative ways. Since the problem is given, the focus is on endogenous adaptation/creativity – change but with a given goal (AfF). AA3 futures can be probabilistic or normative from within a given paradigm. Creativity methods can be used to seek generalisable solutions but within the confines of AfF type goals. In AA3 the emphasis is on innovative ways of getting to specific ‘continuity futures’. Indicators that the ways people are ‘using-the-future’ fall into AA3 include: within system (endogenous) reform, focus on organisational unit immortality such as global or national or company resilience as adaptive continuity. Currently most innovation activities are in AA3. Deterministic creative imagination. Doing. Slogan: ‘Make a Difference’.

**AA4 Semi-open/AfF and Specific-Unique: ‘self-improvement’**

In AA4, imaginary futures are often inward or consciousness oriented, facilitating appreciation of process and ephemerality, but in the service of attaining
Sensing and making-sense of FL

pre-determined futures. AA4 target endogenous creativity, imagining that is confined to extrapolatory probabilistic or pre-conceived normative futures (AfF). Indicators that the ways people are ‘using-the-future’ fall into AA4 include: adaptation at personal or organisational culture levels through experience induced attitudinal or consciousness changes. Introspective adaptive imagination. Doing. Slogan: ‘Consciousness raising’.

**AA5 Semi-open/AfE and General-Scalable: ‘strategic thinking’**

In AA5, imaginary futures take on different characteristics as the purpose of anticipation is for sensing and making-sense of emergence in the present (AfE not AfF) with a focus on identifiably general-scalable attributes of the present (repetition). AA5 seeks to detect and invent novelty with reference to phenomena that repeat (Delanda, 2011), since if the phenomenon is not immediately identifiably repetition there is no way of initially knowing if something is general or scalable. Repetition includes variation, a given variable that increases or decreases. Indicators that the ways people are ‘using-the-future’ fall into AA5 include: detecting system boundaries, identifying the parameters of paradigms – including existing paradigms (a repetition form of novelty) that were previously invisible or partially hidden, invention of new words or identification of missing terms. Combines doing and not-doing imagination related to general-scalable repetition.

**AA6 Semi-open/AfE and Specific-Unique: ‘wisdom–Tao–being’**

In AA6, imaginary futures take on different characteristics as the purpose of anticipation is for sensing and making-sense of emergence in the present (AfE not AfF) with a focus on locally specific-unique attributes of the present (difference). Local is used here in its most basic dictionary sense: as within a limited physical or virtual community such that what appears to be a specific-unique difference at the local, and in this sense isolated level, may turn out to be something that has already been identified as a general-scalable repetition at a more global level. Indicators that the way people are ‘using-the-future’ fall into AA6 include: discovery or invention of novelty – coining new words and/or identifying missing words, recognising and/or establishing relationships at time-place specific/ephemeral/process levels. Combines doing and not-doing imagination related to specific-unique difference as being.

On the basis of these two dimensions – ontological and epistemological – the FLF depicted in Figure 1.1 traces a terrain that can be used to describe and map the attributes of FL as a capability. A futures literate person combines an understanding of the DoA, and therefore an awareness of differences in ‘what-is-the-future’, with a command of the role and functioning of the KCP that are the ‘how-to-know’ for a specific kind of imagined future.

Stated actively, a futures literate person can choose the AA that are appropriate to the kind of future they want to know and then design and implement the processes that enable them to acquire such knowledge. In a nutshell, a futures literate
person is capable of using anticipation for different ends, in different ways and in different contexts.

**Two examples of applying the Futures Literacy Framework**

The two sub-sections below offer examples of how the FLF can be applied to specific design and analytical tasks. In the first example, the FLF is applied to defining and designing a research tool – the FLL and a specific customised version, FLL-N that was deployed to realise the goals of the UNESCO FL Project. In the second example, the FLF is used to map the theories and practices that currently dominate the field of Future Studies. This mapping shows the potential of the FLF to assist with the application of FS to specific tasks as well as uncover and/or deepen areas of FS research and practice.

**Using the FLF to design the FLL and the FLL-N**

The central point of this introductory chapter is to explain the FLF and its role in determining both the UNESCO FL Project’s research objectives and following on from these objectives, the criteria for developing and implementing the appropriate research tool. This sub-section provides an initial overview of the two-part response to the challenge of designing a research methodology for discovering, inventing and reporting on the actual AA people are using – worldwide. More detail can be found in Chapters 4 and 5. The first part involved the development of an effective and efficient method capable of revealing a full range of AA in almost all contexts around the world. FLL are such a general-purpose tool. The second part of the response to the research challenges of this project entailed the tailoring of FLL to the specific search for AA from across all six clusters, AA1 to AA6. The FLL-N is such a customisation. Both the FLL and FLL-N were the fruits of extended periods of experimentation and on-the-ground collaborative effort.

The initial experiments that pointed towards an FLL type of collective learning approach to thinking about the future were conducted during a two-year effort, from 1988 to 1990, to explore the future of Ontario’s Community Colleges (Miller, 1990). Subsequently a range of different action learning approaches were designed and tested as part of the work of the OECD International Futures Programme from 1995 to 2002 (OECD, 1998, 1999, 2000, 2002) and the OECD Schooling for Tomorrow project from 2003 to the end of 2004 (OECD, 2001). Many of the insights and lessons from these experiments were incorporated into the construction of the ‘hybrid strategic scenario method’ (Miller, 2007b). From 2005 to 2012 experiments with different configurations of the basic FLL design were run around the world, from the FuturesIreland (Miller et al. in Aaltonen, 2010) initiative and a review of Korean foresight (Miller, 2017) to private sector experiments involving a wide range of different sectors, such as finance (Miller and Lepecq, 2006), telecommunications (Miller, 2007a), and education technology suppliers (Miller, Tuomi and Bergheim, 2011).
Work on designing a customised tool for this project started in mid-2012 when UNESCO took the initiative, in its role as a global laboratory of ideas (http://en.unesco.org/about-us/how-we-work), to seek evidence regarding the attributes and status of FL around the world. In keeping with UNESCO’s mandate, the aim of these experiments was to assess how developing people’s capacity to ‘use-the-future’ might be linked to the exercise of human agency in the pursuit of societal well-being. With this agenda in mind UNESCO teamed up with numerous foundations, government ministries, NGOs, and universities to develop the customised FLL-N approach and co-create a highly diverse set of proof-of-concept experiments (Miller, 2014, 2015a; Cagnin et al., 2015). The FLL-N builds on the basic design of FLL as a tool for detecting AA in a very wide range of settings in order to target the collection of evidence of AA across all six clusters, AA1 to AA6. The rest of this sub-section gives a summary overview of the FLL and FLL-N in order to provide readers another example of the application of the FLF and to set the stage for the rest of the book.

*The challenge of gathering evidence of people’s AA*

As already noted, one of the primary purposes of the project is to detect and analyse the attributes of conscious human anticipation around the world. But again, as already discussed, any such exploration of the relevance and diffusion of the AS and KCP that underpin FL faces a fundamental obstacle – ignorance. For the most part, despite the fact that people, communities and organisations all use imaginary futures all the time, few pay explicit attention to the why, what and how of these anticipatory activities. In other words, they are futures illiterate. Such illiteracy poses a basic scientific challenge: how to identify or describe AA, including those AA that may depend on already being futures literate? And then, on the basis of an answer to this first question, how to find methods for generating evidence that can test whether or not such descriptions correspond to what people are actually doing or could be doing if they were futures literate?

At a fundamental level, all research is always confronted with this type of chicken-and-egg problem because the universe we are part of is continually evolving and the sensing and sense-making frames and tools that we use to understand it change too – both intentionally and unintentionally. From this perspective, and to recapitulate the path leading to the design and implementation of the FLL-N deployed in this particular project, it is useful to underscore that the FLF starts from the hypothesis that anticipation is possible in this universe but that the conscious capacity of humans to describe and use it can be further elaborated. Practice and theory, theory and practice go together. The FLF is such an outcome, fruit of proof-of-concept and design experimentation that has been going on for more than three decades. The FLF supplies an analytical structure for describing conscious human anticipatory activities, detailing six clusters of AA that define and differentiate dimensions of FL as a capability. Defining these clusters enabled a more detailed specification of the proof-of-concept research challenge of the UNESCO FL Project – as the search for anticipatory activities in all six clusters,
AA1 to AA6. This research goal then sets a more precise challenge for the design of a research tool – it must be capable of generating evidence of FL capabilities in AA1 to AA6 worldwide.

Concretely, this meant that the selected research tool must be able to overcome the ‘detection problem’ that arises from the lack of awareness of AA and do so in many different places, with different histories and contexts. Hence a necessary requirement was that the tool generate evidence of awareness, or lack thereof, of different AA. Furthermore, to meet the evidentiary targets of the project the attributes of the AA that are rendered comprehensible by the research tool must include analytical markers that display the distinctive DoA and KCP attributes that characterise different AA clusters. In certain cases, such as AA1 to AA4 this challenge does not pose that much of a problem. It is relatively easy to expose the AA of clusters AA1 to AA4 by inviting people to make the move from tacit to explicit since such expressions are confined to relatively conventional and familiar AA. More difficult, because of the obstacles posed by paradigm lock-in and the inertial properties of dominant conventions, is generating evidence of AA5 and AA6. At a minimum, this is a dual challenge. On the one hand, there is the difficulty of creating the conditions in which people acquire the capability to think in a ‘strange’ way, one that is external to their familiar paradigms. On the other hand, there is the difficulty of capturing or sensing and making-sense of something unfamiliar – how to give the data meaning?

Designing a response to the challenge of gathering evidence of AA

Arriving at a set of design criteria for an effective and efficient research tool for gathering evidence of AA started, as noted above, over three decades ago. What is essential in the context of the UNESCO FL Project is not the history of the method but the practical requirements and responses that shaped the research conducted for this project. Considering the challenges of this project led to the adoption of three key design choices, two of which are basic attributes of FLL in general and one of which is specific to the FLL-N tailored to the needs of this project. The basic distinction between FLL and FLL-N is typical of laboratory specialisation where the specific implementations of a basic design can be customised to be more effective at testing a particular set of hypotheses. This kind of customisation should not be confused with the general and universal design requirement that all FLL need to be jointly conceived and implemented in ways that are adapted to the actual context of each experiment. Every time a lab is run the specific ways that participants learn, the specification of the goals, the time of day and the sunniness or not of the room, for instance, all make a critical difference and must be accounted for in the design and implementation of the lab (for further discussion of these issues see Chapters 4 and 5).

(A) Action learning research. The first design choice informing the elaboration of the FL research tool for this project, one that generated the basic architecture, was to use action learning to overcome the ‘detection problem’ or the invisibility of AA. In other words, people were invited to engage in a process that called on
them to imagine the future and begin articulating the associated AA. As the process unfolded participants started to become futures literate, able to articulate and discern different AA. Selecting action learning as the primary method for making AA explicit also offered the advantage of being ex-ante compatible from a design perspective, with a range of reframing tools that can be used to realise the objective of going beyond AfF as required for this specific project and realised through the third design choice below.

(B) Collective intelligence knowledge creation (CIKC). The second major choice for design of this project’s research process was that learning is more likely to occur and occur more efficiently if it is done collectively. The choice of ‘collective intelligence knowledge creation’ (CIKC) processes from among other potentially workable KCP as a core design element reflected the efficiency of this methodology along four dimensions: (1) properly co-designed CIKC are usually efficient at rapidly moving AA from tacit to explicit; (2) CIKC can also be designed in ways that are strongly conducive to both inspiring creativity and finding meanings for such inventiveness; (3) CIKC processes also have the design-critical virtue, if properly co-created, of being able to integrate tools that can be sensitive to both GS and SU phenomena; and (4) these CIKC methods are highly adaptable to context since the choices of both the most relevant topics, ones that people know and care about, and the narrative eliciting heuristics, the kind that invite people to make their AA explicit in analytically meaningful ways, are as diverse as the diversity of contexts in which such processes can occur. This last attribute of CIKC is essential for meeting the design requirements of a global project such as this one.

Two further attributes of CIKC as a general-purpose KCP merit brief elaboration given its role in the design of FLL.

First, the recent and widely dispersed emergence of CIKC initiatives (Scharmer, 2007; Hassan, 2014; The Grove, 2017; The Value Web, 2017) covering a range of designs, theoretical reference points and goals, seems to be symptomatic of a gap or inadequacy in existing methods for sensing and making-sense of the world around us. In other words, at the current point in time there seems to be a globally dispersed need, in all kinds of different communities, covering a gamut of motivations, to tap into sources for making sense of the world (knowing) from both the GS and SU perspectives. This demand for new KCP can be considered, in part, a response to the cognitive dissonance that arises when conceptions of human agency steeped in determinism and reductionism crash headlong into both the reality of complexity and the desire for open creativity and diversity (even diversification).

Second, again symptomatic of our times, the growing appreciation of the importance of understanding and engaging with complexity is slowly nourishing a counter movement to the dominance of systems for perceiving and giving importance to generalities in mass societies described through using common denominator statistical methods. This is what futurists call a ‘weak signal’ – a phenomenon that at first glance is not particularly significant or general in nature and even seems rather superfluous, since collective intelligence processes that
privilege specificity and ephemerality are the opposite of those systems that produce averages and trends. But depending on the way the future is imagined, this new KCP might be like the microscope in the 17th century, making the invisible visible. Only as the history of the microscope shows, it was not clear what this new tool would be good for. Was it a form of entertainment, exposing the monsters lurking in a drop of water but invisible to the naked eye? Or was it to assist with gathering the evidence that would show that bacteria cause infection and lead doctors to start washing their hands?

As usual the question when a new tool is invented is what will be its significance or how will it be used? Here again the results of the UNESCO FL Project point to a key field of inquiry – the unique, including the uniqueness of process as a learning experience and affect, or the emotion associated with a ‘situation’. Finding ways of describing and giving meaning to ephemeral experience opens up new possibilities, like the realisation that learning something, as opposed to not learning, is actually a distinct fork in reality, the one of paths taken and paths not-taken. As the quote from Popper at the beginning of this chapter emphasises, a change in the capacity to appreciate the meaning of process is a way of changing the present. Empowering people with the capacity to understand the role of conscious anticipation as imagination in shaping perception of the present – in other words they become futures literate – is therefore a way of continuously changing the present.

\[ A + B = \text{FLL} \]. Action learning/research and CIKC processes are the two foundational design choices that define the basic structure of FLL as a general-purpose research tool for discovering and inventing people’s AA. Still taking a general design perspective, it is worth noting that the term ‘laboratory’ designates precisely that – a place where experiments are conducted in order to test hypotheses. Just like a chemistry or physics or biology or psychology lab, FLL can be customised in order to explore a particular set of issues, similar to when a chemistry lab is tailored for high-temperature experiments. Context-determined implementations of FLL usually add other design requirements and solutions on top of the basic FLL foundation, as is the case with the FLL-N that was tailored specifically to the needs of this project.

What makes FLL a general-purpose tool is that combining action learning with CIKC process can be used to reveal AA across all six clusters, AA1 to AA6. However, on the basis of experience running FLL with the aim of detecting AA in the different clusters, it is crucial to recognise that different AA can require distinct and even incompatible action learning/research and CIKC processes at different stages of the laboratory process. For instance, customised FLL, as depicted in Figure 1.2, may be targeted at AA3 or at AA1 and AA2, using an action learning approach that may or may not be incompatible with the approach adopted for an FLL that just explores AA4.
This point bears emphasis, the meaning of the FLL as a ‘general-purpose’ tool is that it has certain basic design attributes that reveal AA but in most circumstances the specific hypotheses to be tested call for customisation. Specific research tasks related to different sets or clusters of AA usually call for research methods adapted to the task. For instance, the customisation of the FLL template to the specific tasks of this Project is achieved by seeking a design customisation that is intended to enable the collection of evidence related to all six clusters, AA1 to AA6.

One other general point worth keeping in mind is that FLL are not the only research tool for exploring AA. As already mentioned in the Introduction, alternative techniques that are familiar to researchers conducting historical, ethnographic, semiotic, anthropological, psychological studies and more all offer viable approaches to collecting evidence regarding AA. The decision to privilege a customised FLL, the FLL-N, for this project was largely determined by the still emergent nature of this field and the need to be able to conduct low-cost and worldwide proof-of-concept experiments that tested the hypothesis that FL is a capability expressed across all six clusters of AA.

(C) Reframing. The third choice informing the design of this project’s research methodology is the need to address the design-critical challenge of revealing AA across all six clusters. Building on the prior selection of action learning/research and CIKC processes as the defining design components of FLL as a general-purpose method, the third structuring choice takes advantage of the plasticity of learning/creativity to specify the inclusion of a paradigmatic reframing component. This design criterion calls for the co-creation of a catalyst capable of inducing the learning process to move from AA1 all the way through to AA6. In practical terms, the major hurdle is to find a tool that enables participants to get beyond the frame of AfF. As noted before, such a move is difficult due to paradigm lock-in and convention inertia, but is design-critical for this project since experience has shown that without a tool like reframing that generates sufficient distance from the hold of AfF there is no assurance that FLL will generate evidence related to AfE in clusters AA5 and AA6.

Figure 1.2 illustrates the distinction between the FLL as a general-purpose tool for revealing AA that can span all six clusters and specific implementations designed to test for particular sets of AA. FLL-F is a lab that targets the AA of forecasting. FLL-I is designed to discover the AA related to AfF innovation, such as the processes familiar from design or innovation labs (Kelley and Littman, 2001; Stanford d.school, 2017). FLL-C are tailored action learning and CIKC processes that assist participants to become aware of the AA related to their ‘consciousness’, sometimes the target of work in the Integral Futures field (Slaughter, 2012).

FLL-N, for Novelty, are FLL that have been custom designed for this project. FLL-N put the three design elements together: action learning/research, CIKC
Figure 1.2 Mapping different implementations of the FLL on the FLF

and reframing. FLL-N = A + B + C. The FLL-N oval offers a graphical representation of the ambition to seek evidence of AA spanning AA1 to AA6. Chapter 4 provides more detail regarding the specific positioning of FLL-N in terms of the FLF and more detailed account of implementation design issues.

The FLF in perspective. The FLL-N, as an example of the application of FLF to developing and locating the theory and practice of FL, shows how the FLF can help to drill down to isolate specific aspects of FL. It is however, also important to avoid confusing specific applications with the more general attributes of both the FLF and its component parts. At least four points are worth raising in this regard.

First, is that using the FLF to select specific ways of producing knowledge, like action learning/research and CIKC for FLL, does not restrict other KCP from being part of FL as a general capability. On the contrary, it is important to not reduce the KCP relevant to the practice of FL to the specific KCP applied in FLL or FLL-N. The former is a lived activity and a capability while the latter is a specific research tool for exploring FL.

Second, KCP are one axis of the FLF, but KCP also go beyond the FLF. KCP is a synonym for epistemology or all the many different methods for ‘knowing’ that exist and can be applied well beyond efforts to construct and give meaning to contrasting kinds of imaginary futures. In other words, processes for creating knowledge are essential for anticipatory activities and therefore constitute an axis of the FLF, but although it may seem obvious it is important to keep in mind that knowledge is generated in many other contexts and for many other reasons.

Third, collective intelligence knowledge creation (CIKC) processes are a subset of KCP but are also a general-purpose tool for sensing and making-sense of many forms of both specificity and emergence, including learning. CIKC, as a
distinct set of theories and practices, is similar in nature to a trans-disciplinary field like statistics that enables humans to define, detect and make sense of specific phenomenon as well as invent the tools like surveys that make something that is imperceptible, like the average height of the population or Gross National Product, perceptible.

Fourth, it is critical to note that there are plenty of examples of efforts to think about the future that are not based on an FLL methodology but that can be mapped onto the FLF framework. Such methods can be identified fairly easily on the basis of the AA that define the method. In most cases this large panoply of FS tools was not conceived of or designed to reveal AA but rather to explore specific futures. Using the FLF to gain a better analytical grasp of the kinds of AS and KCP connected with these tools is a significant step on the road to being able to anchor the matching of tools to tasks on the basis of an underlying theoretical framework. This is the topic of the next sub-section.

**Applying the FLF to the relationship between FL and FS**

The second example of how the FLF can be applied to a specific analytical challenge is an exploration of the relationship between FL and FS. The main point is that the FLF, as a way of describing FL as a capability, can be used for two purposes: (1) to be more analytically precise about FS theory and practice, and (2) to identify potential directions for the development of FS theory and practice. For instance, Figure 1.1 shows a mapping of the boundaries of mainstream FS as covering primarily AfF. This is depicted on the far right of Figure 1.1 (thicker line) and covers four out of six AA clusters (AA1 to AA4). The attributes of FL as displayed by Figure 1.1 show that the ontological and epistemological dimensions of the FLF extend beyond the main centres of attention that characterise FS today. In other words, the FLF not only encompasses AfF and AfE but also non-conscious anticipation, whereas FS is focused on AfF.

The point here is not to argue that FS should expand to encompass non-conscious anticipation. The aim here is more neutral and analytical. The hope is to offer a framework for thinking about the application and evolution of FS as a field of knowledge. FS could use the FLF to gain a better understanding of how to match specific tools to specific tasks or to expand or contract or shift the focus of FS to cover different issues and points-of-view as theories change and practices adapt. Situating FS in terms of the FLF illustrates how the FLF can be used to describe FL as a capability as well as a guide for research into aspects of FL that have been invisible or ignored up until now. This is not the place to speculate about the future trajectories of FS as a field and the extent to which it may or may not incorporate new or relatively neglected reasons and methods for ‘using-the-future’ into its dominant discourses and practices. However, it is worth noting that research into FL generates evidence about what people are actually doing, or can do both inside and outside the current boundaries of most of FS, and as a result could inspire an expansion and/or reallocation of the centres of attention of FS.
There are other reasons to use the FLF to examine the relationship between FL and FS. In particular, mainstream FS offers insights into different descriptive labels that can be meaningfully attached to different AA, and methods for imagining the future that can inspire the discovery and invention of AA. FS brings a large inventory of theories and practices related to human use-of-the-future. The range covers many distinct tools and rationales for anticipatory activities – from formal forecasting for risk assessment to creative scenarios meant to evoke a range of possible strategic options – all of which is accompanied by a rich literature that ranges from the dynamics of societal change (Slaughter, 2000, 2003; Inayatullah, 2008) and corporate strategy (Wack, 1985; Van der Heijden, 2005; Ramirez and Wilkinson, 2016) to specific tools like Delphi (Gordon, 1994), morphological analysis (Godet, 2006) and Causal Layered Analysis (Inayatullah, 1998). All these theories and methods can be deployed in the different clusters of AA depending on the context and can be used to describe different aspects of FL. These tools can also be used to design customised FLL aimed at researching specific AA and building FL. Indeed, the design of FLL-Ns called for the use of many of these tools and theories to conduct ‘futures thinking’ as part of an action learning/research process aimed at discovering and inventing different clusters of AA.

Lest there be any confusion, the exploration into the nature and application of FL undertaken in this book is an attempt to create a shared discourse for the theory and practice of ‘using-the-future’. As already noted, the UNESCO FL Project has drawn attention to the idea that AA can be taken as a common starting point for efforts to understand FL as a capability. Up until now most of the academic literature and actual practices in the field of FS have not been able to take advantage of a common analytical vocabulary or shared points-of-reference like AA. This lack of a shared terrain for initiating and connecting collaborative scientific inquiry and application is in some ways not surprising given the weak and largely peripheral position of FS. But the case for a shared disciplinary terrain may also seem somewhat stronger now if there is a general recognition that conscious human anticipation depends on imagining the later-than-now and that all explicit imagining requires making assumptions related to the purpose, nature and implementation of some form of model and/or structured process, even if many of these assumptions are often left implicit.

Putting forward AA and the FLF as constructs for encouraging a shared analytical effort to understand FL is not intended to replace or exclude FS. On the contrary, the aim is to encourage the development of FS by enabling deeper and wider research and application through traditional scientific, experimentation based methods. Again, the adoption of a hypothesis testing approach, in the case of the work in this book at the proof-of-concept level, is not meant to suggest that FLL or FLL-Ns offer or impose some kind of procedural or methodological exclusivity. Quite the opposite, the hope is that by detailing the design principles of FLL as one general-purpose tool for experiencing AA and providing an example of a customised version, the FLL-N, researchers will be able to make their own assessments. The point of these experiments is to explore the limits of these action
learning/research tools with respect to exposing specific AA clusters and different aspects of FL. The vocation here is neither to be exclusive or all encompassing, although the premise of generating evidence related to explicit hypotheses is taken as the universal starting point for the specification and conduct of the research. The whole point of the FLF is to push the frontiers or boundaries of the understanding of anticipation, without claiming closure or exhaustivity.

Even the claim of ‘disciplinarity’ can and should only be tentative. The status of FS as a discipline remains controversial, and the proposition that the FLF offers the prospect of disciplinarity by potentially providing FS with shared ontological and epistemological reference points, remains to be seen. Disciplines, defined as common frameworks for pursuing research and developing practice, are not born full-grown, nor outside of a specific context. Today FS and FL are being pushed and pulled by current conditions and complex evolutionary emergence. One of the main virtues of disciplinarity is that by establishing the boundaries and attributes of the field it becomes feasible to research, debate, and practise in ways that can be compared and contrasted in an ‘apple to apple’ rather than ‘apple to orange’ way. One of the main drawbacks is that such disciplinarity can exclude alternative formulations from outside and suppress heretical ideas on the inside. There is no denying that the claim of disciplinarity for FL as a capability based on the FLF does run the risk of exclusion, but it is a risk that needs to be assessed in context.

Currently there are at least two mitigating factors that seem worth taking into consideration. First, the serious lack of scientific capacity and status with respect to understanding the nature and role of the future in theory and practice. This is a serious problem if one accepts the hypothesis that motivates the work presented in this book: that understanding anticipation better may be a necessary but not sufficient condition for reframing the relationship between human agency and complexity. Second, some guardians of a particular foresight methodology or those who lay claim to specific and exclusive purpose for ‘using-the-future’ may argue either that their theories or frameworks already offer a shared terrain for disciplinarity or that their theories and practices do not fit within the FLF.

Such disputes are inherent to this kind of exercise and may seem wasteful and risky, particularly since up until now FS has been unable to forge a shared terrain. But the hope here is that through careful design and inclusive processes, the UNESCO FL Project is managing to build a ‘big tent’ that might reduce the costs of collaboration and produce some of the benefits expected from the efforts of an organisation like UNESCO that serves as a global laboratory of ideas. So far, the results seem positive. The UNESCO FL Project has successfully engaged with academics and practitioners from across the global FS community, making common cause in seeking a more coherent foundation for the field’s different ontological and epistemological strands. Admittedly there is a risk of creating divergent, even paradigmatically distinct terrains for thinking about the future. Even if such debates do have the virtue of sustaining competitive inquiry into the world around us, there is the downside risk of costly internecine and/or tangential conflicts. Yet, at this proof-of-concept stage of the research the signs remain promising. As the evidence from the case studies show, the FLF as defined by
specific theories of anticipation and knowledge creation can make sense of and put to use a wide range of different ways of ‘using-the-future’ – from forecasting (Tetlock and Gardner, 2016) and Delphi (The Millennium Project, 2017) to Causal Layered Analysis (Inayatullah, 1998) and Theory U (Scharmer, 2007).

In part, this reflects the fact that the FLF is about making it practical to ‘walk-on-two-legs’ – one deterministic and the other non-deterministic. This is mostly because both becoming futures literate and ‘using-the-future’ to appreciate novelty require an understanding of the goals and methods of preparation and planning. Detailing these more technical aspects of the UNESCO FL Project is helpful for separating out conclusions regarding the general aspects of the FLF as an analytical scaffolding, from the specific focus of this project on testing the parameters of the discipline by pushing the research process to detect novelty, specificity, and the design attributes of processes that explicitly ‘use-the-future’ in a number of different ways. This last point merits being underscored in light of the delicate question noted above regarding both the inclusiveness of the FLF and the relationship between FS and the FLF.

Conclusion

So far during this project no specific heuristics, tools and purposes for ‘using-the-future’ have failed to find a place within the FLF. To reiterate, the focus in the UNESCO FL Project on specificity, empowerment, novelty, collective intelligence and knowledge laboratories, does not mean that the FLF is confined to these topics and tools. The selection for this project of particular theoretical, analytical, and practical issues and approaches reflects the priorities of UNESCO and its partners to develop and clarify FL as a capability that may be able to contribute to human resilience. For this reason, the UNESCO FL Project set out to: map how people around the world ‘use-the-future’; discern different kinds of future; invent and assess processes that help people to become futures literate; test design principles for ‘using-the-future’ in a futures literate fashion; and explore in-depth the relationship between ‘using-the-future’ and appreciating complexity.

With these objectives in mind, the research process for the UNESCO FL Project was designed to focus on the main parameters of the FLF, not to provide an inventory of all the theories and methods that fit within that framework. For instance, although forecasting using probabilistic methods fits entirely with the FLF, the way that predictive methods for imagining the future were used in this project was to reveal people’s AA – rendering the tacit explicit – and to start the process of developing their capacity to use different futures in different ways. The hope is that the FLF, as a collaborative work in progress, can contribute to the construction of a shared scientific foundation and that this process will not be played out as an insider–outsider game. The UNESCO FL Project is intended and designed to invite different communities with an interest in advancing humanity’s understanding of anticipation to join together to propose, test and refine elements of a framework that coherently encompasses as full a range of ontological and epistemological components as is possible.
As is typical of such a scientific endeavour, the research process and findings are not necessarily the same thing, even if the tools often take on considerable prominence. Put another way, the research process as designed and implemented so far uses the future as part of an action research/learning approach. However, the topic of this research is FL as a capability. Deploying anticipatory systems and processes in order to understand FL makes disentangling the two somewhat tricky, but as elaborated in detail over the following chapters, testing the relevance of a framework for making sense of how people anticipate by engaging in anticipation is quite effective. In particular, there are many attributes of FL, such as those related to complexity and indeterminism, which can only be discerned by getting people to actually anticipate in different ways. Working in this direction, the research and experimentation into the FLF reported in this book confirm the critical role of advances both within and across the fields of anticipation and knowledge creation. Later chapters go into greater depth on specific topics while the case studies deliver considerable detail on what happens when designing and implementing processes to test the FLF in a range of different contexts.

Notes

1 Hadin Tibbs, in his chapter in the *Handbook of Anticipation* (ref Poli, 2017) discusses the implications of ‘block-time’ for the ontology of the future. Such efforts to reveal aspects of our universe are of fundamental importance and no judgment is made here one way or the other. The only assumptions I make here, in the context of the effort to better understand human agency, is that at a practical level the future is always inaccessible when the observer is ‘in-time’ as opposed to outside looking at ‘block-time’. Such an assumption also seems to be compatible with a view of creativity and unknowability that posits the potential for invention to enlarge the universe of possibilities, while forgetting may shrink it. I want to thank Hardin for the conversation regarding this topic, but do not hold him in any way accountable for the interpretation presented here.

2 Focusing the relevance of the later-than-now on ‘functioning’ provides an important component of the definition of anticipation because it includes an ‘actionable’ dimension. However, this formulation can encompass rather passive forms of action, like efforts to know – which is an action that may or may not have further consequences related to reactions, like leaves falling, or choices like deciding to take an umbrella if the weather forecast predicts rain.

3 One of the factors that made research into anticipation and the different ways of ‘using-the-future’ difficult was the related yet distinct issue of the dominant approaches to ‘knowing’. In the same way that it became necessary to open up the ontological field of what-is-the-future it also became necessary to distinguish methods for knowing the unique/specific from the general/common. Indeed, work on FL not only draws attention to the epistemic bias towards generalities, common denominators and scalability of much social science and everyday frames for describing the world but also calls rather directly for the recognition of knowledge creation processes (KCP) that can sense and make-sense of the unique, specific and ephemeral. This suggests that the epistemological sphere also needs rebalancing, particularly if the richness of time-place specificity as an inherent part of complex emergence is to be taken into account.

4 The local nature of novelty is related to the issue of the moment of discovery and/or invention, which is inherently time/place specific. The ability or inability to recognise repetition is limited by what is known there (location) and then (present) and in this sense the recognition of repetition or difference is always initially limited by what is known locally – or the point of origin.
The term ‘design-critical’ as used here means that the goals that the design is meant to achieve cannot be fulfilled if a ‘design-critical’ element is not addressed. In this specific case, the necessity that the research tool be able to reveal the use of KCP from both the GS and SU categories.

References


