

FOUR INTRODUCTORY ESSAYS

Knowledge, Values, Time in Futures Studies

Brief Introduction



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CONTENTS

In this work, I discuss the following four topics.

First, I examine what it can mean to possess knowledge of futures that cannot yet be observed. Under the title *On the Notion of Futures Knowledge*, I discuss possibilities, conditions, uncertainty, explanation, and understanding - rather than certain prediction alone.

Second, I consider *Values within Futures Studies*: how desirability, justice, participation, and changing moral commitments shape the futures that are studied, assessed, and pursued.

Third, I turn to *Time in Futures Research*, including temporal horizons, rhythms, timing, scales, narratives, and the changing relation between past, present, and possible futures.

Fourth, I set out the *Philosophical Foundations of Futures Studies*, clarifying the field's assumptions, concepts, methods, and responsibilities, and showing why philosophical precision belongs within practical futures research.

The four essays follow in their original order.

(Translation from Finnish learning material written open online pages)

On the Notion of Futures Knowledge

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Key points

- Justified knowledge can be produced about the future, even though it cannot be observed. Not all claims concerning the future stand on the same line — some conceal uncertainty, some make it understandable.
- Knowledge is not merely true sentences. A person can know that the population is ageing, yet still understand poorly what it means — and it is precisely understanding, not a list of claims, that is the aim of futures studies.
- The object of futures studies is the space of possibilities. The field does not ask what will happen, but what kinds of futures are possible on the basis of present conditions, structures and values — and how these conditions can be changed.
- The choice of method is always an epistemic choice. Every method, from trend analysis to layered analysis, contains assumptions about who knows, where knowledge is located, and why the present tells us something about what is to come.
- Good futures knowledge tells what quality it is of. A scenario should not be read as a forecast, nor a vision as a neutral description — good research says openly when it anticipates, when it assesses, when it aspires and when it warns.

Introduction: What is being spoken of when we speak of the future?

Everyone continually makes decisions on the strength of their conceptions concerning the future.

A student chooses a field. A municipality plans and alters its school network. A city makes decisions about transport. A company invests in technology. A state does, or refrains from doing, climate policy. In all these situations one has to take a stand on, or to steer purpose and ends towards, something that does *not yet* exist and that cannot *yet* be observed. One has to take a stand on, or commit to, what kind of future is possible. We ask: What should be aimed at? What should be avoided? What kinds of consequences can the decisions of the present moment have?

The point of departure of futures studies, put in this way, is simple, but it opens up problems relating to knowledge: the future cannot be observed and it can be influenced; how, then, can anything be said about it? Or, more precisely:

How can anything be known about the future?

Let us begin unpacking the problem from the other direction. Of the past there are traces, among them documents, statistics, memories (and the documentation of these) and objects. The present moment can be observed, measured, tested and otherwise examined. To be sure, even though

there are sometimes enormous disagreements, this can *in principle be done*. Of the future, however, there is no similar *observational material*, because the future has not yet happened. From this it does not follow, however, that speaking about the future would be mere "guessing" or "speculation." Not all claims and thoughts concerning the future stand on the same line as regards their credibility.

Some are better justified than others, and often these better-justified claims and thoughts help in dealing not only with the future as such but also in understanding the present moment and the possible courses of development towards different futures.

Some are more poorly justified. These thoughts and claims conceal uncertainty, mix hopes with forecasts, or give an impression of certainty where there is no certainty.

The examination of the conception of knowledge in futures studies should begin from this difference, and from the tension between the past–present axis and the future. The future is not known *exactly* in advance, but *justified* knowledge can nonetheless be produced about the future — this is the point of departure of futures studies. Knowledge about the future is knowledge of

- Possibilities,
- Conditions and conditionalities,
- Relations of dependence,
- Uncertainties,
- Values, and
- The consequences of present choices.

Futures studies does not, then, aim to look at the future as though at a finished picture. Rather, it studies what kinds of futures can be justifiably discerned from the present moment. This can be called the study of the space of possibilities: the future is examined as a totality of different possible, credible, probable, desirable and to-be-avoided courses of development and outcomes (see e.g. Bell, 2009; Virmajoki, 2026b).

Knowledge is not merely true sentences

When we speak of knowledge, we easily think of individual true claims that we believe for one reason or another — because of some *ground*. We know the prevalence of some matter because the statistics on the phenomenon are of a certain kind. We know that some decision was made on a certain day because it has been so recorded. We know that some natural-scientific phenomenon works in a certain way under certain circumstances because we have observational material. We know that a medicine has an effect because it has been studied with a randomised trial.

Scientific knowledge is not, however, merely a collection of true sentences and the grounds that serve as their continuation-sentences.

Science also strives to *explain*, to *model* and to *understand*. An explanation answers the question of why or how something happens. Often this requires a model that describes, at least roughly,

relations of dependence. Understanding, in turn, means the capacity to see how things relate to one another, and the capacity to command explanations and to act on the strength of them. Nowadays it can also be noted that *understanding* is something more than merely knowing a true claim or receiving an explanation. (See e.g. de Regt, 2017.)

Understanding is the capacity to use a theory to articulate, explain and anticipate phenomena. What understanding requires in each case depends on the historical, social and disciplinary context: a theory is understandable when its conceptual tools and the researcher's skills make its fruitful use possible. These differ from one another at different times and in different fields. This is central in futures studies: for example, a person can know that the population is ageing, but still *understand* poorly what this means for the future of society. Attaining understanding in this connection requires asking, for example, how ageing relates to the labour market, to care, to public finances, to housing, to technology, to migration and to justice between generations. It is not a matter merely of piling up claims concerning facts.

This difference is very significant. A great many individual facts can be known, but the overall picture can still be weak. Futures studies needs precisely the overall picture, because questions concerning the future do not generally focus on an individual feature of the future. As was set out above, they relate, among other things, to systems, choices, values and uncertainties.

In the philosophy of science a few basic concepts can be distinguished from one another:

- **Observation** means that which can be measured, seen, recorded or otherwise verified.
- **Theory** articulates comprehensively how things relate to one another, sometimes at a very abstract level and producing basic concepts.
- **Model** is a more simplified description or representation of some phenomenon than the theory behind the model (if there is one).
- **Explanation** tells why or how something happens.
- **Understanding** means the capacity to discern connections and consequences, and the capacity to assimilate explanations.
- **Justification** tells why some claim or assessment can be held acceptable.

These are not detached from one another, but there is reason to distinguish them. To understand the epistemic nature of futures studies all of them are needed. We need observations of the present moment: what kinds of trends, decisions, structures and changes are already visible? We need theories, so that we understand, so that we can lean on broader conceptions of the nature of reality — whether it be a matter of nature or of the human being (insofar as the line-drawing is nowadays meaningful). We need models, because complex reality cannot be dealt with as such or all at once. We need explanations, so that it can be discerned why something has happened and thereby why some future can happen. We need understanding, so that we can make use of the other epistemic elements when we examine the future. Justifications are needed so that claims concerning the future can be distinguished into ones of differing quality.

All this may sound like abstract hair-splitting, but the thought is not only necessary to grasp but ultimately also simple. *The value of knowledge concerning the future does not lie only in whether some claim later hits the mark.* The value of that knowledge lies in its helping us to see and to grasp what kind of situation we are in now, and what kinds of courses of development, contingencies and choices could change it — and change it into a particular future.

Why is the future a special object of study?

The future is a special object of study because it does not yet exist as an observable totality of events. This distinguishes the future from the present and from the past, at least in part. For the future is not detached from the present moment either.

In the present moment there are already things that make some futures more probable, or rather (so that we may avoid an excessive quantitative association) *more possible* than others. The demographic structure, the boundary conditions of nature, technological know-how and the degree of development of technologies, infrastructure, institutions, economic structures, cultural conceptions and political decisions all affect what kinds of futures we are moving towards and which ones we drift away from.

We can take a few examples, in all of which a certain relation of dependence drives us towards a future and we can say that future to be possible — even more possible than others. If a city is built on the basis of private-car traffic, this affects where shopping destinations are located and what kinds of emissions arise in the city in the future. If a country invests heavily in a certain energy system, this affects what kinds of ties the country must have to the availability of certain raw materials and what technology the country must have. If an education system is based on a certain conception of competence, this affects what kinds of experts there will be in society, or in a part of it, in the future.

The future, then, is not known, but the present moment is anything but a matter of indifference for the future.

This is the basic idea of futures studies. *The field studies the relation between the present moment and possible futures.* Futures studies does not ask what will happen, but what kinds of futures are *possible* on the basis of present conditions, actors, structures and values. At the same time it can ask how these conditions can be changed. The epistemic task of futures studies relates precisely to the fact that the future is not an object of study existing as such, but a space of possibilities opening up from the present moment (see e.g. Virmajoki, 2026b). Knowledge about the future is knowledge of the structure of the space of possibilities. In other words, *knowledge* about the future is a conception, based on the present and the past, of what can happen.

At this point the reader may ask: **if the future has not yet happened, is not all knowledge concerning it uncertain; and is the knowledge not merely "knowledge"?**

Once we notice that futures studies does not put forward, brazenly, claims about individual future situations, uncertainty does not mean ignorance. A doctor, too, does not always know for certain how an illness will progress. Still, they can produce a justified assessment on the basis of

risks, symptoms, research knowledge and treatment options. In addition to this, the patient's action can affect how the ailment progresses. (This is not, unfortunately, always possible; but just as there are incurable illnesses, so, for example, the destruction of the climate cannot always be undone after a certain point.) In the same way, futures studies does not remove uncertainty, but strives to make it more understandable — to tell why the future is uncertain: what affects it and what relevant knowledge we lack.

Forecasting, explaining and understanding

A common misconception is that futures studies would be the same thing as forecasting. A forecast is ultimately only one form of knowledge concerning the future. In the by now canonical literature of futures studies it has indeed been emphasised that the study of futures does not reduce to the forecasting of one future course of events, but relates also to alternatives, choices and values (see e.g. Bell, 2009 [1997]). The matter must nonetheless be gone through; the mere claim of "one form of knowledge" does not yet tell us anything.

No one disputes the significance of forecasts. A forecast answers the question: what will probably happen?

Forecasts are needed, for example, in assessments of demographic development, the economy, weather phenomena or emissions development. They are useful especially when their grounds can be made sufficiently clear and when the phenomenon under study behaves in a way that can be modelled. A forecast that is not based on these is questionable; perhaps *guess* would be a better term in that case.

In research concerning the future it is worth distinguishing at least three epistemic aims, which we dealt with above:

- Forecasting asks what will probably happen.
- Explaining asks why something happens or could happen.
- Understanding asks how things relate to one another and how different courses of development can arise.
- *Understanding of possibilities* asks how understanding, explanations and forecasts can be joined together, so that a bundle of different representations concerning the future can be created, whether these be visions, scenarios or any set of claims whatever that describe the future.

In futures studies, then, an explanation answers a different kind of question than a forecast. If, for example, a scenario is drawn up of how an energy crisis could arise, the value of the scenario does not necessarily lie in its forecasting the crisis, but in its explaining what kinds of dependencies among, for instance, decisions, markets, infrastructures and political tensions could together lead to a crisis. Such an explanation is *conditional*, that is, it sets out conditions behind the phenomenon or for its emergence: if certain things happen and certain mechanisms operate, a certain kind of future can happen.

Conditional explaining can be understood as "what if things were (had been) otherwise" thinking. If some factor changes, what would follow from this for some other matter? If, for example, some decision is made, what kinds of chains of effect can it set in motion? Such thinking relates to the discerning of causal dependencies and does not require that we claim a certain future to be realised for certain (on causal explaining see e.g. Woodward, 2003).

Understanding is an even broader aim, the attainment of which the knowledge of futures studies tries to offer. As we saw, understanding is the capacity to discern connections and consequences, and the capacity to assimilate explanations. Understanding can indeed be thought of as a skill. No knowledge, even were we to receive from an oracle pictures of the future, suffices, unless we are *able* to attain understanding. An important aim of futures studies is indeed the increasing of understanding without claiming that the future is predictable — futures studies can, with the knowledge it produces, support the use and the role in life of a certain skill: understanding. For this reason good futures studies does not always remove uncertainty. Uncertainty helps to understand, if understanding is a skill: uncertainty tells where one must be careful. On the other hand, futures studies can instead help to identify what is relatively stable or what may change surprisingly. In this way futures studies can be thought of as research that produces understanding, not as a mere forecasting machine (on understanding see more closely e.g. de Regt, 2017).

The space of possibilities

The central object of study of futures studies can be described as the space of possibilities. By this is meant the totality of those different futures that can, in some way, be justifiably sketched out from the present moment (Virmajoki, 2026b). These futures are, to be sure, always the futures of some subject-matter, such as the futures of security policy or of working life. No one can discern the future in its entirety. Knowledge concerning the future is thus knowledge of spaces of possibilities.

The space of possibilities of some subject-matter is not, however, a mere list of alternatives. It is rather a map and a space in which we can already look at different *directions* along which one can travel and where one can end up. A list of alternatives is not a list of directions. An alternative is one state of affairs, a direction rather a path formed of them.

Some alternatives are close to those courses of development that we have already encountered and by which we are carried along, or along which we travel. Some alternatives, for their part, require large changes in order to become directions.

In addition, knowledge concerning the future almost always has some component relating to values and to justice. The space of possibilities cannot really be understood if one does not see the relation of the different "neutral" states of affairs to values — the capacity for normative thinking is essential when futures are studied. *The identification and articulation of these values and of matters relating to justice is an essential part of futures studies.* Some futures are desirable but difficult to attain, others are even probable but undesirable. Moreover, the desirability of a future is an inseparable part of how much we do towards it, of whether that

future is to be attained. Our values thus affect the future causally. Studying the space of possibilities means articulating these alternatives, conditions and relations — the study not only of states of affairs but also of values. (See e.g. Virmajoki, 2026b.)

The space of possibilities is multidisciplinary, and knowledge concerning it combines different matters with one another — a representation of the future is indeed a kind of bundle of matters to be represented. For example, the future of education cannot be understood merely in terms of the development and use of pedagogy. Related to it are technology, working life, the economy, the everyday life of families, regional inequality, language, culture, politics and conceptions of the good life. All these must be included when we state that the claim "that future of education is possible" is *knowledge* about the future. Likewise the future of climate change is not merely a natural-scientific question, even though natural-scientific knowledge is necessary in it. Related to it are also energy, justice, consumption, international relations, technology, and political will. Knowledge of the future of climate change and of its effect is *knowledge* that gathers together the possible courses of development of these matters so as to describe one possible future; one point in the space of possibilities to which climate change is linked.

One must, however, be careful. The task of futures studies is not, and cannot be, to replace other disciplines. For example economics, climate science, sociology, education science and technology studies each produce important knowledge already as such but also for the sake of the future. The task of futures studies is rather to ask how the knowledge produced by different fields relates to possible futures and how different courses of development are linked to one another. Futures studies does gathering and articulating work when it produces knowledge of the possibilities of the future (see e.g. Bell, 2009; Virmajoki, 2026b).

Let it be noted that this is one reason why futures studies is often methodologically manifold. If the object of study consists, among other things, of economic, ecological, technological, cultural and political dimensions, it cannot be understood by means of one measure or one method. A complex object requires several viewpoints and several ways of producing knowledge, that is, methods.

Not everything possible stands on the same line

When one speaks of possibilities, it is important to distinguish different kinds of possibility.

A few examples: Not everything possible is probable. Not everything probable is desirable. Not everything desirable is easily realisable. Not everything possible is credible — something can be far-fetched in the light of our present knowledge, but we cannot rule it out. For example, in a situation of very great risk, [to take into account] a possibility that cannot be ruled out, even though there are no direct grounds for its realisation, is wise.

Somewhat more concretely, we can note, for example, that some future may be technically possible but politically difficult. Another may be economically attractive but ecologically unsustainable. A third may be ethically desirable but, in the light of present institutions,

improbable. A fourth may be far-fetched on account of political energy dependencies, but still to be kept in mind, because some actor may cease to care about those dependencies.

The task of futures studies is to make such differences visible. It gives knowledge not only about the possibilities of the future as such, but also about the different kinds of grasping of the future.

This is why concepts matter. Claims concerning the future are not all alike. Roughly one can say, for example:

- A forecast strives to assess probable development.
- A scenario describes a possible future and a credible course of development.
- A vision describes a to-be-aimed-at future.
- A threat image raises to attention a to-be-avoided development.
- A roadmap describes the steps by means of which different futures can be reached.

If such kinds of knowing of the future are mixed together, "futures talk" easily becomes unclear. A scenario can be mistakenly assessed as though it were a forecast, even though its task would be to open up alternatives. A vision can be presented as a neutral description of what is to come, even though it contains values and aims. A threat image can be used as though it were a certain forecast, even though its task would be to help in preparing and not to compel action. Worth mentioning is, for example, that especially in the scenario literature it has been emphasised that the value of a scenario relates to credibility, coherence and the opening up of alternatives, not merely to the forecasting of realisation (see e.g. Ramírez & Selin, 2014; Schoemaker, 1995). And a scenario is knowledge. It is knowledge of a possible future. But only when it is justified credibly.

This can be illustrated with climate policy. An emissions scenario is not necessarily a forecast of what will certainly happen. It can describe what would happen if certain decisions were made now — even hard decisions. A vision of a sustainable society, in turn, is not a neutral forecast, but a target state — but it can be mere wishful thinking, if not even hard decisions can attain it. An assessment of climate risks, for its part, can describe to-be-avoided futures — and here the ghastliness of the risks must be taken into account, if certain decisions are not made. All these are needed, but they should not be assessed in the same way.

The same applies to an everyday example. If a young person is pondering a field of study, they can ask in which fields there will *probably* be work. They can also ask what kind of work they hold to be meaningful. That is a question relating to *values*. In addition, they can consider what kinds of new fields technology or societal change may bring into being. That is a question concerning *possibilities*. The decision, whether it turns out to be good or bad, does not arise from one answer, but from understanding the differences between the questions and their background assumptions.

Methods contain different assumptions about knowledge

In futures studies many methods are used, and some call it, some even with concern, a "method science." The manifoldness of methods can indeed at first appear confusing. Why are trend analysis, the Delphi method, scenarios, backcasting examination, examination of the operating environment, morphological analysis and critical layered analysis (CLA) needed? Why has an unambiguous method not been developed by which the relevant matters concerning the future could be distinguished and analysed?

The answer, of course, is that different methods answer different questions. A certain pluralism, the acceptance that there are different fields of study and within them different approaches, is already a generally recognised phenomenon (see e.g. Kellert et al. 2006). It is likewise in futures studies. As was set out above, not only one kind of thing is asked about the future. Even more important is that every method contains assumptions about *why* the present moment tells us something about the future, i.e. why it produces *knowledge* about the future. A method is never merely a technical tool. It is also a way of thinking the relation of knowledge, (un)certainly and action. For this reason the choice of method is always also an *epistemic choice*: when a method is chosen, it is at the same time decided what kind of knowledge concerning the future is held to be important in the situation (see e.g. Virmajoki, 2026a).

Different methods answer, for example, questions such as these:

- Trend analysis asks where present development would lead if it continued.
- The Delphi method asks for the assessments of experts as to what they hold to be possible, probable or important.
- Scenario work asks what the possible and credible courses of development are.
- Backcasting examination asks how a to-be-aimed-at future can be reached by returning (in the reasoning) from the future to the present moment.
- Examination of the operating environment asks what the emerging phenomena, weak signals and first signs of change are.
- Morphological analysis asks what possible combinations of factors there are.
- Critical layered analysis asks how worldviews, narratives and metaphors delimit what we think about the future.

Let us examine some methods more closely, so that we get some conception of the *epistemic background assumptions*. Behind the Delphi method lies the assumption that experts have knowledge, experience and a capacity for judgement and analysis that cannot wholly be reduced to statistics or models. The method can help to gather scattered knowledge, but at the same time one must ask who are chosen as experts and what kinds of viewpoints are thereby left out of the examination. Who is an *epistemic authority*? In the literature concerning the Delphi method it is precisely the gathering of expert assessments, the multiple rounds and the use of feedback between rounds that are the central features of the method (see e.g. Linstone & Turoff, 1975; Linturi & Kuusi, 2022). These assumptions rest on the fact that *knowledge* of earlier answers, and its gathering and iteration, are relevant when conceptions, knowledge, about the future are produced.

Behind scenario work, in turn, lies the assumption that, instead of one forecast, it is worth studying several alternatives. Good scenario work helps to see that the future is not merely a straightforward continuation of the present moment — *we know* that different events break the straightforward paths. In the literature concerning scenario methods it is precisely the construction of alternative courses of development, the articulation of uncertainties (which is an *epistemic* category) and the broadening of strategic thinking (i.e. the attaining of an end by means of *knowledge*) that are emphasised (see e.g. Bishop et al., 2007; Schoemaker, 1995).

Behind examination of the operating environment, again, lies the thought that significant changes often appear first as small and unclear signs: as weak signals, new discussions, deviations, experiments or slowly strengthening phenomena. Such crumbs of knowledge, as they are customarily called in Finnish, are regarded as significant. Examination of the operating environment does not tell which future will be realised, but helps to perceive the ingredients of change in the present moment — it guides us to produce knowledge of smaller but possibly decisive totalities (see e.g. Cuhls, 2020; Dufva, 2022; Hiltunen, 2008).

Critical layered analysis (*CLA: Causal Layered Analysis*) goes in yet another kind of direction. Behind critical layered analysis lies the thought that the deeper assumptions of images of the future can be studied in layers, from surface phenomena to worldviews and metaphors (see e.g. Inayatullah, 1998). It asks what kinds of conceptions of systems, what kinds of worldviews, narratives and what kinds of metaphors delimit what we hold to be possible — it divides human thinking and *knowledge* into layers that affect one another and thereby the human capacity to see futures. If I think I know that the human being is always selfish (worldview), I also think I know that the environment cannot be saved, because incentives create a system in which nature is left secondary. The "knowledge" of one level leads to the "knowledge" of another level.

The manifoldness of methods is thus not confusion or a fragmentation that could be corrected. It is a consequence of the fact that there are many kinds of questions concerning the future. Good futures studies does not choose a method by chance. It asks, epistemically speaking, what a certain method assumes knowledge to be, who knows, and where knowledge is located.

Models and scenarios are not copies of reality

At this point the reader may ask: if scenarios are not forecasts and models are simplifications, why should they be held to be "knowledge"?

The question has risen, at a general level, to the centre of the philosophy of science, not merely in the case of knowledge concerning the future. In science, models that are not perfect copies of reality are used continually. Models delimit, simplify and emphasise something essential. Their purpose is not always to describe everything, but to help in explaining and understanding something. In the philosophy of science concerning the epistemic value of models and idealisations it has been argued how a model can be useful precisely because it makes some structure, relation or feature understandable (see e.g. Elgin, 2017). It is not, for example, essential which is the highest mountain in order to understand why the Earth orbits the Sun along a certain path — a question that was at the centre of the birth of modern science.

Let us take an everyday example. A map does not contain knowledge of everything that is in the terrain. A good road map leaves out an enormous amount of knowledge: trees, the details of buildings, sounds, smells and so on. Still it is an extremely good aid when moving about. In the same way a scientific model can leave out many things, if it helps to understand a certain dependence or structure. A model is bad when it leaves out something essential in relation to the purpose for which it is used. *If* the highest mountain were to affect the Earth's orbit essentially, leaving it out of account would be a mistake.

Scenarios function partly in the same way. They are not exact pictures of possible futures, but articulated descriptions of possible courses of development. A good scenario does not try to say everything about its object. It brings out something essential: dependencies, uncertainties, points of choice, risks or possibilities. In addition it must be noted, as above, that the quality of a scenario is not assessed only on the basis of realisation, but also on the basis of credibility, coherence and strategic usefulness (see e.g. Ramírez & Selin, 2014; Schoemaker, 1995). When the dependencies, uncertainties, points of choice, risks and possibilities are not credible, coherent or strategically useful, the scenario is bad.

Values are not a disturbance, but part of the research

As we have seen, in knowledge concerning the future values come in unavoidably. The centrality of values is not a weakness of futures studies, but rather a part of its object of study.

If we ask what a good future of education would be, we do not ask about the state of affairs as such. We also ask what good learning, cultivation, equality, efficiency or justice would be. If we ask what a sustainable economy would be, we must ask what is meant by sustainability and from whose viewpoint. We must *know* what values are to be taken into account when the future is examined. Knowledge must be produced of values and of possible values.

Generally speaking, the role of values in science is more broadly important as well. Values can affect, for example:

- what is held to be worth studying
- what kinds of risks are held to be serious
- what kind of evidence is held to be sufficient
- how research results are interpreted
- to what research knowledge is put

This does not mean that scientific knowledge could always be accepted or rejected purely on the basis of values. Rather, good research makes its background assumptions and its values visible and does not hide them behind an apparent neutrality and thereby make the same mistake, only in hiding (that is, an acceptance/rejection based on values). (See e.g. Douglas, 2009; Longino, 1990.)

In futures studies this is emphasised, because the research often relates to decisions — often even more than in the case of other fields. When a vision is drawn up, it is asked what is aimed at.

When a backcasting examination is made, some desired future is first chosen. When risks are assessed, it must be asked what is held to be a serious harm. When scenarios are constructed, it is decided which factors, uncertainties and actors are raised to attention. The significance of values in futures studies has indeed been held to be an essential part of the nature of the field, not merely an addition external to the research or a matter that must be assessed from outside (see e.g. Bell, 2009).

The involvement of values does not, then, make futures studies unscientific. It would rather be unscientific to present value choices as pure facts. Good futures studies tells openly *when it anticipates, when it assesses, when it aspires and when it warns*.

This is especially important when knowledge concerning the future affects other people. If an image of the future concerns education, it concerns pupils, teachers, families and society's conception of cultivation. If some knowledge concerns the climate and its possible future, it also concerns coming generations. If knowledge concerns technology, the possible effects on work, privacy, security and power must be known. Claims about the future are not merely thoughts. They are knowledge in which values are present both as object and as part of the structure of the research itself (as in other fields of study too).

Knowledge concerning the future is special also because it can affect the present moment, which in turn affects the future. The forms of futures knowledge — such as forecasts, scenarios, visions and threat images — do not remain merely on paper. They can steer decisions, investments, policy and people's expectations. If some technology is presented as inevitable, companies and decision-makers may begin to act accordingly. If some risk is described as serious, it can lead to regulation and preparedness. This can be called reflexivity.

Claims and descriptions concerning the future are not merely external representations of possible futures. They also link up as part of the action of the present moment. People make decisions on the basis of what they hold to be possible, probable or desirable. These decisions in turn change what kinds of futures are possible. In the discussion concerning anticipation and futures literacy it has indeed been emphasised precisely that conceptions concerning the future are part of action, or will come to be formed as part of action, in the present moment (see e.g. Miller, 2018).

For this reason futures studies must be especially responsible also with regard to knowledge. A poorly justified threat image can cause fear or steer towards bad decisions. Too certain a technology forecast can narrow thinking. On the other hand, well-done futures studies can open up alternatives, help in preparing, make values visible and increase the capacity to act amid uncertainty. It is not a question of whether the future affects itself, figuratively speaking, through knowledge and values, but of whether the knowledge is justified and the values acceptable.

When is knowledge concerning the future good?

We have now dealt with what kind of knowledge futures studies produces — its conceptions of knowledge — and with knowledge as part of the research. It remains only to ask what this

discussion means — different conceptions of knowledge do not yet tell what knowledge is of good quality / acceptable or of poor quality / to be rejected.

Good knowledge concerning the future is at least:

- Clear about its nature. The recipient must know whether it is a matter of a forecast, a scenario, a vision, a warning, or whatever each thing generally is.
- Justified. Behind the claims there can be material, expert assessments, theory, modelling, participants' experiences or value analysis. The justifications must be in view.
- Coherent. The parts of the description of the future must fit together. Coherence does not make a scenario good as such, but it distinguishes a scenario to be taken seriously from a random and confused narrative.
- Linked to the present moment. A credible image of the future must have some traceable connection to present phenomena, trends, decisions, structures or possible changes at hand.
- Opening up of uncertainty. Good futures studies does not pretend to certainty where there is no certainty. Nor does it use uncertainty as a pretext for defending any claim whatever.
- Responsible. Knowledge concerning the future can affect people's possibilities, rights, security and decision-making. Its production and communication must therefore be ethically upright.

These criteria do not form a list by means of which it can be mechanically checked whether some research on the future was of good or of poor quality. They are rather ways of asking whether knowledge concerning the future has been produced carefully and in a principled way. Good futures studies does not claim to know everything. It tells what it knows, what it assumes; what it does not know, and when even ignorance can have significance.

The future is not known, but it can be understood

The core of the concept of the *knowledge* produced by futures studies can ultimately be expressed simply:

- The future is not known in advance, but the possibilities opening up from the present moment can be studied systematically by different methods for different purposes.

Futures studies does not know what will altogether certainly happen — do we not often fail to understand even the present moment in our own lives? The knowledge of futures studies is *knowledge*, because it helps to see what could happen, why, under what conditions and with what kinds of consequences. Futures studies produces understanding: the capacity to act on the strength of what is known about relations of dependence, states of affairs, background circumstances and actors. It helps to understand how movement towards a certain future is brought about and how it is influenced.

For this reason futures studies needs both observations and imagination, both models and reflection on values, both expert knowledge and critical discussion. It is not mere forecasting, but neither is it free imagining with one's head in the clouds. Its task is to help people and

communities to discern the space of possibilities in which the decisions of the present moment are made.

Precisely in this lies the epistemic significance of futures studies. It does not give certain knowledge about the future. It gives a better way of asking, thinking and acting when certain knowledge is not to be had.

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[AI assisted translation from Finnish non-AI text.]

(Translation from Finnish learning material to be published on open online pages)

Values within Futures Studies

Veli Virmajoki (2026)

Key Points

- Knowledge does not replace values, nor do values replace knowledge. Without knowledge, futures thinking turns into hope or fear; without values, into groping without direction or into submission to the aims of others.
- There can genuinely be many values, but this does not mean that everything is valuable or right. Pluralism without relativism is a difficult but necessary attitude: it makes reflecting on the values of futures more difficult but at the same time more precise and more open.
- Different theories of morality and justice give different answers as to which future is desirable. Utilitarianism, for example, looks at the goodness of consequences, Rawls raises the position of the worst-off, and capability thinking directs its gaze to real opportunities for action and to power relations connected with equality. It is perhaps best to use the theories together and in layers, not to choose a single determiner of desirability.
- Whose values get to define the futures put up for assessment is both an epistemic and an ethical question. When certain perspectives and positions are excluded, the problem is not only ethical but also concerns knowledge: knowledge of futures that are visible only from other positions.
- Values themselves also change – and this has often been a blind spot of futures research. The field often anticipates, justifiably, technological and societal change but frequently assumes the unchangingness of values, even though future generations may look at our current ethical commitments with the same criticism with which we look at past ones.

Some basics of ethics and values

Before values can be discussed in more detail in futures research, it is worth pausing over a few basic concepts. Futures are always evaluated with the help of certain concepts, and if these concepts are not distinguished from one another, they easily begin to steer research and futures thinking unnoticed.

Desirability is an ethical concept that is used often, but a precise, or even approximate, definition is rarely brought out in the context of use. Situations then arise in which people seem to be speaking of the same thing, even though one is speaking, for example, of moral obligation, another of the good life, a third of the functioning of society, and a fourth of their own or their organization's goals – all in the name of *desirability*.

Within the basic conceptual toolkit, morality and ethics must be distinguished. By *morality* is usually meant those norms, rules, and principles that are thought to *guide our action* in relation to other persons and other matters. It concerns, for example, what may be done to others and what may not; what we are responsible for; when some act is wrong even if it is useful, efficient, or expedient with respect to some goal. Morality is a weighty matter in life. It is not merely a question of what we happen to find pleasant or meaningful, but of what is considered to obligate, or at least to give a strong reason, to act in a certain way, however this way of acting aligns with our momentary desires.

Ethics, in turn, can be understood as a *broader conception* of the good life, of right ends, and of what kind of action, community, or society is just. Ethics is not limited to what is forbidden or permitted. It also concerns what kind of life is worth pursuing, what kinds of relations between people are held to be

good, and what kinds of ends are such that pursuing them brings good – or at least does not destroy something important. Morality can indeed be seen as resting on a more general ethical level.

Values, in turn, are those things we hold important, worth pursuing, or good in themselves. As general examples we can mention how we value freedom, justice, happiness, knowledge, friendship, security, health, nature, human dignity, and so on.

This division is not sharp-edged; rather, morality, ethics, and values form a bundle in which the different parts shape one another. If my value is happiness, I can take an ethical stance according to which happiness is the factor in whose light morality is assessed. We need not unpack the whole bundle; the essential thing is to notice that judgments of desirability concerning the future often lie between all these levels or are a combination of them. When we reflect, for example, on the future of education, we do not deal only with learning outcomes, funding, or technological solutions. The reflection takes a stand, at least without saying so aloud, on what is regarded as valuable learning (what would be good to learn in order to become part of a functioning society), what obligations society has especially toward children and the young, what opportunities should be secured for people, and what kind of life education is thought to serve. Correspondingly, a sustainable economy is not a question only of the use of resources or the efficiency of production. It contains a conception of moderation, responsibility, justice, and of whose well-being is included in the assessment. All assessments can go ethically astray, but they are always present; we can never hide behind the idea that reality is one thing and ethics another, to be spoken of separately. This is not possible.

In philosophy, *morality* has traditionally been structured with the help of a few classical approaches. Let it be said at once that from the standpoint of futures research they need not be treated as competing total systems, of which one is chosen and the others rejected. It is more useful to see them as different ways of directing attention to the grounds on which some act, institution, policy, or future more generally can be assessed as good or bad. In this sense they are instruments for making better choices, not battle cries.

Consequentialist ethics assesses acts and solutions on the basis of their consequences. Its best-known form is *utilitarianism*, in which what produces the most good or benefit overall is held to be morally right. Classically this way of thinking was formulated by Jeremy Bentham and John Stuart Mill, although there are important differences between them, for example in how the quality of pleasure or well-being is understood (see Bentham 1789; Mill 1863) – the central question of utilitarianism is indeed *when a consequence is good*. Whatever the final answer, in *futures work* (thinking concerning the future and the series of acts that follows it) this way of thinking is natural, because we often want to know what consequences our acts will have for the future. A problem of sorts is that the use of this perspective is left unsaid. When scenarios are compared on the basis of overall impacts, costs, welfare effects, risks, or benefits, we move close to the mental landscape of consequentialist ethics. Yet thoughts of, for example, aggregate benefit can conceal how, and to whom, the benefits and harms are distributed. A future can look good “at the level of averages” even if it were intolerable for some – and a castle in the air for others.

Duty ethics, especially as commonly associated with Kant's thought, is a different perspective. Not everything can be justified or “valued as good” by good consequences. According to Kant, a human being must not be treated merely as a means but always at the same time as an end in themselves (see Kant 1785). In futures research this observation is important, because many decisions concerning futures can easily be justified by advantages that do not concern the individual but bury the individual beneath them: economic growth, efficiency, security, technological development, or improved crisis resilience. From the perspective of duty ethics, however, one must ask whether some individual is then left in a position we cannot morally accept. Some future can be “efficient” and still wrong if it requires

using some people as mere means for the goals of others – efficient, that is, from the standpoint of consequentialist ethics.

Virtue ethics, in turn, shifts attention from *acts*, their consequences and their limits, to *agents and their character*. In the (Aristotelian) tradition stemming from antiquity, the question is what kind of person acts morally well, not only what rule or principle should be followed in a given situation (see Aristotle, *Nicomachean Ethics*). In futures research this may feel distant, but the perspective is in fact intertwined with the field. Futures are built not only by technologies, institutions, and policy measures, but also by the dispositions of agents and by their character and capacity: courage or cowardice, moderation or greed, deliberation or short-sightedness, solidarity or indifference. There is thus reason to examine what kinds of agents a given future requires and what kinds it in turn produces. What are we like – are we virtuous, future-producing agents?

Contract ethics and so-called *contractualist* ways of thinking bring in questions of *acceptability* more directly. What is morally significant is then what kinds of principles people could justifiably accept, or what no one could reasonably reject (see Scanlon 1998). Rawls's theory of justice belongs to this broad family (see in more detail below), although it is at the same time its own particular (and of course, as always, contested) theory (see Rawls 1971). For futures research this contractualist perspective is important because futures also concern those who are not present to assess and create them now: children, future generations, other species, or those societal groups that were not invited into the futures work. In the assessment one must then take into account what kinds of *principles* guiding the future could be *acceptable* from the standpoint of those who will have to live with these principles. Who is the one who accepts the contract that prevails in the future as well?

From these approaches one need not, at least at this stage, choose the one correct one. It is more important to notice that they direct our thinking to different things. Consequentialist ethics makes impacts and wholes visible, duty ethics limits and respect, virtue ethics the quality of agents, and contract ethics acceptability. In discussion concerning the future these ways of thinking can blend into one another (sometimes meaningfully, to be sure) in such a way that our thinking becomes blurred. We may debate as if it were only a matter of facts, even though the disagreement concerns the grounds on which the goodness of the future should be assessed – facts and values are connected to each other, but a disagreement about facts that rests on a value conflict is unresolvable. On the other hand, it can sometimes also be imagined that a dispute is purely about values, even though the differences of view are connected to how each party sees the facts of reality.

For futures research it is precisely this connection between values and reality that is essential. Values do not replace knowledge, but neither does knowledge replace values. A conception is needed of what can happen, on what conditions, and with what uncertainties, so that what is to come can be reflected on from an ethical perspective. On the other hand, a conception is often needed of why some possibility is held to be worth pursuing, guarding against, or preventing, so that we can understand why we move, or make strategy, toward this possibility. Without reality, futures thinking turns into hope or fear; without values, it turns into verbal assessment without an understanding of the human being as agent and experienter.

What values are – and why there are many

In everyday language we speak of values rather broadly. We say we value freedom, security, friendship, cultivation and learning, nature, justice, family, knowledge, creativity, or, say, peace. These are not, however, the same kinds of things, and our values indeed attach to different kinds of matters. Some relate to societal institutions, some to relations between people, some to the individual's good life, and

some to things we hold valuable regardless of immediate benefit. Yet in a certain way these things must be capable of being distinguished from one another.

In futures research this multiplicity comes up quickly, because the field does not study only certain futures but the futures of different things and topics. When we describe, for example, possible futures, inside these futures there are valuable things of different types. From this follow different combinations of, and conflicts between, values and norms. For example, the future of education concerns competence, cultivation, equality, labor markets, individual freedom, and the continuity of society. Cultivation and the fairness of labor markets are different as values. The future of technology, again, concerns efficiency, control, security, freedom, privacy, and power. Efficiency and security are, again, different values.

In the discussion concerning values, one central question is whether the different values are ultimately reducible to one basic value or not. *Monism* means the view according to which behind everything valuable there is, in the last instance, one value – for example well-being, pleasure, happiness, or the satisfaction of preferences. Other things are then valuable insofar as they promote this fundamental good or are in some way derivable from it. Then, for example, freedom, knowledge, or friendship are valuable because (or insofar as) they increase well-being, or insofar as well-being requires them.

Value pluralism, in turn, is the view according to which there genuinely are many values. They are not merely different derivations of one value or good, or a precondition of its prevailing. For example, freedom and efficiency can on this view both be real values, even if in certain situations they come into tension – do we want to make a sector more efficient even if this leads to the control of people's time? According to a more classical example, knowledge and happiness can both be important, even though knowing the truth does not always make a person happier.

The strength of value pluralism is that it corresponds rather well to our experience. Moral and political choices often seem to weigh *incommensurable* things – that is, things whose values cannot be compared on the same scale, such as efficiency and freedom (on incommensurability, see Chang 1997). Often a choice can be justified and still leave behind a meaningful regret that something valuable genuinely had to be given up. This is intelligible only if the rejected alternative was genuinely valuable, not merely a lesser form of the same value. It can be thought that values stand in genuine conflict and that this is not a matter of some misunderstanding of the nature of the other value (see Berlin 1958).

In futures research this has great significance. If all values are reduced to one basic value, assessing the goodness and rightness of futures is seemingly easy. One can, for example, assess which scenario produces the most benefit, growth, or satisfaction, or the least harm – one of these is taken as the basic value and the assessment is carried out. But if there are many values, the assessment of futures requires distinctions. One must assess, for example, in what ways a given future promotes well-being, in what ways it strengthens freedom, and in what ways it treats vulnerable groups. Then one must weigh whether the combination of values that a certain future contains is more desirable than some other.

It must be underlined, however, that what is required is weighing, not blindness. Relativism does not follow from pluralism. It is important to distinguish the multiplicity of values from the idea that all value systems would be equally good. We can perfectly well think that freedom, equality, well-being, and human dignity are separate values, and still hold slavery, arbitrary cruelty, or systematic subjugation to be wrong. Multiplicity does not remove the possibility of criticism. It makes criticism more difficult but also more precise – we do not use an arbitrary mechanism in which we reduce a bundle of values to some basic value that a given future would bring with it.

This distinction is decisive for futures thinking. If pluralism is confused with relativism, futures research loses its capacity to say why some future is better or worse than another. If, on the other hand, pluralism is warded off and all values are, as it were, forced onto one measure, futures research becomes impoverished and begins to see futures in the light of only one value. Both errors are possible but avoidable.

Yardsticks of a desirable future

If futures research assesses the ethicality and desirability of futures, it must in some way take a stand on what makes a given future desirable. This question cannot be resolved at once or finally, but neither can it be avoided. To understand alternative answers, we can look at philosophy's theories of justice. There is no reason to treat them as academic hair-splitting, for the different answers lead to different conclusions about what kinds of futures are held to be worth pursuing. In this section we deal with a few examples.

One of the most common and often unstated starting points is the utilitarian one, which we encountered above. When, for example, an administration assesses which future would enable the most efficient public administration, or when a company chooses a future on the basis of the greatest expected return, they move at least to some degree within utilitarian thinking. The question concerns what benefit some decision might have on a certain measure, such as efficiency (which can of course be reduced to a basic value such as the increase of material well-being). Such thinking makes it easier to assess the future in the midst of uncertainty and conflicting views.

The problem, however, is fairly obvious. In the spirit of utilitarianism we could accept a future in which overall well-being is great but is distributed glaringly unequally. If the gains of the winners are large enough, the losses of the losers can remain to one side in the overall calculation – putting it somewhat pointedly. In addition, utilitarianism can accept people's preferences uncritically. A community accustomed to living in poor conditions can express preferences that have adapted precisely to these conditions. Then a future that would look acceptable on the basis of preferences (because it would increase the things that satisfy these preferences) can in fact be the continuation of injustice in another form (see Sen 1992). In futures research this is especially important, because the preferences of the present moment do not always tell us what would in the future be genuinely good or right for people. We return to the theme in more depth below.

Rawlsian justice thinking offers one influential but contested alternative. John Rawls's well-known thought experiment is the so-called *veil of ignorance*: the principles of society are chosen as if we did not know what position we ourselves will end up occupying in that society (see Rawls 1971). According to Rawls, in such a situation it would be rational to choose principles that protect the worst-off as well. Everyone must have the same rights, and differences between people are justified only if they rest on a system that improves the position of the worst-off. From this perspective one does not ask only which future produces the most well-being overall, but what kind of future treats its worst-off best, or at least improves their position. The desirability of a future depends on the position of the worst-off.

We could indeed draw a certain analogy to futures work, for we often think of generations in whose position we ourselves are not – although, of course, the mechanisms of intergenerationality make neutrality impossible. The difficulty, however, is that in applying Rawls's ideas one should be able to specify *who* the worst-off of each future are. How disadvantage is determined is not only a conceptual question; it also involves an empirical part. In a technologically advanced future, disadvantage can relate to competence, to access to systems, or to the capacity to control one's own data – however wealthy a person may otherwise be. As the climate crisis intensifies, it can relate to place of residence,

health, or the capacity to relocate. In a security-policy future it can relate to vulnerability, relations of dependence, or the capacity to influence politics. How are the worst-off carved out of the different futures – do we then make a new set of possible futures that focus only on them? From the standpoint of practical research this would be challenging.

The *capability approach* developed by Amartya Sen and Martha Nussbaum is also worth keeping an eye on. The central idea of the approach is that the same resources do not guarantee the same freedom for everyone. For example, a physically injured person may need more resources to achieve the same actual capacity for action as one who has avoided injury. On the other hand, a person living in a poor environment does not necessarily benefit from formally identical rights in the way a person does who has the preconditions, provided by institutions, education, and infrastructure, for carrying out acts in accordance with their rights. What is essential is thus not only what people have, but what they can actually do and be – what they are capable of (see Sen 2009).

Nussbaum specified this approach by listing central human capabilities, such as life, health, bodily integrity, imagination, emotions, practical reason, affiliation, relation to other species, play, and control over one's environment (see Nussbaum 2000). For futures work this gives a multidimensional way of examining the elements of a desirable future. A future is not desirable, for example, only because we achieve better resources or because some system works more efficiently. One must look at what people's opportunities to act, their capabilities to act, are in that future. Can people live, learn, participate, move, form relationships, influence their environment, and regard themselves as agents? Of course, a problem quickly arises here: if the list of features of a desirable future becomes long, distinguishing between such futures becomes truly difficult – what to take into account, and how to balance if conflicts arise?

According to *sufficiency thinking* (i.e. *sufficientarianism*), in turn, the most important thing is not necessarily perfect equality or the maximization of aggregate benefit, but ensuring that everyone crosses a certain threshold of sufficiency. Everyone must have enough. The basic idea is thus that “moral urgency” depends on whether all people get above a certain threshold with respect to a certain matter. For example, the insufficiency of medicines for people on low incomes is not acceptable, because people do not receive sufficient resources (medicines) as a precondition of their well-being. Above the threshold, the moral urgency of further improvements can diminish, even if they do not become indifferent (see Frankfurt 1987). For futures work this gives a usable sieve. If there are two futures, in one of which a certain morally relevant threshold is crossed and in the other not, the first is the desirable future.

Sufficiency thinking has been criticized for not saying enough about injustices above the threshold (see Casal 2007). It is perhaps possible to imagine a society in which everyone has enough (let the definition be taken as given), but in which power, wealth, esteem, or opportunities to exert influence are nevertheless distributed in deeply problematic ways. It is perhaps blunt to ask whether a future in which one person remains below the threshold but the others live nearly identical lives really is better than a future in which even that one person crosses the threshold, but a certain elite has opportunities of which most can only dream. It is perhaps best to regard sufficiency thinking as one condition, not the whole truth, for when a future is *acceptable* – not, perhaps, desirable. We can accept only futures in which resources suffice, but some of these can be less desirable than others, for example because of a glaring inequality of wealth.

In practical futures work, the theories presented above (and of course others as well – we dealt with only a selection by way of example) can be used together. For instance, one could construct the following filter for desirability: First one examines whether everyone crosses the threshold of sufficiency. When

this has been checked, we direct our gaze to what kinds of capabilities the futures thus first screened would enable. We select the capability-increasing futures for our list. After this, we assess what kinds of power relations and forms of subjugation – more generally, inequality – these different futures generate or dismantle, and on the basis of what mechanism. Such a layered approach does not necessarily produce a single ranking. Its value lies in making the normative questions visible and workable instead of resolving them with people's haphazard intuitions.

Whose values decide

The theoretical approaches discussed above do not yet resolve one central question. When assessing on what grounds a given future is desirable, one must examine *whose values* get to define, in the first place, what kinds of futures are set up for assessment at all. This question concerns the justice of participation (or inclusion). Inclusion is both an epistemic and an ethical question in futures research.

The epistemic side concerns what follows when certain voices are excluded from futures work. It can then be argued that futures research loses access to perspectives that could improve its quality. Miranda Fricker's (2007) concept of *epistemic injustice* helps in understanding this. A person can be given less credibility than they would deserve because of a prejudice attached to their identity. On the other hand, they themselves may lack the conceptual or institutional means to express their own experience in a commonly intelligible or accessible way. Knowledge remains in the margins of society.

For example, an expert panel consisting exclusively of people of similar education, generation, and societal position can produce internally coherent foresight. This does not yet necessarily make the foresight sufficient. The panel can “systematically” pass over futures that would be visible only from other positions. One sees technological efficiency, another dependence. One sees the automation of a service, another the loss of access. One sees an increase in security, another a thickening of surveillance. We do not, however, want to end up in a situation in which genuine expertise and researched knowledge are regarded as being as significant (or insignificant) as anyone's sketches of reality. Rather, the point is that it is possible that the research itself is already in a certain sense unjust and must therefore also be examined through the lens of justice. Nor is it a matter of values steering research (see the article on conceptions of knowledge) but of how knowledge itself can constitute a question of justice.

Besides epistemic justice there are of course fundamental questions concerning the investigation of values, such as the question of whose values appear thinkable at all. For example, so-called critical-interpretive methods, such as *causal layered analysis* (CLA), start from the premise that beneath the surface of images of the future there are deeper layers: worldviews, myths, metaphors, and basic assumptions that delimit what is held possible or meaningful to think about the future (see Inayatullah 1998). When we assess the desirability of a future, these layers and the values built into them must be gone through. We cannot simply be fully aware of what values we ultimately carry with us and what they rest on.

Consider, for example, a future built around a value foreign to us, such as (to take a “toy example”) the requirement that dwelling floor area in square meters must be a prime number. From the present, this future can appear indifferent, strange, or downright incomprehensible. This is not necessarily because that future is impossible, undesirable, or indifferent. It may be that our understanding lacks the means to express and recognize the value. Perhaps the prime-number system would enable better mobility, because furniture in that future is even-numbered in area? A silly example, but we cannot in any case demonstrate the idea otherwise (if the example were genuine, it would no longer demonstrate a strange future but something we already comprehend). One task of futures research is precisely to make these limitations visible. Not because the foreign would somehow automatically be better, but so that

unnoticed assumptions do not steer the discussion without it being possible to discuss them.

What is essential, then, is not only who is invited to the table, but also whether the conceptual frames concerning futures are open to discussion or even to contestation that challenges them. It is interesting how, for example, Sen (2009) refused to lock in a final list of central capabilities and held that communities should decide through public reasoning which capabilities are important. The same principle suits futures work. Values should not always be brought ready-made to the table merely for finding the right ones or for balancing between them. The “value-ness” of the values themselves should be part of what is discussed. This also relates to participatory approaches: without deep value discussion, participation easily remains superficial: people do get to speak, but their words do not change the frame within which the speech is heard.

Values change

So far we have largely spoken as if futures were assessed with values that are relatively stable or acceptable to us. There is a certain practical sense in this. Without some assumption of the continuity of values, the assessment of futures would become nearly impossible. We could not say much about what a desirable (good and just, valuable) future is if we thought that all the criteria of assessment can change at any moment. *Yet values are not unchanging.*

A stark example of the nature of values is that only in 1833 did the British Parliament legislate the abolition of slavery. A generation earlier, many had regarded the slave trade as a natural, necessary, or at least acceptable part of the economic and social order. By the time of abolition this view had not merely changed but, in the eyes of many, turned morally shameful. Kwame Anthony Appiah (2010) has emphasized that the change was not driven primarily by new knowledge of the cruelty of slavery; that knowledge had been available earlier as well. The change was connected to moral sensitivity, to conceptions of honor, human dignity, and the civilized nation. We can know and still act wrongly if our action accords with wrong values; we can change our action by changing our values, not only by adding knowledge.

This is not a historical exception but an example of a broader phenomenon, one that is obvious but has for some reason remained hidden from futures research. Danaher (2021) has, in an eye-opening way, proposed *axiological futurism*, by which he means the systematic study of how human values can change in the future. The starting point is simple. When we look at the moral commitments of past societies, we find beliefs and practices that we now regard as deeply repugnant from the standpoint of morality and justice. The problem is that it is quite possible that *future generations will look at some of our current ethical commitments with disapproval*. Historical examples abound.

Cross-cultural variation also tells of the malleability of values. For example, Buddhist and Western moral communities can differ deeply in how they relate to the individual self, to desires, or, say, to righteous anger (see e.g. Flanagan 2017). Such differences do not mean that everything is acceptable as long as it is related correctly to a given culture, but they do show that the world of values is not simply given and universal. Values are connected to conceptions of the human being, community, suffering, responsibility, and the good life, and these conceptions are constructed in historical conditions.

Value change is driven by both intellectual and material factors. Intellectual drivers are new ideas, moral arguments, concepts, and modes of persuasion. Appiah's observation on moral revolutions is interesting here: changes often do not start from entirely new arguments, but from existing arguments beginning to connect differently to other things such as *honor*, *esteem*, *identity*, and *shame* (see Appiah 2010). Material drivers, in turn, relate to technology, the economy, energy use, and the physical

conditions of life. For example, Morris (2015) has argued in his historical examination that the forms of energy use have shaped values concerning violence, equality, and justice. Verbeek (2011), in turn, has emphasized that technologies do not merely realize values but reshape them by opening and closing possibilities of action and by changing the concepts with which we understand the world. For example, it can be argued that the ultrasound device constitutes the fetus in new ways: as a patient, a person, and an object of choices.

Intellectual and material drivers do not, of course, operate separately. What we value guides what kinds of technologies we create and adopt, and these technologies in turn shape what we hold valuable. For example, the printing press did not merely spread existing ideas more widely, but created new kinds of publics, religious movements, scientific communities, and forms of political action. The internet did not merely speed up communication, but changed how we understand things like moral concern, attention, shame, solidarity, and hostility. This intertwining of the intellectual and material drivers makes futures research more difficult (which to focus on first?), but there is nothing we can do about this. Futures research is not supposed to be easy, especially when values are being discussed. Values are not an easy topic.

In a certain way one could of course think that the problem is not quite this large. Historians and anthropologists constantly study foreign worlds of value. They are able to reconstruct what it was like to live in a society in which the heavenly bodies were thought to orbit the Earth, honor determined social position, or gender roles were much starker than today. This possibility of reconstruction exists. But the study of past value worlds is retrospective. The researcher examines a frame that has already existed and of which *traces* remain: texts, institutions, practices, and concepts. In the case of a future foreign value world, such traces do not yet exist – at most weak signals. In addition, the present has a tendency to leak into our imaginings and to fill the alternatives with things we already know. This problem of *presentism*, that is, the influence of present-day conceptions, is a problem both in futures research and in thinking concerning the past.

For futures research a certain discomfort follows from this. Usually studies concerning the future are value-driven, *because people care about the future precisely on account of their value commitments*. Concern about climate change, existential risks, the erosion of democracy, or the control of artificial intelligence springs from the fact that we hold something important: human flourishing, justice, freedom, ecological sustainability, or the continuity of life. Yet futures research has all too rarely asked what will be valued in the future, what is desirable in the future. We study *desirable futures* and start from our own values. More rarely do we study what is *desirable in the future* – what values prevail. This is, putting it somewhat pointedly, odd.

Danaher's (2021) proposal of *axiological futurism* is more an opening than a finished theory. Its significance, however, lies in moving value change from the margins of futures research to being one of its objects of study.

This idea can be divided in two. First, one can examine what value change can be like. Not all change is equally deep, and not every change causes the same headache for the assessment of the desirability of futures. One must ask how difficult value change can make the assessment of the future. In this connection the discussion of transformative experiences and of the limits of imaginability is especially important. Second, one must face the normative puzzle that the recognition of value change generates: how can changing values be assessed without falling either into the arrogant domination of present values or into complete relativism?

These need not be thought of as separate problems, for good or ill. They relate to the same question of how futures research can assess futures if the grounds of assessment may themselves change.

When the experience does not yet exist

When speaking of the values of the future, the significance of experiences as shapers of values must be brought out. The philosopher L. A. Paul (2014) has described *transformative experiences*, by which she means experiences whose nature cannot be known in advance without undergoing them oneself, and which at the same time change the experiencer's central conceptions of the surrounding reality, their preferences, their aims, or their conception of themselves. One example is becoming a parent. Before the first child, a person can obtain information about parenthood, hear others' accounts, and form advance expectations. Still, no one can fully know what parenthood is like for them, nor how the experience will affect their values.

The original target of the critique was the idea of *rational choice* – the relevant information does not exist before the transformative experience. From this we quickly reach futures thinking: some future can be such that it cannot be properly assessed from the present, because the experience required for the assessment does not yet exist. What we lack is not merely, say, some statistic. Technologically modified humanity could be one example of a situation in which we attain transformative experiences that completely change our assessment of what is valuable and of what it is like to be in the future.

The idea of transformative experience can be extended; it is one limiting case. In transformative experiences the uncertainty is not the ordinary uncertainty about which future will come about. It is uncertainty about how the future *would be experienceable and assessable* if it came about. In futures research this is an important difference. It is an entirely different thing to say that we do not know whether something will happen than to say that we do not know how experience and valuation would change if it happened.

The claim can of course be questioned. It can be argued that corresponding, more familiar experiences give at least partial knowledge of what a transformative experience would be like. Others emphasize that the imagination can, as it were, be trained through narratives, art, simulations, and the experiences of others. This is important for futures work. Not all the limits of assessment depend in a deep way on whether we attain experiential understanding in some particular context. Some of the limits stem from the poverty of imagination, from the homogeneity of participants, or from the fact that sufficiently many kinds of alternatives have not been sought and generative thinking has not been stimulated. But some of the limits can still be deeper.

Between arrogance and relativism

If values can change, by what right do the people of the present assess the values of the future? And if the values of the future can deviate from present ones, must we accept any change whatsoever merely because in the future it may be held acceptable?

At first glance there appear to be two bad answers to this, and we face a dilemma. The first answer is *evaluative arrogance*. According to it, our present values are the right ones, and every future deviating from them is deficient insofar as it does not accord with those values, whatever future generations may say. Sometimes this attitude would seem to be right. It condemns futures that include, for example, slavery or arbitrary courts. The problem is that one cannot distinguish the futures that are appalling in respect of values from those that are merely different – there is no strict boundary. It is hard to come up with a sustainable argument for the claim that the values have already been found and may not change. A further problem is that, in the light of history, such an attitude of the superiority of one's values has

also served as an instrument of cultural domination, when progress has been read exclusively in the terms of one culture. We do not want to do the same to the future.

The second (bad) answer is *value relativism*. According to it, every value system is as good as any other, and no trans-historical comparisons can be made. This may at first look even like a humble position. It would seem to respect the self-determination of future people and to leave room for values foreign to us. Humility can, however, conceal cowardice. If all value systems are held to be equally good, no future can be condemned, however horrifying it may be. For example, a future in which a technologically enhanced elite subjugates the rest of humanity and holds the subjugation morally justified would, from the relativist's perspective, be no worse than a future of universal flourishing, if the values of that future accept the arrangement.

This is the dark dilemma brought out by *axiological futurism*. The way out, however, is not to choose one of the extremes, but a *method*. In philosophy, the approach of so-called *reflective equilibrium* has been widely used. In it one proceeds by fitting together considered particular judgments and general principles, correcting each in the light of the other, until the whole is as coherent as possible (see Rawls 1971). We may, for example, notice that we have the principle “do not hurt”. Yet a police officer may have to use force to restrain a person, and this is right (a considered judgment). The principle changes into the form “do not hurt, unless a great threat to safety has arisen”. On the other hand, we may have the considered judgment “hurting is right in a boxing match”, but this conflicts with our principle. We ban boxing. In other words, in the method we add judgments and modify principles, back and forth, and the process does not come to an end anywhere. That is precisely why it suits the investigation and management of value changes; we make a change first over there, then over here, and gradually our value system and our conception of reality are renewed – but systematically and in a controlled way.

This gives humility against arrogance and backbone against relativism. Our present values are revisable, but revisability does not mean that anything goes.

It is fair to mention also a position according to which it is at least in principle possible that values should not change. *Moral realism* means the position according to which there exist objective moral truths that can in principle be discovered (see Shafer-Landau 2003). Then the endeavor to find the genuinely desirable futures is not arrogance but a striving for accuracy. But the realist, too, needs a method for forming and correcting their conception of which “values” really are values. Nothing prevents the use of reflective equilibrium. That is why reflective equilibrium serves both those who believe in objective values and those who take a more cautious attitude toward this.

For futures work a concrete instruction follows from this: within the value frame, a *robust core* and a *fragile edge* must be distinguished. Some commitments, such as the prohibition of arbitrary cruelty, respect for human beings, and some kind of fairness in the distribution of benefits and burdens, belong to the robust core. Other commitments are more fragile. They relate to more situation-specific applications, emphases, historical conditions, and culturally learned norms – different ways of conversing can be respectful (robust core) and still change (which would not cause a moral crisis). In futures research, too, there is perhaps reason to consider how the robust core and the fragile edge are presented when desirable futures are sought, and how deep into the core there is time and opportunity to go while the exercise still remains controlled.

Universal values reconsidered

What has been said above helps to sharpen the idea of universal values, about which, among others, Bell (2009 [1997]) wrote in his classic. Democracy, human dignity, equality, justice, and freedom are often

understood as values that have, or should have, universal significance both now and in the future. Such talk is tempting and in part even necessary, but it easily turns into a heap of unspecified slogans if universality is understood as a ready-made content shared everywhere in the same way – without saying what exactly this content is.

One must therefore be more subtle. The search for universal values does not mean that all cultures would understand the values in the same way or give them the same content. It is perhaps more fruitful to examine what kinds of constraints any functioning morality must satisfy, and thereafter what kinds of different contents different cultures and different times give to these constraints. Wong's *pluralistic relativism* is, despite its name, a sharply delimited position, yet more fine-grained than empty universalism: in a certain sense there is more than one “true” morality, but not all moral systems are true. The core of the idea is that the task of morality is to regulate cooperation between people and to support the individual's inner order and flourishing. This task, together with the enduring features of human nature, sets universal constraints: a functioning morality must rest on reciprocity, offer those whom it binds reasons to accept it instead of mere coercion, and leave room, alongside the impersonal point of view, for personal ties (see Wong 2006). It is precisely such constraints that distinguish a defensible pluralism from boundless relativism.

It is important to study two things in parallel. On the one hand, one must ask what kinds of shared values people actually have. On the other hand, one must ask what kinds of shared values we could and should have. The latter is the more future-oriented question. Even if values valid nearly universally were found, they are not given ready-made or permanently valid. They change slowly, contestedly, and continuously, as a result of people's work, conflicts, institutions, and changing conditions. One cannot, however, jump straight to the values of the future and leave unasked what is already valued – and why.

What this means for practical futures work

What has been said above can be presented, from the standpoint of practical futures work, in the form of a few conclusions.

The first is that the assessment of scenarios and other images of the future should not be left to mere intuition. Most futures exercises assess their results informally: the team discusses, the client emphasizes certain things, participants find some alternatives interesting or worrying, problems are mentioned and answers are sketched. This is not wrong, but it is often insufficient. A clearer alternative is to assess futures with several explicit normative questions. We can ask whether people cross the threshold of sufficiency in a given future, what kinds of capabilities the future opens or closes, what kinds of relations it builds, and what forms of subjugation it may reinforce. This does not mean that every scenario exercise should be turned into a heavy philosophical analysis. Rather, the point is that the criteria of assessment are made visible.

The second conclusion concerns participation. The values used as yardsticks of desirability assessments should not always be defined in advance within a certain group of experts. Before futures are assessed, it would be worth reflecting together with those outside the expert group on what *sufficiency* means in the particular context, which *capabilities* are essential, and what forms of subjugation people regard as the most serious. Here the definition of value criteria is seen as part of futures work, not as preparatory work external to it carried out within a certain group.

Third, the futures described and their world of values must be in harmony with each other. There are no completely value-free scenarios whose desirability is, as it were, mentioned at the end. The values, institutions, technologies, and material conditions of a future come in the same package. For example, a

scenario that assumes an enormous esteem for science and at the same time a complete collapse of research funding, without any explanatory mechanism, is internally problematic. Value and action do not meet, and the scenario is incoherent. Likewise, a scenario that assumes strong individual freedom and complete technological surveillance at the very least demands a meticulous explanation of how these fit together. Values do not float above the future; they attach to practices, institutions, and everyday possibilities.

Fourth, the assessor is part of the process, not outside it. Futures work affects action, and action affects the future. When some future is described as desirable, this description can steer resources, attention, policy, and imagination. Therefore the describing of the values of a future and the recommending of them are not fully separable from each other. A value judgment concerning the future participates, often modestly to be sure, in producing the conditions in which that judgment is later either confirmed, changed, or overturned.

Fifth, the limits of the assessment of desirability must be remembered. Some futures can be so thoroughly different that we simply do not know what it would be like to live in them. And if we do not know what it would be like to live in that future, we are not able to assess very strongly the valuations connected with it.

Finally, it must be remembered that values change. We should study more the mechanisms concerning value change and the possible futures of values. In addition, we should answer the question of whether we accept the change or not – whether it is morally permissible. From this a dilemma arises for us between present and future values.

None of this makes normative futures work – that is, the search for and pursuit of desirable futures – impossible. Rather, it makes this work continuously unfinished in a recognizable and intelligible way. We do not wander on the basis of intuitions but constantly reflect on why we value something and why our values can change. This is actually an important strength. Futures research that recognizes the historicity and limitedness of its own yardsticks is in a better position than futures research that imagines the permanence of its own yardsticks. Let us value change. And let us change our values – but sensibly.

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[AI assisted translation from Finnish non-AI text.]

(Translation from Finnish learning material written open online pages)

Time in Futures Research

Veli Virmajoki (2026)

Key Points

- Without a conception of time there is no conception of change — and no futures thinking. Time is not a uniform background within which things happen, but a central part of how the future is thought about, studied, and built.
- The same moment contains many temporalities. In a hospital, the patient's time is waiting, the physician's time is urgency classifications, and the administration's time is budget periods — and the future appears differently to different actors precisely because of these differences.
- The choice of time horizon is an exercise of power. It delimits which futures enter the discussion: an organization looking at the quarter sees a different world than one looking toward 2050.
- Not everything significant happens in long arcs. Climate policy needs decades, crisis management hours, and algorithmic decision-making seconds — the right question is which time horizon makes a phenomenon intelligible.
- The choice of method is at the same time a temporal choice. Every method has its own time-needs, and one must ask not only what kind of time a method requires but also what kind of time it produces.

Why must we talk about time?

Time seems simple in everyday life; it passes at a certain pace, whether we are in a hurry or not, whether it is as we hoped or not — we will return to this. Normally, however, we merely look at the clock to know what *time* it is now, open the calendar, schedule meetings and activities at *points in time*, expect an answer *within a certain time*, perhaps even miss a train or make it just *in time*.

Below, we treat time both from the standpoint of the human being — the individual, the organization, the collective, and so on — and as the *research* framework of futures research. The choice is deliberate: time must be understood more broadly in order to understand time as a *research* framework for the future. These go hand in hand.

In futures research, and in thinking about the future generally, time is not merely a uniform and unnoticed background within which things happen. It is an absolutely central part of how the future is thought about, studied, and how the future can be influenced. When we speak about the future, we always speak about time as well — *the future* is, of course, itself a temporal concept. There are, however, particular reasons to reflect on how far in time we look, at what speed change happens, from whose perspective time and change feel long or short, and when the right moment to act is, for whom.

Futures research does not mean certain prediction, as we have noticed (**see the text on the conception of knowledge**). The task of futures research is rather to examine possible, probable, and desirable futures, and how, among other things, present-day decisions, expectations, technologies, and societal structures shape what is to come (Bell, 2009; Inayatullah, 1993). Time is present here all the time, to put it somewhat ironically. Without a conception of time there is no conception of change. Without an idea of change there is no futures thinking (Bell, 2009). In futures research, time is thus connected above all to change. If nothing changed, the future would be only an extension of the present. The future is interesting precisely because things can go otherwise.

That is why the question of time in futures research, and in the life that is its object, is fundamental. It is not enough to ask what can happen in the future. We must also ask: on what timescale, in whose time, at what and whose rhythm, and with what consequences? Things change, and they change in someone's time and in some time.

Marcus Bussey has condensed this idea by pointing out that futures researchers work *with time and within time*: they operate amid different temporal cultures and rhythms, not "outside" them (Bussey, 2017). A futures researcher does not merely choose a year, such as 2035 or 2050, and place things to happen before or around it. Whoever studies and reflects on the future must ask what kind of *temporal assumptions* make some futures credible and others difficult to think. It is improbable that a car built in 2006 will still be running in 2050; it is probable that an apartment building constructed in 2016 will still be standing in 2046 — excluding catastrophes, which unfortunately do occur. It is possible that in 2030 the football World Cup will be won by a different country than in 2022. These are only some examples.

Timing is thus a central concept when reflecting on possibilities (from far-fetched to highly credible). The same thing can be too early, too late, or precisely well-timed depending on the actor. A technology can exist before society is ready to use it responsibly. A political decision concerning a crisis can be effective only if it is made before the crisis escalates. A vaccine can be completed before a pandemic is out of control — that is, it *can* be; nothing guarantees this.

In futures research, then, time is not merely duration or some "container" in which events are located. Attention must be paid to it as if it were an actor in itself, to put it somewhat pointedly. Time in the hands of an actor is a tangle of issues to which we return below and which has significant features.

Conceptions of time and temporalities

Time is often thought of linearly, as a straightforward, uniform continuum. The past is behind, the present is here, and the future is ahead. As time passes, the present and eventually the future become part of the past. This is a familiar way of thinking especially in modern society, where *development, growth, planning, and progress* have been important matters, also from the standpoint of narrative, governance, and experience. (See e.g. Bell, 2009; Thompson, 1967.)

Linear time undeniably suits many questions of futures research well, even though we can call it into question beneath the surface. If we want to consider, for example, the transformation of energy production by 2050, the development of the education system over the next twenty years, or the effects of technology on working life, we need a conception of time that moves forward. Only such a time makes it possible to arrange steps into a path toward the future and to examine whether the

right step has been reached at the right time in the right context. If we want transport to be electric by 2050, in 2046 it may have to be concluded that the path did not follow the desired timing.

But time is not *only* linear. Or rather: linear time is not quite what it appears to be.

Many things are built on *rhythms* and *repetitions*. There are many examples in different contexts. Seasons, days, and hours repeat. Likewise, for instance, the rhythms of care work, economic cycles, electoral terms, and generations create cycles within linear time — no work shift is identical to another, yet they repeat all the same. One can adopt a kind of cyclical conception of time without assuming that nothing changes. Rather, change then means that something is achieved (or an end result is arrived at) through repeating phases, rhythms, and recurrences. In sport this is familiar. But also, regrettably, for example in warfare or in preparing for it.

In addition, experienced time can always be distinguished from linear (perhaps cyclically forming) "objective" time. It does not always run according to the clock or other external recurrence. "Time is long for the one who waits." For the busy, time passes quickly. In uncertainty the future can feel heavy, and in an inspiring situation it can open up as possibilities. In futures research this experienced time matters greatly, because people do not react only to facts and forecasts. They also react to how the future looks in their life situation or as a certain kind of actor. Whatever the researchers say, it has no effect and is of no interest if a person lives outside the researchers' discourse where future prospects are concerned.

We can therefore emphasize the concept of *temporality*. *Temporality* means how time is constructed, experienced, and ordered in different situations, systems, and relations. The difference between *time* and *temporality* is central: Time is. Temporality makes it part of life. In the same time, in the same situation, there can be many temporalities. Consider, for example, a hospital. For the patient, time can be waiting, pain, or uncertainty. For the physician, time can be appointment slots, urgency classifications (a temporal concept), and care processes. For the administration, time is connected to the use of resources, work shifts, and budget periods. For the technological system, different situations and actors can be timestamps, response times, and data updates.

All these *temporalities* are real. Their length, their experiencer, and their effects can be very different indeed, as our example shows.

In futures research, recognizing multiple temporalities helps us understand why the "same" future can appear differently to different actors. We say that something will perhaps happen at some moment in the future. One then sees an opportunity, another a risk, a third a delay, and a fourth a change that is too fast. Time is thus not only a question of measures (of measuring time) but also a question of interpretation, experience, and power (see e.g. Bussey, 2017; Virmajoki & Laakkonen, 2024b).

People and communities also orient themselves toward time in different ways. This can be called *time orientation*. In futures research this means that thinking oriented toward the *past* seeks continuity, experiences, traditions, and the lessons of earlier solutions. Thinking oriented toward the *present* concentrates on the situation at hand: what is urgent, what must be done now, what the current situation is — and there can be different views on this; the present is always contested. Thinking oriented toward the *future*, in turn, asks what can happen, what is worth pursuing, and what consequences current choices may have. Let us be precise: future-oriented thinking is not the same as the time orientation of futures research. The latter can contain many different time orientations. We learn from the past, reflect on the present, try to grasp what is to come.

An organization, too, can be time-oriented in different ways simultaneously. It can speak in its strategy about the year 2046 but in practice operate on the terms of the next budget year. It can emphasize renewal but value personnel on the basis of the past, whether this is right or not. It can hold a crisis meeting in the middle of the day. Such — in a certain sense contradictory — time orientations are interesting for futures research because they affect which futures become credible or possible from the standpoint of action (see e.g. Brier, 2005; Nordlund, 2012).

Time orientation is also visible in emotions — of an individual or a collective. If the past is seen as a lost golden age, the future can feel threatening. If the present is experienced as a crisis, the future can narrow into a question of survival. If the present is seen as resource-rich and open, the coming change can feel mostly like a decision about where to direct activity. Emotions and agency are bound together through *temporality*.

Time horizons from long to short in futures research

Timespan or *time horizon* means how far into the future the examination of a topic or question is extended. In futures research, common time horizons are, for example, five, ten, fifteen, twenty, or fifty years (Brier, 2005; Nordlund, 2012).

Such delimitations are not arbitrary. If we set the question about the future too close, it is difficult to reflect on (how could anything have time to change?), but if the question is too far away, the reflection can become unclear, even sci-fi-like. How do we know what all has changed around the matter if the time horizon is 50 years? Who knew what the year 2026 might contain, even though Apple released a certain computer in 1976?

Time horizons are not, however, freely choosable by the researcher. Often time horizons are so essentially tied to the practices of planning (such as government terms, strategy periods, investments, technological development, or generation-length changes) that the time horizon must be set on the terms of the user of futures knowledge. For the sake of integrity, however, empty promises cannot be made: not if a given time horizon is impossible from the standpoint of the realities of research — for example, the assembling of a research team and the collection of data.

Here it must be taken into account that the choice of time horizon changes what can be seen of the future. If we look only at the next year, slow developments can remain hidden. Climate change, population ageing, changes in the level of education, or the decay of infrastructure do not necessarily look dramatic in a short examination. If, on the other hand, we look only very far, the contradictions of the present, the pressures of decision-making, and people's everyday experiences can disappear from view. We do not want to lose our grip on either, or give up on either.

The choice of time horizon in futures research and futures thinking is therefore also an exercise of power. It delimits which futures enter the discussion and which remain outside it (Bauer, 2018). When an organization chooses only the next quarter as its interval of examination, it sees a different kind of world than an organization that asks what its activity means in 2050. Inside these organizations, different things are discussed.

Futures research is often associated with relatively long time intervals, as we saw above. This is understandable. Many questions important for the future require examination reaching years or decades ahead: energy production, urban structure, education, population development, climate, democracy, and technological disruptions.

Yet the future is not built — nor present and experienceable — only in long arcs.

Short moments can have great significance. A decision, a delay, a misinterpretation, the speed of reaction, or a choice steered by a user interface can affect almost immediately how the totality of possibilities is experienced. Research has shown how, especially in digital and algorithmic systems, the meaningful time intervals can be minutes, seconds, or even shorter timespans (Virmajoki & Laakkonen, 2024a).

The impact of long and short time intervals on experiences and knowledge concerning the future shows how different questions need different time horizons and how we cannot avoid the differences between time horizons even in futures research. Climate policy needs assessments reaching decades ahead. Crisis management needs assessment reaching hours ahead. A transport system often needs minutes. Algorithmic decision-making may need seconds or less.

What is important in futures research is to ask which time horizon makes the phenomenon intelligible. There is no single correct time horizon to which futures research is inevitably attached.

Time-needs and the methods of futures research

Time-need (*aikatarve*) is a useful concept when one wants to understand why time is a different frame — and a different, even almost concrete, thing — for every actor, however strange this may sound at first. Time as something concrete? One must begin from the fact that questions concerning time are not exhausted by *duration*, that is, how much time some task takes. The concept of *time-need* (Virmajoki & Laakkonen, 2024b) describes how people, organizations, and technological systems

- need,
- measure,
- represent,
- use, and
- control time.

The first aspect of time-need is *duration*. How long does some process take? A forest grows slowly. Trust is built slowly. A message travels fast. A stock price can change in an instant. An algorithm decides in a second where the elevator goes.

The second aspect is *measurement*. In one situation a rough estimate suffices: the change will happen sometime during the next decade. In another situation a suitable day for a meeting can be agreed on — "let us agree on the exact time later." In intensive care or in software systems, seconds can matter.

The third component is the *representation of time*. Time is depicted with calendars, timetables, and clocks, but — especially in futures research — also with forecasts, scenarios, and visualizations extending into the future. These do not merely depict time. They also steer how people understand time, the progression of the future, and their own possibilities for action within this course.

Time-need also includes *timing, coordination, control, and experience*. The same act can be right at one point in time and wrong at another. The rhythms of different actors must be fitted together.

Someone sets the deadlines. Someone waits; another makes others wait. For example, it must be ensured by means of stops that trains do not collide (coordination and timing). A delay can be communicated to the passenger in many different ways — or sometimes not at all, or in a completely misleading way (control — that is, control of others' time). Waiting in a train without air conditioning can feel endless (experience). (See more on the *concept of time*, e.g., Virmajoki & Laakkonen, 2024b.)

The methods of futures research also relate to time in different ways — they have different time-needs (Virmajoki & Laakkonen, 2024b). A forecast often seeks to estimate what will probably happen within a certain, relatively short time interval. A set of scenarios, in turn, describes alternative courses of development: what could happen if some things change. In the Delphi method, experts' views are collected and refined in stages — often according to who has time to answer and when, and who analyzes the answers and when.

From this it follows that the choice of method is at the same time a temporal choice. When one commits to a method, one commits to examining things that (possibly) happen after a certain time, and to a research project of a certain duration. For example, scenario work requires time for discussion, interpretation, and the construction of alternatives. The examination of trends can sometimes happen faster and even in an automated way, but it can also narrow the gaze to changes that are already visible. Long-term foresight often needs broad participation and commitment, because decisions concerning the future touch many actors (see further, e.g., Bell, 2009; Bussey, 2017; Virmajoki & Laakkonen, 2024b).

Therefore, in futures research it is not only a question of which method is used. One must also ask what kind of time the method needs and *what kind of time it produces*.

Time, knowledge, narratives, and power

Knowledge concerning the future is always temporal, as we saw above. We know something about past developments, something about the structures of the present, and something about possible directions. But the further we look, the more uncertainty generally grows.

This does not make futures research or futures thinking useless. On the contrary — because uncertainty is one reason why alternative futures are worth studying. If the future were ready-made and knowable with certainty, futures research would not be needed in the way it is now. The value of futures research generally lies in helping to identify alternatives, assumptions, consequences, and points of choice (Bell, 2009; Inayatullah, 1993), although we have also gone through exceptions.

Time also affects what kind of knowledge is considered credible — time is an epistemic factor, a factor of knowing. It affects our conceptions of what we know and why. In the short term, a statistical forecast can look strong because it is based on previous, solid statistics. In the long term, discontinuities, surprises, and societal disruptions can become emphasized — things of which, for example, weak signals may tell. On the other hand, in a very short time, people's interpretations, reactions, and misunderstandings — *the not-having-time-to-know* — can steer the course of events in ways that a long time horizon easily smooths out of sight. (Virmajoki & Laakkonen, 2024a.)

Knowledge of the future is thus not only a question of what is known. It is also a question of in what time it is known. It is interesting to note how stories are temporally constructed presentations that also affect our conceptions of what is to come.

In futures research, narratives often matter, and they must at least be taken into account. People make sense of the future with the help of stories: will development continue in the current direction, is a collapse ahead, will a great transformation occur, or will a new equilibrium be found? (See, e.g., Dator, 2009, on such archetypes contained in our narratives.) Narratives are always temporal. They have beginnings, turns, continuities, ruptures, and possible endings. That is why images of the future are not merely lists of events but temporal orders in which some things appear to follow from others.

Futures researchers work with temporal models and narratives: they can make visible what kinds of conceptions of time delimit the imagination of people and organizations (Bussey, 2017). This does not mean that all "stories" are equally good or that facts do not matter. The point is that knowledge and interpretations concerning the future are often organized into some kind of temporal narrative.

That is why in futures research one can ask what the dominant story about the future is, or who tells it. One can ask what the existence or the telling of the story makes possible, or what it excludes.

From this we arrive at the question of the relation between time and power, which we touched on above in connection with *time-need* (the aspect of control).

Time has a history — that is, the way we commonly conceive of time has one. In the history of industrialization, clock time, working hours, and the rhythm of production changed people's everyday life and work fundamentally. It can be said that time began to be seen as a resource that could be used efficiently or inefficiently (Thompson, 1967). In contemporary society the same question repeats itself over and over. In the nature of work this is clearly visible. Project work, the platform economy, constant reachability, real-time monitoring, and digital services are becoming emphasized. With each of these we can ask whose time is saved, whose time is fragmented, who has to wait, or whose future is relevant to strategy in the long run.

These are questions of futures research, not merely facts of everyday life into which time is entwined ever more tightly. If decision-making examines only short-term efficiency, it can shift costs to future generations. If, on the other hand, only the distant future is spoken of, the inequality of the present can be left aside. It must be repeated that the time horizon chosen as the object of examination is not an innocent choice (see, e.g., Bauer, 2018; Milojević, 2008; Virmajoki & Laakkonen, 2024b).

The past, the present, and responsibility in time

In futures research, the past is not merely time left behind. It is material, memories, experience, and narratives with whose help the future can be made intelligible. The past can open up possibilities; it can (and should), for example, remind us that things have changed before. It can show that the present that is taken for granted has come about through choices, conflicts, and contingencies. We can perhaps influence these consequences by understanding their causal history.

However, the past can also exclude possibilities or render them invisible. If some solution has once failed, it may be regarded as impossible in new circumstances as well — perhaps we gave up easily. If the past is told as only one inevitable story, alternative futures can narrow. So-called critical futures thinking therefore pays particular attention to how the past is used. According to Inayatullah (1993), the many meanings of time must be capable of being worked with, not merely taken as given. Time, because it does not "just be," is a matter that must be examined critically. Images of the future are always constructed in relation to how the past and the present are understood. This

article has sought to give a rough picture of the matter.

It must also be noted that the present is not merely a thin line between the past and the future, a mere blink of an eye in the stream of time. It is always a kind of crossroads. In the present, the consequences of past decisions, current structures, and expectations concerning what is to come all meet. Decisions are made in the present, but their justifications often come from different times: "this is how it has always been done," "such a change is being planned," "we must prepare for this better than before."

From the perspective of futures research, the present is interesting — somewhat paradoxically — precisely because it is not finished, or at least not unambiguous and experienced in the same way by all. The present contains alternatives — on what else than the present could alternatives be based? Not all possible futures are equally probable, and not all can be chosen, but the present, if anything, is what we can influence and through which we can build the future.

Many decisions of the present affect far beyond the decision-makers' own lives, and further in time. Climate change, the weakening of biodiversity, infrastructure, the societal effects of artificial intelligence, and the final disposal of nuclear waste are examples of questions in which our responsibility in the present extends far into the future. Future generations cannot participate in today's decisions, but today's decisions affect their lives and their possibilities.

For this reason, the choice of time horizon is also an ethical question. If we look only nearby, we can shift costs and burdens onto those who are not there looking with us. If we look further, we can perceive responsibilities that otherwise might not fit within the scope of decision-making (Bussey, 2017).

Responsibility in time does not, however, mean only responsibility for the distant future. It also means taking into account the different time experiences of people in the present and weighing their ethical position now and in the near future. Slow crises, fast crises, the rush of everyday life, prolonged uncertainty, and waiting are all temporal experiences that matter to the ethical side of the construction of futures.

In conclusion: time is an instrument of questioning

In futures research, time is not merely a year in the title of a report, such as "Finland 2050." Time, temporality, time-needs, power in time, and so forth are ways of understanding reality at a deep level. Futures research is in a privileged position if it genuinely takes into account the understanding it has itself constructed of time and of the matters related to it, from duration all the way to ethics.

Therefore, in futures research one must ask what changes fast and what changes slowly; on what time horizon a phenomenon becomes visible; whose time defines the conception of reality and its "timeliness" — when is the right moment to act; and what kinds of interpretations of the past delimit the future. If one wants to think about the future seriously, one must ask these questions. This concerns each of us, including those who practice futures research professionally.

Finally, there remains the question of what *goes unseen* if we choose *the wrong* time, the wrong measure, the wrong determiner of temporality, and so forth. We do not want to be blinded because we stepped into the wrong time.

When a person encounters futures research for the first time, it must be grasped that the future is not merely something that happens later. It is a continuously constructed *temporal relation* between the past, the present, and possible future worlds.

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[AI assisted translation from Finnish non-AI text.]

(Translation from Finnish learning material to be published on open online pages)

Philosophical Foundations of Futures Studies

Veli Virmajoki (2026)

Key Points

- The future cannot be observed, but well-grounded views of it can be formed. The basic tension in futures studies is that the future leaves no traces and provides no observations, yet views about it can still be supported by better or worse reasons.
- The future is open, but openness has limits. It may not be predetermined, yet possibilities have conditions - and precisely this middle ground makes studying the future both possible and necessary.
- There is a reason to speak of futures in the plural. Several paths of development open from the present. When one image of the future dominates our thinking, it begins to appear natural even if it arises from particular fears and hopes.
- The possible, the plausible, the probable, and the desirable must be distinguished. The same future can be possible but implausible, or probable but undesirable - and making these distinctions visible is a core competence of the field.
- The present is not a self-evident starting point that appears the same to everyone; it is itself an object of interpretation. What is regarded as true and significant now determines which futures are seen at all - and if the present is viewed narrowly, the future narrows as well.

Introduction

The philosophical foundations of futures studies concern how futures can be studied even though the future cannot be observed in the same way as the present or the past. This creates a fundamental tension for the field. The past has left traces, documents, statistics, memories, and artefacts. Events in the past have also had many effects that we can observe. The present can likewise be observed, measured, described, interpreted, and contested on the basis of observations. The future, by contrast, has not yet occurred and therefore cannot be examined in the same way as an object on a table, a past change recorded in statistics, or political decision-making currently under way.

Yet we speak about the future constantly, and this is not merely everyday talk, although it often begins in everyday life. One person moves to another city for work, another considers closing a company, and a third seeks to curb government expenditure. In each case, action rests on some conception of the future. The future cannot be observed, but it is already present in what is done now. This gives rise to the first philosophical problem of futures studies: we must understand how justified views can be formed about something on which we base our lives but which we cannot observe.

The answer offered by futures studies is not that the future can be read in advance from certain signs. There is no formula for calculating what the future will be - except perhaps in the case of a narrowly delimited phenomenon - or how the future will be experienced. Nor is the answer that the future may be imagined without constraint and that any fantasy is as good as a view reached methodically. Rather, futures studies begins from the idea that views of the future can be better or worse grounded. We can examine, among other things, present developments, historical continuities, uncertainties, possible disruptions, the choices of agents, technological and societal conditions, and the values according to which some futures are regarded as better than others. All these influence the future. No examination provides certainty, but the absence of certainty is not the same as the absence of reasons.

The field operates between these two perspectives. We do not predict, but neither do we admit an unlimited number of futures merely because someone equates uncertainty with instability. Futures studies is systematic thinking about futures in which questions of knowledge, uncertainty, values, and action are intertwined. This intertwining is precisely why the philosophical foundations of the field must be discussed: the relationships among the concepts must be understood so that distinct matters are not confused.

In this context, philosophy does not mean reflection detached from the practice of research. It means, rather, precision of thought as part of futures studies itself. Philosophy provides tools for asking what is actually being claimed about the future, on what grounds, through which concepts, from whose perspective, and for what purpose. It helps us notice, for example, when a neutrally formulated claim about the future is partly a value claim, as in talk about the wishes of future generations; when a method produces only a particular kind of knowledge, as reflection through narratives and the Delphi method produce different forms of knowledge - one opens up possibilities, while the other seeks systematic patterns in the views of different thinkers; and when a familiar-looking concept performs a very specific task in research. Causal layered analysis (CLA), for example, speaks of myths, but this does not mean that the future itself is somehow mythical. It refers to the effect of deep conceptions on how we see the world.

It is useful to distinguish two matters, even though in practical work they often come together, both consciously and unconsciously (Virmajoki 2026a).

First, the philosophy of futures studies examines the field itself: its concepts, methods, ways of producing knowledge, underlying assumptions, and the justification of its research practices. It asks, for example, what kind of description a scenario is, what kind of knowledge the Delphi method produces, how a possible future differs from a probable one, and why futures studies needs - or at least relies on - methodological diversity.

Second, philosophy within futures studies means using philosophical concepts and theories, such as justice, morality, or forms of knowledge, to understand futures: what is desirable, what kind of knowledge artificial intelligence can produce, and so forth (see, for example, the text on values within futures studies).

The first examines the field's own way of thinking; the second brings philosophical tools to the conceptualization and evaluation of futures themselves.

The two should not, however, be separated too sharply. Asking what kind of knowledge a scenario produces belongs to the philosophy of futures studies. Asking whether the society described in the scenario is just belongs to philosophy within futures studies. In practical research, however, these questions can arise in the same workshop, the same report, or even the same sentence. Consider the scenario: "Forms of work change because the resources people receive are distributed equally, and automation means that work no longer needs to be done for wages." This raises both epistemological and value-related questions. The philosophy of futures studies asks what grounds gave rise to the scenario and how it should be understood among other scenarios. Philosophy within futures studies asks whether a future of equally distributed resources is desirable and just.

The philosophical foundations of futures studies can therefore be understood as a collection of basic ideas on which research and practical foresight in the field rest. These include, in particular, the openness of the future, the plurality of futures, distinctions among different kinds of possibility, the conditional character of knowledge about the future, the significance of values, and reflexivity - that is, the fact that images of the future can influence action in the present. These basic ideas, and an understanding of their relationships, form the framework within which futures studies can remain open to alternatives while still being a disciplined field of research.

The future is open, but not arbitrary

Futures studies begins from the idea that the future is not predetermined - although what precisely this means is a more difficult question. According to Roy Amara's well-known formulation, the future is not predetermined, it cannot be predicted completely, and it can be influenced by choices made in the present (see Amara 1981). This has become one of the field's basic ideas because it explains why the future is worth studying. We can construct different descriptions of the future so that we may work toward them and understand the conditions under which something could occur.

The openness of the future does not, however, mean that everything is equally possible, equally plausible, or equally ethically relevant. Futures are constrained by natural conditions, technological possibilities, economic structures, political decisions, institutions, cultural conceptions, and choices made in the past. An open future is therefore not an unlimited future. We may nevertheless ask whether the openness of the future is epistemic or ontological: is it genuinely the case that the future

does not exist at all - naturally, it is not here now, just as the neighbouring house is not here - or is it merely that we cannot know, even in principle, exactly what it is?

Whatever the answer, epistemic or ontological, it is important to distinguish between closed thinking focused on a single future and the screening of unlimited alternatives, because both assumptions create problems for research. If the future is understood as completely closed, the study of alternative futures loses its point, at least as a form of thought that guides action. If the future is understood as wholly unlimited, research loses its ability to discriminate: everything imaginable appears to stand on the same footing. Even if everything imaginable were equally possible, studying limitless possibilities would require limitless resources. Futures studies operates between these extremes. It assumes a degree of openness while seeking to provide a structured and well-grounded account of how different possibilities are situated within that openness.

Chess offers a familiar example. We do not know whether an opponent will play the Sicilian Defence, but we need to know what to do if they do. Actions affect actions and generate uncertainty. The combinatorial number of chess openings is enormous, yet only some are sensible; many lead quite reliably to a poor game. In chess we cannot predict, but we can understand the meaningful alternatives. It is called a strategy game for good reason.

Larger-scale scenario work illustrates the same point. In the early 1970s, planners at the oil company Shell considered a possible future in which oil-producing countries restricted the availability of oil. At the time, many in the oil industry regarded such a development as improbable because prevailing expectations, economic structures, and the industry's own assumptions supported a different view. Shell's scenario work did not dismiss the possibility for that reason or exclude the scenario. It took the further step of examining what would follow if the availability of oil were suddenly restricted and how the company should prepare for such a situation.

When the 1973 oil crisis occurred, Shell was not prepared because it had predicted the future with exact accuracy. It was prepared because it had practised thinking about a future that did not accord with the prevailing expectation (see Wack 1985a; 1985b). The value of scenario work does not necessarily lie in an accurate prediction that identifies one closed future. It lies in changing an agent's capacity to think and act under uncertainty: a degree of openness is assumed, and the consequences of different alternatives are examined.

An open future is therefore a practical point of departure for research, not a worldview commitment adopted on the basis of obscure metaphysical speculation. It means that choices made in the present, preparation, and the disciplined use of imagination can matter. The future is studied so that people can act more wisely in the present amid uncertainty. This does not place the future under control, but it makes our relation to the future more considered. That is a central philosophical starting point.

Futures in the plural and the aims of the field

Futures studies often speaks of futures in the plural. This is not merely a linguistic convention or a consequence of the English terms “futures studies” and “futures research.” The plurality of futures is a basic idea of the field because it reminds us that the future does not appear as one pre-given chain of events. As we have seen, several paths may open from the present - which is itself unclear - and their significance depends on what kinds of knowledge, values, agents, and uncertainties are included in the examination. In this respect, the singular form used in the Finnish term for the field can even be misleading. The field does not merely predict.

According to Bell's classic view (2009; first edition 1997), which draws on earlier research, futures studies examines possible, probable, and desirable futures and seeks to help people act better in relation to them.

An essential part of mapping futures is the critical examination of the conceptions on which different future scenarios - and other ways of representing the future - are based (see Bell 2009; Inayatullah 1998). As Bell puts it, examining possible futures involves attempting to see the present in new and different ways, often by deliberately breaking out of the straitjacket of conventional, orthodox, or traditional thought and adopting unconventional, even unpopular, points of view (2009, pp. 76-77).

The interaction between understanding possible futures and critically examining our conceptions of the future is perhaps best captured by the concept of alternative futures, which has long been one of the central ideas guiding futures studies (see Slaughter 2020).

In addition to its basic assumptions, futures studies has “2+1” central aims (Wright et al. 2013, 631):

A) To increase understanding of the causal processes, connections, and logical chains of events operating behind developments - and thereby to clarify how a particular future state of the world could come about.

B) To challenge prevailing ways of thinking so that perspectives can be reframed and the mental models of people working in organizations can be changed.

On the basis of aims A and B, knowledge, ideas, and stimuli can be provided in support of a third aim:

C) To enable better decision-making and strategic planning.

Virmajoki (2023) has summarized the relationship among the plurality, aims, and self-critical character of futures studies through three terms:

(i) the future is difficult to assess reliably (uncertainty),

(ii) decisions affect the future (responsibility),

(iii) because of causal relations, the most desirable futures may not be attainable (humility).

This is a useful way to specify the plural object of futures studies. The plurality of futures does not mean that all images of the future are of equal value. Thinking about futures therefore asks more than “what will happen?” It examines what can happen, what present chains and interconnections make possible, what could happen differently, and what there are good reasons to pursue. Futures studies expands thought about our possibilities, but it does not do so without grounds. Plurality is not a licence for wishful thinking or uncontrolled horror scenarios; it is a requirement to keep open more than one defensible direction.

The idea is not, of course, a recent invention. Fred Polak's classic account of images of the future takes it further. According to Polak (1973), a society's capacity to produce images of the future affects where it directs itself and what it regards as possible. The basic idea is that if a society lacks credible images of a better future, it has greater difficulty acting with a long-term orientation. Images of the future are therefore not merely dreams or stories. They can influence which goals people, communities, and institutions regard as possible. Belief in something better must not, however, be used as an excuse for wishful thinking.

Polak's thought offers a further philosophical perspective on the plurality of futures. If only one image of the future dominates a society, other alternatives can disappear from view. If the future of work is always portrayed solely as competition caused by automation, for example, less attention is easily paid to how work could be organized more justly, meaningfully, or ecologically sustainably. The same applies to education, democracy, technology, cities, or even the future of rock music. When one image of the future dominates, it begins to look natural, even though it may be only one way of organizing expectations and fears.

A critical view has also been proposed. Slaughter (2020) asks, quite literally, whether we should bid farewell to alternative futures amid our crises. Is everything except preparation for the worst merely wishful thinking - has a threshold already been crossed? This is an example of a question in which empirical inquiry and philosophy meet. Is the world such that it is no longer philosophically meaningful to make a particular assumption, such as the assumption of alternative futures? This is itself a fundamental philosophical question for futures studies: what can we think when the world is as it is?

However the matter is resolved, the general idea is that futures studies helps to open up alternatives. This rests on the fact that dominant images of the future in the present affect what we regard as possible, reasonable, and worth pursuing, and that this multiplicity must be examined critically. Plurality is both an epistemic and an ethical-political matter. It concerns not only knowledge in futures studies, but also which futures become visible and which are excluded from thought from the

outset. People's political and ethical positions and opportunities influence this process (see the article on values).

The space of possibilities

The object of futures studies can be structured through the concept of a space of possibilities. A space of possibilities means an organized whole of futures: the ways in which different possibilities, uncertainties, values, agents, interpretations of the present, and paths of development relate to one another (see Virmajoki 2026b). The concept is useful because it does not direct us to think of the future as a single point to be predicted. It directs attention to a whole in which alternatives are formed in relation to one another. We navigate a space; we do not search for a point.

Futures studies examines what kinds of futures can be outlined from the present, on what grounds they are regarded as possible, plausible, probable, or desirable, and how these futures relate to one another. A space of possibilities is not merely a list of alternatives; it consists of regions and the relationships among them. We can, for example, consider desirable futures and ask which lie in the region of wishful thinking and which are close to plausible futures. A list of alternatives can be a useful beginning, but it does not yet tell us how those alternatives are constituted: what conditions drive developments toward them, what conditions push them away, and what values make them meaningful.

Consider the future of urban transport. One discipline may study emissions, another people's mobility habits, a third urban economics, a fourth technologies, and a fifth decision-making. From the perspective of futures studies, the essential question is how the knowledge and uncertainties identified by these fields relate to one another. We must examine what kind of transport future is technically possible, economically plausible, socially acceptable, and ecologically desirable. At the same time, the entire examination may change if a present assumption - such as the common assumption that private motoring is necessary - is challenged. If public transport is economically and ecologically sensible, we may ask whether routes should be directed to areas where people cannot afford their own cars. But we may also ask whether doing so merely reinforces the assumption that car ownership is the norm. Futures studies thus uses and synthesizes knowledge from other fields through its own reflective work.

The space of possibilities has several important features, although they should not be understood as a mechanical checklist. First, it concerns different kinds of possibility: not everything possible is possible in the same way. One possibility may be probable, while another is a distant speculation. It is probable that a bus route can be altered slightly; thinking about teleportation is fanciful - to put the matter somewhat sharply. Second, the space is multidisciplinary, because futures are formed at the intersections of the economy, technology, the environment, culture, politics, everyday practices, and so on. The example of urban transport illustrates this. Third, the space is always built on some interpretation of the present. We have interpretations of how transport works and how people wish to move. Fourth, it is reflexive, because images and expectations concerning the future can influence what people and institutions do. A car-free vision can help move society toward a car-free future - but only if the interpretation of the present is that people are prepared to give up private motoring for one reason or another.

Understanding futures studies as the study of a possibility space with these features helps explain why the field is needed alongside specialized disciplines. Economics studies economic phenomena, climate science studies the climate, sociology studies society, educational research studies education, and technology studies examines technologies. All these fields can investigate the futures of their own objects. Yet none of them alone examines the whole in which the knowledge, assumptions, uncertainties, and values of different fields meet. It is within precisely this whole that futures studies performs its distinctive work.

Futures studies does not compete with specialized disciplines; it needs them. Climate futures cannot be studied seriously without climate research, population futures without demography, the future of work without psychology, or technological futures without research on technology. The distinctive task of futures studies is nevertheless to assemble and organize this knowledge and give it a temporal dimension. It asks what we know and what may follow from it when, for example, we look fifteen years ahead.

Knowledge about the future

Knowledge about the future is conditional. It does not usually tell us what will certainly happen. It tells us what can happen under particular assumptions, in particular circumstances, and as a consequence of particular choices. At a fundamental level, this makes knowledge about the future different from knowledge of things that have already happened. In principle, we can know what happened in the past: the past is a sequence of events that has already occurred. It may be difficult to investigate, but in principle an answer can be found.

The future may not exist in the same way, or at least it has left no traces in the present - even if it were somehow ontologically real from a timeless perspective. The difference between the future and the present or past is not, however, as absolute as one might argue at the level of principle. Saying that something is uncertain is different from saying that no justified view of it can be formed. This is true of both the past and the future.

Views about the future can be better or worse grounded (see the article on conceptions of knowledge). They may draw on observed developments, models, expert assessments, historical comparisons, weak signals, participants' experiences, or the analysis of values. Each produces a different kind of knowledge. A statistical time series can help identify continuities but may fail to capture disruptions. A model can show what follows from particular assumptions, but its results depend on the model's structure - what is included and what is left out. Expert assessment can bring together dispersed knowledge, but both the experts' understanding and the way they are selected must always be considered when knowledge is gathered.

Futures studies must therefore ask what kind of knowledge a given method produces. This is philosophical and conceptual work. The first step is to distinguish different ways and forms of knowing and ask, one at a time, what their character is. The question "how is the future discovered?" is meaningless without the further question "by means of this or that method?" There is no single, certain method. Distinguishing among methods matters because representations of the future are often misinterpreted. A scenario may be read as a prediction even though its purpose is to open alternatives; in that case, the nature of the scenario and the way it was created have not been made intelligible. A vision, in turn, may be interpreted as a neutral description even though it expresses values and goals. The same point applies to every representation of the future: if its epistemic character is misunderstood, its practical significance is distorted as well.

The Delphi method and causal layered analysis illustrate differences among methods. In the Delphi method - the classic reference is Linstone and Turoff (1975) - experts assess the future in stages and iteratively, often seeing summaries of one another's assessments and then refining their own views. The purpose is not to discover a future that must be believed. It is, rather, to organize the dispersion of expert knowledge, the reasons offered, and possible convergence concerning an uncertain issue. Knowledge is then understood as something that can be found in expert judgment. Philosophically analysed, however, the method's contribution also lies in showing how disagreements, reasons, and possible convergence are made visible.

Causal layered analysis (CLA) works differently. It asks not only what is thought at the surface level of expertise, but also what systems, worldviews, and deep narratives influence what is regarded as possible. The future of the food system, for example, can be examined at the surface level as changes in prices and consumption habits; at the systemic level as structures of production and trade; at the level of worldviews as conceptions of nature and well-being; and at a deeper level as cultural narratives of growth, scarcity, or care for oneself and other living beings (see Inayatullah 1998). The method therefore does not produce the same kind of knowledge as Delphi, but it can make visible assumptions that expert discussion does not reach. Both methods are useful, but in different ways. They have different aims and therefore operate differently. There is no mystery or tension in this.

Evaluating knowledge about the future thus requires an understanding of the fit between method and purpose. This is one of the philosophical fundamentals of futures studies (see Virmajoki 2026a). A method is not merely a technical stage of the research process. It contains a conception of where knowledge about the future is located, who possesses it, how it can be elicited, how uncertainty is handled, and what kinds of futures can be studied at all. If this is overlooked, a method can easily appear to be a neutral instrument even though it is filled with contestable assumptions and

conceptions. Before choosing a method, we must ask what is meant by knowledge, what the knowledge is intended to do, and how the method serves the task of bringing it forth.

The possible, the plausible, the probable, and the desirable

Central concepts in futures studies concern different kinds of possibility. In everyday language, the words possible, plausible, probable, and desirable can - and often do - become mixed together. In research, however, distinguishing them is essential because each expresses a different relationship to the future. The same future can be possible but implausible, plausible but undesirable, or desirable but difficult to achieve. Distinctions of this kind make futures studies conceptually interesting. Let us clarify the concepts enough to provide at least a working definition of each.

A possible future is one that cannot be ruled out. This naturally leaves open several interpretations of "ruled out." Something can be conceivable without internal contradiction and still be extremely remote in practice. Something can be possible under the laws of nature but politically or economically difficult. Something can be practically possible within present societal and technological constraints but so undesirable that it is not pursued. It is therefore important in futures studies to say what kind of possibility is at issue: conceivable, compatible with natural or social laws, practically attainable, but not a vision? In any case, possible future is a kind of umbrella concept. At the very least, we do not want impossibilities such as internally contradictory future scenarios.

A plausible future requires more than mere possibility. Some justified path of development from the present can be offered for a plausible future. When the concern is plausibility, a good scenario does not merely describe an end state; it helps us understand how that state might be reached. Plausibility therefore often concerns the identification of causal relationships. If a development is said to be plausible, we should be able to explain what decisions, technologies, crises, institutions, or cultural changes could make it so. In this respect, plausibility is closely related to certain criteria of a good explanation in theories of explanation: a good explanation tells us which factor changes what and under which conditions (see, for example, Woodward 2003).

The claim "the city can be car-free in 2040," for example, is possible in a very broad sense. It becomes plausible only when a route to this future can be described: improvements in public transport, changes in planning, better infrastructure for walking and cycling, political agreement, and of course acceptance by residents. Without such a description of the route, the claim may be an interesting thought, but its plausibility remains thin. Later we might explain: "The city is car-free because we achieved workable routing and resident satisfaction; had we not succeeded, the city would not be car-free."

A probable future concerns an assessment of how strongly the realization of a development is supported. Probability is, however, a difficult concept in futures studies, because many philosophical theories of probability do not fit the future. Interesting future phenomena cannot, for example, be treated as repeatable experiments like throws of a die - one attempt to define probability asks what would happen if a given situation were repeated. World history cannot be run many times so that we can count how often a particular transformation occurs. We therefore cannot understand probability simply in terms of frequency: how often an event occurs among all relevant cases. Probability assessments consequently often rest on models, expert judgments, or considered assumptions. They can be useful, but their uncertainty must be made visible. What probability ultimately means remains an unresolved question. This is not a problem unique to futures studies. It becomes a problem when we rely on intuition alone to claim that one thing is probable and another is not.

An alternative future is one that challenges present assumptions. It examines what could happen if the current direction of development did not continue, if something taken for granted broke down, or if a presently marginal phenomenon grew stronger. Jim Dator's four archetypal futures - continued growth, collapse, disciplined society, and transformation - are a well-known way of structuring such alternatives (see Dator 2009). Descriptions of transformation or collapse are not intended to claim that the world will realize that exact description. They help us detach ourselves from a single dominant image of the future. We discussed this opening of thought above.

A desirable future introduces values. It does not answer what will happen, but what we regard as good, just, sustainable, or worth pursuing (see the article on values). A desirable future is not automatically plausible, and a probable future is not necessarily desirable. That is precisely why the

concepts must be distinguished. Without the distinction, talk about the future easily becomes blurred: what is regarded as probable begins to appear inevitable, and what is regarded as desirable begins to appear as though its realization had already been justified.

Joseph Voros's (2003) "futures cone" is a well-known way of illustrating differences among possible, plausible, probable, and desirable futures. The cone is pedagogically useful because it quickly shows that futures thinking is not only prediction. It should not, however, be interpreted too mechanically. In the event of nuclear war, for example, the cone's different regions - desirable, plausible, and probable - would not expand as the cross-sectional area of a cone expands from its base; they would wither to something very small. More generally, something can be improbable but high-impact, plausible but undesirable, or desirable but difficult to attain. The task of futures studies is to make precisely these distinctions visible (see, for example, Ramírez and Selin 2014; Virmajoki 2026b).

Example: Scenarios and disciplined imagination

Let us use scenarios as an example of how concepts and their role in thinking can be clarified. Scenarios are among the best-known tools of futures studies. A scenario is not a prediction; it is a description of a possible or plausible path of development. Its purpose is to help us understand alternatives, uncertainties, and the consequences of action. A scenario should therefore not be evaluated only by asking whether it later comes true. To do so is to misunderstand it as an unambiguous prediction.

Scenario work can be understood as disciplined imagination. The expression is useful because it holds together two things that are too easily separated. Scenario work needs imagination because the future cannot yet be observed. It also needs discipline because not everything imagined is equally well-grounded or useful. A good scenario is not merely an interesting story. It should make assumptions, paths of development, uncertainties, and points of choice visible.

An everyday example helps explain the point. If a school considers the future of education, it can forecast the development of pupil numbers using population statistics. It can also construct scenarios of how learning changes if artificial intelligence becomes ordinary, if the shortage of teachers worsens, if remote teaching becomes more widespread, or if the school's role as a centre of community support becomes stronger. These scenarios are not predictions. Their value lies in helping the school, municipality, or decision-makers examine which alternatives require preparation and what kind of future they wish to build. Scenarios should therefore not be assessed only by whether they are realized. A good scenario is often useful precisely because it helps people act better before they know what will happen.

This does not mean that anything can count as a scenario. A successful scenario must be internally coherent, grounded in relation to the phenomenon under examination, and clear enough to support thought and action. If a scenario merely combines striking or highly visible elements without an intelligible description of a path of development, it may be an interesting story but a poor scenario. Discipline does not remove the role of imagination. It gives imagination a research framework - and the concept and construction of scenarios offer a good example of this.

Methodological pluralism

Futures studies uses many methods because different futures are different objects of research, as we have seen. No single method can answer every question about the future. Methodological pluralism is therefore not a sign of vagueness in the field; it follows from the nature of its object of study. The future can be examined as a statistical continuation, as possible disruptions, as the expectations of agents, as a conflict of values, as technological development, as political choice, or as cultural imagination. There is no single instrument or method for addressing all these forms.

A few methods can be mentioned briefly to demonstrate why methodological pluralism is part of futures studies. Trend analysis helps identify continuities and directions of change. Forecasting is suitable for delimited situations in which the structure of a phenomenon is reasonably well known. The Delphi method brings together expert views on uncertain questions. Scenario work opens up alternative and plausible paths of development. Backcasting begins from a desired future and examines the steps that could lead to it. Causal layered analysis examines the deeper meanings,

worldviews, and metaphors of phenomena (see Inayatullah 1998). Horizon scanning and weak signals help identify emerging phenomena before they become established and clearly visible.

Futures studies should not, however, be understood as a menu of methods from which a tool that feels suitable for the situation is selected without further reflection. Methodological pluralism does not mean that one may choose whichever method one happens to prefer. On the contrary, it increases the need for precision and reflection. For every method, we must ask what it seeks to produce, what kind of material it rests on, what assumptions it contains, and what it should not be used for. A method is not merely a technical instrument. It contains a conception of what a particular future is like as an object of research. A commitment to causal layered analysis (CLA), for example, entails a commitment to the significance of myths and metaphors in the understanding of the future. One cannot then deny the significance of alternative futures and offer an audience a single prediction: “This is what will happen; everything else is noise.”

This also means that several methods may be needed to address the same question. If an organization is considering the future of work, trend analysis may provide information about population structure and skills needs. Delphi may help assemble expert assessments of technological development and its effects on work. Participatory methods may bring forward employees' experiences and concerns. Causal layered analysis may reveal deep assumptions about work, efficiency, or the good life. None of these resolves the question alone, but together they can offer a richer picture. The difficulty, of course, is that limited resources prevent every possible method from being used for every question.

The philosophy of futures studies helps us understand these differences among methods (see Virmajoki 2026a). It does not prescribe one correct method, but clarifies what different methods do and when their use is justified. This is important in practical foresight as well. When a method is used for the wrong purpose, its results may appear more certain, comprehensive, or neutral than they really are. A badly chosen and badly used method is not merely a technical error; it leads to poor futures thinking.

Concepts as instruments of research

Concepts have great importance in futures studies. The field's central terms are familiar from everyday speech, but they perform more precise tasks in research. These include, for example, image of the future, scenario, possible future, plausible future, probable future, desirable future, alternative future, weak signal, trend, disruption, resilience, foresight, and futures literacy. Their very familiarity - or the feeling of familiarity - makes these concepts both useful and dangerous. They seem understandable even before it has been established what they are being used to do.

Conceptual unclarity can lead to unclarity in research. As noted above, if a scenario is understood as a prediction, its purpose has been obscured. More generally, if a desirable future is confused with a probable future, a value claim begins to look like an epistemic claim. If possible and plausible are treated as meaning the same thing, an important distinction is lost between what can be thought and what can justifiably be taken seriously.

Concepts are not merely words. They are instruments of research. A good conceptual system helps make distinctions, reduces misunderstandings, and makes assumptions visible. It tells us what is at issue in a given case and why one term is used rather than another. A poor conceptual system hides differences and easily creates an impression of spurious precision; it may even deliberately confuse understanding of what is at stake. This is especially important in futures studies because concepts do not remain within research articles. They pass into strategies, workshops, political speeches, teaching, and public discussion. The philosophical foundations of futures studies can therefore be said to include the maintenance and redesign of concepts - “conceptual engineering.” This means refining the field's key concepts in relation to what they are used to do in research and practice (see Virmajoki 2026a).

Concepts must be both precise and understandable. Precision serves research; intelligibility serves shared discussion. This is especially important when someone first encounters futures studies, because the field's concepts are not merely expert language or jargon. They are tools through which anyone can learn to ask more precise questions about the future and understand answers that have already been offered. Someone who understands the difference between “the population trend means that there will be fewer workers in the future” and “in one scenario, automation replaces workers in

this or that sector” already understands much about the concepts of trend and scenario. Accessibility therefore does not mean abandoning concepts or their precision. It means using them in ways that support thought.

The present is not a self-evident starting point

Futures studies naturally begins from the present, but the present is not unambiguous. Often the very description of the present is contested. Is society undergoing a transformation or experiencing continuity? Is a technology on the verge of a breakthrough or is it overestimated? Is democracy in crisis or adapting to new conditions? Can the ecological crisis be managed through present institutions, or does it require deeper change? Questions of this kind concern not only the future but also the moment from which the future is viewed.

Different answers to such questions open different futures. In futures studies, the present is not merely a starting point from which one line - or even several lines in different directions - is drawn forward. It is itself an object of interpretation. What is regarded as significant in the present affects which futures are regarded as possible, plausible, or desirable (see Virmajoki 2026b). The present is therefore not a neutral and shared point, but a selected and contested image of the prevailing situation.

This is especially apparent in complex societal questions. Different agents can inhabit the same time while living within different interpretations of the present. A company, a researcher, a non-governmental organization, a young person, a politician, and a local community may see the same situation differently. Futures studies must therefore ask from whose present the future is being examined, which present phenomena are defined as significant, what is treated as a problem, and which interpretations of the present remain invisible.

In discussion of the future of artificial intelligence, for example, the present can be interpreted in many ways. For one agent, it is the beginning of a technological breakthrough and the expectation of more efficient production. For another, it is a source of uncertainty in working life: will artificial intelligence replace that person? For a third, it is a regulatory challenge: how can the development of AI be governed through political decisions and agreements? For a fourth, it is a question of power, data, and justice: a system has been built, but from whose data, with whose permission, how is economic benefit extracted from it, and for whom? Different interpretations of the present open different wholes of futures. An organization may produce a roadmap for using AI in place of an employee, while the employee considers scenarios of their own: can I be replaced; what will I do and live on if there is no work; how can I retrain? The task of futures studies is to make visible how an interpretation of the present, and the agent who makes it, guides futures thinking.

This also makes futures studies critical. It asks how the present is understood and how that understanding limits futures. If the present is seen narrowly, the future narrows as well. If the present is understood as contested, layered, and differently experienced by different agents, the future can also be seen in a more diverse way. Greater diversity does not make research easier; it makes it more difficult. A narrow alley is easier to grasp than a city with many different buildings.

Reflexivity and the effects of images of the future

Futures studies is reflexive. Reflexivity means that descriptions of the future can influence what the future becomes. A scenario, forecast, or vision may not remain a mere description - and a vision, for example, is not even intended merely as a description, as precise use of concepts makes clear. Any description of the future can change expectations, decisions, and action. In this sense, speaking about the future is part of the present; it does not simply observe the future from outside or from a future standpoint.

Energy scenarios, for example, can guide investment. Population forecasts can influence social policy. Technological visions can attract funding and expertise. Images of the future of education can change views of which skills are important. Images of the future can open new possibilities for action, but they can also narrow what is regarded as realistic. Their effects should therefore not be underestimated.

This topic has also been addressed in the social sciences and in science and technology studies. Research on sociotechnical imaginaries shows that societies develop technologies not only on the

basis of technical possibilities, but also according to the futures they imagine and regard as worth pursuing (see Jasanoff and Kim 2015). The theme is also familiar within and around futures studies. Work on futures literacy emphasizes that people can learn to use the future as an instrument for thinking in the present (see Miller 2018). The techniques of futuring examined by Oomen and colleagues stress the same basic idea: imagined futures can become socially consequential when they guide action, discussion, and decisions (see Oomen et al. 2022).

Reflexivity brings responsibility. A futures researcher, foresight practitioner, or facilitator must examine the descriptions of the future that are produced from the perspective of the effects they may have. Attention must be paid to who participates in constructing these descriptions, whose perspectives are excluded, what values the descriptions reinforce, what alternatives they make visible, and what they close off. These are not external questions asked only after the research has been completed. They concern what futures studies does when it uses a method or answers a question.

Futures studies does not, of course, control the future and should not create the impression that it does. But speaking about the future is part of action in the present and therefore matters, wherever final decision-making power may lie. Descriptions of the future can be liberating when they open alternatives and make possibilities for action visible. They can also be constraining when they present one direction as inevitable or the perspective of one group of agents as a general truth. Reflexivity is the recognition of precisely this relationship of influence.

Conclusion: Why avoid the big questions?

As stated at the beginning, the philosophy of futures studies examines the field itself: its concepts, methods, ways of producing knowledge, underlying assumptions, and the justification of its research practices. This has been the focus of the present article.

A reader may wonder whether philosophy should go deeper. In this case, the answer is “no - at least not immediately.”

Studying the future can awaken basic philosophical instincts and invite reflection on grand questions: “Do moments of time outside the present exist?”, “What can we know at all?”, “Do things happen inevitably?”, and “Do human actions differ from natural events?” Such questions may stimulate sharper futures thinking, but their relationship to futures studies as a field of research is, at the very least, unclear. The point is not that the big questions are meaningless. It is that philosophical attention is best directed to where it helps us understand and develop the field as it actually operates.

First, the big questions concern every field of research and are therefore not distinctive questions of futures studies. The task of the philosophy of futures studies is to clarify how the field actually works and what particular problems and tensions it contains. Decision-makers, for example, often expect one reliable prediction, whereas the field's methods are built on multiple alternative futures and uncertainty. Every method contains assumptions about such matters as causes and effects and the structures of society. Analysing the assumptions built into these practices belongs at the heart of the field's philosophy. What can be set aside is reflection that proceeds independently of research practice: the question of whether the future “really exists” does not change how any particular study is carried out.

Second, answering the big questions has proved extremely difficult, if not impossible. If understanding or practising the field depended on correct answers to them, we could not think about the future - or understand any other field of research, which is clearly not the case. Methods can be developed and applied even when ultimate questions remain open. We can therefore ask more modest questions - how methods work, what their claims rest on, and whether the field's concepts fit together - and deepen our understanding of the field precisely in this way.

Third, the big questions cannot be answered independently of the results of science. The success of the sciences, for example, shows that we are capable of knowing many kinds of things, and this observation must affect the answer to “What can we know?” We learn what can be known about the future by examining how the future is studied, not by deciding the limits of knowledge from an armchair. Developments in the social sciences, for instance, suggest that human action cannot be

described through a set of simple fundamental laws. This view is the result of numerous studies, not an armchair philosophical analysis.

Fourth, the danger does not arise only from grand questions imported from outside the field. Within futures studies, too, disputes have concerned which broad theoretical worldview offers the “most correct” or comprehensive foundation for studying the future (see Virmajoki 2026a). Such disputes generally remain detached from practical research. They easily produce heated discussion but little methodological benefit. At a minimum, those who dispute the big questions should clarify what their central claims mean in practice and how they connect with the field's methods and concepts - matters that often remain unclear.

A fruitful philosophy of futures studies therefore does not set theories of ultimate reality against one another. It continues from the point reached by the field's own self-reflection. It offers systematic tools for examining methods, concepts, and the assumptions concealed within them. Such careful, practice-oriented philosophical work advances the field. Philosophy must be understood in order to understand the future. As Heinonen and Virmajoki (2025) put it, the future is a playground of the human mind, a platform for great reflection. Yet, they add, it must be handled one question at a time.

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[AI assisted translation from Finnish non-AI text.]