

10. Ethics of anticipation

Jean-Daniel **Strub**, Johan **Rochel** (*ethiX - Lab for Innovation Ethics*)

Key Concepts

As suggested in literature, we distinguish between different approaches to anticipation, representing each specific ways of conceptualizing the fundamental feature of *uncertainty* that every account of anticipation is confronted with. In this regard, **predictive anticipation** aims at forecasting the future based on probability calculation informed by the past (or the present), whereas **adaptive anticipation** derives from the non-predictability of the future an imperative to emphasize adaptive potentials of both individuals and societies, in order to keep the future radically open by focusing on conditions to be created in the present. **Projective anticipation** is driven by the ambition to overcome determination by either the past or the present by anticipating futures as something radically new, disrupted from any continuity with previous times.



Scientific Anticipatory Brief abstract

Anticipation raises a number of ethical challenges. These challenges should be addressed in a structured way. What we need to develop is an ethics of anticipation. This ethics of anticipation needs to reflect upon its own foundations before addressing the main anticipation methods and how to account for them in an ethical perspective. **Ethics** is understood in this paper as the scientific discipline that deals with moral principles, norms and concepts. By contrast with other disciplines of the natural sciences, ethics is normative: it aims at outlining how human beings/society *ought* to act and to be organized.

The paper argues that developing an ethics of anticipation does not mean slowing down innovation and human development but supporting it towards enhanced sustainability and a more just distribution of goods, capabilities and opportunities. Contemporary future-oriented ethical reflection, however, is highly influenced by the so-called precautionary principle. Yet exclusive precautionary reasoning may refrain anticipation from deploying its full potential, insofar as the positive potential of scientific and technological advances for the future development of humankind is undisputed. An ethics of anticipation must therefore – as a major trend in the short- and the longer-term – cultivate the ability to shed light on opportunities these advances generate and avoid one-sided focus on risks and mere precaution. Drawing from an overview of ethical foresight methods, criteria of an ethics of anticipation are suggested as follows: First, anticipation needs to be practiced free of inevitability and insinuations, but as an option to imagine a better world, evaluate it and decide whether that future is desirable or not. Second, and although inevitable, choices applied in anticipating must be carefully justified, as a contribution to avoid biases and unfair omissions. Third, it is necessary that anticipators always be able to account for the unforeseen, including radical disruption.

The act of anticipation itself and its conditions of legitimacy will evolve within the context of technological developments. These developments can improve one's capacity to anticipate, for instance through increased computational power. At the same time, scientific developments might also deeply challenge the way ethics as a discipline works and, as a consequence, might impact what an *ethical* anticipation requires. Several scientific areas – such as neuroscience and genomics – are particularly relevant in this regard. A common shared feature is that specific technological developments arguably affect basic normative assumptions about moral agency and human freedom, and the corresponding capacity to bear responsibility. An ethics of anticipation must thus anticipate these developments regarding the core parameters of ethical reasoning as such.

Such developments touch upon all three guiding questions that GESDA addresses. As a matter of “who are we”, increased knowledge relevant for the conception of moral agency will play a key role. A world in which interaction with advanced autonomous systems becomes routine may challenge the traditional limitation of attributing moral agency to humans only. Moral agency represents a core aspect of human self-understanding. An ethics of anticipation calls for careful scrutiny with regard to potential effects of future developments on that very concept. For instance, it will be increasingly important to clarify which capacities that autonomous systems may acquire in the future will determine agency in a meaningful sense will be reached. Also, it will be necessary to keep an eye on applications that may shift norms allowing to distinguish human from non-human and that may question moral agency. On the issue of “how will we be living together”, technological and scientific advancements can be expected to have implications on the issue of determining limits of, and obligations within, the ‘moral community’. At the same time, it seems plausible that an increased understanding of natural diversity will influence the way ‘normality’ with regard to the human condition is perceived. For instance, such knowledge may influence the level of tolerance – both positively and negatively –, as diversity of ‘normal’ human conditions, as far as genetic preconditions are concerned, becomes increasingly visible. On the issue of “how will we live on earth”, our reflections underline the importance of developing and adapting narratives to apprehend our situation as humans in the context of a natural environment. Technological solutions will play a major role here, as they affect the key foundational narratives of what it means to be human more and more – and what constitutes a “person” in the sense of a moral agent.

Detailed table overview of trends at 5, 10 and 25 years

10. The Ethics of Anticipation Example of breakthroughs

Short-term

An ethics of anticipation must ensure that the very process of anticipation fulfils some core requirements:

- **Avoid path dependencies:** anticipation needs to be practiced free of inevitability and insinuations, but as an option to imagine a better world, evaluate it and decide whether that future is desirable or not.
- **Justify choices:** Anticipating means choosing – technologies to be analyzed, representations of the future to be considered, etc. These choices must be carefully justified, and biases or omissions avoided.
- **Consider unforeseen uses:** Technology is routinely put into new contexts and unplanned applications. Anticipators need to be able to account for the unforeseen, including radical disruption.

Long-term

Technological developments may challenge ethics as a discipline (its core assumptions as a method and as a substantial position)

- **Opportunities and challenges arising from advances in computational science:** Advances in data-based approaches will improve the capacity of empirical approaches to ethics to identify ethical dilemma situations and to modulate reactions to them. Computers could simulate a variety of existing ethical theories and use data to generate novel ones, thus mapping the moral landscape in unprecedented detail. By then applying these theories to models of our actual world, normative reasoning would no longer require thought experiments to test the plausibility of different theories.
- **Opportunities and challenges arising from advances in neuroscience and genetics:** Increased understanding of foundations of human behaviour and options for intervening in the human brain will change the very conception of morality by changing the way human beings are conceived. This generates repercussions on issues such as freedom, autonomy, or responsibility.