



METHODOLOGY NEURO-FUTURES

As a species, we face challenges today that are vastly different from those we evolved to deal with— **scale, complexity, and the speed of change** all challenge us to **think in new ways about the future.**

Over the last decade, scientists, especially neuroscientists, have created a detailed picture of just how we think about the future. It seems we have a unique neurophysiology for this task. But as we face a more complex future, this neurophysiology may actually work against us—and also point to new tools for forecasting and planning.



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FUTURE AND PAST: CONNECTIONS IN THE BRAIN

Past and future appear to be intricately linked in the human brain. Scientists have found that children simultaneously develop the ability to recall the past, imagine what they might do in the future, and distinguish both from the present. People with severe amnesia have difficulty imagining themselves in the future: a patient is “unable to imagine specific events in his personal future ... despite no loss in general imagery abilities.”

Neuroscientists watching the brain in real-time with fMRI have found a physical basis for connections between past and future: subjects thinking about past and future events activate similar specific portions of the brain. Even at a basic neurological level, human pasts and futures are connected.

FEATURES & BUGS: THE FUTURE IS IN BETA

It turns out that the ability to think about the future is still in beta. Humans make predictable, systematic errors when thinking about the future, and these errors can sabotage our efforts to make good choices and follow through on good decisions. For example:

- Large complex problems: Our sensitivity to small, highly visible problems makes us less able to handle large, more abstract problems. In one study, people who were asked how much they would pay in increased taxes to save 2,000 birds, 20,000 birds, or 200,000 birds from oil spills answered \$80, \$78, and \$88, respectively: this “scope insensitivity” exists because it’s difficult for people to imagine such large numbers.

- State changes: We also have trouble planning for futures that involve states radically different from our own—constructing grocery lists after a large meal, for example, or planning for lean times when business is good.
- Multiple options: The way problems and options are presented affect how we respond to them. For example, lottery players who choose their own winning numbers spend more than those who play randomly assigned numbers. Even though, statistically, the odds aren’t improved, the feeling of control encourages bigger bets.

TOOLS AND AUGMENTATIONS: HACKING FUTURES THINKING

Psychological insights have informed the invention of methods, tools, and strategies for managing various forms of futures bias. For example, collective forecasting—crowdsourcing, prediction markets, collaborative gaming—can help adjust for personal bias. Recognizing the influence of emotional states on futures thinking could lead to a new emphasis on monitoring and manipulating moods. Finally, various visualization tools and immersion strategies can help people vividly imagine futures that might seem too abstract, impersonal, or otherwise unimaginable.

Given the magnitude of challenges we face today, we need to develop a new synergy between tools and futures thinking. And over the next decade, our new view of the brain will likely help us develop these technologies—probably a mix of information technologies, mind-enhancing drugs, and software—that can improve our future-readiness by augmenting our native physiology and rewiring our psychology.