WHAT IS COGNITIVE IMMUNITY?

This is a precarious time in which democracy—our widely shared set of values for responding to social, environmental, and economic challenges—is being undermined by forces from the private sector and beyond. Our cognitive immune system has not evolved to deal with these threats. The Attack Vector they employ (described in detail on the other side of this map) is designed to exploit network dynamics as well as our cognitive biases and vulnerabilities. The metaphor is particularly apt in describing the state of our body politic today.

A world of data boxes

Dramatic changes in our media and information technology landscapes are weakening our individual and collective cognitive immune systems, opening us up to disinformation and manipulation. Many are attempting to persuade others in many different directions, and in the battle between disinformation tactics and healthy immune responses. Start with the science of persuasion.

Free Speech vs. Censorship

What are the limits of free expression? Who decides when to impose those limits?

Platforms vs. Publishers

How much responsibility do social media platforms and online publishers—such as a phone company, an email service, a platform—have to bear for the content its users publish? To what extent is a platform a common carrier, like a phone company or an email service, and to what extent is it a publisher, like a newspaper or a magazine?

Innovation vs. Dilution

How can a media business stay true to its values while taking new and necessary risks to develop mechanisms that mitigate the harms of disinformation and manipulation? How does an ethics business model work with a business that may imperil its core of “more fast, better things”?

Economic Return vs. Social Return

How do we move beyond profit maximizing in our media business? How do we encourage capital investment in ethics initiatives that put values above profits and growth goals?

Cognitive Cohesion vs. Cognitive Diversity

How has the rise of health, diversity, while maintaining shared outcomes essential to a healthy society?

Media Literacy vs. Media Manipulation

How can we help our audiences navigate the workings of technology and the cultural environment, making them more resilient to the harms of disinformation and manipulation?

Building a healthy cognitive immune system

Dilemmas

It is important to note that a healthy cognitive immune system isn’t a cure-all for waging disinformation campaigns. But it can play an important role in shaping a positive and productive conversation. To work toward a healthier cognitive immune system, we must understand the forces—technological, cultural, economic—on the horizon that could work against flourishing within a functioning democracy.

This is a precarious time in which democracy—our widely shared set of values for responding to social, environmental, and economic challenges—is being undermined by forces from the private sector and beyond. Our cognitive immune system has not evolved to deal with these threats. The Attack Vector they employ (described in detail on the other side of this map) is designed to exploit network dynamics as well as our cognitive biases and vulnerabilities. The metaphor is particularly apt in describing the state of our body politic today.
Evolutionary biologists observe that complex biological and ecological systems are under constant attack from parasites—invaders on the lookout for weaknesses in the system to use as entry points to grow and propagate, in the process undermining the healthy functioning of the host. Under static conditions, these systems have established mechanisms for warding off such attackers. But under conditions of change, these mechanisms are no longer effective, allowing parasites to thrive and weaken the host.

The metaphor is particularly apt in describing the state of our body politic today. Dramatic changes in our media and information technology landscapes are weakening our individual and collective cognitive immune systems, opening us up to disinformation attacks and many new forms of manipulation. And the defenses we’ve built over decades is ill suited to ward off these new attackers, which include bots, trolls, and much more.

The cognition of individuals and of the larger body politic has always been a target for manipulation. Many are attempting to persuade others in many different directions, and in a democratic society we tolerate and even invite many voices. In today’s highly networked world, however, attacks against democracy have the potential to be more devastating than ever before. For better and worse, networked communications tools and technologies have altered existing power dynamics by re-defining who has the power of voice, the power to shape our dominant narratives, and the power to influence our cognition. An individual with a $500 laptop, a $30 a month internet service plan, and a YouTube account has a greater potential audience than a 1950s television station with a newscaster, a staff, transmitting equipment, and an FCC license, all of which totaled millions of dollars. Social media platforms have unprecedented insight into the desires, fears, and behaviors of billions of their users. And yet, we still are at the early stages of this transformation, with old structures, regulatory systems, and cultural norms straining to respond to the rapid changes in our information environment.

To preserve democracy, we need to develop new immune mechanisms, a new immune system, suited to today’s realities. We need to upgrade our “cognitive immune systems” at individual and community levels.

**HOW TO USE THIS MAP**

This map presents the dilemmas, drivers, and future forces that will play important roles in the battle between disinformation tactics and healthy immune responses. Start with the map side for a visual overview of the cognitive immune system and the attack methods bad actors use to exploit our cognitive biases. The map also reveals seven strategies to improve our defenses. Then, flip the map over to gain a deeper understanding of the trends driving compromised cognitive immunity, as well as the difficult choices we must grapple with in our effort to combat disinformation.

**WHAT IS COGNITIVE IMMUNITY?**

This is a precarious time in which democracy—our widely shared set of values for responding to social, environmental, and economic challenges—is being undermined by groups that excel in the creation and distribution of infectious social-media-ready viruses. The Attack Vectors they employ (described in detail on the other side of this map) are designed to exploit network dynamics as well as one or more of the dozens of Cognitive Biases in humans that psychologists and behavioral scientists have identified and cataloged over the years. While cognitive biases may convey certain benefits, such as small group solidarity, they can also compromise our ability to think rationally or judge fairly, making us susceptible to misinformation that raises prejudices, fears, and beliefs that work against flourishing within a functioning democracy.

For democracy to thrive we must develop Immunity Activators for healthy cognition. These boosters are tools, laws, regulations, cultural norms, and skills that work in combination to form a socio-technical infrastructure that protects our networked society against malicious or unwanted intrusions that threaten the body politic.

Building a cognitive immune system will require a systemic view of our networked society. We must understand the forces—technological, cultural, economic—on the horizon that could erode, or help sustain, democracy.

**COGNITIVE IMMUNE SYSTEM DILEMMAS**

It is important to note that a healthy cognitive immune system isn’t a cure-all for wiping out disinformation. In the same way that a biological immune system can backfire or over-react, a cognitive immune system can sometimes damage the system it’s designed to protect. We must accept that there are challenges we cannot find solutions to. We call these dilemmas. Like parasites in an ecosystem, dilemmas are things we have to live with and learn to manage, in the process balancing difficult choices.

**Free Speech vs. Censorship**
What are the boundaries of free expression? Who decides where to draw the lines?

**Platforms vs. Publishers**
How much responsibility does a social media platform bear for the content its users publish? To what extent is a platform a common carrier, like a phone company or an email service, and to what extent is it a publisher, like a newspaper or a magazine?

**Innovation vs. Deliberation**
How can a media business stay competitive, while also taking time and resources to develop mechanisms that mitigate adverse consequences? In other words, how does an ethical business compete with a business that espouses a credo of “move fast, break things?”

**Economic Returns vs. Social Returns**
How do we move beyond profit maximization in our media ecosystem? How do we encourage capital investment in media platforms that put their users above sponsors and advertisers?

**Cognitive Cohesion vs. Cognitive Diversity**
How do we maintain healthy diversity while maintaining shared worldviews essential to a healthy society?

**Media Literacy vs. Media Manipulation**
How do we educate people in the workings of technology and media tools without engendering greater distrust?
The rise of global platforms and algorithms

Global Criminal Economy

Climate Change Refugees

According to UNHCR, there are 30 million people who have been forced to leave their homes due to climate change. This number is expected to rise as the effects of climate change increase. The UNHCR has warned that the world is not doing enough to help those affected by climate change.

Cognitive Biases

Algorithmic Bias

People who don’t trust the global, technocratic system are more likely to be exposed to misinformation and manipulated narratives. This is a significant problem in democracy, as it can lead to the spread of false information and the erosion of public trust.

Reputation Crisis

Platforms use neuroscience and behavioral economics to keep people engaged and addicted to their products. This can lead to the spread of misinformation and manipulation. Many are attempting to persuade others in many different directions, and in the process, they are degrading the quality of discourse and the ability of citizens to engage in meaningful discussions.

Digital Noise

The global rise of digital disinformation and user data abuse creates an urgent need for regulation. But as we have seen with Facebook’s oversight of the Cambridge Analytica scandal, the global yet fragmented regulatory processes are willing to identify and block efforts. Many of the global regulatory mechanisms are generally weak, porous, or simply non-existent.

The global rise of digital disinformation and user data abuse creates an urgent need for regulation. But as we have seen with Facebook’s oversight of the Cambridge Analytica scandal, the global yet fragmented regulatory processes are willing to identify and block efforts. Many of the global regulatory mechanisms are generally weak, porous, or simply non-existent.
Future forces describe the technological, social, economic, environmental, and political factors likely to have an effect on a given domain. Future forces are important to consider in combination because they form complex systems of interconnected drivers of change. Here we have applied a future forces analysis to the domain of cognitive immunity as a first step towards designing the tools we’ll need to create a more realistic and democratic society.
BUILDING A HEALTHY
COGNITIVE IMMUNE SYSTEM
A GUIDE

Disinformation attack vectors that exploit cognitive biases and immunity activators for defending democracy

DATA OWNERSHIP RULES
Tech giants use data generated by people to create new products and services. Assuming real individuals’ biology, immunology, network dynamics, political and social behaviors, we must determine who owns these data. Is it best treated as a personal or public asset? Treating data as a personal or public asset significantly changes the economics and operating principles of current social media businesses, removing some of the capabilities for media manipulation.

STRUCTURAL MANIPULATIONS
Search Engine Optimization
Manipulating search results to promote certain content and disorient opponents. Can be used to spread disinformation and other topics towards consumers.

Dark Advertising
Use of subliminal ads to manipulate consumers into clicking on advertisements that are not shown to all users. These advertisements can be used to nudge individual behavior, selecting which individuals towards arbitrary, amongst other goals.

Censorship
The removal of content or users promoting content. Content can be removed manually through telephone, content containing harmful content or harm content users can be made unclickable.

Confirmation Bias
Tendency to selectively seek and share information in order to confirm one’s own views, often disregarding contradictory data.

Ego Boost
Tend to be found in individuals who are influenced by inflated self-esteem.

Rumor
Rumors can be found in individuals who share beliefs and trends of others, but are distinguished in that they are not necessarily repeated, nor are they shared internally.

Imperialism
Imposing on individuals’ identities by structures.

Nudging/Recommending
Reinforcement incentives and indirect suggestion tactics to influence thoughts and behavior.

Shaming
Using shaming to manipulate individuals’ behavior.

Search Engine Manipulations
Manipulation of search results to promote certain content and disorient opponents.

Confirmation Bias
Tendency to selectively seek and share information in order to confirm one’s own views, often disregarding contradictory data.

Media Bias
Tendency to selectively seek and share information in order to confirm one’s own views, often disregarding contradictory data.

Confirmation Bias
Tendency to selectively seek and share information in order to confirm one’s own views, often disregarding contradictory data.

Ego Boost
Tend to be found in individuals who are influenced by inflated self-esteem.

Rumor
Rumors can be found in individuals who share beliefs and trends of others, but are distinguished in that they are not necessarily repeated, nor are they shared internally.

Imperialism
Imposing on individuals’ identities by structures.

Nudging/Recommending
Reinforcement incentives and indirect suggestion tactics to influence thoughts and behavior.

Shaming
Using shaming to manipulate individuals’ behavior.

Search Engine Manipulations
Manipulation of search results to promote certain content and disorient opponents.

Confirmation Bias
Tendency to selectively seek and share information in order to confirm one’s own views, often disregarding contradictory data.

Ego Boost
Tend to be found in individuals who are influenced by inflated self-esteem.

Rumor
Rumors can be found in individuals who share beliefs and trends of others, but are distinguished in that they are not necessarily repeated, nor are they shared internally.

Imperialism
Imposing on individuals’ identities by structures.

Nudging/Recommending
Reinforcement incentives and indirect suggestion tactics to influence thoughts and behavior.

Shaming
Using shaming to manipulate individuals’ behavior.

Search Engine Manipulations
Manipulation of search results to promote certain content and disorient opponents.

Confirmation Bias
Tendency to selectively seek and share information in order to confirm one’s own views, often disregarding contradictory data.

Ego Boost
Tend to be found in individuals who are influenced by inflated self-esteem.

Rumor
Rumors can be found in individuals who share beliefs and trends of others, but are distinguished in that they are not necessarily repeated, nor are they shared internally.

Imperialism
Imposing on individuals’ identities by structures.
WHAT IS COGNITIVE IMMUNITY?

This is a question that we must all ask ourselves, especially in the context of the current global crisis. In this article, we explore the concept of cognitive immunity and its role in defending democracy in the digital age.

WHAT IS A COGNITIVE IMMUNE SYSTEM?

A cognitive immune system is a network of individuals and organizations that work together to defend against disinformation and manipulation. It is designed to protect our networked society from the threats posed by new technologies and emerging trends.

WHY IS COGNITIVE IMMUNITY IMPORTANT?

The cognitive immune system is essential for a healthy society. It helps to ensure that our democratic institutions are strong and that our citizens are informed and engaged. Without this system, we risk losing our ability to make informed decisions and to govern ourselves effectively.

WHAT CAN WE DO TO BUILD A HEALTHY COGNITIVE IMMUNE SYSTEM?

To build a healthy cognitive immune system, we must take action at all levels. This includes individuals, organizations, governments, and businesses. By working together, we can create a more resilient and democratic society.

CONCLUSION

Building a healthy cognitive immune system is essential for defending democracy in the digital age. By working together, we can create a more resilient and democratic society for all.

ABOUT INSTITUTE FOR THE FUTURE

The Institute for the Future is a world-leading futures thinking organization. Our mission is to inspire and empower individuals, organizations, and societies to fulfill their potential and to create a better future for all.

AUTHORS

Brittan Heller, J.D.

With special thanks to contributing experts

Marina Gorbis

© 2019 Institute for the Future. All rights reserved. Reproduction is prohibited without written consent. SR-2097

For over 50 years, businesses, governments, and social impact organizations have relied on the Institute for the Future to help them understand and prepare for the future.

Building a healthy cognitive immune system is essential for defending democracy in the digital age. By working together, we can create a more resilient and democratic society for all.