The Internet as an Epistemic Agent (EA)

We argue that the Internet is, and is acting as, an EA because it shapes our belief systems, our worldviews. We explain key concepts for this discussion and provide illustrative examples to support our claims. Furthermore, we explain why recognising the Internet as an EA is important for Internet users and society in general. We discuss several ways in which the Internet influences the choices, beliefs, and attitudes of its users, and we compare this effect with those of psychological conditioning and brainwashing techniques. Finally, we present examples where the Internet's epistemic agency acts at scale, affecting large portions of society rather than individuals.

Keywords: *Internet, epistemic harm, epistemic agency, ontological epistemic primacy, epistemic autonomy*

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1. Introduction

The Internet is a fact of life for more than four billion people,[1] and it is almost un-thinkable to go off grid (e.g., Nuwer 2017). The Internet is generally considered to be immensely beneficial to society at large. And this is true. Yet, this is not the full story of the Internet. There is a hidden, darker side to it. This paper looks at the Internet's epistemic agency and its nefarious impact on our worldview.

We posit that the Internet is a proactive, dynamic EA because it actively shapes our worldviews.[2] Due to the epistemic agency of the Internet, we are experiencing an epistemological crisis with uncertain outcomes (e.g., Waltzman 2017; Zuboff 2019). The 'nature' of our knowledge, how our beliefs are rationalised and justi-fied (i.e., our epistemic foundations), and who or what shapes such beliefs, and for what purpose no longer fits with the traditional models for learning and knowledge acquisition, or our cultural practices. Our sources of knowledge have become less transparent, and we are gradually losing our epistemic agency and ontological pri-macy (terms explained later in the paper) as epistemic agents (EAs).

In the beginning the Internet was designed to be the grand equaliser, bringing knowledge and democracy to the masses (Dvorak 2016; Ross 2017). However, as the Internet complex began to unravel, the initial objectives started to dissolve (Frey 2011; LaFrance 2014; Weinberger 2015; Dvorak 2016; Clarke 2021). It is an open question as to why this happened. Was it by design or was it just a sort of natural drift, much like with the early promises of radio and television (see, for example, Wu [2016])? With such a complex phenomenon as the Internet, there was probably no single contributing factor but rather a confluence of them. As we mentioned, the Internet is not just a piece of technology but, rather, a larger complex that comprises networking technology, academia, research centres, politics, and economics.

The Internet for some, or even most, of us is about Facebook, Twitter, personal trainers, TikTok, Wikipedia, Amazon, and so on and so forth. Sure, the Internet is all of this, but the Internet is primarily and fundamentally a technological, economic, legal, and political complex of software and hardware for transferring, harvesting, analysing, and manipulating data about its users' experiences and innermost ideas and shaping their behaviours, both individually and collectively. Unbeknown to the users, this is done for economic and political gain. In other words, the Internet is a tool for behavioural modification on an individual or collective (at a scale) level – and this is the cause of the epistemic crisis (e.g., Wu 2016; Kaiser 2019; Snowden 2019; Wylie 2019; Zuboff 2019). There follows a selective list of studies documenting the epistemic agency of the Internet, but this is just the proverbial tip of the iceberg: (Zhang et al. 2013; Dutton et al. 2013; Castells 2014; Wood and Douglas 2015; Furedi

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[1] Some 4.95 billion people around the world are thought to use the Internet as of January 2022 (DataReportal 2022).
[2] Worldview is a complex of cognitive, conscious attitudes, postulates, and normative assumptions that determines an agent's beliefs. Depending on the domain, the precise definition of 'worldview' may differ in details (e.g., Funk 2001; Gray 2011; Pinxten 2015). In this paper the term 'worldview' denotes a comprehensive set of beliefs that determine an agent's decisions or attitudes. Beliefs in-clude the agent's position on religion, nature, societal issues, ethics, science, culture, God, moral order, and truth, to list just a few examples. See more about worldviews in Section 4.

2017; Huizer et al. 2017; Specktor 2018; European Parliament Directorate-General for Parliamentary Research Services 2019; Allen 2019; Wylie 2019; Zuboff 2019; Ecker et al. 2022).[3]

The epistemic crisis that we are experiencing can be perceived through epistemological fracturing and the reconfiguration of our worldviews.[4] Indeed, we are witnessing tribalisation, political extremism, a general lack of consensus, and widespread social isolation (e.g., Waltzman 2017; Wylie 2019; Zuboff 2019). At the heart of this epistemological crisis is the Internet and its epistemic agency.

How can we claim that the Internet is an EA? After all, we usually associate epistemic agency with a person or some sort of organisation such as a school or church, not with a network of inanimate artefacts, even such a complex one as the Internet. However, epistemic agency may also be understood differently; it can be attributed to inanimate objects, like the Internet, that shape our beliefs. We argue that the Internet complex has epistemic agency, or that it is acting as an EA, because it actively shapes our worldviews. In the following paragraphs, we explain the key concepts for this discussion and provide illustrative examples to support our claims, which are not abstract philosophical musings but, rather, demonstrable facts.

We also want to avoid any over-interpretation, or indeed misinterpretation, of our arguments. We do not want to be viewed as neo-Luddites, techno-anarchists, acolytes of a flat Earth society, or something similar. Our arguments and conclusions are rooted in facts and logic, as we strive to demonstrate. We will also explain why recognising the Internet as an EA is so important for us and society in general.

By the end of this paper, the reader will hopefully see the Internet – in terms of not just the technology and services offered to public but also other dimensions that are hidden from its users, such as the political clout it wields, the economy it supports, and its societal reach and impact – in a new light. More specifically, we want the reader to recognise the Internet for what it really is rather that what it is presented as.

This paper also attempts to bring the discussion about the Internet's impact on society and humanity at scale into the philosophical discourse. Simply put, the Internet has quickly become an existential problem for us, and we need to state clearly

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[3] We need to recognise that we are not users, or even clients, of the Internet. We are sources of raw behavioural data to be harvested by the Internet complex (e.g., Wylie 2019; Zuboff 2019) before being transformed by software into behavioural futures that can be sold at auction in the form of User Profile Information (UPI). UPI presents a virtual model of our worldview, our likes, dislikes, fears, and preferences. It reflects our past choices and decisions, our moods, and our judgements, and it serves as a predictive model of our behaviour. As studies have demonstrated, UPI may be used to model and then influence our decisions (e.g., Wylie 2019; Zuboff 2019). This virtual model of our worldview is what allows companies to control the information that is provided to us and thereby influence us. Changing our online and offline attitudes is what the Internet complex was designed to do.

[4] We are far removed from the prior claim that our worldviews are completely ours, such that no one is trying to influence what we think and how we think. However, the scale of the manipulation that came with the Internet is unprecedented because of its reach and the industrial, political, and scientific complex behind it. A rather crude computing-related analogy could be to say that we are born with a basic operating system installed. The user interface, our worldview, is built upon this. Other people, teachers, friends, colleagues, books, school, and religious institutions used to shape this worldview, but now it is the Internet and its algorithms.

that this is no longer a technological problem per se, so technology will not solve it. The role of the Internet in society warrants a deep Platonic analysis of its roots and consequences, but the first step is to recognise and define the problem we are facing and its philosophical dimensions, and understanding the Internet's epistemic agency is at the roots of this problem. The task for philosophers is to understand the philosophical assumptions of the Internet and show how we can shape them in such a way that the Internet will serve the long-term well-being of humanity. We call this challenge *philosophy in technology*.

To avoid a critique of incompleteness, we need to restate what is in and what is outside the scope of this study. Our focus is on an argument that the Internet has become, or is, an EA, in a specific sense of epistemic agency as explained in the text; an EA that is actively shaping our worldview. We leave out from the discussion the questions of the importance of the Internet epistemic agency in comparison to other traditional sources of our beliefs and opinions like school, press, TV, books we read, academia, experts, radio, friends, teachers, church, people of authority or that we regard as authorities. These questions should be studied, but, it would seem, only if, and only after, we recognise that the Internet is an EA; and this is what we do in this paper. Thus, here we do not investigate the position of the Internet versus traditional EAs. We do, however, provide some suggestions on conducting such a study.

The argument for the epistemic agency of the Internet is presented in five sections. In Section 2 we define what epistemic agency is in generic terms. In Sections 3 and 4 we discuss how we conceptualise the epistemic agency of the Internet and what its epistemic role is. In Section 5 we summarise the discussion. We conclude the paper with some suggestions for further studies of the Internet epistemic function.

2. Epistemic Agency

2.1. What is epistemic agency?

The term epistemic agency is most commonly used to denote the ability of a human agent to choose, reflect upon, and freely form beliefs (e.g., Elgin 2013; Olson 2015; Puzzo 2015; Moore 2016). This is how we commonly define our epistemic agency. We are all epistemic agents in the sense that we are responsible for our worldviews, and our epistemic agency is founded on free access to information and, maybe primarily so, by our own critical thinking skills, especially our reasoning and judgement faculties. While the existence of our epistemic agency is often denied and trivialised (e.g., Kornblith 2012; Ahlstrom-Vij 2013; Puzzo 2015), it plays a critical role in shaping our knowledge and beliefs about the world (i.e., our worldviews) and the ideas and concepts we live by. (There will be more about this later.)

While our beliefs are to a large degree moulded by our schools, parents, society, culture, the media, and religious organisations and their ministers, as rational creatures we have critical faculties for evaluating these influences. We also possess an implicit or explicit understanding of the role and *modus operandi* of the various factors shaping our worldviews. Indeed, the precise function of our

epistemic agency is to reflectively (and critically) engage with the world, namely the people and organisations that influence us. The extent to which we care to exercise this agency, as opposed to just passively internalising external messages, is a separate question.

2.2. Epistemic Agency and Worldviews

Epistemic agency is closely related to our worldviews, but why? It is because a worldview is shaped by our beliefs, knowledge, and experience. It is what our epistemic agency creates, the lens through which we perceive and value the world (Funk 2001; Fisher 2010). A worldview informs questions such as 'What is the ultimate reality? What is truth? What is the nature of human beings? What is the purpose of life? What is morality, and what is its basis? What are moral values?' Essentially, our worldview guides our decisions. Our relationship with the world is determined by this worldview. For example, if we think that the end of the world is nigh, we may go somewhere to await its occurrence, as has been the case several times (e.g., Richardson 1998; Heaven's Gate 2010). If we believe that education is useful, we will study. If we believe that friendship is of value to us, we will seek to make and retain friends.

We need to know how our worldviews have been shaped, as well as by whom and for what purpose. Was it to help us to live better? Or was it to further someone else's objectives, ones that are not known to us? Is it serving our needs, or is it serving someone else's? We need to know where our worldviews are coming from.

If your worldview is incorrect, your perspective on the world will be erroneous, and you will inevitably make bad judgements and personally harmful decisions. Some examples can help here. Take the metaphor of the horseless carriage (Zuboff 2019; Visel 2007): When people first saw automobiles, they regarded them as horseless carriages. They thought of these self-propelled vehicles as upgraded horse buggies and missed their revolutionary potential.[5] With such a perspective, they could never have imagined the role that automobiles play in our lives today.

Thus, when you see the world, or part of it, through inadequate existing metaphors, and we all live by metaphors (e.g., Lakoff and Johnson 1980), your judgements and decisions will be flawed, inadequate, and erroneous. We need suitable metaphors to live by – we need the right worldview. Thus, to restate the original point, you do not want to be in the situation where you do not know where your worldview is coming from, who is shaping it, what kind of values it instils in you, and what kind of decisions it favours, especially when they could be wrong. You therefore want to know who or what is shaping your beliefs, and here enters the Internet.

So, this is how we function as EAs and how we commonly understand epistemic agency. The Internet is an EA, albeit in a different sense.

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[5] Similar miscalculations were made about other developments like phones, computers, and mobile devices.

3. The Internet as an EA

3.1. Epistemic Agency of the Internet

As mentioned earlier, the term epistemic agency is most commonly used to denote the ability to choose, reflect upon, and freely form the beliefs that comprise our worldview. However, epistemic agency may also refer to the passive or active capacity of a system, organisation, artefact, or technology to impact or influence a person's beliefs and worldview (e.g., De Mul 1999; Schlosser 2019). The Internet has epistemic agency in the latter sense, so it is an EA in the sense that it influences our beliefs, views, and choices (e.g., Wylie 2019; Zuboff 2019).

There are ample examples of the Internet's epistemic agency (e.g., Mineo 2017; Kaiser 2019, Wylie 2019; Zuboff 2019). The mechanisms that the Internet uses for its epistemic agency are nothing short of brainwashing, such as 'devices' like perspecticide, echo chambers, filtering, personalisation, astroturfing, fake news, deep fakes, and cognitive hacking, to name but a few. The scale of these activities and their destructive effects on society are difficult to fathom for a non-technical person (e.g., Gibbs 2014; King et al. 2017; Snow 2018; Kaiser 2019; Wylie 2019), which covers most of the public. Later sections explain these mechanisms in more detail.

3.2. The Internet and Epistemic Harm

Indeed, the Internet's epistemic purpose is not to improve our well-being but rather to instil someone else's values and beliefs in us (e.g., Kaiser 2019; Wylie 2019), all with the sole purpose of making us less critical, more obedient, less reflective, and more susceptible to external persuasion. This is what we call epistemic harm.[6] In fact, the Internet as an EA attempts to dissolve our individual worldviews and replace them with the ones that favour the Internet epistemic agency positions and objectives.

Once we are deprived of our own epistemic capacities, which help us to acquire reliable information and make good judgements, the Internet can proceed to control our choices, decisions, views, and beliefs in ways we do not realise.[7] The change of the worldview is only gradual and is usually imperceptible to us. With the Internet permeating even the most intimate aspects of our lives (e.g., Wylie 2019; Zuboff 2019), we urgently need to comprehend and recognise its epistemic role.

The concept of epistemic harm is nothing new; the negative impact of poor-quality information on a human agent has been discussed since Plato's dialogues. However, with the ubiquitous presence of the Internet, for civic societies, epistemic harm caused by the Internet has grown into an existential problem; public awareness of it has unfortunately only begun forming recently.

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[6] Steup and Neta (2020) define epistemic harm as '[o]bstructing an agent's cognitive success'. In this paper epistemic harm denotes intentional changes to an agent's worldview that negatively impact, directly or indirectly, an agent's ability to successfully cope with reality.
[7] This attempt is not entirely novel, but it acquired a more sinister and ominous meaning with the Internet (e.g., Herman and Chomsky 1998).

We may still question whether the impact of the Internet is really as harmful to us and society as suggested here despite the fact that we witness rampant tribalisation, political extremism, a general lack of consensus, and widespread social isolation on a country-wide scale. Lunatic fringe groups, the dispossessed, the narrow-minded, the emotionally disturbed, the confused, the malevolent, the maladjusted, the malicious, and the anti-social will be always with us – this is what makes us humans, and we need to deal with it. Nevertheless, most democratic societies have been able to work out some common set of principles, a common worldview if you will, that allows them to function in a way that benefits most members of these societies. Once this common worldview disintegrates, however, so will our democratic societies.

This happens when the fringe becomes the mainstream and starts dictating to others what they should do, and this is what the Internet facilitates. It enhances the fringe perspectives and brings them into the mainstream, thus claiming parity with mainstream views. The worldview that benefited most people gets distorted and pushed into the background. It gets fragmented, and a fragmented society loses its coherence and common sense and descends into internal squabbling, with morally bankrupt or mentally unstable leaders often being elected. Technically, we refer to this as digital disruption to democracy. Cases of democratic processes being subverted have been well documented and researched (e.g., Crabtree 2002; Botsman 2018; Gorodnichenko et al. 2018; Sustain 2018; Anderson and Rainie 2020; Anderson 2020; Dumbrava 2021). This is what we call *epistemic harm* because it is a distortion of our epistemic foundations, our worldview, in a way that is detrimental to our well-being as individuals and society.

3.3. Epistemic Autonomy, Epistemic Distance, and Our Ontological Status

So, why is this all so bad? It is bad because with the Internet as an EA, at least in the sense we explained earlier, we lose, either partially or fully, our ontological status as primary EAs and together with this our *epistemic autonomy* (i.e., our ability to form our own beliefs and justifications).[8] Losing our ontological status as primary EAs means that we do not scrutinise sources of knowledge through our own reasoning faculties but rather accept and internalise knowledge that has been digested and prepared for us by someone or something else (could it be artificial intelligence (AI) algorithms?), in this case the Internet complex. With our ontological status and autonomy slipping away, our *epistemic distance* from reality increases (Nilsson 2021).[9] To put this in plainer words, we no longer reason for ourselves, and our contact with reality is mediated by some *opaque interface* (i.e., the Internet), so we lose ownership of our worldview.

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[8] '[T]he epistemically autonomous person demands direct, or first-order, reasons why something is true, and does not merely rely on reports about their existence. Epistemically autonomous individuals are epistemically self-reliant and are responsible for the justification of their beliefs' (Matheson and Lougheed 2021, 2).

[9] Epistemic distance is used here to denote the (conceptual) separation of the information source from the EA. The distance increases when between the source and an agent there exist several systems or processes that mediate information transfer (e.g., Nilsson 2021). There are other definitions (theological) of epistemic distance, but they are of no import to this discussion (e.g., Hick 1990).

By losing epistemic agency, an agent loses epistemic autonomy. The agent's decisions are then made by someone else to fulfil someone else's objectives, which may be hidden from the acting agent. Going further, losing epistemic autonomy leads to loosing autonomy in general as an agent. Agents without epistemic and general autonomy are slaves incapable of reasoning for themselves. In giving up epistemic autonomy, we lose our ontological status as primary EAs and become second-class citizens. Knowledge is power, and this power is drifting away from us.

The Internet introduces further epistemic distance between human agents and the world. In most cases, we receive mediated information, and the pros and cons of the traditional media (e.g., television, radio, newspaper, etc.) are well known, so we have become accustomed to using them.

Talk of losing ontological primacy and increasing epistemic distance may seem rather empty. Are these claims true, and if so, to what extent? Let us look at some of the 'devices' the Internet's agency is using on us. These examples should make our claims about ontological primacy and epistemic distance more obvious and justifiable.

4. The Internet Mechanisms Shaping Our Worldview

To justify our claims about the negative role of the Internet, we need concrete facts. We now supply a partial list of the means through which the Internet complex 'shapes' our worldviews. The methods are nothing short of brainwashing, and indeed, they are brainwashing techniques *par excellence*. The Internet is a digital Pavlov, with us as the conditioned dogs. We may have previously come to a realisation that the Internet is a sort of Bentham panopticon on steroids,[10] but we surely never thought we would also get Pavlov and Skinner in the mix,[11] especially with free services, for example, from Google or Meta. The list is given below.

4.1. Perspecticide

When users are constantly fed with divergent views and opinions, they lose their own perspectives and the capacity to know what they actually know. Such methods have been used on prisoners of war, cult leaders, and political opponents. A person subjected to perspecticide loses his or her own views and opinions and stops thinking independently. A person in this state is easy to manipulate (Saeed 2018; Wylie 2019).

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[10] Jeremy Bentham, an English philosopher, created the concept of a prison that serves a conceptual model for a modern surveillance state (Ethics Center 2017).
[11] Ivan Pavlov was a physiologist who is regarded as the father of conditioning (Windholz 1997), while Burrhus Frederic Skinner was an American psychologist who is regarded as the father of modern behaviorism (Cherry 2020).

4.2. Echo Chambers

An echo chamber is an environment in which a person is only in contact with views and information that confirm his or her own viewpoint. This person then forms the distorted view that his or her opinions are shared by more people than they actually are. Echo chambers have the potential to increase bias and hinder any reception of shared views or perspectives. This leads to societies fragmenting and damage being done to democratic processes (Heshmat 2015; Damore 2017; Echo Chambers 2019; Nguyen 2020; GFC Global 2022). One of the effects of echo chambers is the so-called confirmation bias. By witnessing only those opinions that agree with your own, you accept them as being true. In the echo chambers of the Internet, you mostly see what you already believe in.

4.3. Filtering, Filter Bubbles, and Information Bubbles

The information you are presented with when searching online is selected based on your search history, the websites you have visited, and your apparent likes or dislikes. The aim of this is to present you with websites that you are more likely to click on and visit. Thus, someone asking the exact same search question may get different search results. What you receive is search results that have been narrowed down according to algorithms that monitor your Internet activity, which you do not have access to because they are proprietary, in order to entice you to visit certain sites. Thus, you are effectively locked out of accessing new information because such websites may have been deemed outside the scope of your search history. You are basically in a filter bubble. This practice is common in Internet search algorithms and impossible to avoid – you eventually always see yourself. For example, when searching for political commentaries, you will tend to find only those that may be more in line with your own thinking, making it difficult to view and evaluate other perspectives. In this way, rather than enlarging your knowledge and informing your opinions, the Internet is limiting and narrowing them (Morozov 2012; Pariser 2012; Ronson 2016; Carr 2020; GFC Global 2022).

4.4 Astroturfing

Astroturfing is a controlled information campaign to create the false impression of grassroots support for a certain action, movement, or initiative. Modern astroturfing uses Internet resources like email, social media, and instant messaging to disseminate information. While it may appear that such information is coming from multiple sources, it may actually be emanating from a few systems, or even just one, frequently through bots (Monbiot 2011; Bienkov 2012; Astroturfing 2022).

4.5. Cognitive Hacking

Cognitive hacking manipulates people's attitudes and beliefs by disseminating misinformation. Cognitive hacking explores people's emotional vulnerabilities and fears to alter their perceptions of facts, persons, or political situations. It may be directed at individuals or groups of individuals. Cognitive hacking extensively uses personal profiles compiled by social media platforms, such as Facebook/Meta, Instagram, and so on. Wylie (Wylie 2019) described the cognitive hacking campaigns orchestrated by Cambridge Analytica (Cybenko et al. 2002; Wigmore 2017; Wylie 2019; Kaminska 2020; see also Dabrowa 2020).

4.6. Deepfakes

Deepfakes are manipulations of synthetic media that result in realistic, but entirely false, representations of persons, events, situations, or conversations. The purpose of deepfaking is to misrepresent facts and spread misinformation, and it is commonly used to disseminate celebrity pornographic videos, revenge porn, and fake news, as well as to perpetrate hoaxes, bullying, and financial fraud. It may also be classified as cognitive hacking or weaponised (mis)information (Kietzmann et al. 2020; Somers 2020; Witness 2021).

4.7. Weaponised Information

Weaponised information involves the use of false information to shape the beliefs and views of a targeted person or group. It can be used to change the target's perception of events and situations or his or her attitudes and beliefs towards certain individuals or groups (see e.g., Voelz 2015; Waltzman 2017; Defending Democracy 2018; Deloitte 2022).

Mechanism	Impact on worldview
Perspecticide	When users are fed with divergent views and opinions, they lose their own perspectives and the capacity to know what they actually know.
Echo chamber	Increasing bias and hindering the adoption of any shared views or perspectives leads to the fragmentation of societies and the destruction of democratic processes.
Filtering, filter bubbles, and information bubbles	As you are locked out of new information on sites outside the scope of your search history, you eventually always come to see yourself. For example, when searching for political commentaries, you will tend to find those that concur with your own views, making it difficult to view and evaluate other perspectives. Instead of enlarging your knowledge and informing your opinions, the Internet limits and narrows them.

Astroturfing	A controlled information campaign creates the false impression of grassroots support for a certain action, movement, or initiative.
Cognitive hacking	Cognitive hacking manipulates people's attitudes and beliefs by disseminating misinformation. It exploits people's emotional vulnerabilities and fears to alter their perceptions of facts, persons, or political situations.
Deepfakes	Deepfakes manipulate synthetic media to create realistic but false representations of persons, events, situations, or conversations with the aim of misrepresenting the facts and spreading misinformation.
Weaponised information	Weaponised information is false information that is used to shape the beliefs and views of a targeted person or group. It can change the perception of events, situations, or people and alter attitudes and beliefs towards a targeted individual or group.

Table 1. The Internet as an EA (own editing)

Table 1. summarises the methods through which the Internet as an EA affects our beliefs and worldviews.

In-depth analysis of the mechanisms by which these methods change the ways we conceptualise the world would be the subject of behavioural science research and is out of the scope of this study.

5. The Argument Revisited

Our claim has been that the Internet is an EA. We have shown that the Internet acts to change and control our worldviews (i.e., our epistemic positions), which is what an EA *ipso facto* does. The argument can be summarised as follows:

(a1) Whatever affects our worldview is an EA.

(a2) The Internet affects our worldview.

Thus

(c)   The Internet is an EA.

The claim (a1) is from the definition (Section 2). The claim (a2) we justified by showing how the Internet epistemic agency functions in three steps (Sections 3 and 4). First, the Internet explicitly uses mind-control techniques based on behavioural modification (see e.g., Zuboff 2019) principles – such as perspecticide, echo chambers, filtering, personalisation, astroturfing, fake news, deepfakes, and cognitive hacking – with the clear intention of affecting our attitudes, beliefs, and worldviews. Second, the concrete results of these techniques can be witnessed through tribalisation, political extremism, a general lack of consensus, and widespread social isolation in our political and private lives. Third, we have demonstrated that the Internet's agency affects our epistemic resources and epistemic

functions, so it clearly plays an epistemic role (i.e., has epistemic agency) justifying the conclusion (c).

6. Conclusions

We began with the claim that the Internet is a proactive, dynamic EA that is shaping our beliefs and worldviews. To justify this claim, we defined the sense in which the Internet is an EA and the methods it employs to shape our beliefs and worldviews. We also provided real-world examples resulting from the Internet's epistemic agency. Of course, much more could be said about the Internet and its role in shaping our views, but with the facts presented here, we believe that we have proven our case.

In the Introduction we stated that this discussion is an argument for the Internet epistemic agency, in a sense explained in the text. So, it would be only natural to ask now how its epistemic agency compares itself with other traditional sources shaping our beliefs. Is the Internet just one of them? Or, does it play a predominant, or not very critical, role in the game of worldviews? Did the traditional methods of shaping our beliefs lose their lustre? Or, who is the most important EA in the marketplace of ideas now? What are the role and the ratio of this influence in the full doxastic attitude map, compared to other EAs' influence? Or, what can we tell about the consequences of this influence? [12]

While we do not explore these questions in this study, we point to the selected sources that may be the starting point for such research. The hard quantitative data on the roles played by different EAs vs the Internet would be hard to find (the problem is rather difficult to quantify because of its multidimensionality and obtrusiveness), but one may look at several examples of the impact of the Internet on worldviews as compared to 'old', more traditional methods to see the efficacy of the Internet agency vs 'old agents'. See, for example, Gorodnichenko (2018) on an impact of social media on Brerix and US elections. See Cybenko et al. (2002); Wigmore (2017); Wylie (2019) ; Kaminska (2020) ; and Dabrowa (2020) on the impact of Cambridge Analytica on several political campaign across the world.

We have also left out from the study the discussion of causal pathways in which the Internet epistemic agency affects our worldview. But, as we have said, this is a task for clinical psychologists.

Here are a few additional takeaways from this discussion: (1) Large-scale mind control is nothing new, but the Internet has upped the ante to an unprecedented degree and made it Big Business. (2) Our epistemic agency is at the foundation of our autonomy and freedom, and we cannot afford to lose it, but the Internet as an EA has put our epistemic autonomy and ontological primacy at risk. (3) Our epistemic agency should be protected and guaranteed in law because it is a *sine qua non* for preserving democratic societies. (4) The Internet actively changes our worldviews, and this is an intentional act on the part of those managing the major Internet sys-

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[12] Some questions in the list were suggested by an anonymous reviewer.

tems (GAFA (Google, Amazon, Facebook, Apple)[13] etc.). Protecting epistemic agency is crucial for further developing our scientific and technological civilisation based on the concepts of rationality and shared common values.

We need to continue asking questions about the Internet and its epistemic function if we do not wish to get lost in the information maelstrom of the Internet. We need to question how the Internet impacts the cohesion of our societies in terms of fracturing and reconfiguring our worldviews. Instead of shattering our commonality, can the Internet be used to promote shared understandings that foster common ground, collaboration, and cooperation? Can we create such shared interests with regard to epistemology and reality, such as things we all depend upon for our mutual survival and well-being? Does the notion and value of truth change with the Internet, and what will it be like in future? Of course, the list of possible questions is much more extensive.

References

Ahlstrom-Vij, Kristoffer. 'Why we cannot rely on ourselves for epistemic improvement.' *Philosophical Issues* 23, No. 1 (2013): 276–296.
https://doi.org/10.1111/phis.12014

Allen, Mickeel. 'Technological influence on society.' Accessed March 2022.
https://www.bctv.org/2019/11/07/technological-influence-on-society/

Anderson, Dan. 'Many tech experts say digital disruption will hurt democracy.' Accessed March 2022.
https://www.elon.edu/u/news/2020/02/21/many-tech-experts-say-digital-disruption-will-hurt-democracy

Anderson, Janna, and Lee Rainie. 'Many tech experts say digital disruption will hurt democracy.' Accessed March 2022.
https://www.pewresearch.org/internet/2020/02/21/many-tech-experts-say-digital-disruption-will-hurt-democracy/

Bienkov, Adam. 'Astroturfing: What is it and why does it matter?' Accessed February 2022.
https://www.theguardian.com/commentisfree/2012/feb/08/what-is-astroturfing

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[13] GAFA - An abbreviation for four Big Tech companies Google, Amazon, Facebook, Apple.

Botsman, Rachel. 'Dawn of the techlash.' Accessed March 2022.
    https://www.theguardian.com/commentisfree/2018/feb/11/dawn-of-the-techlash

Carr, Nicholas. *The Shallows: What the Internet Is Doing to Our Brains*. New York: W. W. Norton & Company, 2020.

Castells, Manuel. 'The impact of the Internet on society: A global perspective.' Accessed February 2022.
    https://www.bbvaopenmind.com/en/articles/the-impact-of-the-internet-on-society-a-global-perspective/

Cherry, Kendra. 'B.F. Skinner biography.' Accessed March 2022.
    https://www.verywellmind.com/b-f-skinner-biography-1904-1990-2795543

Clarke, Sean L. 'How the promise of the Internet was a lie.' Accessed March 2022.
    https://medium.com/@seanlandonclarke/how-the-promise-of-the-internet-was-a-lie-2c33736cbb6e

Crabtree, James. 'The Internet is bad for democracy.' Accessed March 2022.
    https://www.opendemocracy.net/en/article_822jsp/

Cybenko, George, Annarita Giani, and Paul Thompson. 'Cognitive Hacking: A Battle for the Mind.' *IEEE Computer* 35, no. 8 (2002): 50-56.

Dabrowa, Paul. 'Cognitive hacking as the new disinformation frontier.' Accessed April 2022.
    https://www.aph.gov.au/DocumentStore.ashx?id=b454cd90-d836-43c5-af27-05fea0cf8dd1&subId=692042

Damore, James. 'Google's ideological echo chamber.' Accessed April 2022.
    https://s3.documentcloud.org/documents/3914586/Googles-Ideological-Echo-Chamber.pdf

DataReportal. 'Digital around the world.' Accessed March 2022.
    https://datareportal.com/global-digital-overview#:~:text=A%20total%20of%205%20billion,12%20months%20to%20April%202022

Deloitte. 'Combating weaponized misinformation: Future of risk in the digital era.' Accessed March 2022.
    https://www2.deloitte.com/us/en/pages/advisory/articles/weaponized-information.html

De Mul, Jos. 'The informatization of the worldview.' *Information, Communication & Society* 2, no. 1 (1999): 69–94.

Defending Democracy. 'Defending democracy: Civil and military responses to weaponized information.' Accessed March 2022.
    https://libguides.uky.edu/breakingnews/weaponizedinfo

Dumbrava, Costica. 'Key social media risks to democracy. EPRS (European Parliamentary Research Service).' Accessed March 2022.
    https://www.europarl.europa.eu/RegData/etudes/IDAN/2021/698845/EPRS_IDA(2021)698845_EN.pdf

Dutton, William H., Ginette Law, Gillian Bolsover, and Soumitra Dutta. 'The Internet trust bubble: Global values, beliefs and practices.' Accessed March 2022.
    https://www3.weforum.org/docs/WEF_InternetTrustBubble_Report2_2014.pdf

Dvorak, John C. 'The false promises of the Internet.' Accessed March 2022.
    https://www.pcmag.com/opinions/the-false-promises-of-the-internet

Echo Chambers. 'Source watch.' Accessed February 2022.
    https://www.sourcewatch.org/index.php?title=Echo_chamber

Ecker, Ullrich K. H., Stephan Lewandowsky, John Cook, Philipp Schmid, Lisa K. Fazio, Nadia Brashier, Panayiota Kendeou, Emily K. Vraga and Michelle A. Amazeen. 'The psychological drivers of misinformation belief and its resistance to correction.' *Nature Reviews Psychology* no. 1 (2022): 13–29.
https://doi.org/10.1038/s44159-021-00006-y

Elgin, Catherine Z. 'Epistemic agency.' *Theory and Research in Education* 11, no. 2 (2013): 135–152.

Ethics Center, The. 'Ethics explainer: The panopticon.' Accessed March 2022.
https://ethics.org.au/ethics-explainer-panopticon-what-is-the-panopticon-effect/

European Parliament Directorate-General for Parliamentary Research Services, Brey, P., Gauttier, S., Milam, P. 'Harmful internet use. Part II, Impact on culture and society.' Accessed March 2022.
https://data.europa.eu/doi/10.2861/391152

Fisher, Barbara J. 'Exploring worldviews: A framework.' *TEACH Journal of Christian Education* 6, no. 1 (2012): 50-56.
https://doi.org/10.55254/1835-1492.1029

Frey, Thomas. 'Eight false promises of the Internet.' Accessed March 2022.
https://futuristspeaker.com/business-trends/eight-false-promises-of-the-internet/

Funk, Ken. 'What is worldview?' Accessed March 2022.
https://web.engr.oregonstate.edu/~funkk/Personal/worldview.html

Furedi, Frank. 'How the Internet and social media are changing culture.' Accessed March 2022.
https://www.aspen.review/article/2017/internet-social-media-changing-culture/

GCF Global. 'What is an echo chamber?' Accessed March 2022.
https://edu.gcfglobal.org/en/digital-media-literacy/what-is-an-echo-chamber/1/

Gibbs, Samuel. 'Facebook apologises for psychological experiments on users.' Accessed March 2022.
https://www.theguardian.com/technology/2014/jul/02/facebook-apologises-psychological-experiments-on-users

Gorodnichenko, Yuriy, Tho Pham, and Oleksandr Talavera. 'Social media, sentiment and public opinions: Evidence from #Brexit and #USElection.' Accessed March 2022.
https://doi.org/10.1016/j.euroecorev.2021.103772

Gray, Alison J. 'Worldviews.' *Journal of Psychiatry* 8, no. 3 (2011): 54–57.

Heaven's Gate. 'Heaven's Gate cult members found dead.' Accessed March 2022.
https://www.history.com/this-day-in-history/heavens-gate-cult-members-found-dead

Herman, Edward S., and Noam Chomsky. *Manufacturing Consent*. New York: Pantheon Books, 1998.

Heshmat, Shahram. 'What is confirmation bias?' Accessed February 2022.
https://www.psychologytoday.com/intl/blog/science-choice/201504/what-is-confirmation-bias

Hick, John. *Philosophy of Religion*. Englewood Cliffs: Prentice-Hall, 1990.

Huizer, Erick, Syed I. Shah, James Arroyo, Unoma N. Okorafor, and Rebecca MacKinnon. 'A brave new world: How the Internet affects societies.' Accessed March 2022.
https://www.internetsociety.org/wp-content/uploads/2017/08/MeetingSummary.BraveNewWorld.pdf

Kaiser, Brittany. *Targeted*. London: Harper Collins, 2019.

Kaminska, Izabella. 'Cognitive hacking as the new disinformation frontier.' Accessed April 2022. https://www.ft.com/content/52535b2b-cb23-4ab6-ac66-2859cf9d1ae9

Kietzmann, Jan., Linda W. Lee, Ian P. McCarthy, and Tim C. Kietzmann. 'Deepfakes: Trick or treat?' *Business Horizons* 63, no. 2 (2020): 135–146.

King, Gary, Jennifer Pan, and Magaret E. Roberts. 'How the Chinese government fabricates social media posts for strategic distraction, not engaged argument.' *American Political Science Review* 111, no. 3 (2017): 484–501.

Kornblith, Hilary. *On Reflection.* Oxford: Oxford University Press, 2012.

LaFrance, Adrienne. 'The promise of a new Internet.' Accessed March 2022. https://www.theatlantic.com/technology/archive/2014/06/the-promise-of-an-alternative-internet/372501/

Lakoff, George, and Mark Johnson. *Metaphors We Live By*. Chicago: University of Chicago Press, 1980.

Matheson, Jonathan, and Kirk Lougheed. 'Introduction: Puzzles concerning epistemic autonomy.' In *Epistemic Autonomy*, edited by Jonathan Matheson and Kirk Lougheed, 1–19. London: Routledge, 2021.

Merriam-Webster Dictionary online. 'Astroturfing.' Accessed March 2022. https://www.merriam-webster.com/dictionary/astroturfing

Mineo, Liz. 'Surveillance is the business model of the Internet, Berkman and Belfer fellow says.' Accessed March 2022. https://news.harvard.edu/gazette/story/2017/08/when-it-comes-to-internet-privacy-be-very-afraid-analyst-suggests/

Monbiot, George. 'The need to protect the Internet from "astroturfing" grows ever more urgent.' Accessed March 2022. https://www.theguardian.com/environment/georgemonbiot/2011/feb/23/need-to-protect-internet-from-astroturfing

Moore, James W. 'What is the sense of agency and why does it matter?' *Frontiers in Psychology* 7 (2016). https://doi.org/10.3389/fpsyg.2016.01272

Morozov, Evgeny. *The Net Delusion: The Dark Side of Internet Freedom.* London: PublicAffairs, 2012.

Nilsson Johan. 'Shaping epistemic distance: Producing and withholding knowledge in market research.' *Journal of Cultural Economy* 14, no. 1 (2021): 101–116. https://doi.org/10.1080/17530350.2020.1772850

Nguyen, Thi C. 'Echo Chambers and Epistemic Bubbles.' *Episteme* 17, no. 2 (2020): 141–161. https://doi.org/10.1017/epi.2018.32

Nuwer, Rachel. 'For many people, going without the Internet even for a few hours is unthinkable. But if it did stop working, the impact might not be what you'd expect.' Accessed March 2022. https://www.bbc.com/future/article/20170207-what-if-the-internet-stopped-for-a-day

Olson, Dustin. 'A case for epistemic agency.' *Logos and Episteme* VI, no. 4 (2015): 449–474.

Pariser, Eli. *The Filter Bubble: How the New Personalized Web Is Changing What We Read and How We Think*. London: Penguin Books, 2012.

Pinxten, Rik. 'Worldview.' In *International Encyclopedia of the Social & Behavioral Sciences* (Second Edition), edited by James D. Wright, 753–757. New York: Elsevier, 2015. https://doi.org/10.1016/B978-0-08-097086-8.12228-7

Puzzo, Anrew. *Against Epistemic Agency.* (master's thesis , Queen's University, Kingston, CND 2015). Accessed April 2022.
https://qspace.library.queensu.ca/bitstream/handle/1974/13727/Puzzo_Andrew_201509_MA.pdf;sequence=1

Ronson, Jon. *So You've Been Publicly Shamed.* New York: Riverhead Books, 2016.

Ross, Simone. 'Whatever happened to the Internet's promise?' Accessed March 2022.
https://techonomy.com/whatever-happened-to-the-internets-promise/

Saeed, Kim. 'Loss of identity: Examples of perspecticide from narcissistic abuse.' Accessed March 2022.
https://kimsaeed.com/2018/08/15/loss-of-identity-examples-of-perspecticide-from-narcissistic-abuse/

Schlosser, Markus. 'Agency.' Accessed April 2022.
https://plato.stanford.edu/archives/win2019/entries/agency/

Snow, Jackie. 'Last year, social media was used to influence elections in at least 18 countries.' Accessed March 2022.
https://www.technologyreview.com/2017/11/14/3847/last-year-social-media-was-used-to-influence-elections-in-at-least-18-countries/

Snowden, Edward. *Permanent Record.* New York: Metropolitan Books, 2019.

Somers, Meredith. 'Deepfakes, explained.' Accessed March 2022.
https://mitsloan.mit.edu/ideas-made-to-matter/deepfakes-explained

Specktor, Brandon. 'Is the Internet changing the way people feel about religion?' April 2022.
https://www.livescience.com/61439-internet-use-changing-religion-tinkering.html

Steup, Matthias, and Ram Neta. 'Epistemology.' Accessed May 2022.
https://plato.stanford.edu/archives/fall2020/entries/epistemology/

Sustain, Cass. 'Is social media good or bad for democracy?' Accessed March 2022.
https://sur.conectas.org/en/is-social-media-good-or-bad-for-democracy/

Richardson, James T. 'Doomsday cult.' In *Encyclopedia of Religion and Society*, edited by William H. Swatos Jr. , Hartford: Altamira Press, 1998. Accessed March 2022.
http://hirr.hartsem.edu/ency/doomsday.htm

Visel, Dan. 'Horseless carriage.' Accessed March 2022.
http://futureofthebook.org/blog/tag/horseless-carriage-metaphor-dymaxion/

Voelz, Glenn J. *Rise of Iwar*. New York: Strategic Studies Institute, 2015.

Waltzman, Rand. 'The weaponization of information: The need for cognitive security.CT-473. Testimony presented before the Senate Armed Services Committee, Subcommittee on Cybersecurity.' Accessed March 2022.
https://www.rand.org/content/dam/rand/pubs/testimonies/CT400/CT473/RAND_CT473.pdf

Witness. 'Backgrounder: Deepfakes.' Accessed March 2022.
https://www.mediafire.com/file/de9zn618yxr0xzy/Backgrounder_Deepfakes_202103_EN.pdf/file

Wu, Tim. *The Attention Merchants*. London: Atlantic Books, 2016.

Weinberger, David. 'The Internet that was (and still could be).' Accessed March 2022.
https://www.theatlantic.com/technology/archive/2015/06/medium-is-the-message-paradise-paved-internet-architecture/396227/

Wigmore, Ivy. 'Cognitive hacking.' Accessed March 2022.
https://whatis.techtarget.com/definition/cognitive-hacking

Windholz, George. 'P. Pavlov: An overview of his life and psychological work.' *American Psychologist* 52, no. 9 (1997): 941–946.

Wood, Michael J., and Karen M. Douglas. 'Online communication as a window to conspiracist worldviews.' *Frontiers in Psychology* no. 6 (2015). Accessed March 2022. https://www.frontiersin.org/article/10.3389/fpsyg.2015.00836

Wylie, Christopher. *Mindf*ck*. London: Profile Books, 2019.

Zhang, Zhen, Jianxin Zhang, and Tingshao Zhu. 'Relationship between Internet use and general belief in a just world among Chinese retirees.' *Cyberpsychology, Behavior and Social Networking* 16, no. 7 (2013): 553–558. https://doi.org/10.1089/cyber.2012.0542

Zuboff, Shoshana. *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power.* London: Profile Books, 2019.