Disinformation as Infrastructure: Making and maintaining the QAnon conspiracy on Italian digital media

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Building from sociotechnical studies of disinformation and of information infrastructures, we examine how – over a period of eleven months – Italian QAnon supporters designed and maintained a distributed, multi-layered "infrastructure of disinformation" that spans multiple social media platforms, messaging apps, online forums, alternative media channels, as well as websites, databases, and content aggregators. Examining disinformation from an infrastructural lens reveals how QAnon disinformation operations extend well-beyond the use of social media and the construction of false narratives. While QAnon conspiracy theories continue to evolve and adapt, the overarching (dis)information infrastructure through which "epistemic evidence" is constructed and constantly updated is rather stable and has increased in size and complexity over time. Most importantly, we also found that deplatforming is a time-sensitive effort. The longer platforms wait to intervene, the harder it is to eradicate infrastructures as they develop new layers, get distributed across the Internet, and can rely on a critical mass of loyal followers. More research is needed to examine whether the key characteristics of the disinformation infrastructure that we identified extend to other disinformation infrastructures, which might include infrastructures put together by climate change denialists, vaccine skeptics, or voter fraud advocates.

CCS Concepts: • **Human-centered computing** → **Collaborative and social computing**; • **Social and professional topics** → **Computing / technology policy**.

Additional Key Words and Phrases: social media; information infrastructures; disinformation; misinformation; media manipulation

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1 INTRODUCTION

In this paper, we examine what we refer to as an "infrastructure of disinformation." Our case study is the QAnon conspiracy theory, and specifically its instantiation on Italian digital media and in the Italian language. QAnon is typically described as a right-wing conspiracy theory derived from

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a series of "Q Drops" (also referred to as "droplets of truth"). Drops are short, cryptic posts released on the image boards 4chan and 8chan by an anonymous individual self-identified as Q, and they are written "as if seeking interpretation by a participatory audience" [54]. The QAnon phenomenon has been discussed through a variety of analytical lenses, notably as a religion or faith [56], as a behavioral tendency or identity-confirming dynamic [55], and as a participatory game [41]. A growing number of scholars, however, are investigating QAnon as a research movement, as it is characterized by specific epistemic practices. The practice of endless research is key to QAnon. Its influencers often refer to QAnon itself as a "research group" and invite followers to "do your research" as a mechanism for sense-making [18, 54]. QAnon research activities never happen in a vacuum but always in the context of highly structured and well-organized systems of sense-making [18, 54]. For example, Donovan & Friedberg [18] discuss how Pizzagate-theory supporters created and spread special codes on forums and platforms with the goal of inviting other users to compare, discuss, and use them as signs of early evidence in what they describe as a guided research process. Pizzagate, then, can be better understood as an extended research effort, rather than as a single campaign or a narrative organized around a breaking news cycle. Similarly, Marwick & Partin – reconstructing the process through which Q Drops become proofs – argue that QAnon's "institutionalized orientation towards knowledge production distinguishes QAnon from other conspiratorial online communities, which primarily rely on anecdotal evidence rather than systematic inquiry to sow doubt in scientific consensuses" [54]. Via *systematic inquiry*, QAnon supporters intend "to produce certainty via the construction of alternative facts" [54].

Building on this understanding of QAnon as a research phenomenon, we investigate QAnon affiliates as the designers and users of a distributed "infrastructure of (dis)information." Scholars within CSCW and related fields have long studied the design and maintenance of information infrastructures in the context of scientific endeavors [21, 35, 40, 77], arguing that such infrastructures are essential for the organization and sustainability of today's scientific work. Similarly, we argue that the infrastructure put in place by QAnon supporters is central to their work as disinformation agents. We show how – over a period of eleven months – Italian QAnon influencers/designers engineered a distributed, multi-layered infrastructure of disinformation that spans multiple platforms, websites, databases, aggregators, tools, forums, and alternative media channels. Examples of infrastructural work include linking and tagging QAnon "research material" in provisionary, ever-changing networks of meanings; designing and maintaining web databases that automatically aggregate and translate QAnon content coming from the US into Italian; organizing multiple, international sources of disinformation into curated collections; and engineering algorithmic tools (e.g., chat bots) to help with the management and maintenance of different layers of the infrastructure.

The infrastructural lens helps us to establish the wide variety of daily activities of QAnon influencers/designers beyond that of managing social media accounts and creating false narratives. The influencers/designers' endgame is not only to promote disinformation campaigns, but also to create new tools and systems of distributed sense-making that are distributed and sustainable over time. Influencers/designers deploy different layers of such distributed infrastructure in order to legitimize certain theories at the expense of others and guide users (their followers) towards an agreed-upon explanation of events. We found that, while their conspiratorial theories keep evolving and adapting, the infrastructure through which these are sustained and made sense of is rather stable and has increased in size and complexity over time. Most importantly, once the infrastructure is in place and its users (the QAnon followers) successfully adopted its daily practices and routines, there is little operations like deplatforming and shadowing can do to eradicate it. Deplatforming is a time-sensitive effort. Platforms work as springboards for disinformation infrastructures. The longer platforms wait to intervene, the harder it is to eradicate disinformation infrastructures as they create new layers and distribute themselves beyond social media platforms.

Our analysis also brought to light specific dynamics of power that, we believe, distinguish QAnon disinformation infrastructure from information infrastructures, such as those developed in scientific environments. We found that – at least among Italian QAnons – influencers manage infrastructural and epistemic work in an authoritarian fashion. The frontend of the QAnon infrastructure is available to all, while its design and backend is tightly controlled by a few key figures (i.e., the QAnon influencers/designers). Influencers/designers do not allow their followers to participate in any negotiation over how information is organized or curated. While influencers are the designers of the infrastructure, followers are its consumers and users. Critical infrastructural and epistemic decisions are imposed onto the community of followers/users in a top-down fashion with little transparency. Influencers' almost unlimited epistemic power seems to derive at least in part from their status as designers of the infrastructure. QAnon followers appear to highly respect influencers' relentless effort and ability to build information resources, guides, websites, tools, and other infrastructural components. Followers/users regard influencers as experts who conduct specialized work. Influencers/designers also retain control over whether a QAnon supporter can become a maintainer of the infrastructure (e.g., a developer of chat bots). Being elected a maintainer of the infrastructure is considered a privilege, and, for this reason, users gladly conduct it as free labor.

We chose to study the infrastructural work of QAnons on the Italian digital environment, as opposed to in the US or in any other region, for several reasons. First, all authors have extensive experience researching Italian digital media, culture, and society. Second, we wanted to bring attention to the process through which disinformation operations that originate in the US take root in foreign countries, given that – so far – research on disinformation operations paid great attention to the phenomenon almost exclusively in the opposite direction (e.g., disinformation operations that originate in foreign countries such as Russia and Iran and then spread in the US). Also, at the moment, research on QAnon outside of the US is scarce or generalist in nature [46]. Lastly, given its relatively limited scale, the Italian instantiation of QAnon represents an ideal case study for our methodological approach, which is mostly qualitative in nature. Typically, digital ethnographic methods employed to study online communities and Internet cultures collect and examine "thick data" on one or a few well-defined and limited in scale case studies [14, 29].

2 WHAT ARE INFORMATION INFRASTRUCTURES?

Theoretically, we take an interdisciplinary approach with supportive literature and methodologies from infrastructure studies and disinformation studies, which are both prominent within the CSCW community. We study infrastructure as a "fundamentally relational and distributed entity" made of layers of both physical and abstract entities [79]. From disinformation studies we derive the concept that particular individuals (disinformation agents) rely on their status as online influencers to initiate the spread of a disinformation campaign [80, 83]. Overall, we take from this line of work the proposal to study disinformation as an active, participatory process of digital gatekeeping, and focus on the processes of information curation enacted by disinformation agents, as opposed to solely looking at how it is received by audiences [81].

2.1 Sociotechnical and information infrastructures

Star & Ruhleder (1995) proposed what is now a classic definition of infrastructure: a "fundamentally relational and distributed entity" that emerges for people in practice and structure [79]. An infrastructure is relational in the sense that the daily work of one person is the infrastructure of another [79]. It is distributed through its layers of both physical and abstract entities, such as computers, tools, humans, protocols, standards, and memory practices [8, 36]. These different components are studied as parts of the same complex and constantly changing network [8]. Within infrastructure studies, these are theorized through a sociotechnical lens, which refutes the idea

that social and technical phenomena are distinct and contradictory [77] [8], as social and technical problems and solutions exist in a relation of codependency and mutual shaping. The sociotechnical approach also offers the concept of affordance, a well-known analytical tool within CSCW: the idea that technology allows humans to accomplish a finite number of actions. These actions can be multiplied and are sometimes exponentially increased, but cannot be infinite. Hence infrastructures, like laws, "create both opportunities and limits; they promote some interests at the expense of others" [19, 90].

The key modalities through which infrastructures are built and maintained are summarized in Table 1. For its participants, an infrastructure is neither "natural" nor "automatic," but it is learned through time and practice. By adopting routines and formalizing processes, participants become members of the infrastructure. When an infrastructure works properly, it normally becomes invisible and taken for granted. However, such stability is only apparent: infrastructures continue to change and are subject to moments of breakdown, especially if they are not properly maintained [38, 88]. Failure and restoration are then recognized as core dimensions of an infrastructure and key to its ability to support speeding up and accelerating over time. "Maintainers" – those responsible for the hard and often neglected work of repairing infrastructures – are necessary to the infrastructures as much as designers, inventors, and early adopters [32].

Base-line functioning	Different perspectives, standards, conventions of practice, and cultural and organizational challenges need to be in place in order for the infrastructure to function. Routines are particularly important. In order to function, an infrastructure needs to be woven into the daily practices of the workers.
Co-dependent layering	An infrastructure is built upon other layers, and, at the same time, is shaped and constrained by its relations to them. In this sense, infrastructures are embedded in other structures, social arrangements, and technologies.
Participation & membership	To actively participate in an infrastructure is neither "natural" nor "automatic" for participants, but is something that is learned as a part of a membership within a particular professional, social, or cultural community.
Flux & stability	Because technologies, humans, and policies involved in the infrastructure constantly change, infrastructures themselves also keep evolving. Indeed, infrastructures are unstable systems.

Table 1. Key characteristics of an infrastructure, from Star and Ruhler (1994)

Reformulating Castells (1996) and Hughes' work (1983) [10, 33], scholars of infrastructures have also developed a model for understanding how infrastructures change over time [20, 37]. Infrastructures are initially about the accomplishment of scale as they grow into networks. During their formation, infrastructures are sites of intense conflict. Discrepancies in the fundamental experience and vision of infrastructures start to emerge and materialize especially in the relation to designer assumptions and user expectations [8]. Also, developing infrastructures can disconnect existing institutional, legal, and property regimes. If they survive this initial phase, infrastructures undergo an intermediate phase in which they adapt and mutate to finally become heterogeneous

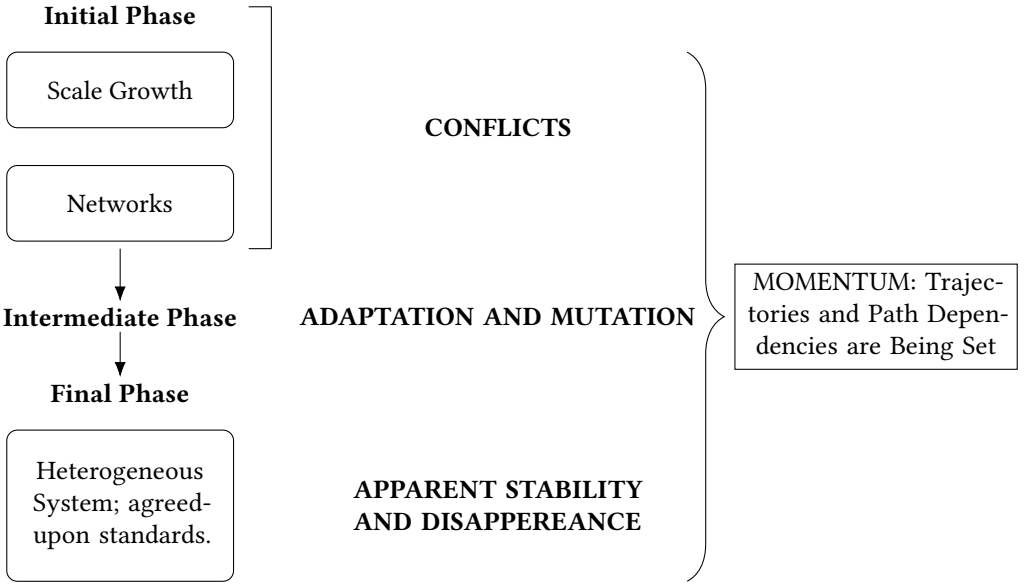


Fig. 1. Evolution of an infrastructure over time

systems linked to each other via the consolidation of agreed upon gateways (e.g., standardizations). Once in place, provisional winners and losers are established. It is in this stage that the infrastructure "disappears" and is taken for granted [7, 21]. The concept of "momentum" signifies the necessary condition under which the infrastructure develops in trajectories and path dependencies [39]. The key takeaway here is that once an infrastructure begins to grow in a specific direction, it is hard to change it [39].

Here, we are interested in computer-based, information infrastructures. Key to an information infrastructure is its ability "to flow and translate" information from a local to a global level, as well as across time and space [8, 19, 57]. Information infrastructures can be of many kinds. Scholars within the CSCW community (and related fields) have paid great attention to the study of information infrastructures within the sciences and governments. Science infrastructures – sometimes called cyberinfrastructures [3, 69] – are keys to the coordination of today's large-scale, distributed scientific collaborations. They consist of "layers that sit between base technology (databases, metadata schemas, etc.) and domain-specific science" [3, 69]. Collaborative work has been found to be necessary for the design and successful adoption of a science information infrastructure [64]. Individuals with different skills, backgrounds, and perspectives need to find ways to collaborate in its construction. For example, technologists in charge of building the technical infrastructure (computer engineers, software developers, data curators, etc.) need to collaborate with domain experts who will be using the information to produce knowledge (scientists, clinicians etc.) [8, 68].

Most importantly, information infrastructures within the sciences rely on the design and maintenance of controlled vocabularies, classification schemas, and ontologies to work effectively and produce knowledge, allowing information to move within and across disciplinary frameworks [40]. In this sense, ontology work is seen as "a quintessential act of distribution – taking knowledge out of a closed community of practice and allowing for its reuse and reshaping by others in different fields" [8]. As Bowker reminds us via Star, "an infrastructure occurs when the tension between local

and global is resolved" [8, 79]. Hence, science information infrastructures are expressions of specific "epistemic cultures," namely "those amalgams of arrangements and mechanisms – bonded through affinity, necessity, and historical coincidence – which, in a given field, make up how we know what we know" [11]. And "boundary objects" – entities that are both plastic enough to adapt to local needs and constraints of the parties employing them, yet robust enough to maintain a common identity across sites [78] – can help the process of knowledge transfer between communities. For example, scientists use databases to negotiate competing practices and priorities across different communities [4, 35].

Bureaucratic systems are another example of information infrastructures [9]. Bureaucratic categories and standards are technically and socially constructed, and their design demands infrastructural workers to make critical decisions over what counts as knowledge, and about the hierarchical relationship between different knowledge objects [85]. Bureaucratic categories and standards, then, contribute to the representation of objects in the standardized representations of just about anything: diseases, animals, human races, pharmaceutical products, and so on. These categories "take on life in the daily practices of industry, medicine, science, education and government" [85]. Bureaucratic infrastructures, like science infrastructures, have a great power in shaping modern life, as much as Edwards suggested that our interaction and reliance on information infrastructures to navigate the world is a fundamental component of our own condition of being modern, or, in his words that "[t]o be modern is to live within and by means of infrastructures" [20].

2.2 Disinformation: definitions and current approaches

Alongside science and bureaucratic information infrastructures, emerging disinformation infrastructures are gaining political ground and public influence. Their aim is also to produce and promote novel ways of knowing. However, they start from very different premises, which are false, misleading or manipulative in nature. Where information infrastructures aim to produce knowledge, "disinformation infrastructures" aim to produce falsehood, confusion and social disruption.

"Disinformation" is generally used to refer to the creation and/or distribution of deliberately false or misleading information [34]. Practices of disinformation have been studied by many, in a variety of disciplines (psychology, network science, political science, media studies, etc.) [48, 49], including CSCW [2, 13, 80]. The research presented in this paper builds on a line of work within disinformation studies that sees disinformation as the product of politically-motivated agents who create, share, and amplify disinformation content to generate chaos and disorder [44, 53, 80] [58]. Disinformation agents, like scientists and bureaucrats, operate within the constraints of technological affordances, such as user-interface interactions (e.g., tweet or repost), algorithms, and advertising models.

The organized work of disinformation agents is traditionally described with the framework of "disinformation operations" or "disinformation campaigns." The modern notion of a disinformation operation is for the most part derived derived by Bittman [5] and, later, Rid [70]. These scholars characterize disinformation operations as top-down, centrally-coordinated interventions. Also referred to as "active measures," disinformation operations are the methodological outputs of large bureaucracies (i.e., state actors), rely on tactics of systematic deception, require participation from the media and the public (intentional or not), are meant at changing behavior (especially in terms of political attitudes) and are always directed toward a specific end, usually to weaken the target adversary [5, 70]. Operations also normally contain some degree of falsehood, for example forged documentation might be presented as reliable evidence, disinformation agents may pretend to be someone they are not, and online accounts involved in the surfacing or amplification of an operation may be inauthentic [70]. Most importantly, Rid observes that these operations consistently tap into existing fears and existing prejudices of the target, whether the target is the society at large, an individual, or an organization, gently and slowly exacerbating those concerns and nudging

them along specific, pre-established directions [70]. To illustrate this, Rid gives the example of a 1959 anti-Semitic campaign organized by the Komitet Gosudarstvennoy Bezopasnosti (KGB) in Berlin. This campaign was effective precisely because it tapped into existing sentiments, it did not invent anything new (antisemitism was still common among the German population). Existing trauma constituted the raw material for a successful operation. Thus, disinformation operations extract and weaponize "basic truths" – also referred to as "rational cores" – that can be easily verified but that can also be manipulated with the addition of half-truths, exaggerations, or lies [80]. At-scale, disinformation operations are attacks against a liberal epistemic order, or a political system that places its trust in essential custodians of factual authority (e.g., political and scientific institutions). Thus, over the course of years, operations may affect how the targeted audience perceives reality [70].

Building on the field of crisis informatics and prior studies of misinformation, Starbird et al. argued that disinformation can also be more generally understood as a campaign – an assemblage of information actions – employed to mislead for a strategic, political purpose [80]. Starbird et al. work shows that, because they are participatory in nature, disinformation campaigns can involve different degrees of coordination [80]. Disinformation campaigns can be “orchestrated” by a set of paid actors or automated bots or entirely driven by organic traffic [91]. Freelon et al. showed how Russian social media trolls on Twitter exploited racial and political identities to infiltrate distinct groups of authentic users, playing on their group identities [26]. Starbird et al. argued that the campaign against the White Helmets was particularly successful because of its ability to reach diverse audiences across platforms: it sustained itself through consistent and complementary use of social media platforms and “alternative” news websites [89]. Linvill et al. identified a three-phase life cycle of Internet Research Agency (IRA) engagement’s with authentic users, which was key to introducing new troll accounts, to increasing their prominence, and, finally, to amplifying the messages these external accounts produced [50].

Others have researched more precisely the active role played by disinformation actors in shaping the success and adoption of disinformation narratives [17, 18, 76]. This line of work openly challenges the idea that disinformation campaigns are passively received by audiences and accepted via identity-confirming dynamics. Instead, audiences, by engaging in an active process of collective sense-making, are deliberately convinced to believe in a certain narrative. Particular individuals rely on their status as online influencers to initiate the spread of a campaign [84]. To propagate their narratives and artifacts, these individuals might employ manipulation tactics that can include altering one’s identity or the source of the artifact, changing the meaning or context of an artifact, and using artificial coordination, such as bots [17, 18, 76]. The expression “trading up the chain” refers to the how key users first popularize narratives on message forums (e.g., 4chan) and then increase the visibility of those same narratives via more mainstream media actors such as social media influencers, bloggers, commentators, and partisan media personalities [52].

Following this line of work, we study disinformation as an active, participatory process of digital gatekeeping, and focus on the processes of information curation enacted by disinformation agents, as opposed to solely looking at how disinformation is received by audiences [81]. For the purpose of this paper, we understand the QAnon phenomenon as an instance of a disinformation operation or, better, a campaign, as opposed to, for example, a case of online activism. Our observations show that QAnon influencers rely on tactics of systematic deception, often employ forged documents as evidence, their campaigns are directed toward specific political targets and ends and tap into existing fears and trauma within the Italian population. Italian QAnon influencers often use pseudonyms and construct false identities around these by claiming competence and expertise that they do not have. For example, they claim to be scholars of international politics or special forces agents. However, our investigative work strongly suggests that they are neither (after identifying their

legal names and public records). One key difference between QAnon and other disinformation operations is that QAnon is not state-sponsored in the traditional sense of the term, though it received public support from politicians in the United States, notably from former US President Donald Trump and Congressional Representative Marjorie Taylor Greene. We would also like to acknowledge that the QAnon phenomenon – like most disinformation campaigns – operates with varying degree of coordination, awareness and intent. Thus, a limitation of this paper is that we were not always able to draw a clear, unequivocal line between those QAnons who actively and intentionally mislead others from those QAnons who are passively misled and honestly believe in the QAnon narratives.

2.3 "Deplatforming" as a countermeasure to online disinformation

Over the last five years or so "deplatforming" has become a prominent tactic to counter hate and false speech online. It is typically defined as "the action or practice of preventing someone holding views regarded as unacceptable or offensive from contributing to a forum or debate, especially by blocking them on a particular website" [16]. In practice, deplatforming interventions can focus on single users, specific groups, or entire websites. People and websites have been deplatformed at different layers of the Internet infrastructure, including Web hosting services, social media platforms and mobile apps. Famous cases include the deplatforming of Milo Yiannopoulos, a former Breitbart personality who was removed from Twitter for targeting individuals with harassment campaigns in 2017; the Daily Storm, a central Internet hub for white nationalists that was banned from multiple Web hosting services and apps the same year following clashes and a death at a "Unite the Right" rally in Charlottesville (Virginia, USA); Alex Jones, the host of American far-right conspiracy theory website InfoWars who was removed by YouTube, Spotify, Apple, and Facebook for inciting hatred and violence in 2018; and, recently, Donald Trump and thousands of QAnon accounts linked to storming of the US Capitol in early 2021, who were suspended by Facebook, Instagram, Twitter and YouTube [24, 51].

Deplatforming is a contested territory. Arguments in favor or against it tend to rotate around either "ethical/legal" aspects or its actual efficacy in limiting the spread of dangerous speech online. Those concerned with the former aspect question whether private companies should retain control over Internet speech and whether deplatforming should be the same for all individuals independent on their level of online and offline influence [24]. Those concerned with its efficacy argue that deplatforming could turn extremists into martyrs and that mass-migration of deplatformed extremists to alternative platforms could result in even more extreme and less diverse online spaces [72]. Anecdotal evidence suggests that deplatforming works, at least partially, as both Yiannopoulos and Jones general prominence in public discourse has significantly diminished [72]. However, scholarly literature on either aspect of the debate is scarce and results are preliminary in nature. Chandrasekharan et al. studied the deplatforming of the subreddits r/fatpeoplehate and r/coontown, banned by Reddit in 2015 for violating its harassment policies. They found that a significant amount of offending users had left the platform and migrated to the alternative platform Voat and other subreddits, which did not record a significant increase in extreme speech [12]. Recently, Roger investigated the behavior of some popular American far-right influencers after deplatforming [72]. First, he observed "a revival of the Web," as deplatformed influencers heavily rely on personal websites, blogs, and subscription-based services such as freespeech.tv to communicate with their audiences. Second, he found that the messaging app Telegram served as a refuge for the deplatformed. As observed by Roger, Telegram, because of its combination of private chats and public channels, offers a set of sociotechnical affordances that are attractive to those users seeking "to retain control over what is known about oneself while still participating (and becoming popular) on social media," a concept also referred to as "social privacy" [67]. Overall, Roger found that on

Telegram deplatformed influencers had thinner audiences and seem to use a milder, less-extreme language, while their level of posting remained stable [72].

A factor that is often discussed as crucial in determining the impact of a deplatforming operation is its timing. In the case of Donald Trump and QAnon deplatforming in early 2021, even those who are generally against the idea of societies depending on companies to police speech online seem to agree that, in the absence of an alternative and given the gravity of the situation, the deplatforming of Trump and QAnon in January 2021 was "the right thing to do" at that moment in time [24]. Others have argued that the deplatforming arrived too late and as a convenient decision driven by the shifting political context and alliances (i.e., the election of Joe Biden) [24]. As we will discuss in the findings section of this paper, a large number of QAnon accounts had been already banned by Facebook and Twitter in a previous, large-scale deplatforming operation that occurred in the Fall of 2020 [30]. Thus, it could be argued that deplatforming operations against QAnons were implemented too late to substantially invert the course of history and prevent the attack on the US Capitol. In the discussion section, we present some insights that – assuming that our findings can be replicated in the US context – may help explain why that might have been the case.

3 METHODOLOGY

This paper centers on a set of questions to investigate the QAnon conspiracy theory on Italian digital media from an infrastructural lens. Building upon the work of scholars like Donovan [44], Marwick [52], Starbird [80] and Tufekci [84], we ground our work in the premise that disinformation is better understood as a process that is actively designed and curated by key individuals, via different degrees of coordination. However, by adopting an infrastructural lens, we bring together single units of analysis, such as narratives, manipulation tactics, processes of gatekeeping, etc., and we co-investigate these as they operate in relation to the technical, organizational, and procedural infrastructural work put in place by disinformation agents. Our guiding research questions are derived from the literature on infrastructure studies and are aimed at identifying and revealing the functioning of different aspects of the Italian QAnon infrastructure.

Guiding research questions:

- What are the sociotechnical layers and components of the QAnon infrastructure?
  - How do these layers and components relate to each other?
- What individuals and groups contribute to the design and maintenance of the QAnon infrastructure?
  - What are their daily practices and routines?
- How is information produced and organized?
  - How does information travel from context to context? How is sense made of it by different communities? Are there ontologies, classifications, and standards in place?
- How is collaborative work accomplished?
  - Can we identify boundary objects or boundary work?
- How does the infrastructure change during the period of observation?
  - Can we identify moments of fragility, breakdown, or path dependency?

Our main research method is investigative digital ethnography [27]. This approach combines digital ethnographic methods typically employed to study online communities and Internet cultures, as found in Biella Coleman's foundational work on Anonymous [14, 15], among others [29], along with virtual ethnography [6, 31], with digital investigative techniques from journalism and security studies [27, 76]. The period of data collection spans eleven months, and extends from early 2020 – when the conspiracy theory gained considerable ground in Italy due to COVID-19 – to

Mid-November 2020, following the US general elections. Given its novelty and limited scale, the emergence of the QAnon operation on Italian digital media constitutes an ideal case study for our methods and scope. We first manually identified a set of key influencers who were advancing QAnon narratives on Italian digital media. We reconstructed how these agents worked across platforms and in collaboration with one another. Building on these initial data points, we conducted some quantitative analyses of public Twitter API data that enabled us to identify further key influencers, popular hashtags, and levels of engagement over time (see "Note on Twitter data analysis" below). During Summer 2020, two of the authors kept weekly diaries of QAnon activities on Facebook, Twitter, and Telegram, and exchanged notes and comments during daily or weekly meetings with the research team. In October and November 2020, the authors downloaded and coded Telegram chats conversations according to a coding schema developed from the guiding research questions (Fig. 2). We archived images and video via archive.is and The WayBack Machine, when possible, or via screenshots. We have made the identification of the accounts that we studied challenging by replacing the names of the accounts with the initials. This was done in order to reduce possible amplification effects following the publication of this paper.

Our digital observational work builds on the recognition that "everything in the digital environment can be gamed and manipulated" by the wide variety of people and entities with incentive to do so [76]. Disinformation activities are described by following a trail of data, interactions, connections, and other digital breadcrumbs that disinformation operatives leave behind [27]. Such investigative work takes nothing at face value and presupposes that things which appear to be quantifiable and data-driven – likes, shares, retweets, traffic, product reviews, advertising clicks – are easily (and often) manipulated. As Silverman noted [76], "by trusting nothing at first, we can engage in work that reveals what we should and should not trust." It is hard to imagine how we could have studied QAnon infrastructural practices if not (primarily) ethnographically. One of the key characteristics of this work is the speed at which influencers change their tactics in order to circumvent deplatforming and shadow-banning operations. Many popular QAnon pages on Facebook and groups on Telegram, for example, purposefully avoid defining themselves as members of a QAnon operation. These tactics make it difficult to identify them via automated searches. We found these pages through the observation and tracking of key agents over time, listening to their interviews, videos, podcasts, and reading through their chats daily. Telegram chats were another crucial data point. As is their very nature, chats are composed of a variety of conversations that build on each other and unfold in a nested fashion. One user might launch a topic at 8:00 am, and this topic might gain traction multiple times over the course of the day in the chat, resulting in several pieces of conversation that sometimes respond to one another, sometimes are completely disconnected from the prevailing thread. At the same time, that same day on the very same chat, many other topics might pop up, started by the same or by other users. Today's chats conversations might refer back to older conversations, or they might mention symbols, language, and metaphor that mean nothing to an external or automated eye, but that signify a very specific meaning to those active within the QAnon group. Patient observations, note-taking, and iterative coding allowed us to keep track and make sense of key data points that emerged within QAnons activities online.

Note on Twitter data analysis

Building from our ethnographic work, we first identified a series of keywords, hashtags, nicknames and symbols typically employed by QAnon Italian influencers on Twitter to self-identify as QAnon affiliates (see Table 2). Then, we manually selected ten prominent accounts that employed such terminologies in the Twitter names, handles or profile descriptions, and that seemed particularly active and had an established audience. Next, we analyzed 29,056 tweets and retweets

Variable 1. Relational components: "The daily work of one person is the infrastructure of another"
E.g., Veleno I& Sandro etc. built a tool that automatically translates Q Drops into Italian. What kind of infrastructures do Italian QAnons design? Who is responsible for the design? Who maintains these layers of the infrastructure? Who uses them?

Variable 2. Distributed components: "An infrastructure if made of layers of both physical and abstract entities, such as computers, tools, humans, protocols, standards, and memory practices"
E.g., The influencers coordinate the infrastructural work, but how exactly? Who is responsible for doing what? What kind of other layers exist? How do different layers relate to each other?

Variable 3. Tension between global and local: "An infrastructure exists when tension between local and global is resolved"
E.g., Influencers put in place specific techniques to translate global ideas from the US into the local Italian context. What are these techniques? What other tensions between local and global can be identified?

Variable 4. Ontology and classification schemas: "It is a quintessential act of distribution — taking knowledge out of a closed community of practice and allowing for its reuse and reshaping by others in different fields"
E.g., Influencers organized QAnon research material in curated collections and research guides. How is information organized and curated into structures? Who is responsible for this work? Who uses it and to do what?

Variable 5. Boundary objects: "Entities that are both plastic enough to adapt to local needs and constraints of the several parties employing them, yet robust enough to maintain a common identity across sites"
E.g., Q Drops might work as boundary objects. What are some examples of Q Drops that worked like boundary objects? Can we find other boundary objects?

Variable 6. Participation and membership: "To actively participate in an infrastructure is neither 'natural' nor 'automatic' for participants, but is something that is learned through time and practice"
E.g., QAnon Telegram chats are highly regulated spaces. Not everyone can participate or intervene. How is membership to the group defined? Who makes these decisions? How do users 'practice' being members of the movement?

Variable 7. Stability vs breakdown: "Because technologies, humans, and policies involved in the infrastructure constantly change, also infrastructures themselves keep evolving. Indeed, infrastructures are unstable systems."
E.g., QAnon infrastructures passed different phases of growth, breakdown and maintenance. What are those phases? Can we identify those phases and describe them in detail?

Variable 8. Momentum and path dependencies: "The concept of 'momentum' signifies the necessary condition under which the infrastructure develops in trajectories and path dependencies. Once an infrastructure takes a direction for its growth it is hard to change it."
E.g., The pandemic hits, the infrastructure grows into new networks. What are some key infrastructural decisions that changed the path of the infrastructure indefinitely?

Fig. 2. Codebook for Telegram chat conversations

published between January 1st, 2020 and July, 24th, 2020 by these ten Twitter accounts. Accounts analyzed published in Italian.

We produced four analyses of these accounts' activities on Twitter. Result is visualized in Figure 7. The visualizations represent the variations in levels of activity of the ten accounts over the period of study.

Our methodology follows an incremental step approach:

- Definition of the thematic area of research (informed by ethnographic observations)
- Choice of social network of interest (informed by ethnographic observations)
- Choice of time interval to analyze (informed by ethnographic observations)
- Search keyword definitions (informed by ethnographic observations)
- Data collection and processing: data is cleaned and filtered to eliminate background noise (quantitative)
- Data analysis: the collected data has been analyzed for critical evaluation (quantitative + qualitative)
- Interpretation: results are interpreted by contextualizing them with ethnographic data (informed by ethnographic observations)

Hashtags	#EnjoyTheShow ! #WWG1WGA #InItTogether #TheGreatAwakening #Trump #17Q #Q #Wayfair #HumanTrafficking #FakeNewsAlert #WeAreTheNewsNow #WWG1WGA #QAnon #Trump #Trump2020 #TheGreatAwakening #SheepNoMore #COVID19 #MAGA #MIGA #MEGA #GodWins #TheStormIsUponUs #PainIsComing #5G #wayfairchildtrafficking #FakeNewsMedia #ArrestSoros #SorosEnemyofthepeople #QDrop703 #QAnonSentMe
Keywords	Sovranità, antiliberale, anti UE, massoneria, tempesta, massoneria, liberalismo, individualismo, obamagate
Symbols	3 stars
Emoticons	Frogs, eagles, turtles, trophies
Others	National flags (USA, Italy, Germany)

Table 2. Linguistic elements considered for accounts selection

4 FINDINGS

4.1 The "rational core" of QAnon and its Italian instantiation

The QAnon conspiracy theory resembles elements of both traditional disinformation operations and contemporary, Internet-based disinformation campaigns. In a sense, it is a top-down, centrally coordinated operation, allegedly initiated by a single figure, Q, who claims to have special access to classified information, and is purportedly responsible for the periodic release of classified information in the form of "Q Drops" (also referred to as "droplets of truth"). Q Drops can be seen as single messages tied together by an overarching narrative based on some elements of truth, what Bittman and Starbird would define as "a rational core" – a basic truth that can be easily verified but that can also be manipulated with the addition of half-truths, exaggerations, or lies [80]. The rational core behind most Q narratives is that corruption, pedophilia, and child abuse are problems in the world. QAnon influencers present themselves as agents who work in the dark to protect children and eradicate corruption worldwide. The overarching, irrational false claim is that a group

of wealthy and powerful Democrats – called "the deep state" – runs a pedophile ring while ruling the world from the shadows. QAnon supporters present Donald Trump as the savior of humanity, who will eventually defeat the "deep state evil."

QAnon is participatory and highly distributed endeavor [86], as groups all around the world access, reuse, and interpret Q Drops in their local contexts. In addition to the US, QAnon groups emerged predominantly in the UK, Germany, and Italy [46]. Concerns with child abuse and corruption are often combined with common right-wing narratives. The exact configuration of such narratives varies across countries and local contexts. While it is beyond the scope of this paper to discuss the ideological stance of QAnon narratives, we briefly review their configuration in the Italian context to provide context based on our own observations and data collections. Similar to US QAnons, Italian QAnon supporters strongly oppose freedom of movement across national borders. In the Italian context, nationalistic undertones are paired with anti-European Union sentiments. Italian QAnons also share with US QAnons an emphasis on individual over collective values and rights in a libertarian fashion. The antipathy for government interference is evident in their characterization of COVID-19 emergency protocols as a "public health dictatorship," or of the Italian government itself as "a fascist regime" because of its attempts to limit anti-lockdown protests and penalize individuals who refused to wear protective masks during the COVID-19 emergency.

Italian QAnon anti-globalist sentiments often translate into a dislike of late-stage capitalism, as it is embodied by multinational corporations like McDonalds, Microsoft, Amazon, most pharmaceutical companies, etc. This goes hand in hand with their distrust of "official science," as they see it as a product of "big pharma" and "the deep state." Not surprisingly, some Italian QAnons identify themselves as ex-members of the Italian party Movimento 5 Stelle, "5 Stars Movement." The Movement – which included several members who expressed skepticism of "official science" and global economies – has been losing popularity since it made a deal with the Italian center-left party, Partito Democratico, in 2019, leaving fertile ground for QAnon conspiracy theories to take root in its disenfranchised ex-members. We also observed elements of technophobia, as many Italian QAnons fear advancements in technology – some supporters noted their use of burner phones to avoid tracking, others deleted all apps from their smartphones, or got rid of their televisions.

"NO VAX, NO MCDONALD'S, NO AMAZON, NO TV, NO BANK, NO 5G, NO PEDO, NO WAR"

Fig. 3. A list of keywords as they appear on the profile description of an Italian QAnon supporter on Twitter.

Italian QAnon supporters call for state intervention in support of unemployed people and small businesses. They explicitly advocate for a welfare state that supports the low and middle class and taxes exclusively foreign corporations. Thus, Italian QAnon is characterized by a national-socialist undertone and it cultivates an antipathy for plutocracies. Also consistent with European national-socialist ideologies is the presence of antisemitism. We observed several instances of antisemitic rhetoric, such as references to the Elders of Zion. In Italy, antisemitism is a wide-spread phenomenon, as in many other European countries, it is then hard to establish whether QAnon supporters are antisemitic or just representative of the general population. Italian QAnons also share a fascination of strong leaders, such as former US President Donald Trump and Russian President Vladimir Putin. On Telegram, Italian QAnons actively fund raised for the Trump 2020 re-election campaign (or at least attempted to), as they believe that Trump intends to intervene in Italian politics to clean up its corruption.

Overall, our observations suggest that – in the Italian context, at the very least – the claim that a deep state-organized ring of pedophiles controls the world is only one aspect of a multifaceted social

and political ideology. On their channels and in chats, Italian QAnons openly demand a "sovranist state" that stops immigration, is independent from the EU, provides widespread and ever-lasting economic security for its citizens, and heavily taxes multinational (non-Italian) companies. At the same time, from their perspective, the nation-state should not be allowed to interfere with the individual freedoms of Italian citizens in any way.

4.2 The origins: QAnon as a "research movement"

Hilary Clinton has been a preferred subject of American conspiracy theories since the early 90s [87]. It should not surprise, then, that false accusations against Clinton constituted the building blocks of the QAnon conspiracy theory. During the 2016 US presidential election cycle, building on previous allegations against Clinton [92], American conspiracy theorists invented and promoted the "Pizzagate" conspiracy theory on the 4chan message board – the same board that will later be used by Q to post publicly for the first time. Proponents of Pizzagate falsely claimed that leaked John Podesta emails – Hillary Clinton's campaign manager – contained coded messages that linked some Democratic Party officials to an alleged human trafficking and child sex ring [18, 54]. Pizzagate supporters also claimed that a pizzeria called "Comet Ping Pong" in Washington, D.C. was a key hub of the non-existent child sex ring. The false theory went viral and some conspirators acted on the theory. In Fall 2016, the restaurant staff received death threats from conspiracy theorists [42], and in early December 2016 a man from North Carolina traveled over 300 miles to Comet Ping Pong to investigate the conspiracy and fired a rifle three times inside the restaurant [43].

The Pizzagate case is an important tool of analysis, as it contained signs of what QAnon's infrastructural and epistemic practices would become [18]. QAnon research activities do not happen in a vacuum but always in the context of a highly structured and well-organized system of sense-making. They created and spread special codes on forums and platforms with the goal of inviting other users to compare, discuss, and use them as signs of early evidence in a guided research process. These elaborated ways of collective sense-making have been identified as "evidence collage" [18]. As Donovan and Friedberg noted (2019), "Pizzagate was not the product of a single campaign organized around a breaking news event" [18]. Instead, they suggest, Pizzagate is better understood as an "extended effort" that was coordinated across multiple platforms, and that eventually culminated in the coverage of Pizzagate on both mainstream and alternative news, conspiracy media outlets, and alternative and independent blogs.

After Pizzagate, conspiracy theorists' activities on message boards gradually started to converge around the overarching effort of revealing the supposedly secret activities of an "evil deep state" controlled by the Democratic Party. In October 2017, a 4chan user posting as "Q" claimed that a series of extraditions and arrests related to the deep state were being deployed around the world. Among many other claims, Q also linked the unsolved murder of Democratic National Committee staffer Seth Rich to Hillary Clinton, and implied that Hillary Clinton was somehow responsible for the tragic plane crash that killed John F. Kennedy Jr. in 1999. A few months later, Q moved their activities to 8chan, where Q consolidated the idea of QAnon as a "research movement" on the CBTS ("Calm Before The Storm") sub-board. On the sub-board, Q repeatedly invited its followers to "do their research" – a slogan that is still prominent among QAnon supporters at the time of our data collection. American QAnon research activities are supported by a series of research tools such as aggregators, databases, websites, video and radio channels, affiliated blogs, forums, among others. In the following pages we will describe how a similar infrastructure was designed and promoted by Italian QAnon supporters over time (see Figure 4).

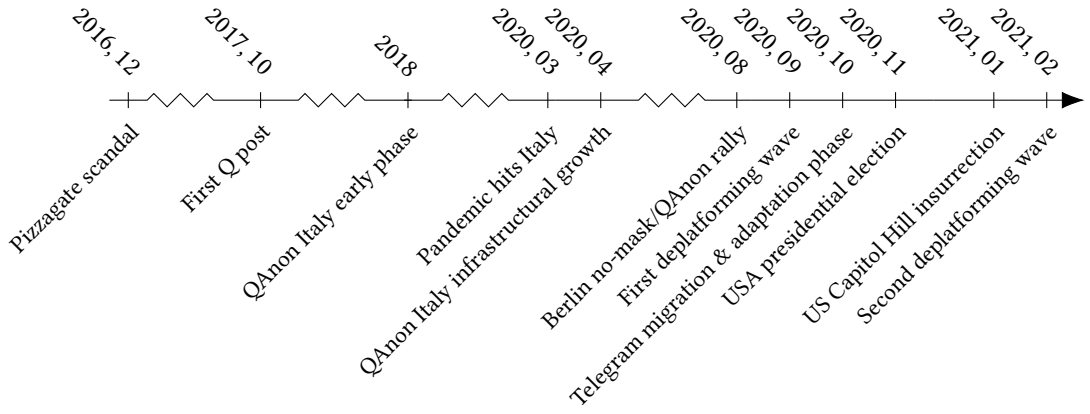


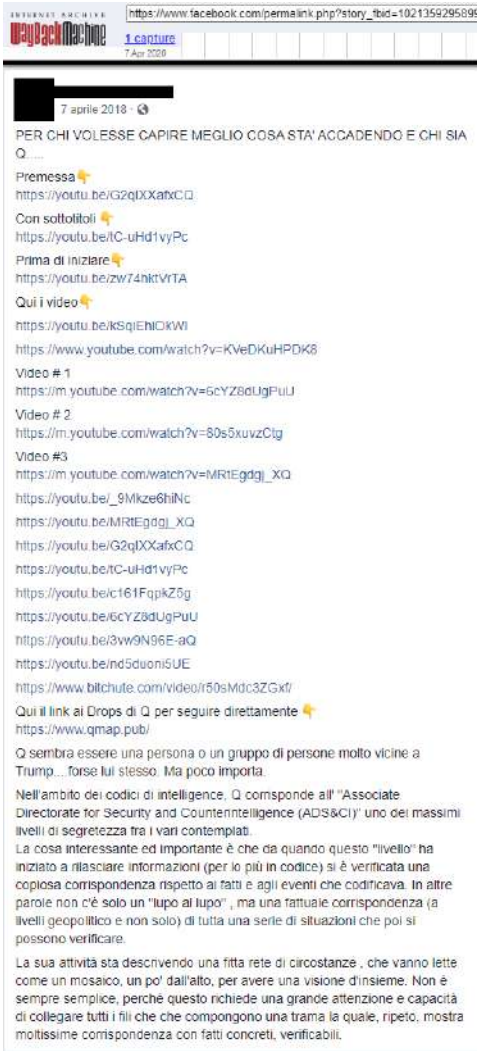
Fig. 4. QAnon Italy Infrastructure: Timeline of Key Events

4.3 QAnon in Italy: early stages 2018/2019

Traces of QAnon theories can be found on Italian digital media since 2018 [71]. A preliminary analysis of Italian Google searches for "QAnon," QAnon Facebook posts (CrowdTangle data), and tweets matching the keywords "WWG1WGA" ("Where We Go One, We Go All" – a motto taken up by QAnon supporters) and "QAnon" suggested that QAnon narratives were present on the Italian digital media landscape well before the pandemic [71]. By using the Wayback Machine and manual retrieval of old posts, we found that in this initial pre-pandemic, pre-infrastructure phase (2018-2019), Italian "early QAnon influencers" promoted QAnon narratives on Italian media as they were presented to them by American QAnon accounts. They would carefully translate QAnon narratives in Italian, detail by detail, reference by reference, but they would avoid completing or enriching such narratives with personal interpretations of events – as they would do at later stages of infrastructure building. Early QAnon influencers made little or no references to Italian political and social context, and instead directly re-shared posts from US QAnon accounts, which were either reposting Q Drops or posting news articles from US right-wing media such as The Gateway Pundit, Fox News, and One America News Network.

Among these early influencers, the account S caught our attention for the highly structured and articulated cross-platform, information organizational work that he put in place. S created a series of consecutive, intertwining online information resources and "research guides" that translated into Italian the most prominent QAnon theories and concepts, posting long Facebook posts that linked to and built on each other in a Russian doll fashion – with the oldest message at the center of the matrioshka and the more recent ones composing its external layers. Rhetorically and thematically, newer posts built on older posts and references them as key resources. None of these posts is currently visible on Facebook; an example of an archived public post from 2018 is available at this URL [73]. See also Figure 5a. Each post was 2000 to 6000 words in length and followed a recursive structure. S's posts would start by linking to a set of American QAnon Youtube and BitChute videos (with Italian captions), to be watched as the "premises" for what was to follow [62, 65]. See also Figure 5b. Each video had the goal of building up "evidence" towards constructing the core QAnon narrative that liberal media and politicians lead democratic institutions not for the well-being of the people or local businesses, but for their own benefit. This group, the narrative goes on, designed a network of influence that reinforces itself, and that keeps others (e.g., conservatives) outside via

"political correctness" – a mechanism of the so-called "deep state." Wars and the global economy are introduced as the evil products of the evil network.



(a) Archived S Facebook post

(b) S BitChute video

Fig. 5. Examples of S's Facebook posts and videos

S's posts would then link to some of the many QAnon aggregator of Q Drops [66]. These posts would contain detailed information about the identity of Q (or speculations about it), Q's security privileges, Q's ability to predict events, and Q's intention of building a group of "informed individuals" who – S specifies – "must voice their natural and honest desire to learn how the world really works." In these posts, S maintains that "One thing is certain, [...] you will be able to understand by yourself what is happening. We all have the possibility of studying and understanding key issues deeply, giving up easy explanations from mainstream media." Since the very beginning, QAnon influencers stressed the idea that being a QAnon is voluntary, independent, and serious

commitment that requires research and direct engagement, not a hobby or a game. S also offered a "research compendium" with all the main theories translated into Italian [45], curated by the account L – which would later become one of the most active Italian QAnon accounts on Twitter. Then, the posts would go on presenting a list of topics that are central to the QAnon theory – each post would contain the old topics along with new ones. Topics are first listed, then discussed and annotated with links to sources and "evidentiary material" (source example [25], link to evidence example [82]). Each Facebook post would build on previous Facebook posts, adding new content and sources, and each one would link to previous Facebook posts.

Each of S's posts received around one hundred thousand likes, hundreds of comments, and on average around one thousand shares. In a 2019 post, S introduced a group of self-proclaimed "Italian QAnon Patriots" called "Oracolo Quantico" (in EN: Quantum Oracle) [61] (see Figure 6), explaining that the Oracolo Quantico group operates as a "network" that embraces multiple platforms, and that "each platform is dedicated to a specific mission." Facebook should be used for discussing and spreading information. Twitter for gaining new intel and information from American fellows [they refer to such pieces of critical intel as "intercontinental missiles"]. The official website [61] would be a repository of "verified information," including memes, documents, and data to be used as "bullets" to counter the narratives diffused by the mainstream media. The most important mission of a Q Patriot – S continues – "is the responsibility of managing alternative information, [...] and this is our mission for the Great Awakening plan: to be careful narrators of this story until the truth is visible to all."

Fig. 6. The website "Oracolo Quantico"

4.4 The Pandemic hits: The infrastructure grows into networks

Starting in March 2020, the activity of Italian QAnon accounts increased substantially on Italian digital media.

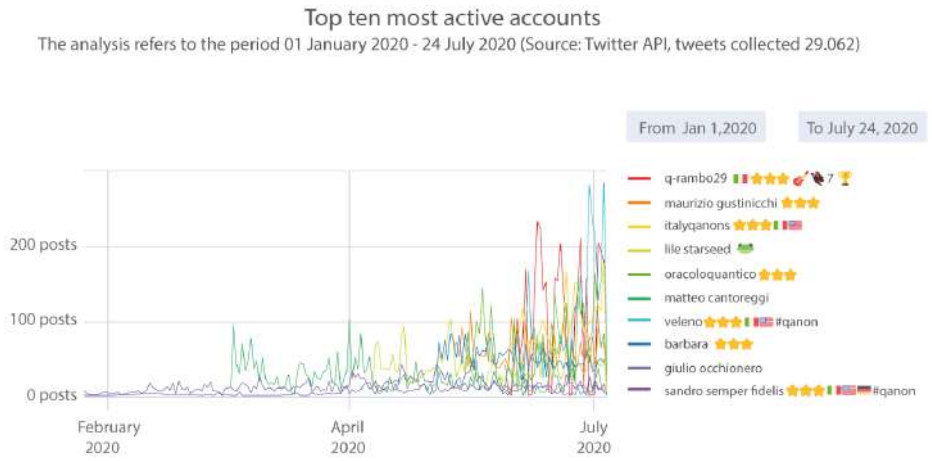


Fig. 7. This figure refers to the period between Jan 1st, 2020 and July 24th, 2020 and shows the top ten most active accounts over time.

When the pandemic hits, the Twitter account @OracoloQuantico (presumably operated by S or one of his affiliates) is among the most active Twitter accounts. He often references and retweets other accounts, especially L, O, and G. On March 31st, 2020, S participated in an interview on Border Night radio, which also live-streams on the radio's YouTube channel [60]. The two hour-long conversation focused on how and why Q cannot be compared with previous anti-establishment groups who have failed and disappointed Italians, such as Movimento 5 Stelle. Central to S's defense of Q is the idea that "we have enormous counter-factual data available to all that can demonstrate that Q actually knows what he is doing." After providing examples of supposedly accurate predictions by Q, S talks about how Q invites people "who do this work" to stay critical. He adds that "the research work" has to be conducted "individually" because "if people think like individuals, they cannot be controlled like the masses."

(IT) User: Per capire il piano Q dovete studiarlo. Smettetela di pretendere di capire tutto e subito come i ragazzini. (EN) User: To understand the Q plan you all have to study. Stop expecting to understand everything immediately as if you were children.

Fig. 8. An extract from the live-chat feed of the S's interview [60]

During the initial phases of the pandemic in Spring 2020, while Italians were in lockdown, we noted a drastic thematic shift in the Italian QAnon narratives. Italian QAnon supporters now systematically re-contextualized QAnon theories into the European and Italian context. During the interview with Border Radio, S highlighted that Italy itself occupies a central role in the organization of the "deep state." According to S, "Europe is the continental expression of the American deep state" and "US and Russia are now in an alliance to take down the corrupted, liberal deep state globally and reinforce local nationalisms." Influencers re-contextualized US QAnon narratives into the local Italian political sphere through a variety of tactics (see Figure 9).

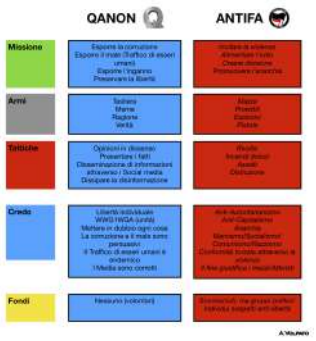
TACTICS	Examples	
Creating and distributing visual material	The user A created and shared a table that explains the differences between QAnon and Antifa, in Italian	
Linking US stories and personalities to Italian stories and personalities	C posts an article about how Matteo Renzi (former Italian prime minister) finances Hillary Clinton's campaign in 2016	
Offering new interpretations of Italian events through the lens of US QAnon narratives	The conspiracy theory around Bibbiano's events were re-interpreted to be part of the activities of the deep state	

Fig. 9. Some tactics used by Italian QAnon influencers to re-contextualize US QAnon narratives for local populations.

Another noted shift during the early stages of the pandemic was the slow but steady movement of activities from Twitter and Facebook towards Telegram chats. Two QAnon supporters that we will identify as F and V led this effort in collaboration with a series of other smaller influencers (especially D and O) to recruit members for the chats. We focused our observations on the Italian

QAnon chats with the highest volume of daily activity and membership: QAnon Italy (F is the admin); Veleno Quando Basta! (V is the admin); and Q Research Italy (both F and V are admins). F and V present themselves as members of a team of "professional investigators" who have been doing this "research work" worldwide for a long time. These chats are highly regulated information spaces. F and V always have the final say on what is true, and what it is not. They release key information to their followers, who are allowed to comment on them, but only if they follow strict rules and behave within the language and thematic parameters set by F and V. F and V correct or even punish users whenever they express a viewpoint that is considered naive or inappropriate, use words or expressions that are not allowed, or share links or other external resources without the permission of the admin. For example, in August 2020, some chats members expressed support for Robert F. Kennedy Jr.'s intervention at the anti-COVID restrictions event in Berlin [59]. The video of Robert F. Kennedy Jr.'s speech circulated widely on Italian chats. However, this behavior was censored by F and V who explained that Robert F. Kennedy Jr. was not reliable given his affiliation with American liberals. F and V also discouraged Italian QAnons from attending Italian lockdown protests, "as Q has never ordered to go in the streets protesting." Also, according to F and V, the role of Italian QAnons is to conduct "serious research" on the deep state, not to engage in political or activist work.

Our observations show a widespread use of chat bots. A "Rule Bot" returns the ruleset of the chat whenever a user calls for it (e.g., by typing "/regole@Veleno_chatbot" in the "Veleno Quanto Basta!" chat), a security bot called "VoIP Locker Bot" blocks accounts that are suspected to be "spies," a "Night Time" bot closes the chats at night and reopens them in the morning, a "News" bot called "The Daily Global – NewsRoom" posts news about Q and international politics and scandals from all over the world. Bots like VoIP Locker Bot are relatively simple to add to a chat and can be easily downloaded from the Internet. However, to work effectively, these bots need to be tailored to the specific needs of a group. The actual maintenance of these bots is external, as the users do not have access to the code, and any updates or modifications are beyond the users' reach. Some other bots were created by V, F, and their collaborators. To do so, a certain degree of programming skill is required. At the moment, Telegram supports an API Bot and libraries for PHP, Node.js, Rust, Python, Ruby, Swift, Kotlin, Java, Go, C#, Elixir, C++, Dart, Lua, OCaml, Haskell, Scala, and Perl. Most of the bots made in-house seem to be derived from the Telegram "BotFather," described by Telegram itself as "the one bot to rule them all." Bots made with a traditional programming language need maintenance as the Telegram API bot and libraries change over time.

4.5 Deplatforming operations & Post-election Infrastructuring

Twitter and Facebook started to take action against Italian QAnon towards the end of the Summer and early Fall 2020. Multiple accounts and pages were banned, including @Qanon_Patriot, V, and @QanonItalia on Twitter; and "The Q Italian Patriot," "We Are the Storm," and "Trump and Q Digital S." on Facebook. However, continuing to follow influencers and groups after deplatforming, we noted several limitations to this deplatforming intervention. First, it targeted only pages that contained the keyword QAnon or some versions of it. By doing so, the intervention failed to identify and remove communities of established and committed users who did not directly identify as QAnon supporters, but used the platforms to link to external resources related to QAnon and promote their personal websites and news channels. For example, the Twitter account and Facebook page linked to Oracolo Quantico were never closed, and the influencer S simply converted his open profile to a closed group to avoid deplatforming. Second, most of the influencers who were successfully banned quickly re-engaged their audiences using alternative names for themselves and their pages. Both F and V created new accounts on Twitter and new community pages on Facebook that they then used to attract new members, such as the page "Il Pensiero Critico" (in

EN: Critical Thinking). The new Facebook pages metadata were set up to avoid being identified as QAnon-affiliated pages by Facebook's algorithm (e.g., the page is categorized as a health and beauty blog).

While new audiences on Twitter and Facebook were thinner compared to pre-deplatforming, F, V and the other influencers used these spaces to move their traffic to their Telegram chats and channels, where the volume of members and activity continued to increase. Overall, we noted that since deplatforming F and V increased their commitment to the management of Telegram chats and channels in several ways. With the US presidential election coming up, F and V's infrastructuring work on Telegram became more intense and sophisticated. They started to upload new content and articles on Qresearch.it almost daily, and to organize weekly online webinars to discuss and explain American politics to their followers. Webinars would be hosted by the influencers and have guests, often far-right influencers. Chats members paid a fee to register to these webinars (about 20 euros each). In addition, F started to post daily "news videos" on his YouTube news channel – "F The Newsroom" – in which he discusses current events and reads, translates and interprets news from American right-wing media such as Breitbart, The Epoch Times, etc. In these videos, F presents "evidence" in support of QAnon theories in the form of headlines, interviews excerpts, screenshots, fabricated images, infographics and data visualizations taken from multiple American far-right mainstream and alternative media sources. The videos would then be cross-posted in the Telegram chats by F and the other influencers. F also started to record and post daily videos of himself talking about international politics (and its links to Italian politics) directly on Telegram. In this second category of recorded videos, F appears dressed in business suits, while driving his car, supposedly to some important meetings. All videos are recorded while he is driving and might last between half hour to an hour. In these videos F personally addresses his followers' concerns, questions and doubts. Often, he uses aggressive and sanctioning language towards those followers who question QAnon theories or did not respect the chats' rules. He also used this time to highlight his knowledge of "how the world works" and bring up several events he personally participated in or witnessed around the world, especially in Asia (important business meetings, conferences, etc.). During Fall and Winter 2020, F posted at least one of these videos per day, normally in the mornings or in the evenings, or both. After posting, chat members would respond to the videos by thanking F and asking for more videos and interactions.

For about a week after Election Day, the activity level on the chats drastically increased. Chat transcripts were about three times longer than in the previous months. Starting on election night, and for about 48 hours, F and V left the chats almost entirely unregulated. During this time, chat members advanced all sorts of explanations for why Donald Trump did not win the election, including questioning the Q prophecy as a whole. However, starting on the fourth day following the election, F and V reinstated control over the chats. They deleted the entire chat history and began to impose harsh sanctions for antagonistic speech. During this phase, F and V sometimes employed aggressive and violent language towards those who questioned Q. While influencers often used offensive language towards chat members, users were generally discouraged to adopt similar language in the chats. F and V responded to their followers' skepticism by explaining that Q never promised Trump's re-election, instead Q predicted a period of chaos followed by a new world order. They engaged in the fervent translation and spread of disinformation about US elections and allegations of fraud. They did so by directly posting news, visualizations, and commentaries coming from the US, and also by producing and publishing translated versions of such content on their websites and news channels. F and V initially centered their repair strategy on the narrative that the elections were stolen and they seemed to honestly believe in a possible return of Donald Trump for a second term. By the time we concluded our observations in mid-November, the groups

had unhappily accepted the electoral defeat (even though they were still convinced that the election was stolen), and the conversations had shifted toward promoting Trump's re-election in 2024.

Layers/components of a disinformation infrastructure	Explanation	Examples
TOOLS	Independent layers created autonomously, they exist outside mainstream platforms	Aggregators, Databases, Websites, Video and Radio Channels, Affiliated Blogs, Forums
PLATFORMS	Mainstream platforms used to amplify narratives and promote other infrastructural layers	Facebook, Twitter, Telegram, Youtube, etc.
PEOPLE	Individuals who create, maintain and support in various forms the infrastructure	Influencers, Maintainers, Followers
LINKS AND TAGS	Epistemic arrangements used to represent/manipulate the world	Satanist Pedo Rings, Public Health Dictatorship, 5G Conspiracy, etc.
BOUNDARY OBJECTS	Entities that are both plastic enough to adapt to local needs and constraints of the parties employing them, yet robust enough to maintain a common identity across sites	Q itself, Q Drops

Table 3. Key components of QAnon Italy's disinformation infrastructure

5 DISCUSSION

5.1 Tagging and linking (dis)information online

About a decade ago, Clay Shirky proposed that Web-based "folksonomies" and "tagging systems" would come to constitute new ways of organizing and retrieving information that would be more efficient than institutional and expert-driven information infrastructures [74, 75]. To function, expert-driven information infrastructures such as science and bureaucratic infrastructures rely on mutually exclusive categories and predetermined ontological and classification schemas. Because of their lack of flexibility and nuance, Shirky argued, such information infrastructures are often perceived as foreign by amateur users, they are at constant risk of becoming obsolete, and their maintenance costs grow at scale. Web-based tagging systems, on the other end, allow users to link Web URLs and other online information objects according to their own needs and views of the world. To paraphrase Shirky, online tagging systems leave users free to make sense of the world independently, instead of conceding to predetermined views of how the world works. These systems are also cheaper to produce as their construction relies on users' voluntary work. Shirky saw great value in user-driven folksonomy and tagging systems, "by letting users tag URLs and

then aggregating those tags, we are going to be able to build alternate organizational systems, systems that, like the Web itself, do a better job of letting individuals create value for one another, often without realizing it."

Shirky envisioned the emergence of Web-based, alternative information infrastructures that do not use ontologies and classification schemas to make sense of the world, but rather rely on free-flowing links and tags proposed directly by the users. However, this vision failed to consider an important detail, namely that antagonist actors could also make use of such alternative information infrastructures for malicious and dangerous ends. In our work, we documented how highly motivated online users – Italian QAnon influencers – created, distributed, grew, and maintained over time an array of interlinked online information artifacts and structures. Like in the world envisioned by Shirkey, these users use Web functions such as linking and tagging to present information in ways that match their own needs and sets of values. QAnon influencers are first of all producers of data points to be further referenced. As others have argued, much like a scientific endeavor, QAnon "research work" is also empirical in aspiration [54]. However, neither the meaning nor the relationships between the information entities that QAnons create are organized in coherent structures like they are in science and bureaucratic information infrastructures. QAnon's meaning and relationships can be reconfigured at any time, based on the changing agendas of QAnon agents. This is a first key difference between information infrastructures and disinformation infrastructures. The former establishes long-lasting, replicable meanings and relationships between information entities that are hard to modify: whenever new meaning/relationships are introduced, these are the subjects of intense negotiations and boundary work [22, 47]. Disinformation infrastructures, on the contrary, allow for constant changes and updates for what information entities mean and how they relate to each other. Thus, disinformation infrastructures are in a sense "content-agnostic," a feature that also makes them durable as they can be easily re-purposed when disinformation narratives change.

A second key difference is that, at least in the disinformation infrastructure that we studied and in the Italian context, there is no space for negotiations between those who design the infrastructure (influencers) and those who use it (followers) over what counts as knowledge and how such knowledge should be accessed and consumed. In scientific infrastructural work, for example, database engineers work in collaboration with the scientists who will be using those databases in order to define ontologies, metadata schemas, and other curatorial interventions that will eventually define the design of such systems (not without occasional disputes and tensions occurring, however) [4, 68]. On the contrary, QAnon influencers create, conceptually link and then distribute information objects to their supporters in a top-down fashion. Dissent is heavily sanctioned, especially during moments of infrastructural fragility (e.g., right after the 2020 US general election). Collaborative work is directed by the influencers and allowed only when it is useful to alleviate the burden of managing the infrastructure (e.g., to manage the chats), but not at a conceptual or curatorial level. This tactic of deliberately updating meanings in an authoritarian fashion – without allowing followers/users to question such decisions – is what allows conspiracy theorists to propose and maintain a world view that is essentially simple, as it does not need to explain contradictions and the uncertainty of provisional knowledge [55]. Contradictions and uncertainty are brushed aside by the constant production, distribution and imposition of new meanings and relationships between meanings. As others have observed, the net result is "a binary, red pill-blue pill world of epistemics, in which there are only two hermetically distinct streams of knowledge to choose from, his [the conspiracy theorist] preferred 'truth' and the other, 'mainstream', 'official' version" [55].

Thus, the Italian QAnon disinformation infrastructure is participatory in the sense that a distributed network of influencers participate in the creation of different components of the infrastructure, however: 1) such infrastructural/participatory work might or might not be coordinated

between different influencers (i.e., different influencers might operate completely independent from one another, and still reuse each other infrastructural components) – a style of participation also described as "networked faction" [28], and 2) infrastructural/participatory work is not equally distributed between influencers and their followers (influencers do not negotiate decisions about infrastructural design and epistemic curation with their followers, who are solely asked to amplify the visibility of the infrastructure via content sharing and liking). We are currently studying whether this authoritarian dynamic is at play in other disinformation infrastructures.

5.2 Infrastructures beyond platforms and the limitations of deplatforming

For the Italian QAnon infrastructure, the pandemic represented a critical moment of path dependency (see 4). Once the pandemic hit in late Winter 2020, the infrastructure experienced a sudden increase in its user base on social media platforms and started to grow into new networks. During Spring and early-Summer 2020, Italian QAnon influencers engaged in relentless infrastructuring work that led to the creation of various blogs, websites, databases, research guides, visual materials, chat management tools, and all sorts of alternative news channels (See Table 3). By mid-Summer 2020, Italian QAnon influencers heavily relied on their Telegram chats and on the infrastructural layers that they had personally built (their websites, aggregators, blogs, etc.) to organize, curate and present "evidence" in support of QAnon theories.

By the time Twitter and Facebook implemented deplatforming and shadowing interventions in the Fall of 2020, a widely distributed Italian QAnon infrastructure was already in place, and its epistemic practices had been successfully adopted by its core members. Those Italian QAnon influencers who were hit by the deplatforming interventions rapidly re-opened their Twitter accounts and Facebook pages and personal profiles. This time, they avoided identifying such accounts and pages as Q affiliates, and instead named them with generic expressions such as “Critical Thinking” (in Italian, “Pensiero Critico”). As observed by others, automated methods for detecting disinformation content and agents often miss the target as manipulators learn their ways around deplatforming algorithms – a tactic also referred to as "data or metadata crafting" [1].

Our findings confirm previous work showing that Telegram often becomes an important refuge for deplatformed influencers [72]. Influencers actively used their new Twitter accounts and Facebook pages to encourage followers to join their Telegram chats and channels, and, the other way around, they used their already formed Telegram networks to invite supporters to join their new pages and regain popularity on Twitter and Facebook. In a sense, influencers used Telegram as an infrastructural bridge to move their audiences from one corner of the infrastructure to the other. We also found that, while Telegram audiences were generally smaller compared to pre-deplatformed Twitter and Facebook audiences, the level of users’ engagement on Telegram is somewhat deeper and more personal in nature. Overall, while Twitter and Facebook audiences engage with QAnon narratives selectively and with discontinuity, Telegram chats seem to host almost exclusively "true believers," which could be due to the fact that chats are highly controlled and regulated spaces. Finally, as found by Rogers [72], Telegram is also commonly used as a pointer to other resources, especially websites, blogs, news aggregators and alternative media channels.

The more distributed the infrastructure became, the more social media platforms like Facebook and Twitter became ancillary to the greater infrastructure. When the pandemic started in Winter 2020, the QAnon infrastructure heavily relied on social media platforms to seed and grow, attracting an initial group of core members, and convincing them to adopt the infrastructure as a natural component of their daily practices of sense-making – a process that has also been described as the “media-wraparound effect” [63]. However, once the infrastructure reached a moment of relative infrastructural stability in Summer 2020, QAnon campaigners would rely on social media for further growth, but their very existence did not depend on the platforms themselves (as it initially did).

These observations bring us to some considerations over the efficacy of Twitter and Facebook deplatforming operations in Fall 2020. First, time seems to be a crucial variable that determine the success and impact of a deplatforming intervention. It seems fair to hypothesize that if interventions had been deployed earlier in the year, when the QAnon infrastructure was still in its initial phase of seeding and growth, this might have prevented the QAnon infrastructure from fully developing across multiple corners of the Internet. This is what the infrastructural lens allow us to observe: platforms function as essential springboards for disinformation campaign in their early stages, but campaigners' dependency over the platforms diminishes over time, as campaigners' infrastructures eventually outgrow them.

So far, deplatforming operations have been implemented as one-time reactions to critical events (the spread of voter fraud disinformation during election time, the storming of US Capitol, etc.), typically after such events had already occurred. Instead, a better approach might be to have a plan to roll-out interventions at pre-determined and regular time intervals, independently from societal events. Blindly put, as information infrastructures need perpetual maintaining in order to function, disinformation infrastructure need perpetual dismantling in order to fail.

5.3 Building disinformation infrastructures

Theoretically, a primary goal of this paper is to introduce the concept of "disinformation infrastructure" into the fields of information infrastructure studies and disinformation studies. As noted, "disinformation" is generally used to refer to the deliberate creation and/or spread of false or misleading information [37]. The conceptual framework of disinformation operations argues that disinformation is best understood as a top-down, centrally-coordinated intervention that relies on tactics of systemic deception to mislead the public for a strategic, political purpose [5, 70]. Others added that disinformation campaigns can also occur within different degrees of coordination between multiple, "networked factions" of disinformation agents [28, 80]. In planning a campaign, disinformation agents tap into existing trauma within the public, and extract, weaponize, and manipulate facts with the addition of half-truths, exaggerations, or lies. Hence, essentially, disinformation operations are attacks against a liberal epistemic order that places its trust in essential custodians of factual authority (e.g., political and scientific institutions) [5, 70].

Each definition has its own merit as it enables the researcher to focus on different aspects of the disinformation conundrum. For us, adopting an infrastructural lens means first of all adopting a wide-ranging, organizational perspective that allows us to observe the phenomenon in all its digital, intertwining ramifications. An infrastructural approach brings together single units of analysis, such as narratives, manipulation tactics, processes of gatekeeping, etc., and co-investigate these as they operate in relation to the organizational, collaborative, and procedural, epistemic work put in place by the disinformation agents. By studying an infrastructure, as opposed to studying a campaign or a narrative, we see the QAnon disinformation operation from a distance, and we visualize all its complexities and distributions. Second, like others [54], we believe there is a value in examining disinformation as a form of "science...in reverse." Like scientists, disinformation agents are also invested in producing "proof" of world phenomena, but, unlike scientific theories, such explanations are based on falsehood and deception. The concept of disinformation infrastructure is first of all an invitation to closely examine the relentless work conducted by disinformation agents in designing and maintaining complex, ever changing socio-technical systems of meanings online, which – as we have seen – are adopted and promoted well beyond social media platforms. It allows us to point at the fact that agents of disinformation – in addition to cultivating social networks and producing false narratives via participatory practices – also invest a considerable amount of energy and time in designing, curating and maintaining the various tools and infrastructural components that help them distribute the supposed "evidence" brought in support of these narratives. Therefore,

we define disinformation infrastructure as a multi-layered, relational and distributed sociotechnical entity that supports the maintenance and distribution of information that is false or misleading.

In the specific case of QAnon, the infrastructural lens adds complexity to previous characterizations of QAnon as an entertaining board game or as a faith-based activity. While these might be valid observations for QAnon followers, most QAnon influencers seem to be committed to the movement at a deeper level (at least in our sample) [54]. Many refer to the process of building websites and managing chats as "their daily work." For some, infrastructural work might well be an actual source of income, as most influencers seem to be fluent in the language and techniques of Internet entrepreneurship and actively ask followers for donations of support to their work. Importantly, infrastructural work gives disinformation agents power over their followers in the form of authority and credibility. The Italian QAnon followers respect the influencers as they are responsible for the creation of the foundational information resources that they read, watch, and listen to – resembling the respect that the general public might develop towards experts who write scientific articles and analyze data. For a chat member, being invited by an influencer to help with infrastructural work (e.g., managing the chats) is considered a privilege.

Similar to science infrastructural work, disinformation infrastructural work is also cumulative in nature. Disinformation agents build on previous, available infrastructural work to create and maintain additional informational resources. Different "teams" of disinformation agents (e.g., S/L/OracoloQuantico vs F/V/D) might work in parallel or even compete with each other to attract new followers, but they still use and reuse each other's resources to construct their own branches of the QAnon disinformation infrastructure. The degree of coordination between different agents or groups of agents is important but not essential to the growth of the infrastructure. The mere availability of multiple distributed infrastructural components and the accessibility of existing infrastructure is needed to continue to grow. In a sense like scientists, disinformation agents reuse each other's work, they intentionally reference and link others' resources selectively, depending on alliances and personal sympathies [23].

6 CONCLUSIONS

We examined how – over a period of eleven months – Italian QAnon supporters designed and maintained a distributed, multi-layered infrastructure of disinformation that spans multiple platforms, websites, databases, research guides, news aggregators, tools, forums, and alternative media channels. We used a composite analytical approach that builds on literature from sociotechnical studies of disinformation, on one hand, and of information infrastructure, on the other hand, to analyze and better understand the work that goes into the construction and amplification of false narratives online. Typically, susceptibility to disinformation has been explained by processes of motivated reasoning, confirmation bias, group identity dynamics, and limited reasoning skills [48]. However, our research is rooted in an alternative line of work within disinformation studies that adopts a sociotechnical approach to the study of disinformation [44, 54, 63, 80, 84]. This approach sees disinformation as the product of the participatory work of disinformation agents who create, share, and amplify disinformation content via ad hoc tactics of manipulation. Hence, disinformation is neither simply nor solely passively received by audiences, but it is through the proactive and communal work of specific and highly committed disinformation agents that disinformation can "trade up the chain" of the digital media ecosystem, reach audiences across multiple platforms, and find a loyal, sympathetic public [44, 54, 84].

The infrastructural lens brings to surface specific dynamics of power within the QAnon movement that distinguish such infrastructure from information infrastructures developed in science and bureaucratic systems. We found that – at least in the context of Italian QAnon – influencers/designers manage the QAnon infrastructure in an authoritarian fashion. The influencers control the design

and maintenance of the infrastructure. Epistemic decisions are made and imposed on the community of followers/users in a top-down fashion. Followers are expected to participate by using the infrastructure to re-distribute and amplify epistemic evidence over the Internet, but they are not allowed to directly contribute to the design and curation of neither the various infrastructural components nor the evidence itself. In addition, contrary to science and bureaucratic information infrastructures, infrastructures of disinformation do not need to produce sustainable, long-standing ontologies and classification standards to organize and make sense of information. (Dis)information entities are simply linked to each other provisionally, based on what the influencers' political agenda needs to prove that day or week. Similarly, within disinformation infrastructures, evidence and reasoning processes do not need to be reproducible to be considered valid (as they need to be in science). This tactic of deliberately updating meanings and relation between meanings in an authoritarian fashion is what we believe allows conspiracy theorists to propose and maintain a world view that is essentially simple, as it does not need to explain contradictions and the uncertainty of provisional knowledge (as it happens in science).

Being that this work is the result of a mostly qualitative analysis based on a single case study, we have no claims over the generalizability of our results. More research is needed to examine whether the key characteristics of a disinformation infrastructure that we identified extend to other disinformation infrastructures. We do not expect all disinformation infrastructures to work in the same way, but to share a core set of features. Examples of other disinformation infrastructures might include the ones put together by climate change denialists, vaccine skeptics, or voter fraud advocates, among others. We also want to acknowledge that not all disinformation relies on an infrastructure. There might be false narratives that pop up suddenly on the Internet and reach high levels of engagement. However, we would hypothesize that an online disinformation operation or campaign needs a distributed information infrastructure to survive over time, especially to survive deplatforming operations.

There are several reasons why we should pay close attention to the growth and establishment of such infrastructures of disinformation. First of all, because – for some internet users – these infrastructures are becoming fundamental resources for sense-making, namely, "the place to go" to understand the world. Just as scientists use science databases and academic journals for research purposes, and bureaucrats employ the census to understand and manage societal issues, citizens of the world are lured into consulting available disinformation infrastructures to make sense of the events surrounding them, form opinions, and act. Second, while conspiratorial theories and specific disinformation narratives keep evolving and adapting, the infrastructures that sustain them can be comparatively stable and increase in size and complexity over time. Like highways, these infrastructures are ready to be used whenever fuel (new disinformation narratives) is available. Finally, the infrastructural lens enables us to see how current measures to prevent, counteract and limit disinformation operations (e.g., deplatforming) are timely efforts. Platforms work as springboards for disinformation infrastructures, but the longer platforms wait to intervene, the harder it is to eradicate disinformation infrastructures as these create new layers, get distributed well beyond social media, and can rely on a critical mass of loyal followers. Lack of trust in the liberal epistemic order and in a social system that places its trust in political and scientific institutions does not emerge in a vacuum. While this sentiment might exist in latent form within the public, disinformation agents know how to amplify and exploit it for their own political agendas. Embracing this realization should speak to the need of an Internet infrastructure that is built in the public-interest and does not rely on commercial interests and priorities for standards of information quality.

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