Social Media Digital Architectures

A Platform-First Approach to Political Communication and Participation

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A Platform-First Approach to Political Communication and Participation

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Have you ever noticed that when you open a social media app, the post at the bottom of your screen is cut-off? Go ahead, try it. You'll find that most of the time, the bottom post in your feed is only partially visible. The software designers and engineers who build social media platforms – the architects – are trying to tell you: "Scroll down!". Doing so exposes you to advertisements, which helps pay the architects' salaries.

Some might argue that scrolling – or "scrollability" – is an affordance of social media (e.g., McGrenere & Ho, 2000). After all, scrolling is a possibility for action that is activated through a relationship between user and technology. Others would argue that scrolling is not an affordance but rather, an established cultural convention (Norman, 1999). Alternatively, we could sidestep the largely terminological debate about affordances and try to observe how specific elements of platform design – such as not showing a full post at the bottom of the landing page – shapes users' practices of social media engagement.

Although apolitical, I open with the example of scrolling to highlight two approaches to conceptualizing social media's impact on politics. The first is the affordances approach, which theorizes how the *relation between users and technology* affect political processes. Here, abstract concepts such as visibility, anonymity, and persistence are argued to be valuable lenses for studying digital politics, even though these concepts lack coherent definitions and are often inconsistently applied (Evans, Pearce, Vitak, & Treem, 2017). The second approach is the architectural approach, which theorizes how *specific components of platform design* shape political processes. Here, concrete excavations of platform structures try to explain their effect on users' political agency, both online and offline.

In this chapter, I advocate for an architectural approach to studying digital politics. Relative to affordances, I argue that a focus on platform architectures is more conducive to concept building, clearer to operationalize, and provides the added benefit of archiving platform changes across research designs. I mount this argument through a focus on digital architectures: *the collective suite of technical protocols that enable, constrain, and shape user behavior in a virtual space*. Before outlining digital architectures in more detail, I first discuss previous architectural approaches to studying virtual publics and political discourses online. Then, I build on this prior work to introduce digital architectures and offer a conceptual roadmap on how to map political functions to platforms' architectural characteristics. Before concluding the chapter with future research avenues, I provide an illustration of how digital architectures influence various facets of citizens' political participation.

The Discourse Architecture Approach to Publics and Conversations

Prior to social media, scholars focused on how the structure of an online space – such as a forum, website, or blog – shaped the formation of publics and political discourses. The concept of "discourse architecture," originating from the literature on Information Systems, described the "technology base and features that help structure discourses" (Jones & Rafaeli, 2000, p. 218). Jones and Rafaeli (2000), who examined how virtual publics could be fostered for e-commerce through computer-mediated spaces, considered aspects of discourse architectures to be: the types of media supported (e.g., sound, images, and video), whether communication is synchronous or asynchronous, and the length of time a post remains visible online.

Jones and Rafaeli's (2000) core argument was that virtual publics are not infinitely scalable. Rather, software developers needed to actively create virtual publics through appropriate audience segmentation strategies – achieved through the design of the discourse architecture – in order to attract, retain, and manage the growth of simultaneous user communities. In hindsight, their conceptual argument was highly prescient, given the effectiveness of Facebook groups and Twitter hashtags in creating numerous and concurrent virtual publics a decade later.

As more users gained access to the internet, Sack (2005) helped carry the concept of discourse architectures into the social sciences. At the time, a critical mass of users began posting and commenting to early versions of online forums, such as Usenet, which was a prototype of today's Reddit. Noting the "very large-scale" of these conversations, Sack (2005, p. 243) urged web developers to establish practices for designing discourse architectures, defined as "environments to support conversation, discussion, and exchange between people." To help evaluate the large-scale exchanges within these architectures, Sack (2005) argued that development of analytical methods could be inspired by, and help contribute to, the social sciences and humanities. Although he was not the first to interpret Usenet data through a democratic lens, Sack (2005) showed how components of deliberative theory could guide the operationalization and interpretation of user activity at scale. For example, visualizing the interactions between users (i.e., social network analysis) could reveal insights about the conversation's equality of participation. Or, an analysis of words used in the conversation (i.e., computational text mining) could measure the conversation's diversity of viewpoints represented.

Political communication scholars have since applied the discourse architecture approach to study how digital structures influence the quality and norms of online political discussions. Wright and Street (2007, p. 863) compared online forums to argue that levels of moderation, as well as features such as "a threaded system of replies," affect an online discussion's content in ways that indicate the quality of deliberative discourse. In comparing political conversations on Twitter and online news sites, Freelon (2015, p. 776) argued that variations in discourse architectures, understood as distinct "packages of technological characteristics," can nudge users toward participating in conversations that enact various democratic norms: deliberative, communitarian, or liberal individualist. Freelon's (2015) analysis suggests that Twitter's hashtag feature promotes bonding between users and therefore supports communitarian ideals, whereas a lack of character limits in online news sites supports more long-form opinion justification in line with deliberative ideals.

These studies of discourse architecture highlight the force that digital structures exert upon user agency in online environments (e.g., virtual public formation or the discursive expression of democratic ideals). Each acknowledges that the design elements of an online space have a direct or mediating effect on user behavior within it. Following this logic, scholars can deconstruct the elements of an online space that may cause, explain, or restrict certain political behaviors. In the digital

architectures approach I present next, I keep this core theoretical focus on digital structures but extend its implications to forms of political agency beyond discourse. I argue that by conceptually mapping which aspects of platform design matter for users' political agency within a platform, we can also build knowledge about how platform design shapes political agency outside of platforms as well.

Defining Digital Architectures

Digital architectures can be defined as *the collective suite of technical protocols that enable, constrain, and shape user behavior in a virtual space*. The first term in this definition to clarify is 'technical protocols,' which has a very specific meaning in network infrastructure studies (such as Hypertext Transfer Protocol [HTTP]). Here, however, technical protocols refer broadly to 'computational rule systems.' All aspects of a social media platform – its aesthetic design, what it does, and what it doesn't do – are constructed through a series of rule systems. These rule systems are written in code and form the core building blocks of a platform's digital architecture.

For example, there are rule systems that encode how individual buttons look, such as Facebook Reactions or Instagram Likes, and rule systems for what happens when we use them (or don't). There are rule systems for what information is presented to us, and rule systems guiding what data should be collected, organized, and transferred based on how we respond to that information. There are rule systems that govern how far our posts travel and to whom they reach. The point is that each platform has a dizzying compilation of rule systems that work together to dictate how the platform operates, and the interoperability of these rule systems to generate seamless functionality under a common user interface is characteristic of a "software suite." Thus, technical protocols are the constellation of features and functions that give a platform its form while also governing its operation.

On social media, the technical protocols that govern a platform's operation make possible certain actions, place limitations on others, and ultimately shape user behavior on the platform. In line with the discourse architecture approach, these protocols are the rule systems that decide, for example: the types of media technically supported by a platform, the limitations placed on those media (such as text character limits or video length limits), and the extent to which algorithms filter content. However, in a departure from the discourse architectures approach, the conceptual focus of digital architectures goes beyond how digital structures influence the content of what users say. Of course, technical protocols will necessarily influence the *content* of discourse (in terms of what is allowed to be broadcast and visible on the platform), but these protocols may also influence users' behavioral *activity* – both on and off the platform. For example, an architecture that maximizes privacy through anonymity and encryption (such as Telegram or Signal) will influence the content of discourse on the platform. However, such an architecture may also affect real-world behavior outside the platform, such as purchasing illicit goods, enacting political demonstrations, or carrying out terrorist attacks.

Whether we speak of discourse architectures or digital architectures, both differ from the concept of affordances by placing a theoretical focus on how platform structures shape user behavior (i.e., they are 'platform-first' approaches). Affordances, meanwhile, places its emphasis on the 'relation' between users and technologies (Evans et al., 2017). Such a relational focus is problematic for social media research, since the relationship between user and technology is a) different for each individual and b) constantly changing as platform structures evolve. Social media platforms are transient environments (Barrett and Kreiss, 2019), where software developers release hundreds of updates on daily basis through a software practice known as continuous deployment (Savor et al., 2016). Thus, the dynamic and unstable nature of platform structures, coupled with the individualized and often unpredictable

ways with which users interact them, lends to extreme difficulty in theorizing or empirically testing relationships between users and platforms in a way that accounts for individual variance. In essence, the concept of affordances falsely assumes a stable relationship between user and technology, when in fact the underlying technology is evolving on a daily basis. However, by first mapping out platform structures and observing how users interact with them at a single point in time, scholars can build research designs that effectively accumulate knowledge regarding how platforms shape digital politics.

Digital Architectures and Political Agency Online and Offline

Social media platforms are not single composite structures. Rather, they often include various intra-platform spaces that serve various functions for users. For example, a user may land on a centralized broadcast feed when first logging into a platform (such as Facebook's News Feed or Twitter's Timeline), but they then can navigate to different intra-platform spaces, such as: moderated community groups, direct messages, or spaces that allow users to change their privacy settings.

Digital architectures structure how such intra-platform spaces – or "digital rooms" – are designed and how users navigate across them. Some platforms host spaces where users meet to discuss topical themes, such as pages and groups on Facebook or Subreddits on Reddit. The same might be said for YouTube videos, which open up a commenting space underneath the video. Other platforms like WhatsApp and Telegram host less publicly visible groups, whereas Instagram, Snapchat, and TikTok generally lack a space for like-minded users to congregate and interact publicly. While Twitter also lacks such defined group spaces, users can generate quasi-spaces through hashtags, which index conversations in a way that opens a thematic, conversational space within the platform. Such intra-platform spaces matter for what users do and say on a platform, how likely users are to encounter like-minded or opposing viewpoints, and how the platform may function for the user politically.

While there are various online behaviors that these architectures influence (such as what content users are exposed to, what users they interact with, and the discourse of what they say), digital architectures can also influence political agency outside of a platform. Keeping with the example of intra-platform spaces, the types of spaces offered by a platform can directly influence political behaviors, such as offline protest mobilization. The Aganaktismenoi movement, which was a series of anti-austerity protests in Greece, began with a protest that was organized overnight through a Facebook page (Treré et al., 2017). While the Facebook page directly called for a protest that would attract over 20,000 citizens, post-hoc analysis of the Twitter conversation reveals that only 6% of tweets from citizens included a call to action that would signal mobilization (Theocharis et al., 2015). Instead, the majority of tweets were used to spread information about the protests.

One explanation for this difference between Facebook and Twitter is differences in their intra-platform spaces. Facebook offers features such as pages, events, and groups, which lend to coordinating offline mobilization. Twitter, meanwhile, lacks these spaces with organizing potential, and therefore serves a different function for activists. As one activist from Treré et al.'s (2017, p. 414) study noted:

> "Twitter is the king of protest reporting, because it's faster, direct... But then when you want to comment on what has happened Twitter is problematic because it doesn't give you enough space to post and you need longer posts. You may need to write an article and publish it through a blog or a website, and maybe after that you link it through Twitter. Or even if you don't have time or don't have enough materials to write an article, you write a post on Facebook that can be something in between."

Here, the activist notes how Twitter's lack of algorithmic filtering (i.e., being faster and more direct) as well as character limits (i.e., Facebook allowing longer posts) influence how they are used during protests. In a similar vein, Gerbaudo (2012, p. 17) finds that across protests in Egypt, Spain, and the U.S., "Facebook is used as a recruitment platform," while "Twitter is mainly employed as a means of internal coordination within the activist community." The similar use of these platforms across such varied contexts suggests that certain architectural components of platforms contribute to how they are deployed for protest activity.

So far, we've seen how the structure of intra-platform spaces, algorithms, and limitations on character limits can influence how users leverage platforms to achieve a political function, such as protests. These platform features (and the limits placed on them) have direct implications for users' online platform use, but they can also affect users' offline political agency. Without Facebook pages, the Aganaktismenoi movement might not have happened (or at least, it would have manifest in a different way). Thus, digital structures matter not only because they shape online discourses; a focus on digital architectures can illuminate how platform design can structure political processes *outside* of a platform.

Digital Architectures Affect All Users

The political processes that digital architectures affect are not limited to citizens and their protest mobilization. Digital architectures shape the activity of all users online, and they are therefore relevant to consider for any political actor. In political campaigning, for example, the bottom-up emergence of Facebook pages and groups has impacted official campaign messaging strategies and internal organizational hierarchies (Penney, 2017). Similarly, Facebook's targeting and advertising features have influenced political campaign organization and operation (through increasing staff and resources around digital outreach) and likely, a concrete impact on governance through helping candidates get elected who otherwise might not. Focusing on political parties and leaders, Haßler et al. (2021) provide an excellent example of how digital architectures can be used to structure an analysis of the visual political communication on Instagram.

For the mainstream media, digital architectures influence how news articles on a platform are presented, which limits journalists' ability to signal the importance of a story through traditional cues such as its position in a paper or the size of text accompanying the story. Instead, the presentation of news is shaped by a platform's architecture, which generally sets a predefined format for both text and pictures. Crucially, algorithms influence the reach of news content, which devolves control over news dissemination from the media to the platform. Since digital architectures shape the actions of journalists and the news that users attract online, these architectures likely exhibit demonstrable effects on modern journalistic reporting practices as well as citizens' levels of political knowledge. For example, research finds that some users have become so reliant on platform algorithms for news that they disengage from news-seeking altogether (Gil de Zúñiga et al., 2017).

Other, more niche actors will leverage certain aspects of digital architectures to fit their political needs. For example, Mitts (2021) shows how offline counter-extremism events correlate with increased mentions of Telegram among terrorist sympathizers, who leverage the platform's encryption to dodge law enforcement surveillance. Furthermore, malicious actors engaging in coordinated inauthentic behavior such as harassment or the spread of disinformation need to work within the rule systems of platforms (and often try to "game" them through the mass creation of fake accounts or deployment of bots). Thus, both normatively positive and negative political behaviors are mediated by a platform's digital architecture.

As these examples highlight from various political actor-types, an architectural approach to social media entails identifying the specific aspects of a platform's form to understand how they function politically for users. In the next section, I outline this conceptual process of "mapping," before applying it to the concrete example of citizens' political participation.

Mapping Digital Architectures for Politics

Social media platforms are designed products. From the platform side, features are first conceptualized in a planning stage and then built through code, tested on users, and refined based on user feedback. Therefore, platform companies design features to enact certain functions, and how those functions are achieved is built through a series of encoded rule systems (i.e., the digital architecture). Given the scale of social media platforms, these features need to be designed in ways that are easily interpretable and accessible for a wide range of different users (who will vary, for example, in the hardware they use to access the platform, their technological proficiency, and their intentions for using a platform). In short, this means that complex rule systems on the back-end (platform side) deliver rather simplistic functionalities on the front-end (user side). When we log into a social media app, what we see is a highly optimized product that has been designed to be as simplistic and user-friendly as possible for a massively diverse array of people.

I argue that even though researchers cannot see the developer code on the platform back-end, we can conceptually map how certain front-end features shape users' political communication practices and behavior. Given that the front-end of platforms are readily observable and designed to be simplistic, an architectural approach can feasibly excavate which specific components of a platform matter for politics by approaching social media platforms as designed products. In other words, researchers can observe a social media's *form* and conceptualize its political *function* for users. While we can only speculate about what a certain feature accomplishes for a platform company, we can build theories and research designs around how and why these features enable, constrain, or shape particular political processes.

How can we wade through the various design features of social media platforms to decide which ones matter for politics? In product design, the first step is to conceptually separate the functions of a product – what it does – from the product's arrangement of physical (or digital) characteristics (Ulrich, 1992). For social media, we can identify several basic functions that are shared across platforms: connecting users, allowing them to create and engage with content, ranking this content to be displayed to users, and generating data for marketers. These functions serve specific purposes for platforms (such as attracting users and monetizing their activity) and are not necessarily designed with political implications in mind. However, each of these functional categories can matter for politics, depending on how specific users leverage a platform to achieve their political goals. Thus, a good first step in excavating digital architectures is to conceptualize the basic functions that social media platforms share as a genre.

Once the core functions of a platform are identified, the next step is mapping, "where the functions to be implemented are assigned (mapped) to the components of the architecture" (Ferrari & Sangiovanni-Vincentelli, 1999, p. 5). It is here where we being to see that similar functions take different architectural forms across platforms. For example, the basic function of connecting users differs on Facebook and Twitter. Both platforms facilitate connections between users but do so through different rule systems, which create the "Friend" versus "Follow" rule systems respectively.

Empirical research finds that these different user networks (i.e., those built on strong-tie [Friend] versus weak-tie [Follow] connections), promote different pathways for citizens to engage in political activities, such as protest participation (Valenzuela *et al.*, 2018). Even though both Facebook and Twitter can encourage protest activity, they do so through different dynamics that result from architectural differences in how users connect on a platform.

This example should illustrate that we do not need to know why Facebook and Twitter implemented the Friend versus Follow mechanism, and we do not need to know how exactly these rule systems work in terms of software development or engineering. Rather, we can observe that both platforms exhibit a shared function (connecting users – or "connectivity"), and map that function onto specific rule systems of the platform (the Friend and Follow mechanisms). Other platforms, like Snapchat, have a similar Follow mechanism to Twitter, but user privacy settings are strict by default, lending to a more a Friend-like structure that users must toggle off to trigger a Follow mechanism. On Instagram, privacy settings are open by default resulting in a Follow structure, but many users toggle their privacy settings to support a Friend structure. Furthermore, we might contrast those systems to a platform like YouTube, where users can interact through comments but only establish enduring connections to content creators through channel subscriptions.

So far, this demonstration of mapping has been largely apolitical, which is why I consider digital architectures a 'platform-first' approach. Once functions are mapped onto platforms' digital architectures, scholars can begin to conceptualize and test which elements interact with their political process of interest. For example, one could build theory-driven hypotheses about how different network structures influence protest participation (Valenzuela *et al.*, 2018) or, how certain digital architectures might help explain a political process through exploratory analysis of a case study (such as the role of a social media platform in a particular election or social movement).

Irrespective of whether one deploys digital architectures as a cause or explanation for political phenomena, it is crucial to take a platform-first approach and map out the architectural components that are important to consider for any given social media analysis. The reason is that platforms change constantly, and scholars have largely missed the opportunity to archive these changes in the scholarly literature. Through mapping digital architectures and both conceptualizing and testing their impact on politics, scholars can better build an archive of platform changes while accumulating knowledge about how specific design elements shape political behavior.

This is why I advocate for an architectural approach over a focus on affordances. In being highly relational between user and technology, there will never be a singular theory of affordances (Evans et al., 2017). Instead, scholars continue to develop new types of affordances, resulting in a "proliferation of adjectives" that confounds, rather than clarifies, a unified understanding of the concept (Marsteintredet & Malamud, 2020). Bucher and Helmond (2018), for example, identify eight such adjectives: *perceived* affordances, *technology* affordances, *social* affordances, *communicative* affordances, *high-level* affordances, *low-level* affordances, *imagined* affordances, and *vernacular* affordances. The multiplicity of affordances means the concept is building out horizontally into more and more categories (which often overlap), rather than vertically toward conceptual clarity. Instead, I propose to start at the platform-level and map out digital architectures, thereby building up the ladder of abstraction vertically (Sartori, 1970). Not only will this provide conceptual clarity regarding the components of platforms that matter for political processes, it will also facilitate the refinement of methodologies to test architectural components while archiving platform changes in the process.

Digital Architectures and Political Participation

In previous research, I have mapped four aspects of a platform's digital architecture – *network structure, functionality, algorithmic filtering,* and *datafication* – and shown how they shape practices of American political campaigning (Bossetta, 2018). To highlight how a platform-first approach to mapping digital architectures provides conceptual clarity and flexibility in political research designs, I take these same categories and argue that they also influence citizens' political participation in various ways. Conceptually, this exercise illustrates an important point alluded to previously: politically relevant components of a digital architecture should be applicable across user-types and be extendable to new platforms. Thus, a key task of digital architectures research is to identify the shared technical protocols that define social media as a genre, and then drill down into how slight or major differences across platforms affect how they function politically for different user-types (e.g., politicians, journalists, citizens, and even platform companies themselves).

Defining Political Participation

First though, we need to define political participation. Traditionally in political science, political participation has been considered the physical 'acts' (Verba & Nie, 1972, p. 2) that citizens take to influence politics. A focus on physical acts makes little sense when studying political participation through social media, where citizens' physical actions are limited to mouse clicks, keystrokes, and finger taps. Instead, I conceptualize political participation as a process comprising three phases: latent participation, manifest participation, and mobilization (Dutceac Segesten & Bossetta, 2017, p. 1627).

The first phase is latent participation, defined as citizens' "readiness and willingness to take political action" (Ekman & Amnå, 2012, p. 296). Forms of latent participation include reading political news, discussing politics with others, and reflecting upon one's political viewpoints. These latent forms of participation condition and prime manifest participation, which refers to citizens' actions aimed at affecting "politics and political outcomes in society, or the decisions that affect public affairs" (Ekman & Amnå, 2012, p. 289). These manifest forms of participation can be electoral, such as voting or canvassing, as well as extra-parliamentary, such as protesting or taking everyday actions that attempt to curb climate change. The third phase, mobilization, refers to the transition from latent to manifest participation. A citizen can either "be mobilized" by an external event (such as voting in an election to fulfil a civic duty or protesting in response to a legal change) or citizens can actively "be mobilizers" by calling others to action. Importantly, this political participation process is not necessarily linear. Citizens may move across the three phases in various contexts and in response to particular circumstances, or they may only enact one phase (such as being engaged in latent participation but never becoming mobilized to enact manifest participation).

Conceptualizing political participation as a process accommodates the various ways that citizens can participate in politics online as well as offline. Moreover, it also reflects how manifest forms of participation are linked to prior attributes such as political knowledge, which is accumulated through latent participatory forms like consuming political news and discussing politics with others. Importantly, while this understanding of political participation is conceptually broad, it also keeps the door open for new forms of online political participation that may arise in the future. For example, few would have foreseen Snapchat's "Run for Office" feature, where users can say "I want to run for office" and Snapchat will provide them links to the necessary resources and partner organizations for starting a political campaign. This platform-mediated form of latent participation may very well translate into some users running for office, highlighting how platforms can enable the mobilization link between latent and manifest participation.

Network Structure

Network structure refers to the technical protocols that govern how connections between users are initiated, established, and maintained. Differences in the protocols underpinning a platform's network structure affect at least three aspects of user connections. The first is *searchability*, which refers to how users can identify new accounts and subscribe to their content. The second is *connectivity*, referring here to how connections between accounts are initiated and established (discussed above in the Friend versus Follow mechanisms). The third aspect of network structure is *privacy*, which allows users to influence who can identify them through searches (searchability) as well as how connections become established (connectivity).

In the context of political participation, network structures are crucial since they influence the sources of political content or mobilization (e.g., a close friend, influencer, journalist, politician, or NGO), the configuration of potential discussion partners, and levels of involvement, attachment, or trust in a virtual community. Whereas some platforms like Facebook, Instagram, and Twitter suggest connections based on recommender systems (and allow exchanges between non-connected users in public commenting spaces), other platforms like Signal, Telegram, and WhatsApp require specific information about a potential connection (such as a phone number). In requiring such specific information, the resulting network structure on these encrypted messaging services will likely support a highly dense, private, and less searchable network. Just as political campaigns use these platforms to coordinate the canvassing activities of ardent volunteers, activists and terrorists can leverage the architectures of encrypted messaging apps to plan and carry out extra-parliamentary forms of activism, like protests or politically-motivated violence.

Functionality

Functionality refers to the technical protocols allowing users to access, create, and redistribute content through interaction with the platform interface. Here, *hardware* is a key component to consider: is the platform accessible through a computer, smartphone, or wearable accessory like a smartwatch, eyewear, or a virtual reality headset? Second, the design of the *Graphical User Interface* (GUI) is crucial for how users learn about and navigate through the various features and spaces offered by the platform. Functionality's third category is the *broadcast feed*, which aggregates, ranks, and displays content based on computational rule systems (i.e., algorithms). A fourth component is *supported media,* comprising the multimedia formats that the platform supports technically (e.g., text, images, video, GIFs), the size and length constraints placed on acceptable media (text character limits or video lengths), and the rules governing hyperlinking. The fifth element of functionality is *cross-platform integration,* which refers to whether content generated on one platform is technically supported by another.

The functionality of a platform will impact whether and how citizens can leverage it for latent participation, manifest participation, and mobilization. For example, a broadcast feed that aggregates politically relevant content (such as Facebook's News Feed or Twitter's Timeline) is conducive for latent participation in the form of reading news. However, limitations on Twitter's character limit impact its utility for long-form discussions about politics (Freelon, 2015), whereas platforms with less restrictive limits – like Reddit – may be conducive to thoughtful political exchanges. In terms of mobilization and spreading calls to action, platforms that lack a feature to share into the broadcast feed (such as private messaging apps) may be less impactful in organizing large-scale manifest action, such as protests. However, a controversial video first shared through these platforms may then be

seeded onto more public platforms and spark mobilization, insofar as the video would be supported technically (i.e., cross-platform integration).

As users toggle between platforms on a daily basis, cross-platform integration is important to consider in terms of how the same content can also travel across platforms. The best example here is TikTok, which is not a particularly political platform but does host users broadcasting videos tied to social issues. One can share videos from TikTok to Instagram directly, and the vertical video format popularized by TikTok is highly interoperable with other platforms. A TikTok video can be shared onto platforms like Twitter, Facebook, and Instagram, with the latter two even designing "Reels" to compete with TikTok (while also hosting TikTok content on their own platforms as Reels). Thus, functionality is an important architectural component for both single and cross-platform research designs. If two or more platforms share similar functionalities, it is possible that the same political content will be shared across them. Scholars can therefore seek to investigate how the same forms of participation are issued across platforms – such as posting a mobilizing call to action – and work to explain why (from an architectural perspective) certain forms of participation are impactful on some platforms but not others.

Furthermore, scholars should be aware that some platforms allow third-party programs to "plug-into" the functionalities of platforms' existing digital architecture. For example, the company uCampaign developed a gamified app for conservative campaigns (including the Trump 2016 and Brexit Vote Leave campaigns). These apps encourage users to attend rallies in-person and share posts from the campaigns on mainstream social media to earn "Action Points" (Bossetta, in press). While encouraging a gamified version of political participation, these apps serve as coordination hubs that crowdsource user engagement in ways that can game platform algorithms, thereby increasing the organic reach of campaign's message. Thus, when thinking about a how a platform's functionality affects participation, one should consider the role of individual features, a platform's overall 'suite' of collective features, and how these features may interact with other platform technologies in the social media or digital campaigning ecosystem.

Algorithmic Filtering

Algorithmic filtering structures how content is ranked and displayed through computational rule systems. For political participation, algorithmic filtering influences both what type of content users are exposed to (on the reception-side) as well as how far a post is disseminated across users' broadcast feeds (on the production-side). Although the exact operation of algorithms is often "black-box" and difficult to discern, the rule systems guiding algorithms' filtering can be based on factors such as *relevance* or *chronology*.

An algorithm is guided by predicted *relevance* when content is presented to a user based on their previous behavior on the platform. Examples include Facebook's News Feed algorithm and YouTube's WatchTime algorithm. Other platforms, like Twitter and now Instagram, prioritize *filtered chronology* by presenting posts in reverse chronological order from the time of user log-in. Meanwhile, direct message platforms like Snapchat and private messaging apps have low levels of algorithmic filtering, and content is displayed to users based on *unfiltered chronology;* i.e., in the chronological order that messages are received.

While algorithmic filtering is mostly important for platforms with a broadcast feed, it is important in the context of participation because algorithms can be manipulated to increase the exposure of particular posts. For example, the coordination by activists (through, for example, the third-party apps

previously mentioned), the mass creation of fake accounts, or the deployments of bots and botnets can send a post or hashtag trending to increase its visibility. Moreover, most platforms with a broadcast feed allow business accounts set up by organizations to *override* algorithmic filtering by paying to promote content through boosting or advertising. By overriding algorithms to place content in front of users who may not see it otherwise, organizations can push messages or aim to grow their online audiences for future mobilization initiatives.

Datafication

Datafication dictates how users' activity is quantified and measured. Although datafication primarily serves platforms' internal development by gauging user activity for future optimization, or for political campaigns to segment and target voters, datafication is also rendered to users through the interactions data they receive on their posts. Nearly all platforms provide feedback to users based on how their posts are performing, in terms of quantifiable metrics such as "Likes" or qualitative indicators such as "Comments."

In terms of political participation, these datafied responses to users' political posts may condition how users leverage a platform for political discussion or community-building. Bail (2021), for example, notes how politically-motivated Twitter users signal partisanship to increase their status on the platform, especially when they lack substantial offline relationships, steady employment, or mental well-being. Thus, receiving engagement from like-minded partisans on social media may encourage a spiral of increasingly extreme partisan expressions, which influences the dynamics of online political talk (a form of latent participation). Alternatively, as one digital campaigner told me during an episode of the Social Media and Politics podcast (Bossetta, 2019), online volunteers for a political campaign can form 'Welcome Teams' that actively scout out and collectively engage with posts from users who express positive sentiments or ask questions about a candidate. The intent is to generate a dopamine rush for that user (through receiving a surge of interactions) and create positive associations with the campaign. These examples show how the datafication of post reactions may influence the content of what users' posts, how they interact with others, and potentially their recruitment into the online canvassing initiatives for political campaigns or organizations.

Future Avenues for Digital Architectures Research

Although these examples are far from an exhaustive list, hopefully this chapter has inspired you to think about how digital architectures shape social media users' political agency online and offline. Borrowing theories from product and systems design, I have offered a conceptual roadmap to map political functions to platform architectures as an alternative heuristic to affordances. In my view, an architectural approach offers more promise for building conceptual clarity and operational precision through political research designs. However, some readers may wish to view the two approaches as complimentary, with digital architectures giving rise to affordances. That is, any discussion of social media affordances necessitates thinking about the elements of platform architecture that make the affordance possible (e.g., 'the affordance of visibility *through hashtags*' or 'the affordance of anonymity *through account creation protocols*). So, one could start by mapping a digital architecture and then theorizing about the affordances it offers. Yet, I maintain that the concept of affordances is vague, lacks analytical utility, and should be abandoned (Oliver, 2005). Scholars interested in ground truth should avoid such imprecise constructs.

Either way, a critical task for research is to deconstruct, isolate, and test the components of digital architectures that matter for politics. Experiments are perfectly suited for this endeavor, where

particular architectural features can be varied across treatment and control groups. Mock-up platforms, while losing ecological validity in relation to real platforms, can still isolate and test the effects of specific platform features on political behavior outcomes.

Studies of digital trace data from platforms are also valuable for exploring digital architectures (Haßler et al., 2021). Especially for cross-platform studies, architectural mapping can be performed to generate confirmatory hypotheses that compare user behavior across platforms. For single platform studies, the formulation of hypotheses testing the effects of digital architectures will be more difficult (due to the lack of comparative benchmark); however, digital architectures may help explain how users leveraged a particular platform during the context of a specific election or social movement.

Additionally, qualitative interviews and focus groups can be a particularly powerful method to understand how and why social media users leverage certain platforms for political participation (as demonstrated earlier in this chapter by the quotes from the Greek anti-austerity activist). Similarly, ethnographic approaches such as participant observations could provide first-hand insight into how digital architectures shape users' political agency in practice.

In closing, one potential critique of an architectural approach is that since platforms evolve at a rapid pace, their digital architectures may be unstable objects of analysis. However, social media platforms share a set of core functions that are fundamental to the genre, slow to change, and can be mapped onto architectures at specific points in time. Archiving these changes, while mapping new functions and architectures as they emerge, will build a solid conceptual foundation and appropriately flexible heuristic to assess the impact of digital structures on political agency – now and in the future.

Suggestions for further reading

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