The Internet As a Catalyst for Social Movements: A Simulation of Social Media Mechanisms in the Context of the Arab Spring and Occupy Movements

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Abstract—Over the last few years protest movements such as the Arab Spring and Occupy, have cascaded through much of the world. All of these were regularly portrayed as 'Internet Revolutions' in the media, but among sociologists there is strong doubt about whether they actually could have been accelerated by the communicative capabilities of the Internet. In the research that will be presented Illustrative agent-based modeling shall be used to examine whether the Internet could have had anything to do with them, and if so, through what possible social mechanisms.

I. INTRODUCTION

OVER the last few years protest movements such as the Arab Spring, the Spanish Indignados movement, and the Occupy protests, have cascaded through the Middle East and the rest of the world. All of these were portrayed as 'Internet Revolutions', or at least as having been accelerated by the communicative capabilities of the Internet [1, 2]. Did the Internet and social media actually have anything to do with them, and can we expect more Internet-enabled protests soon? Opinions are divided in the scholarly literature; mostly along the lines of the ongoing debate between so-called Internet-optimists and pessimists.

A. Background

Notable scholars in the pessimist camp are Bart Cammaerts, Matthew Hindman and Evgeny Morozov. Cammaerts argues that commodification and appropriation by elites makes the Internet less deliberative than it is often thought to be. Hindman argues that the Internet is barely used for politics and agrees with Cammaerts that it leads to more centralisation; for example into large — larger than any mortar and brick — companies, such as Amazon and Google [3, 4]. In the case of Google this led to censorship under pressure of the Chinese state [5]. Morozov proposes that on-line activism is really slacktivism; a convenient distraction from actual street protests. Gladwell argues in addition that slacktivism can only foster ties that are too weak to sustain the sacrifices that protests require in the real world [6, 7].

On the other hand, optimists such as Yochai Benkler and Howard Rheingold argue that the cheap many-to-many communication afforded by the Internet fundamentally changes how easily people can express and organize themselves, leading to greater empowerment and a more egalitarian cultural

sphere [8, 9]. More specific to recent protests, Philip Howard and Lee Rainie noted that on-line activity preceded protests on the ground, and that people who were most active on social media were much more likely to show up at protests than those who do not [10, 11, 12].

While the explanations and findings offered by both optimists and pessimists sound plausible, they do not come close to answering the question of what the impact of the Internet likely has been, or is. This is simply because the social processes they describe (if any), need not be mutually exclusive. They could work both ways, and do not warrant blanket predictions. My DPhil (Phd) research attempts to improve upon this both by explicating and disentangling these, and other social processes relevant to the formation of protest movements, and then by carefully evaluating how various Internet platforms may have changed the media-landscape to affect each of them. Dissecting the Internet into different communication platforms, and 'impact' into a set of counter-acting social processes that each may play out differently, should move insight beyond blanket predictions, and help clarify how anomalous it would be if something as multifaceted as the Internet were *not* to have any impact on collective action initiation [2].

While it is unlikely that Internet platforms were a sufficient cause for recent protests, they are expected to be a contributory cause at least, because collective action is fundamentally communicative: for it to come about at the very least a common interest has to be identified and communicated, and contributions then have to be coordinated between many people [13]. Besides, the initiation of social movements often crucially involves private, potentially high-risk communication to identify other possible initiators. Other central processes heavily relying on communication are: opening up hidden transcripts (people communicating discontent among similarly oppressed friends), overcoming falsified preferences (people adjusting preferences to what seems possible), and communicating new identities and framings of the situation [14, 15, 16].

B. Social mechanisms

In the research that will be presented, social mechanisms of mobilisation and collective action initiation that may have been

affected by the Internet are analysed. Social mechanisms are micro-level descriptions of social interactions, and are central to the Analytic tradition in sociology, allowing for abstract, action-based explanations of recurring social interactions and their outcomes [17]. The four mechanisms that will be analysed are:

- Communicative acceleration: Faster and cheaper communication leading to more communicative opportunities and lower costs, which should accelerate various mechanisms, such as the spread of information about protest events, and the coordinating of contributions, even within large groups [18, 8, 19, 20, 21].
- Secluded spheres and enclaves for the progressive: Homophily in Facebook friendship networks may make it easier for movements to reach likely protesters (even more so if social incentives are added) [22, 23, 24, 25, 26, 27].
- Grievance exposure: Increased unintentional exposure of hidden transcripts may happen between activists and non-activist friends and family mingling on extended Facebook networks and help cross communicative boundaries and expose hidden transcripts to widening circles [14, 28, 29, 30].
- Micro-contributions: People can gradually become more active, starting from small, incremental contributions. The first step to activism can be as small as a 'like' on Facebook, similar to how Wikipedia gained success by making the first step to contribution as easy as correcting a spelling-mistake [31, 32, 7].

C. Agent-based models

For each of these mechanisms an illustrative Agent-Based Model is created. They each are based on Epsteins model of collective action, and are extended with the affordances provided by the following internet platforms: email, web-forums, and Facebook [33]. Epstein models the essence of Granovetter's well-known threshold model. According to it, individuals won't join a protest until their threshold (k) is met, for the number of others that need to be protesting before they dare to join. People's thresholds vary. Whether a protest happens then depends on whether enough people with low enough ks are nearby: leading to a riot if a hundred people with ks 0 to 99 are present, and only two rabble-rousers (k = 0 & 1) amidst 99 solid citizens, if the next k is missing (if $k = 2$ is missing, then $k = 3$ and further won't be joining in, breaking the chain) [17, 34]. The output of the agent-based models has been tentatively analysed, and full results, as well as code, will be provided in the presentation.

Agent based modelling is well-suited as a method for illustrating social mechanisms, and for maintaining the micro-macro link that constitutes emergent behaviour [35, 36, 37]; which is a crucial phenomenon here. Even though changes in the affordances offered by media platforms only affect individuals' communicative environments in various small ways, communication is repeated, recursively, with every 'round'

of interactions building upon earlier differences. Thus small, individual-level changes may cascade into large, emergent shifts in macro outcomes over time [38, 39, 40, 31, 41, 42, 43, 44, 45, 46]. Being able to trace such change — even if only in a model — allows for a clarification of how historically momentous outcomes, such as the ignition of social movements could hypothetically arise in absence of any large or spectacular causes.

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