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# **Emergent Leadership in Online Communities: An Interactive Process of Co-influencing**

*Completed Research*

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## **Abstract**

*We propose a theoretical approach informed by a power-in-practice perspective that allows us to examine the emergence of leadership in online communities. We theorize leadership emergence as a process of co-influencing that is constituted by forces of ‘pushing’ and ‘pulling’ different enactments of power that are formative of communal interactions. More specifically we identify three pathways for emergent leadership based on different modes of community influence. These insights are based on a detailed exploration of interactions in one particular online community #WeAreNotWaiting, offering distinct contributions to the literature on leadership emergence, particularly in online communities without formal roles and hierarchies.*

**Keywords:** Emergent leadership; online community, power-in-practice, influence, social media

## **Introduction**

Online communities are new forms of organizing that forge novel types of collaboration and sustain new modes of sociality (Faraj et al., 2016). Research has considered diverse online communities including pioneer communities (Couldry & Hepp, 2017), communities (Butler & Wang, 2012), innovation communities (Mollick, 2016), user communities (Dahlander & Frederiksen, 2012), open collaboration communities (Faraj et al., 2016), communities of hackers (Dobusch & Schoeneborn, 2015), and open source developers (O’Mahony & Ferraro 2007).

Online communities, characterized by decentralized and self-organized entities, exhibit not only very different organizational arrangement but also new ways of steering and supporting. In particular, it has been suggested that to be effective such communities depend on the emergence of leaders that can operate by overcoming the spatio-temporal distancing of such online contexts (Johnson et al. 2015; O’Mahony and Ferraro 2007). Two particular trends capture the changes in leadership in such new forms of organizing. First, departing from heroic narratives of the omnipotent leader, research on leadership has advocated perspectives premised on decentering leadership, including distributed, shared and collective leadership (e.g. Fairhurst, Jackson, Foldy, & Ospina, 2020; Storey, Hartley, Denis, Hart, & Ulrich, 2016). Second, leadership in online contexts is not associated with particular hierarchies or formal positions, but is considered to be ‘emergent’ rather than being performed by designated individuals and recognizable mainly

by “the amount of . . . social influence that team members ascribe to one another” (Gerpott, Lehmann-Willenbrock, Voelpel, & van Vug, 2018: 717).

Broader leadership literature portrays emergence as a matter of individual influences and perceptions (Hanna, Smith, Kirkman, Griffin, 2020), neglecting how such forms of influence are being enacted and how they gain traction in a communal context. Information Systems scholars have rarely explored the actual and longitudinal process of emergence and instead have focused on the behaviours of established leaders. One such exception, for instance, reveals the communal dynamics by following longitudinally the network patterns of emergent leaders (Lee et al. 2019). Emergent leaders are often recognized by their active communicative behaviours through which they enact their social, technical or network positioning (Faraj et al. 2015). Understanding emergent leadership as a process of influencing (Yoo and Alavi 2004) suggests, however, that the process of emerging is more than a matter of exhibiting certain communicative behaviours. For instance, Panteli and Sivunen (2019) show that in certain communities, founders can exert influence and create space for the emergence of new leaders. This paper will build on these insights and will explore leadership emergence longitudinally as a complex process of mutual influencing that is interactively accomplished and performed in situ.

We focus particularly on the practices of social influencing through which individuals emerge as agents of change or ‘making a difference’. For this purpose, we adopt a practice theoretical sensibility to power and influence that position them as inherent to communal practices. This perspective detaches leadership agency from formalized positions and personal traits (Western, 2014), which is conducive to exploring leadership as nexus of practices (Carroll, Levy, & Richmond, 2008). More specifically, we re-interpret French and Raven’s (1959) classic framework of forms of power in studying how such forms of power are enacted in and through social influence. We use their framework as a sensitizing device for exploring the practices of influencing in situated communal interactions, following the research question of: How do community members in online communities gain social influence and power through their doings and sayings and thus emerge as leaders? This conceptual perspective, coupled with data that affords us access to the granular interactions in one such online community, allows for exploring the micro dynamics of emergent leadership.

Our longitudinal empirical study is based on the #WeAreNotWaiting community- an online Type 1 Diabetes (T1D) community. We gathered detailed data from Twitter, interviews, observations, and archival material on this community, ranging from the community’s inception in 2013 to 2020. This longitudinal approach allowed us to identify three different pathways of leadership emergence in the #WeAreNotWaiting community. We used these insights to develop a conceptual model that theorizes leadership emergence as a process of communal co-influencing, constituted by processes of ‘pushing’ and ‘pulling’. Our model contributes to the IS literature on leadership in online communities by offering detailed insights into the collective and interactive nature of the emergence of leadership; it also adds theoretical nuance to the leadership-as-practice perspective through emphasizing interactive forms of influence in online communities. Our findings also hold substantial value for practitioners in providing insights into the conditions that might foster leadership emergence. The emergence of leaders, in turn, has been considered a decisive factor for both strengthening communal commitment (Lu et al. 2022) and attracting and retaining members (Panteli and Sivunen 2019), being indicators for the success of online communities (Ma and Agarwal 2007).

## **Theoretical Background**

### ***Collective and emergent leadership in online communities***

Unlike hierarchical forms of leadership in which leaders are ascribed certain positions, leadership in online communities is considered to be a collective accomplishment, distributed across different community members (O’Mahony & Ferraro 2007; Oh, Moon, Hahn, & Kim, 2016). A collective view of leadership resonates with calls to move beyond the ‘heroic’ and ‘romantic’ perspectives on individual leaders (Bolden, Hawkins, Gosling, & Taylor, 2011; Carroll et al., 2008), advocating for more pluralistic notions of leadership.

In an online context, leadership typically concerns the coordination and mobilization of the endeavors of remotely distributed and often volunteer community members (Crowston, Heckman, & Annabi, 2005; Wei, Crowston, Li, & Heckman, 2014); it can, however, also be mainly discursive if the community in question

is not or only marginally task-based. It has been pointed out that online communities are frequently short-lived, self-managed groups in which leadership emerges informally (Acton, Foti, Lord, & Gladfelter, 2019), but knowledgeability and skillfulness of certain members give them leadership status (Johnson, Safadi, & Faraj, 2015). However, few IS studies have focused on the actual process of emerging often portraying it merely as a communicative activity. For instance, it has been argued that members emerge as leaders through active participation in different communal activities including task-oriented behaviours and social activities aiming to encourage other members to participate (Faraj et al. 2015). Another characteristic that has been associated with leadership emergence is the frequency of communication where communal members who have larger number of posts are usually perceived as leaders (Yoo and Alavi 2004). The broader leadership literature, however, has described leader-like behaviors in more nuanced terms as surprising and unanticipated and difficult to tell apart from other communal processes until one realizes that leadership 'is happening' in relation to certain tasks or community dynamics (Denis, Langley, & Sergi, 2012). It has been also recognized that emergent leadership research should be less focused on the individual traits and activities (Smith et al., 2017) and more on the interactive processes that often involve mutual influence (Acton et al., 2019; Lichtenstein & Plowman 2009).

In this paper we address this gap by using a practice theory lens on power and influence (Carroll et al., 2008; Ladkin & Robert 2021), taking these two notions as (relatively) observable proxies for leadership. Our focus, thus, is not so much on 'what' and 'why' as much as on the 'how' of leadership, but rather seeking a more granular understanding of the sayings and doings that are constitutive of social influence and leadership-in-practice. From this perspective, we understand the process of leadership emergence as an interactive process of co-influencing, which aims to show what leaders actually 'do' (Johnson et al., 2015) to enact their leadership positions. Below we synthesize a perspective on power and influence as actual situated interactions that constitute the emergence of online community leadership (Clifton et al., 2020; Carroll & Simpson 2012).

### ***Emergence of leadership in online communities: power-in-practice***

Studies that draw on perspectives of power and influence to examine leadership in online communities have been rare (Ladkin & Probert, 2021). Understanding leaders as agents of change who 'make a difference' in organizations and communities suggest that exploring how power is enacted in leadership practices can offer important insights into leadership emergence. While Huxham, Beech, Cropper, Ebers, & Ring (2008) argue that 'power over' is the dominant perspective in organizational research, this conception of power as struggle for domination and control only holds partly in those online communities that are purely voluntary. Clearly, in such communities a view of power aligns with leader-centric research implying that appointed leaders hold power to control or exert influence over others neglects the relational and processual dynamics constitutive of leadership emergence (Acton et al., 2019). Such an approach to leadership - associated with the 'what' conception of power that considers resource or a capacity possessed by some and not by others - is increasingly contrasted with the 'how' conception, which suggests that power should be understood as a set of flows and processes that are always in motion (Huxham et al., 2008; Lotia & Hardy, 2008). This conception of power closely aligns with the practice theory orientation to leadership emphasizing its non-deliberative practical nature (Carroll et al. 2008).

In line with this conception, leadership-as-practice and power-in-practice emerge not 'in' a person but rather through interactive dynamics, within which any particular person will participate as a leader or a follower at different times and for different purposes. In adopting this perspective, we depart from trait- and personality-led theories of leadership and power. Instead, it helps us delineate patterns of recursive and distributed practical activities that are generative of leadership positionings. However, we acknowledge that some of the classic frameworks of power may hold value even if used in a more interactive, practice-oriented perspective. To test this proposition and in order to develop a nuanced understanding on power-in-practice, we use French and Raven's (1959) classic framework on six different forms of power: (1) legitimate, (2) expert, (3) referent, (4) informational, (5) reward, (6) coercive. Importantly, we acknowledge that several of these bases of power are in fact interactional, even if they have often been interpreted from a trait- or capabilities-theoretic perspective. Legitimate power for instance is rooted not only in social norms of obedience to those in formal positions but also in social norms of reciprocity. Expert power refers to the level of skill, competence and experience as enacted by one actor that others perceive as adding to their own lifeworlds. Referent power relates to the affiliation and belongingness to individuals and groups and is deeply relational. Informational power refers to how actors bring about change in others' lives through

unlocking information for them. Reward power is rooted in the ability to offer tangible, social or emotional rewards that others find valuable. When enacted, coercive power is probably the most 'one-sided' of these power bases as it relates to the use of threat or force to secure compliance. Having outlined the theoretical premises of a power-in-practice approach to leadership emergence in online communities, we next detail our methods.

## **Methods**

### ***Research design***

Applying a practice theoretical sensibility to power and influence holds significant potential for examining the relational and interactive nature of leadership emergence, but it requires a different methodological approach than testing causal models premised on predefined variables (Fairhurst & Uhl-Bien 2012). Practice-theoretical studies typically draw on situated and micro-level data that allows to research the 'sayings' and the 'doings' typical of a community of actors (Raelin, 2016). Thus, to address our research question, we engaged in a qualitative inductive longitudinal case study of an online Type-1 Diabetes (T1D) community called #WeAreNotWaiting<sup>1</sup> with the aim of studying the micro-level of doings and sayings in this community as they pertain to power, influence and emergent leadership.

The #WeAreNotWaiting community was formed in 2013 in the U.S. by a small group of patients and parents to children with T1D. The motivation behind establishing the #WeAreNotWaiting community was to improve quality of life living with the chronic condition. Being disappointed with the slow advancements in diabetes technology, some community members took matters into their own hands and decided to collectively re-engineer existing T1D devices. Over the course of a few years, they developed open-source artificial pancreas systems also known as "closed loop systems" consisting of an insulin pump, a continuous glucose monitor (CGM) and a controller that uses an algorithm to calculate the appropriate insulin dosage automatically infused into the body (Healthline.com). As the community started to crystallize through increasing online and offline interactions, these members became known as 'community founders'. The founders not only developed closed loop technology but also engaged other members on Twitter to help them recognize the potential for lifestyle improvement of living with this condition. In the following years, the online community grew rapidly gaining thousands of members from around the world supporting who contributed to the #WeAreNotWaiting cause. We studied the constitution of this online community from the formation of the community and the Twitter hashtag's inception in 2013 until final data collection rounds in 2020. This offered us detailed insights into the leadership dynamic and how certain individuals emerged as leaders in an online community, starting with but by no means ending at the Founders.

### ***Data collection***

We draw on multiple data sources including Twitter, semi-structured interviews, observations at public events and archival material. Our data collection combined real-time data collection from 2018 to 2020 and retrospective data for prior years. The study has also gone through a full ethics application and has received an approval before the actual start of data collection.

### **Twitter**

In terms of the doings and sayings of community members, Twitter was our most important data source, as a substantial part of the community's interactions took place in that social medium. The field researcher created a Twitter profile in October 2018 to be able to follow #WeAreNotWaiting community online. She began to follow a set of users (200) who actively contributed to the #WeAreNotWaiting to get an insight into the community's overall discussions and the members' different practices (sayings and doings) in the #WeAreNotWaiting hashtag feed. By using Twitter's Application Programming Interface (API), we collected 18,600 tweets containing the hashtag #WeAreNotWaiting published between January 1<sup>st</sup>, 2014<sup>22</sup> and December 31<sup>st</sup>, 2018. Our Twitter data included handles and user locations while other directly

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<sup>1</sup> The #WeAreNotWaiting community has also offline counterparts.

<sup>2</sup> The hashtag #WeAreNotWaiting appeared on other social media platforms, such as Facebook, Instagram and personal blogs, however, it was primarily focused on Twitter, so we limited our data collection to this platform.

identifying information were removed before this data set was analyzed both qualitatively and quantitatively.

### **Interviews**

We conducted 31 semi-structured interviews with members from the #WeAreNotWaiting community in three rounds between April 2019 and August 2020. In soliciting research participants, we searched for community members who were or had been active members in the #WeAreNotWaiting community. The interviews lasted between 45 and 60 minutes, were recorded (with permission of participants) and fully transcribed. We used pseudonyms to protect the participants' identities. Our interviews focused on understanding how the #WeAreNotWaiting community evolved over time including main events and key actors, what the customs and practices of interaction in this community were, and how these were arrived at and potentially changed. The interviews provided us an in-depth understanding of the multiple ways members participated in and engaged with the community and the different practices that ultimately led to leadership emergence in it.

### **Observations**

During 2019 and 2020, the field researcher attended seven diabetes conferences and diabetes technology workshops in the U.S., and Europe totaling approximately 78 hours of participant observation. Some of these events were organized by the #WeAreNotWaiting community itself, and others by associated or cognate organizations. Fieldnotes were taken to capture the actions and activities during these public events. These observations allowed us to gain an understanding of the offline part of the #WeAreNotWaiting community in terms of activities, interactions, and relationships.

### **Archival material**

We collected archival material such as slides from conference presentations, blog posts, news articles and academic articles related to the #WeAreNotWaiting community. This captured the entire time span between 2013 and 2020 and provided additional insight into how the community has evolved over time.

### **Data analysis**

Our analytic approach was inductive with an objective of developing and refining conceptual insights on the emergence of leadership in online communities. We first developed a detailed case description based on Twitter data, interview transcripts, field notes and archival material. Next we moved in an iterative manner between our rich case description, literature and emerging theoretical arguments (Miles & Huberman 1994). The process of analysis continued over a number of overlapping steps.

#### **Step 1**

We began our analysis by focusing on identifying emergent leaders. As survey approaches for identifying leaders have been considered problematic (Hanna et al., 2020; Li et al. 2020), we adopted a practice theoretical understanding of leaders as emerging through social interactions (Carroll et al., 2008), which in our case meant social media interactions. Our approach was underpinned by the understanding that at least one of the characteristic of emergent leaders is their popularity manifested in the higher number of contributions (Faraj et al. 2015; Yoo and Alavi 2004). Additionally, by attending to the materiality and affordances of Twitter, we recognized that the acts of favoriting, retweeting and mentioning as ways through which certain community members are selected and elevated to leadership status by others were another reliable evidence of the popularity and influenceability of active members (Papacharissi, 2015; Vaast et al. 2017). We also analyzed our Twitter data quantitatively in terms of: number of individuals using the hashtag over time; numbers of total tweets and tweets per user over time; patterns of individual user engagements. This approach also draws out the recursive link between leader and follower, which considers leadership not a solitary activity but as a co-creation, suggesting that these acts also 'enact' leadership, thus being formative of leadership relationships. Analyzing our entire Twitter dataset we identified the top 'emergent' leaders over time by considering how they feature along the three main dimensions: number of tweets, retweeted tweets and mentions (Vaast, Safadi, Lapointe, & Negoita, 2017). We selected those individuals who started off as ordinary community members and emerged to become part of the leadership core of the community. More specifically, our approach to identifying emergent leaders was premised on the understanding that emergent leaders are those who become such through the combination of (1) the number, quality and type of engagements (tweets) and, (2) the collective, communal filtering. Therefore, to tweet in high numbers was not deemed sufficient, but tweets being favorited or retweeted by community

members were significant to emergent leadership. We further inferred that (3) being mentioned by founders and the broader community suggests that a member has moved to the core of the community. In order to remove bias in our selection of emergent leaders we excluded the community founders and individuals from their closer network (e.g., spouses) as well as recognized advocates/spokespersons that might already be leaders in other similar communities. In order to filter out random members who gained only temporary popularity in the community, we focused on those who have been consistent in retweeting over time and who had a high tweet/ retweet ration testifying to their inferentiality in the community. As an outcome, we identified 16 individuals as emergent leaders in the #WeAreNotWaiting community (Table 1).

Leaders	Type	Tweets	Mentions (year)				Retweets (year)				
			2015	2016	2017	2018	2014	2015	2016	2017	2018
EL1	T1D parent	248	13	64	10	43	0	108	121	44	277
EL2	T1D patient	84	13	22	24	4	4	61	87	91	6
EL3	T1D patient	57	10	36	1	8		27	44	9	14
EL4	T1D parent	45	12	5	11	22			7	59	99
EL5	T1D patient	115			6	8			26	204	172
EL6	T1D patient	174		2	3				16	135	115
EL7	T1D patient	298	0	23	33	62		5	257	176	461
EL8	T1D patient	101	23	32	16	39	1	86	139	40	50
EL9	T1D patient	88	0	4	26	3			111	183	24
EL10	T1D parent	60		3	10	18			104	105	52
EL11	T1D patient	60	32	24	10	34		23	78	17	138
EL12	T1D patient	157	16	3	2		21	52	68	34	21
EL13	T1D patient	41	35	10	7	27	10	7	42	72	1
EL 14	T1D patient	168	6	8	7	25	25	121	172	63	21
EL 15	T1D patient	115			4				62	148	10
EL16	T1D patient	58			4	2		6	13	89	13

**Table 1 Emergent leaders**

In addition, we identified a number of community members that we call ‘non-leaders’ who in our interpretations endeavored to emerge as leaders but failed to do so. In particular, we selected them on basis of having few numbers of mentions and having a low retweet/ to tweet ratio, which suggested that they achieved lower communal influence and support. This quantitative analysis was supplemented with a qualitative content analysis of a yearly subset of tweets.

### Step 2

We then moved on to inductively-driven coding (Strauss & Corbin 1990) of the Twitter interactions of the 16 emergent leaders. In particular, combining both empirical and conceptual insights (Gioia et al. 2012) we sought to code the practices of influencing that perform different forms of power. For this purpose we draw inspiration from organizational discourse analysis in its affinity for ‘microscopic’ exploration of leader-like behaviors (Fairhurst 2008), as well as from practice theoretic sensibilities to interactive practices as both ‘sayings and doings’ (Carroll et al., 2008). We also conducted a content analysis of the interview transcripts and fieldnotes to identify additional insights into the process of leadership emergence respectively from the perspective of community members (interviews) and from sayings and doings in real life (observational fieldnotes).

### Step 3

Lastly, we developed broader theoretical explanations for the phenomena we observed in our data, which suggested a number of different pathways of leadership emergence in the #WeAreNotWaiting community. Here, our data on ‘non-leaders’ was particularly conducive to comparing and contrasting with that of emergent leaders and offering important insights into leadership (non)emergence (Table 2). We then developed a theoretical model of emergent leadership as interactive process of co-influencing (Figure 3).

Non-leaders (NL)	Description	Total Tweets	Mentions (year)				Retweets (Year)				
			2015	2016	2017	2018	2014	2015	2016	2017	2018
NL1	Patient	49	10	2	0	2	1	10	2	0	2
NL2	Patient	57					1	23	45	1	
NL3	Parent	58	1	6			9	30	1	5	1
NL4	Patient	44	3	5	3	1	1	2	10	8	
NL5	Patient	53	2		1	1	2	25		9	5
NL6	Patient	58						42	18		
NL7	Patient	77	7	25	14	5		8	1	1	

Table 2 Non-leaders

## Findings

### *Constituting the #WeAreNotWaiting community*

The affordances of Twitter were constitutive of the ways the #WeAreNotWaiting narrative was performed and channeled. The use of the #wearenotwaiting hashtag connected individual contributions, highlighting its role as a connective infrastructure. Twitter also enabled a type of visibility that connected not only disparate digital networks but also offline and online communal processes, enhancing the sense of support for individual community members:

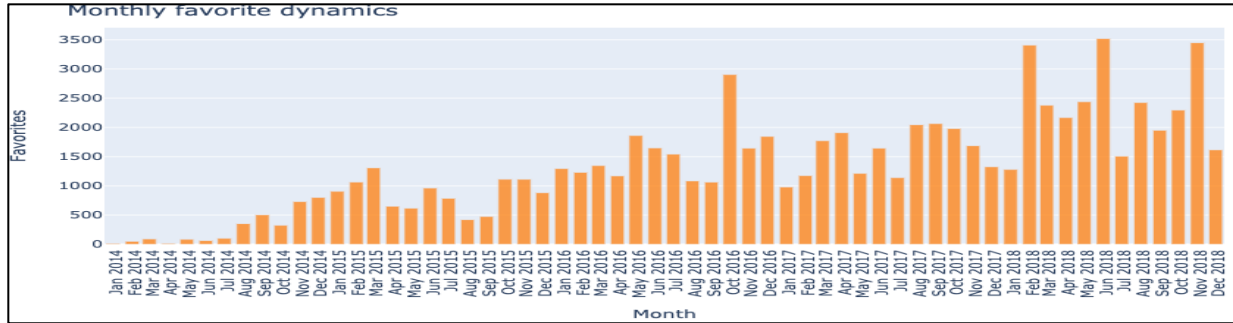
*“Do family and friends really understand diabetes? Not really, peers do! Peers share in a more practical and less prescribed setting. Share burden, share information, push for change such as WeAreNotWaiting”* (participant in T1D conference, fieldnotes, 2020).

Twitter allows for diverse modes of participation including posting original content, re-tweeting and/or changing others' posts or content that is external to Twitter, and more passive engagements such as favoriting. This allowed the community members to choose different ways of being 'active' to collectively shape the content that would gain most prominence and circulation, for example, sharing programming/coding manuals and updates regarding closed loop systems, sharing updates and summaries from diabetes conferences or personal attendance at events, highlighting blogposts or podcasts, and news articles in which the community has been mentioned. Through this process certain community members and their content were brought to prominence and thus elevated to the status of informal leaders. While certain individual contributions were shared, filtered and propagated by the mass of community participants, this process was not formed through any formal consensus or collective action but rather happened organically.

### *Followers*

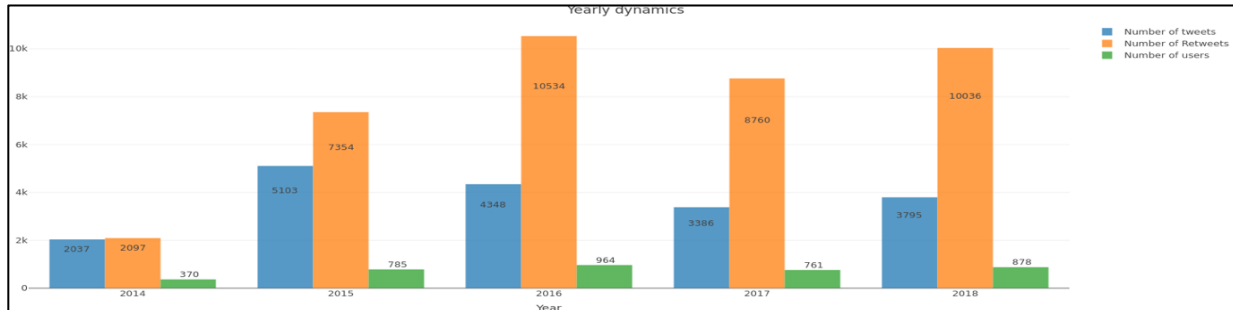
The #WeAreNotWaiting Twitter flow was always in-the-making and evolving, fueling members' participation and engagement. Our analysis showed that for many, tweeting was the primary mode of engagement with the community. The aggregate number of followers constituting the communal flow of tweets varied over time according to its pace, virality, meme propagation or spreadability of content. The flow of collective contributions was also collectively filtered and shaped through a range of acts such as likes, mentions, retweets and replies. These acts were not just informational, but also had important communal value in expressing sympathy, sustaining engagement and triggering participation in the #WeAreNotWaiting community. Moreover, we can see from the diagram below (Figure 1) that such passive acts of favoriting steadily increased over the lifecycle of the community, highlighting the role of followers in determining whose actions and content become visible and whose not.





**Figure 1 Favorite dynamics**

Central to this process was sharing or retweeting that triggered spreadability and virality of the content of some active members versus that of others. From the diagram below (Figure 2) we can see that the stream was characterized by prevalence of retweets as the key act of a collective ‘selection’ of individual leaders.



**Figure 2 Retweet dynamics**

Thus, our data showed that the mass of followers were not just passive observers, but each one had the opportunity to support, magnify and elevate the role of other followers whom they deemed as important contributors. Such microprocess of ‘pushing’ of certain individuals to elevated status of leadership was an inherent part of emergence. We found that this process was collective and distributed as individual preferences did not have a determining role but at the same time these individual actions were not coordinated at the communal level either.

### Founders

The founders of the community were the most recognizable and popular members, judging by likes and retweets over time. Although they were not designated as formal leaders, they gained popularity and legitimacy because of their initial role and participation in designing and developing the closed loop technology as well as supporting the community and popularizing the #WeAreNotWaiting cause. Their role for the existence of the community was unquestionable and in a sense a pre-given for the subsequent evolution of the community: *“like those figures, important figures, I’d say that there would be no community without them”* (interview, research participant, 23).

Rather than constituting a uniform group, the founders represented different cohorts of developers who were more or less affiliated with different parts the community and providing diverse supports for the adoption of the ‘loop’ technologies. Although they were described by one research participant as *“kings and queens of different kingdoms”* (interview, research participant 21), the regular community members treated them as an amorphic group of leaders and gravitated around those whose technology they were currently using as part of their T1D management. In addition, our data showed that some founders were more active in the communal processes whereas others had a more passive presence but were still holding an influential leadership status courtesy of their technical or programming abilities. A significant part of the community narrative was linked to the work of founders who were responsible for new releases or updates of the closed

loop technology, as well as speaking at T1D and innovation conferences and panel, publishing books or participating in the #WeAreNotWaiting hashtag feed.

In this way, the founders were holding significant forms of legitimate and expert power as per their status of founders, and informational forms of power being a source of important community news (French & Raven, 1959). In this way, they had high visibility in the community and had profound influence on the topics and mundane agenda in the community. By virtue of their influence over regular community members, they had both direct and indirect influence over the individuals who emerged as leaders. For instance, through direct engagements on Twitter, they were enhancing the visibility of certain community members and in this way legitimizing them. Acts of mentioning and responding ‘pulled’ to prominence these individuals out of the amorphous mass of followers, making them recognizable.

### ***Emergent leaders: forms of power and practices of influencing***

Beyond those founders, exploring the particular forms of power and the practices of influencing allowed us to identify and examine different pathways of emergence of leaders in the #WeAreNotWaiting community. Understanding power not as a possession or a matter of position and personal traits foregrounds the process of emergence as collective influencing (Acton et al., 2019). The concept of power-in-practice suggests that an individual makes a difference through practices of influencing, which are never neat and linear processes (Fairhurst, Jackson, Foldy, & Ospina, 2020). To influence entails also to be influenced, which means that it is not a matter of individual agency but rather about interactive co-influencing through situated practices. In contrast with claims of ‘leaderlessness’ of such loose online communities (Sergi, Denis, & Langley. 2016; Western 2014), many of our research participants recognized the presence of informal leaders:

*“So it is like people aren’t appointed. It is not like some overarching authority says oh he knows most or he is going to be the professor or whatever, it is like naturally arising with people who have the most experience and the most insight and the best skills...”* (interview, research participant (26).

In what follows, we explore how different practices of influencing instantiated different forms of power and how these practices structured the community narrative to ‘push’ and ‘pull’ certain individuals to prominence.

#### **Expert form of power**

The expert form of power (French & Raven, 1959) was instantiated through different practices of influencing (see table 3). For instance, an important part of the #WeAreNotWaiting communal narrative concerned technical conversations related to closed loop technology (i.e. programming, bugs, insulin doing calculation) through which different levels of expertise transpired. In particular, the importance of expertise for making a difference had a central role in the community as testified by one of our participants:

*“Those of us who aren’t technologically minded are just handing over lives basically to these data geeks and tell me what to do, trusting them... I trust them in a way I don’t JDRF or the American Diabetes Association or Beyond Type 1 or all of that...”* (interview, research participant, 26).

Other practices of influencing as experts were related to community members who were translating difficult and often technical language and documenting features of the closed loop technology so that it would be easier for other community members to understand and use. We also found that some members positioned themselves as “looping” experts and gaining recognition by attending conferences to present their experiences as loop developers and users; talking to regulators and healthcare professionals about the benefits of the technology.

Our analysis showed that associated Twitter posts were often self-promotional and strategic in nature to gain attention and support by the regular community members. We found that this support was coming in the form of mentions and retweets as pointed out by one of our participants:

*“I realised because I couldn’t get enough information for my technical ability to feel confident to do it, I thought well I have got the ability to blog and I already had my own blog so I just did a few articles on that and they just went crazy really. They kind of I think on one day I got about 880 hits in one week. But it was just silly ‘cause normally my blog*

posts would attract like 20 hits per day and then suddenly I have gone to hundreds, you know.” (interview, research participant, 13).

Form of power	Practices of influencing/enacting	Tweets by emergent leaders
Expertise	<b>Technical conversations</b>	Just started manually testing my #DIYPS algorithm. Checking to see if assumptions are right :) #wearenotwaiting” (2014)
	<b>Pointing to blog posts and publications</b>	Found and fixed a bug causing @NightscoutProj to not work on iOS 9 and older iOS versions. Pushed to master, if you have the problem, update to latest release and work. #WeAreNotWaiting” 2018) “My latest post on updates for #simPancreas” (2015) “The artificial pancreas article I co-authored for the Finnish Medical Journal is now out. Discusses @Openaps algorithm and features two patient cases using OpenAPS #wearenotwaiting (2018)
	<b>Presenting at conferences</b>	“My PP presentation last night says: APS here and now and not "soon" and so the word has been spreaded some more! #OpenAPS #wearenotwaiting (2017)

**Table 3 Enacting forms of expertise power**

Moreover, our data revealed that such support was the currency of influentiaity and was actively sought and encouraged:

*“Wow. My fastest ever read post! Read 500 times in under 24 hours. Thanks y'all! #freestylelibre #wearenotwaiting”*(tweet, 2016).

However, this form of support was not easily earned and indeed community members were conscious of whom they were providing it to. In particular, one of our participants pointed out that self-promotional activities without substantial portrayal of technological expertise or contribution did not guarantee support:

*“Like for example like (name) you probably talked to, he does nothing on the development side, so I don't think he is even a member of any of the development like channels, but he is very visible at the conferences. So like, as an outsider it might look like he is actively participating but he is clearly like kind of marketing”* (interview, research participant,18).

### Legitimate form of power

The founders of the #WeAreNotWaiting community held legitimate power (French & Raven, 1959) partly because of their status of being core members, but more importantly this legitimacy was related to their generosity in ‘giving’ and supporting the community. As such, this power could also be gained by emergent leaders. Our analysis showed that tacit norms of reciprocity created a sense of obligation that evoked expressions of support and recognition. Regular community members recognized and appreciated the contributions which engendered reciprocation:

*“I think it is interesting now that a lot of people have no idea, they think a lot of the stuff was just there, because that is what always happens. You need leadership, for something this big and this sustaining you know it needs to be leadership that puts in the time and the effort. It is unbelievable to me how much time these people put in”* (interview, research participant, 22)

One important way through which community members were contributing was through sharing personal stories that aimed to increase the popularity of the closed loop technology and encourage more T1D patients and parents to start ‘looping’ (Table 4). Not all personal stories, however, were being favoured or retweeted. We found that the stories posted by the emergent leaders ‘made a difference’ and were phrased

engagingly and thus drew more attention. Some of the emergent leaders were using emotionally-evoking language. For example:

*“Fear as a parent of a child with #diabetes can be crippling. We can’t let that fear rob our children of their experiences. I am so grateful for #Loop and remote targets. She dropped low at a #sleepover and I was able to set her pump target higher to bring her up. #WeAreNotWaiting”* (tweet, 2018)

While others were creative in the way they were presenting their experiences:

*“My first day with Edi – that’s how I named my new loop with the Explorer board. #OpenAPS #wearenotwaiting #DIYPS #T1D #diabetes”* (tweet, 2017).

Besides personal stories, emergent leaders were posting generalized appreciation for the community and slogans that were insightfully rephrasing the mission of the #WeAreNotWaiting community enhancing its relevance. In contrast those community members who failed to attract sufficient support (i.e. non-leaders) were usually posting shorter stories with less engaging content, and largely relying on images.

Form of power	Practices of influencing/enacting	Tweets by emergent leaders
Legitimate	<p><b>Personal stories</b></p> <p><b>General appreciation and slogans</b></p> <p><b>Organizing offline community activities</b></p>	<p>I did not have Type I Diabetes for the last 3 days... 95 avg / 100% in-range.. Graphs from Dash by @perceptus_org #wearenotwaiting <a href="https://t.co/RS2SffbAPA">https://t.co/RS2SffbAPA</a> (2017)</p> <p>Loop and my teen doing their thing thru 206g of carbs over last 24 hrs, without my input. Parent heaven #loop #WeAreNotWai” (2017).</p> <p>“I owe my life to the medical industry, I owe my quality of life to the open-source community #wearenotwaiting (2016)</p> <p>“Time to stop writing about diabetes, and treat my diabetes... Thx, @NightscoutProj #WeAreNotWaiting” (2015)</p> <p>A little reminder if you live in the UK and use a #DIYAPS because #WeAreNotWaiting – we’re trying to find out more about you! #gbdoc (2018)</p>

**Table 4 Enacting forms of legitimate power**

Our study also showed that emergent leaders gained legitimacy through organizing offline communal activities such as meet-ups that aimed to increase the popularity of the community and expand its network locally. Such ‘doings’ were particularly valued as they were portraying genuine engagement and substantial amount of effort as pointed out by one of the respondents:

*“The offline community is huge in Berlin and I think we are at least 100 that are meeting and there is a WhatsApp group, of course I can’t follow up with everything and I don’t go to all of the meet ups but they have been fairly active and I think our key person was (name) and was organising the meetings. She even organised meetings in different cities where she was not physically present, she just googled a restaurant with a reservation for the group and it was like guys this is your meet up go and have fun. She is incredible”* (interview, research participant, 20).

In addition, our data showed that non-leaders or those who failed to gain sufficient inferentiality, instead, were rarely active offline and their contributions were mostly in the form of ‘sayings’ (tweets).

### Informational form of power

We found that sharing information that could be relevant to the community (i.e. diabetes events, local meet-ups, new technology releases or updated coding manuals) was also a way to gain visibility and earn support (French & Raven, 1959). Sharing such information was time-sensitive as managing to circulate new information was considered of higher value suggesting closeness to the source of information that many times was one of the founders. Our data showed that non-leaders would often post information from public

news media or scientific journals about T1D issues in general but such posts usually failed to gain wider attention and support from the community. Sharing information about and from important events was also used by emergent leaders as a tool for self-promotion:

*“Tomorrow morning, ill be jetlagged and highly strung on caffeine, see me spaced out on stage via facebook live feed and a little surprise, I’m not the only #WeAreNotWaiting hacker in the room! #QF18” (Tweet, 2018)*

### Referent form of power

Referent form of power (French & Raven, 1959) was enacted through showing affiliation with the group of founders or other influential members through which emergent leaders were soliciting legitimacy leading to sympathy and likeability. One such practice of instantiating referent power was through engaging in direct conversation with the founders in the community which enhanced the visibility of these individuals (Table 5). In a similar vein, active community members were often posting messages of past and future meetings (formal and informal meetings) with core community members which created an impression of closeness and gained them popularity.

Form of power	Practices of influencing/enacting	Tweets by emergent leaders
Referent	<p><b>Conversations with founders</b></p> <p><b>Announcing future or past meetings with founders</b></p>	<p>“@founder more interesting insights and code coming soon! #wearenotwaiting #OpenAPS” (2016)</p> <p>“@founder1 @founder2 We’ll think of something! #wearenotwaiting” (2015)</p> <p>“Thank you @founder1 @founder2 for that wonderful hangout &amp; inspiration to continue not waiting! #WeAreNotWaiting” (2015)</p> <p>“@founder1 @founder2 @founder3 excited &amp; looking forward to get more surprised along the way! #wearenotwaiting” (2015)</p>

**Table 5 Enacting forms of referent power**

### Reward form of power

Enacting reward power (French & Raven, 1959) involved expressing gratitude or mentioning others in the #WeAreNotWaiting community as a gesture of giving attention and recognition. In the #WeAreNotWaiting community such form of power was often performed by the founders as a gift to members who they considered important for the community:

*“Thanks for your interest today @(name), hope I helped, happy to chat more cos #WeAreNotWaiting” (tweet, 2016).*

*“FANTASTIC Blog from a parent’s perspective...” (tweet, 2015)*

While such acts served as an important lever to founders to ‘pull’ active individuals to prominence, such forms of rewarding were common for the community as a whole. One important observation here is that emergent leaders were often initially engaging and addressing the founders to express their gratefulness and appreciation:

*“Thanks @(name) for my guest blog ‘diabetics hacking their devices & what it means for all of us’ #wearenotwaiting” (2015-05-19)*

*“Big fan of @(name) & @(name) for their work on #DIYPS #wearenotwaiting” (2014)*

These forms of engagement were ways for these active individuals to be noticed by the founders and develop relationships that often later materialized in greater attention from the community. Similar to receiving support by other community members, the rewards of founders were re-enforcing the sense of importance and encouraging emerging leaders to further contribute to the community:

*“Spent about an hour with each of them presenting and just let them know everything what people were doing, really. Then I think from there it then went on to doing more stuff, probably offline as it was more into Facebook rather than Twitter, but I was still blogging and doing the odd blog here and there” (interview, research participant13).*

### **Coercive forms of power**

In the #WeAreNotWaiting community limited amounts of coercive power (French & Raven, 1959) were expressed through removing support or withholding recognition for someone. One such example was one of the emergent leaders (EL 16) who was promoting his own closed loop technology but was never mentioned by the founders – yet, he managed to gain sufficient support by regular community members pushing him to communal prominence.

### **Pathways of leadership emergence**

The comparison with non-leaders as the individuals who fail to gain adequate communal influence provided important insights for understanding different pathways of leadership emergence in online communities such as #WeAreNotWaiting. In particular, we found that non-leaders were rarely involved in offline activities and relied mostly on contributions in the form of ‘sayings’ or tweets in the form of sharing news or personal stories. Their contributions were mostly targeting other community members and were less successful in drawing on referent forms of power and engaging the founders. Although the non-leaders managed to gain some support, their ratio of retweeted versus posted content was much lower than successful emergent leaders (Table 2).

The individuals who emerged as leaders, instead, showed continuous engagement that was re-enforced by both founders and regular community members. In this complex communal landscape, they were navigating between founders and other communal members who ‘pulled’ and ‘pushed’ them into prominence. They utilized a balanced repertoire of practices of influencing and were producing original content that was deemed relevant by the community. Based on our analysis, we clustered the sixteen emergent leaders into three groups exhibiting different pathways of emergence (A, B, C).

#### **First pathway of emergence (EL2, EL3, EL4, EL11, EL9)**

In the first pathway (A), we found that the emergent leaders predominantly used referent and reward forms of power (French & Raven, 1959) to engage with the founders through which they initially managed to gain legitimacy and visibility. Being enrolled into the founders’ networks, these individuals gradually became ‘doers’ by actively participating in offline activities. This enabled them greater visibility which they strategically utilized to receive significant ‘push’ by the regular community members. This emergent leaders’ pathway was particularly suitable for individuals who were adept at producing unique and engaging content and being strategically sociable, capitalizing on referent and reward forms of power.

#### **Second pathway of emergence (EL 1, EL5, EL6, EL 7, EL8)**

In the second pathway (B), the emergent leaders were also strategic in making themselves noticed by the founders. They, however, became active in local T1D communities (e.g., UK, Germany), where they filled the leadership vacuum caused by the concentration of founders in the US. Their engagements with local communities in organizing events and meetings, as well as contributing to the global community quickly increased their visibility and materialized in significant support by the founders. Their focus, however, remained on their local networks in which they gained credibility and reputation through continuously enacting legitimacy and expertise forms of power (French & Raven, 1959).

#### **Third pathway of emergence (EL 15, EL 16, EL 10, EL3, EL14)**

The third group of emergent leaders (C) became prominent in the community without seeking to be ‘pulled’ into this prominence by the founders. Our data showed that they were less strategic in their tweeting yet they managed to obtain legitimate forms of power (French & Raven, 1959) and become elevated by other community members. While some of these emergent leaders involuntarily attracted the attention of founders who further re-enforced their leadership status, others were never mentioned or rewarded, and were mostly supported and pushed by regular community members.

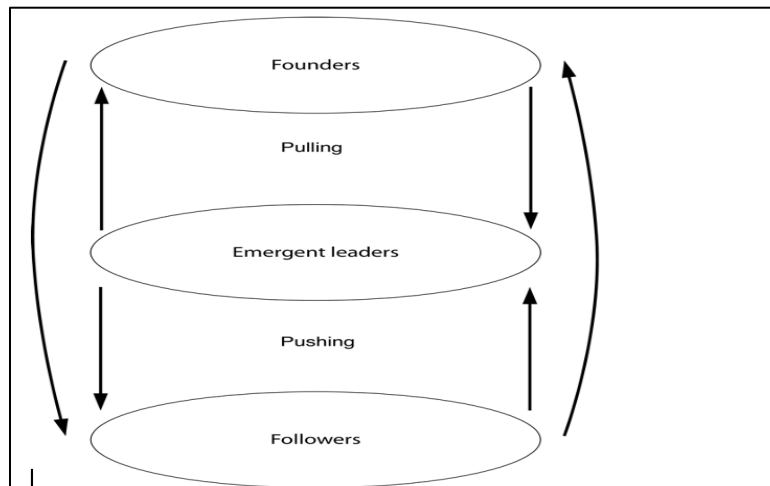
### **Summary of results**

Being informed by the conception of leadership-as-practice and power-in-practice, our analysis offered a number of important findings:

- The process of leadership emergence in the #WeAreNotWaiting community is a dynamic process of co-influencing involving both followers and founders.
- The process of emergence is enacted through different practices of influencing that rely on specific forms of power.
- Leadership emergence is not a uniform process but can follow different pathways of enactment.
- The pathways of leadership emergence combine different nexuses of practices of influencing and are generative of diverse communal relationships.

## A Model of Leadership Emergence

In this section we detail a conceptual model of leadership emergence as processes of co-influencing. We conceptualize the process of leadership emergence as practices of influencing that are central to communal interactions. Influencing is not an individual act but is rather interactively accomplished through response by those influenced (Acton et al., 2019). Such an understanding shows that to influence and being influenced becomes formative of communal interactions and relationships, and therefore also formative of leadership. Our examination of how different forms of power are enacted through different practices sensitizes us to the communal complexity and dynamics through which leadership materializes in online communities. As a space of heterogeneous interactions that constitute dynamic follower-leader relationships, our study of the #WeAreNotWaiting community uncovers three inter-related interactive circles through which collective agency elevates certain individuals to leaders (Figure 3).



**Figure 3 Theoretical mode of leadership emergence**

These interactive circles concern the three cohorts of actors who are relevant to the study of leadership emergence. The first is the regular community members from which leaders emerge. The second concerns already established leaders recognizable as the founders of the community who have a higher level of visibility and influence. Through relationships of co-influencing with these two cohorts certain active individuals emerge as leaders – the third cohort – who gain and at least temporarily hold a higher level of visibility and influence in the community. The interactive circles with each cohort shed light on two main forces shaping the emergence of leaders: ‘pulling’ and ‘pushing’. On the one hand, practices of influence enacting and demonstrating legitimacy and expertise aim to gain support and traction with regular community members, which pushes the influencers to a higher level of visibility. Thus, the contributions of emergent leaders become also noticeable by other influential members who can exercise ‘pulling’ through forms of rewarding. On the other hand, emergent leaders can draw on practices of influencing related to reward, referent or informational forms of power (French & Raven, 1959); many of these practices are directly or indirectly linked to the founders holding appreciation by the regular members. This inter-relatedness transpiring through processes of co-influencing offers insights into different pathways of

leadership emergence. In particular, we found that processes of ‘pushing’ and ‘pulling’ can re-enforce or compensate for each other.

## **Discussion**

In this study we draw on a well-established perspective of power that we imbue with a practice-theoretical sensitivity to examine how leaders emerge in an online community context. Our power-in-practice sensibility is aligned with more advanced understanding of leadership emergence as interactively accomplished (Acton et al., 2019; Carroll et al., 2008; Carroll & Simpson, 2012). Understanding leadership not just as performance of certain activities that might include technical tasks or communal work (Faraj et al., 2015) but as practices of influence that ‘make a difference’ and that resonate with other community members sheds light on the interactive nature of emergence. More specifically, our findings show that while the frequency of contributions (e.g. Yoo and Alavi 2004) is important, it is the enactment of different practices of influencing and forms of power that constitute the process of emergence. We further build on other similar studies that, for instance, foreground the influence of founders over emergent leaders (e.g. Panteli and Sivunen 2019). Importantly, our findings reveal more diverse relationships of co-influencing that involve both founders and followers, and delineating the forces of ‘pulling’ and ‘pushing’ that fuel the process of emergence. In addition to other studies that explore longitudinally the process of emergence through network approaches (e.g. Lee et al. 2019), this study adds more qualitative and granular insights.

The empirical insights illuminated through the lens of practice theory align with the statement that power is inherent to all interactions and relationships (Foucault, 1982). This perspective has enabled us to explore and analyze the day-to-day practical interactions and delineate significant patterns. In particular, our findings offer a granular analysis of leadership emergence as interactively enacted in relationships between influencers and those being influenced. We also showed how different forms of power feed and draw energy from each other, constituting complex communal processes of co-influencing through which leaders emerge. Instead of focusing on particular individual activities that constitute different typologies of leadership practices (Acton et al., 2019), our focus on practice of influencing offers a ‘microscopic’ vista into the actual emergence-in-practice. Such a perspective also deepens our understanding of collective forms of leadership and the ways through which leadership capabilities are developed and distributed (Gosling & Sutherland 2016).

In contrast with other conceptual models of leadership emergence what becomes significant in this study is not the particular individual acts but its dynamic interactive nature, which we were able to analyze by virtue of our community being a mainly social media-based one. These empirical insights encourage further conceptual reflection on leadership agency and how it steers in online communal context between forces of ‘push’ and ‘pull’ triggered through strategic and authentic practices of sayings and doings. For instance, it can be argued that the way leadership emerges in the #WeAreNotWaiting community is intertwined with Twitter’s socio-technical infrastructure, affording unique ‘self-technology-other’ relations (Vidolov 2022), and producing idiosyncratic ways of co-influence and pathways of emergence. In this context, future research might explore how the features and functionalities of different social media (such as TikTok) might co-constitute distinct strategies of leadership emergence and ways of ‘pulling’ and ‘pushing’.

Our findings also hold important practical implications for fostering and steering the process of leadership emergence that can also help with the fundamental challenges of online communities to attract and retain members (Ma and Agarwal 2007; Panteli and Sivunen 2019). For instance, by gaining insights into the anatomy of different pathways of emergence, community stewards or founders can learn to manipulate the forces of pulling and pushing and, thus, facilitate the growth of membership.

## **Conclusion**

In this paper, we propose a theoretical approach informed by a power-in-practice perspective that allows to examine the emergence of leadership in online communities. We theorize leadership emergence as process of co-influencing that is constituted of forces of ‘pushing’ and ‘pulling’ different enactments of power that are formative of communal interactions. These insights are based on a detailed exploration of interactions in one particular online community #WeAreNotWaiting, offering distinct contribution to the IS literature on leadership emergence. This paper also contributes to the understanding of leadership emergence as a practical, socio-technical accomplishment, in which Twitter not simply mediates but rather rematerializes the sociality that brings disparate community members together. This communal sociality is



not merely premised on familiarity and proximity but involves continuous folding and unfolding of both human and non-human agencies that pattern a fragile, but yet connective tissue. While our study undoubtedly suffers from the inherent limitations of any single-case research, we claim a level of analytical generalizability for our findings in relation to other online communities and new forms of organizing.

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