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‘Our Newsroom in the Cloud’: Slack, virtual newsrooms and journalistic practice

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Abstract Virtual newsrooms have enormous potential: enabling journalists around the world to pool their knowledge, skills and perspectives within joint projects, such as the Panama Papers. These virtual newsrooms are supported by Online Collaborative Software (OCS), the most popular of which is Slack. This article presents the first, in-depth ethnographic study of a news outlet’s Slack newsroom, asking two broad questions: how does Slack shape journalistic practices? And how can we theorise these digital platforms? Our research found that Slack deepened relationships and enabled new creative practices across geographic regions. However, it also contributed to the erasure of the line between private and professional spheres for workers, and introduced new opportunities for management to shape newsroom culture. We argue that the concept of ‘space’ as developed by Harvey can helpfully frame the analysis of these new, important digital platforms.

Keywords: Slack, Virtual newsroom, Journalism, Ethnography, Space, News Production

The Panama Papers, published in 2016, were a watershed in international journalistic collaboration. Run by the International Consortium of Investigative Journalism (ICIJ), the investigation brought together journalists in 80 countries to examine more than 11 million leaked documents. This joint project was facilitated by a virtual newsroom, which enabled journalists around the world to pool their knowledge, skills and perspectives, even though few ever met in person (Hare, 2016). Gerard Ryle of the ICIJ explains:

Inside the virtual newsroom, the reporters could gather around the themes that were emerging from the documents. Those interested in blood diamonds or exotic art, for instance, could share information about how the offshore world was being used to hide the trade in both of those commodities (Ryle, 2016).

Virtual newsrooms are not just used for big bespoke investigations such as the Panama Papers, however. The online collaborative software (OCS) packages on which they are based are now cheap, widely available and increasingly used in the day-to-day operations of thousands of news organisations around the world. The most popular OCS today is Slack, which was launched in August 2013 by Stewart Butterfield (the founder of Flickr). By 2015, Slack had more than a million daily active users and, at just two years old, was valued at \$2.8 billion - making it the fastest-growing business-to-business company in history (Kiss, 2016). Its clients include: Al Jazeera, BuzzFeed, Vox, *The Times*, Medium, *The Wall Street Journal*, *The Atlantic*, Quartz, *Slate*, NBC News, *The Guardian*, AOL, ITV, Time Inc.

The architecture of Slack has been designed to echo social media and the informal, collaborative norms of digital culture (Kennedy, 2011). The main dashboard is organised around a series of perpetual chatrooms, each called a 'channel' which users can customize and name with a hashtag, for example, #HumanResources or #ITissues. Inside these channels, participants can text, tag each other, share documents, photos, gifs and so on. Reviewing the software for *PC Mag*, Duffy (2017) noted that teams often use Slack in more playful ways than traditional work communications, for example, by dedicating channels to #banter, #social, #news, #humor, or just plain old #watercooler.

Early adopters of Slack were enthusiastic about its ability to enable productivity, horizontal collaboration, organizational transparency and team morale (Owen, 2015; Perkel, 2017). Some believe that it may create more democratic and egalitarian work conditions (Kiss, 2016), while others worry about its impact on productivity (Jeffries 2016). However, these observations are anecdotal, consisting of blogs and industry commentary, rather than empirical academic studies. Moreover, the existing commentary has tended to focus on news outlets that use Slack *in addition* to their physical newsroom(s). It has not explored the far more radical potential of Slack as a *replacement* for physical newsrooms. This is a notable oversight given 1) the intense economic pressures on journalism and the massive cost-cutting potential of a virtual newsroom. And 2) the large

number of casually contracted or remotely employed journalists who don't have access to a physical newsroom.

This article looks at two broad questions. First, how might Slack change and influence journalistic practice? Second, how can we theorise and research these platforms? We examined these questions through extensive ethnographic observations and semi-structured interviews. We had unprecedented access to complete a year of ethnographic work in the Slack account of a global, digital only news outlet called IRIN. We also interviewed all the journalists working at the newsroom.

Our research found that Slack deepened relationships between journalists and enabled new creative practices across geographic regions. However, it also contributed to the erasure of the line between private and professional spheres for workers, and introduced new opportunities for management to shape newsroom culture. We argue that the concept of 'space' as developed by David Harvey can helpfully frame the analysis of these new, important digital platforms. In the literature review that follows, we expand on this approach, and integrate the discussion with industry commentary about OCS and Slack.

JOURNALISTIC PRACTICE IN DIGITAL SPACES

Virtual newsrooms can be considered 'spaces' in the sense that geographers use the term: a social construction that is continuously produced and reproduced by its users (e.g. Lefebvre 1991). Harvey, one of the most prominent theorists of space, draws a highly influential distinction between absolute space, relative space and relational space (2006). Journalism researchers have started to use this distinction to understand newsrooms, news practices, and technological change (e.g. Usher, 2015; Zaman, 2013; Robinson 2011). We argue that it is a particularly helpful for analysing virtual newsrooms because it shifts the focus beyond the physical to consider the properties of space more generally, including how digital platforms may facilitate some experiences, relationships and power dynamics over others (see also Robinson & Metzler, 2016). Importantly, it does not privilege either physical space or digital space but sees these existing in tension with one another.

In Harvey's schema (2006), absolute space refers to the physical, material existence of something that can be counted, measured, observed. It is in this sense that virtual newsrooms are, of course, very different from physical newsrooms. The physical newsroom has desks, chairs, offices, meeting rooms, office coolers and so on with physical, material properties. Virtual newsrooms, by contrast, exist via a device, and can be accessed from anywhere that has internet access.

The second type of space - 'relative space' - draws our attention to perspective; it suggests that a space means different things to people depending on their situation. This may be because of distance (how far an individual is from a particular space), or it might reflect an individual's personal characteristics or resources. For example, a virtual newsroom may mean something different to a

user who has a slow internet connection; is logging in from a busy family holiday; has a precarious employment contract; or who cannot fluently communicate in the lingua franca. Relative space reminds us that distance and resources may still matter - even when users see the same text on their device screens (see also Castilla et al 2000).

Initial commentary suggests that the introduction of Slack can have a profound impact on relative space in the newsroom. Most significantly, because it provides a central locus and meeting point that all journalists can access, regardless of their location. Journalists who work remotely from traditional, physical newsrooms have described feeling estranged from the culture and comradery of their organization, and less able to collaborate and share information (e.g. Hannerz 2004). In addition, remote journalists may not be exposed to the daily interactions that have been identified as pivotal for sharing and solidifying organizational norms (e.g. Breed 1955).

Slack provides a virtual newsroom that is 'equidistant' for all participants and this may increase collaboration between remote journalists. The platform also brings journalists into more constant exposure with one another as well as 'organisational chatter', which may support the development of team culture and norms. In an article for the Neiman Foundation, Owen (2015) asked eight editors how Slack had changed their organisational work processes. The editors stated that it increased journalistic collaboration and helped foster a sense of team among previously dislocated workers. As one commented: "Slack is one of the threads that holds our internationally distributed teams together. We use it...to foster team-building and camaraderie with remote colleagues". In a similar vein, Alexis Madrigal, the editor-in-chief at *Fusion* states, "We're a big organization with offices in Miami and New York, Oakland and L.A. It's a lot of people to keep track of, so Slack is kind of our national office in the cloud" (Owen 2015; see also Bilton 2015).

The third property of space in Harvey's schema is 'relational'; spaces makes some relationships possible, and these relationships, in turn, shape what a space means to users. In a physical newsroom, for example, the location of journalists can influence their relationships with one another, and their work processes. Similarly, research has shown that digital platforms can transform the relational properties of newsrooms. Robinson (2011), for example, finds that online spaces operated as extensions of the physical newsroom, and that relationships that develop in 'virtual platforms' translate into the physical newsroom:

Cliques formed electronically; jokes passed through the newsroom via text messages, leaving out those who did not "text" or check their e-mail constantly. Digitally flexible workers gravitated toward each other (virtually), whereas traditionalists found support for each other (in physical spaces). (2011:1132)

While there has been no empirical academic research on Slack's impact on relationships, industry commentary suggests that it can create closely bonded

teams. Writing for Slate magazine, Hess (2015) argues that, because Slack's interface resembles social media, bonds form faster: "Chatting with your co-workers in the same way you communicate with your friends helps accelerate the office bond ... running jokes lead to a shared history, and a shared history is culture" (see also Rosenberg, 2015).

One of the most important relationships in the newsroom is that between management and journalists. Researchers have argued that digital communication can make this relationship less hierarchical (Deuze, 2007; Gurstein, 2001) because it enables simultaneous communication and puts more information in the public domain, increasing transparency. Slack (the company) claims that its platform is more egalitarian than email. As Leah Reich, the in-house user researcher at Slack writes:

Email is hierarchical and compartmentalized, and great for political manoeuvring. Blind copying, or the bcc, is an example of that: your boss could be silently copied into an email chain. Email allows the sender to choose who to send information to, and who to exclude... [Slack by contrast is] radical collaboration, a different way of working and thinking (quoted in Kiss, 2016)

But digital platforms also open up more opportunity for managerial surveillance, and may create unreasonable labor demands and expectations (Rosenberg, 2015; Loeschner, 2016). These platforms often track when users are online and active, and make this information available to others. In his famous metaphor of the Panopticon prison, Foucault argues that the mere act of observation can lead individuals to self-discipline: "Individuals internalize power and therefore subject themselves to norms without the need for force" (Foucault 1991:203). As a result, it is possible that Slack may extend the indirect influence of management. It may also place more pressure on workers, as it puts the responsibility to be up to speed on individuals as opposed to requiring scheduled time and meetings to read or discuss work (Pathak 2016).

In one of the few studies to examine the management of remote journalists via digital platforms, Hendrickson (2009) analyses journalists at *Jezebel* who collaborate through instant messaging (IM). The study finds that IM increased lateral, egalitarian decision making at the outlet. But Hendrickson notes that management continued to wield significant control over news processes and organisational culture, and this fact was sometimes veiled by the seemingly casual communications taking place on IM. It is unclear whether these dynamics would prevail on Slack and other OCS, which are group communication tools, rather than one to one messaging.

Harvey argues that these three properties of space exist in tension, and can evolve over time: "it is impossible to disentangle space from time...A wide variety of disparate influences swirling over space in the past, present and future concentrate and

congeal at a certain point to define the nature of that point” (Harvey, 2006: 274). As such, it’s important that we pay attention to how norms, relationships and uses of a platform can change over time.

Harvey’s triptych helps focus our study of virtual newsrooms by identifying specific characteristics that these spaces may have. Following this literature, and the early commentary on Slack, our study asks three specific research questions. First: how did the journalists at IRIN use Slack? Here we are interested in its absolute properties: when and how they use it, what kind of messages did they send? Second, did Slack change the journalists’ perception of physical distance? Here we are interested in the impact of slack on relative space – did it change the journalists access to newsroom and its conversations, and increase their ability to collaborate? Third: what relationships does Slack support? Here we are interested in Slack as a relational space. Following the literature, we are particularly interested in how it may have shaped the relationships between journalists and each other, as well as with their managers.

The following section introduces the case study before the methods are outlined.

THE CASE STUDY: IRIN

IRIN is the world’s oldest and largest dedicated humanitarian newswire. For its first 19 years, it operated under the umbrella of the United Nations. In January 2015, it became an independent, not for profit, media outlet funded by charitable donations, grants and philanthropy. The organization describes itself as providing the “Inside story on emergencies”, covering humanitarian stories around the globe. IRIN are digital only; stories are published on their website, and they have a large social media presence.

The number, location and job title of employees fluctuated throughout the study but, generally speaking, consisted of 12 employees based in 7 countries. This included between 8 and 10 full time editorial staff who were spread around the world, with small, informal clusters of journalists in London and Nairobi. These journalists write content, as well as commission and edit the work of a large network of freelance journalists

Position	Country base
Managing Editor	UK / Switzerland
Chief Executive	UK
East Africa Editor	Kenya
West Africa Editor	Senegal
Middle East Editor	Lebanon
Asia Editor	Thailand

Head of Special Projects	Kenya
Migration Correspondent	UK
Communications / Fundraising	UK
Intern / Social Media	UK
IT Support	Kenya
Translation	Canada

Table 1: Job titles and geographic spread of IRIN employees

IRIN is a “virtual team”. That is, a group of people “who work interdependently with shared purpose across space, time, and organization boundaries using technology to communicate and collaborate” (Lipnack & Stamps, 2000: 18). All daily communications were done via digital platforms. Slack was introduced at IRIN in January 2015, and became the primary platform for internal communications. Prior to this, employees had relied on email, which was generally used along vertical lines, with journalists in the field pitching and reporting ‘up’ to regional editors.

In addition to Slack, the journalists communicated in a group skype call each morning during the working week. These meetings vary from quick conversations where each journalist listed their news stories, through to lengthy debates about the purposes of their entire organization, reflecting on questions like, “what is humanitarianism?” During the study, the team also experimented with a once weekly strategy skype call. However, poor internet connections frequently interrupted these longer meetings, and they were discontinued. Outside the morning skype call, almost all internal communications took place through Slack.

METHODS

This article draws on data collected as part of a larger research project on humanitarian journalism (Author reference, 2016). As part of this research, we spent a year studying IRIN. Our project sought to explore all the factors that shaped the organization’s news production, from their business model and journalistic niche, to the news values of individual journalists. We were particularly interested in how the move from United Nations funding to independent charitable status might shape humanitarian news outputs. The founding editor was also interested in this question and invited us to come, as independent researchers, to observe the transition. We made this arrangement in December 2014, and closely studied the organization through 2015 and 2016. Early in the research, we realized that Slack had become a crucial tool at the organisation, and we decided to add the role and impact of this digital platform as an additional focus in our research.

We explored the topic through interviews and ethnographic observations. A total of twenty-five semi-structured interviews lasting between thirty and ninety minutes were conducted with all contracted staff at the news outlet. Every staff member (see Table 1) was interviewed at least once, including managers, journalists, and the organisation's administrator. Long-serving members of staff were interviewed at least every six months; new members of staff were interviewed a month after taking up the job; and those leaving were interviewed shortly after their departure.

A large number of interviews were done face to face in February 2015 when the IRIN team held a rare, in person meet up – their first as an independent news organisation. The remainder were primarily done by skype. In interviews, we asked the journalists to reflect on their use of Slack, as well as their relationships with one another and work processes. All the interviews were transcribed and thematically analysed for the journalist's perception of Slack and its impact on their relationships, and work practices.

We also conducted extensive ethnographic observations in the news outlet's Slack newsroom. We were given the login details at the same time as the journalists in January 2015, when the organisations started using Slack. Every two or three days throughout the study period, we would observe the journalists on Slack, for anything from fifteen minutes to several hours. The goal of these observations was to understand how the journalists interacted in live time: "to capture the real-time interactions and dialogue that you can never truly reconstruct later" (Robinson & Metzler 2016: 455-6). We would also read back over the messages that had been sent since we last logged in, taking notes on any interactions relevant to our research questions. These observations helped us triangulate the statements journalists made in interviews.

We also completed ethnographic observations in the weekday editorial meetings held on skype. We observed approximately four daily editorial meetings and one weekly planning meeting each month, between January 2015 and November 2015: amounting to a total of forty-seven meetings, lasting between twenty and sixty minutes each. Finally, we attended a two-day annual strategy meeting held face to face with the IRIN team in London in February 2015. In these fora, we were able to observe the journalists describe their use and perception of Slack.

One limitation of our study was that we could not observe private one-to-one messaging on Slack ("Dark Slack", as we came to call it). We attempted to address this by asking our interviewees to describe how and when they chose to use private rather than public channels. A second, more conceptual limitation concerned the challenge of establishing the impact Slack has on production practices. We do not have counterfactual data: we do not know what the outlet's work practices would have looked like had they not introduced Slack. However, there were many long-standing employees in the company who could describe the practices prior to the introduction of Slack. Moreover, our study began at the same

time that the organisation started using Slack, meaning that we could observe the journalists initial experimentation, learning, and normalization of the platform, as well as how they talked about it in their editorial meetings throughout this process.

RQ 1: HOW DO JOURNALISTS AT IRIN USE SLACK?

This section begins by outlining the basic architecture of Slack, as it was used by IRIN, and the functions that it served. Here we are interested in its absolute properties: when and how they use it, what kind of messages did they send? This section provides context for the rest of the study as well as, we hope, providing descriptive information that may be helpful for researchers examining Slack in other contexts.

IRIN used Slack as a professional tool to coordinate and collaborate on news production. The journalists all had Slack on their phone and laptops, and with staff in multiple time zones, there was almost always someone online. The majority of interactions were professional in their topic and tone, and focused on the news production process, but there was the occasional more light-hearted discussion and banter. During the study period, the journalists set up and used 21 channels. These were primarily set up by the IRIN managers – the managing editor and chief executive, and, at their instruction, the admin team. The below list outlines the key functions that journalists used for:

1) Sharing and developing story ideas. Slack was used to pitch and develop story ideas. This was done on three channels in particular: #dailymeetings #storyideas and #intheworks. When there was a very big story, the journalists set up a specific channel to manage the reporting. This happened twice during the study, in both instances in the wake of natural disasters. This allowed for quick exchanges of information about what was happening, almost like a live newsblog (How many are hurt? Is the airport open?). This information was then used directly in news outputs, particularly a live rolling blog on IRIN's website. It was also used to coordinate the news response (which stringers are available, who is writing what) and reduce the duplication of effort.

2) Framing and editing decisions took place in a number of channels, including #headlines, where journalists would ask for input and brainstorm the wording of story headlines. In #style, they would clarify the use of terms and debate semantic issues. #Photos was used to discuss accompanying images, and #socialmedia looked at how to promote and send out news.

3) Sharing audience responses – the IRIN journalists also use Slack to share notes on the reception of stories. For example, the #feedback channel where they

relayed audience comments, and #impact which noted when IRIN content was used or shared by important people or policy documents.

4) Organisational logistics – the journalists used Slack to note details such as their leave dates, IT troubles, and payment issues under the channel #admin and #itandweb. Several of the core IRIN team are commissioning editors, and they posted details about available freelancers, location and payment details in #stringers.

5) Likes and dislikes – Two channels were dedicated to sharing news stories, ideas and announcements that the journalists either liked (#thingswelike) or didn't (#thingswedontlikemuch). These discussed things that happened in the humanitarian sector generally, and were also used to praise, critique or parody other organization's coverage.

6) Miscellaneous A #general channel captured everything else that was important; and a #random channel captured everything else that was unimportant (a funny gif from the internet).

In addition to these public channels, the journalists used private messaging throughout the day. In interviews, the journalists stated that they primarily used messaging to deal with the more specific and technical elements of news production – the “nitty gritty editorial stuff” (Interview, 20/2/2015) such as checking the details of a source, or asking when a photo would arrive; “rather than put it out on a general channel which just clogs up that channel, if it's kind of how you're getting along with that story... details” (Interview, 22/5/2015). The editors and journalists also described using private messaging for more sensitive conversations, for example, to provide feedback to journalists on their stories when this was delicate or critical, or to check in on their friends.

Generally speaking, the journalists thought that Slack led to efficiency gains. One stated: “it's useful also to have all those different...parallel conversations happening in different rooms, and channels” (Interview, 16/2/2016). But some felt that this came at a cost in terms of erasing the dividing line between private and professional time (discussed further below).

Some found the platform highly addictive and struggled to turn it off in weekends and evenings. One journalist returning from holiday asked, for example:

Journalist 1: What did I miss? What excitement?

Journalists 2: I saw your green button on Slack a few times. I was worried that you were actually tuning in, in your absence.

Journalist 1: Well, I would say, with half an ear; it's hard to turn off (Editorial meeting 2016).

Reflecting on this in an editorial skype, a journalist coined the phrase, “Slack is crack”. During the workday, some also found the omnipotence of the chat distracting:

sometimes you need just a couple of hours just to shut everything off ...to be productive, and all these collaborations sometimes, you know, especially with the headlines channels and things like that, everyone wants to chip in you can get sucked into the conversations, you know, 'cos anything's better than writing, right?

Part of the danger, the journalist believed, was that “you can kid yourself you're working if you're contributing to a conversation in Slack” (Interview, 20/2/2015). Interestingly, a similar observation was made at the news outlet *Slate*, where journalists found that chatting on the platform ‘satiated’ their desire to publish news articles (Hess, 2015). The managing editor at IRIN shared the concerns of staff that Slack may get in the way of creative work, and told the team:

for the future projects, we need to get back to adding kind of a unique edge to what we're doing...And if that means for half a day a week you disconnect from Slack and the news cycle, go and meet people, that's fine (Team skype meeting, 14/4/2015).

RQ2: DID SLACK INCREASE CONNECTION AND COLLABORATION ACROSS GEOGRAPHIC DISTANCE?

Initial commentary suggests that the introduction of Slack can have a profound impact on relative space in the newsroom. In particular, it provides a central platform for geographically dispersed journalists that may foster connection and collaboration. We found this was the case at IRIN, where Slack supported extensive collaboration across remote geographic locations. This included, first, logistical collaboration: the journalists frequently asked their colleagues around the world for information and advice on everything from the name of contacts to recommendations for transport; it was a “hive mind”, where individuals could draw on the knowledge of the group. Secondly, it included creative collaboration around story ideas and angles. It was common for one journalist to post an idea and others to quickly chip in, suggesting new angles and leads. Notably, this collaboration often took place between journalists who were geographically remote. The following quite typical exchange, for example, involved three journalists: one in Bangkok, one in London, and one in Oxford (UK):

Journalist 1: I don't know if there's an angle in this for us yet, but... our new (and very good) string in kabul is working on a story about people fleeing Afghanistan to Europe...

Journalist 2: if it's of interest the Afghan family I helped in Lesbos had lost their middle son while crossing the border out of Iran... have the story and pictures

Journalist 3: I had a pitch last week from [another stringer] who wants to do something focused on Afghans' journey through Europe which tends to be rougher than for the Syrians so maybe we can meld the two or run them as a series.

(Slack, 26th October 2015)

This discussion, and many like it, resulted in a thematic story that brought together facts and sources from different regions of the world. This is a notable observation, given that one of the biggest criticisms of international news content is its episodic nature (Lippman, 1922). Stephen Ward argues that the challenges facing the world - environmental, economic, political and social – do not take place in isolation; as such, one of international journalism’s key jobs is to connect dots and identify patterns across regions (Ward, 2010). Our study suggests that Slack can help disassociated teams do exactly this.

Prior to the introduction of Slack, physical distance had a greater impact on newswork, and trans-bureau collaboration and information sharing was rare. Journalists worked independently on their region or beat, and generally pitched ‘up’ via email to an editor, who was the only person with oversight of the daily output, meaning far less scope for horizontal collaboration. The Managing Editor, who had worked at IRIN for five years prior to Slack’s introduction described the arrangement:

before we each worked in isolation, and now someone has an idea, they’ll put it on Slack, someone from a different bureau will say ‘Oh yeah, I noticed a similar trend here’ or ‘Hey, you should totally talk to this guy’ or ‘Does anyone have a contact for x?’ so I feel we’re all a little bit more working as a team.” (23/6/2015).

Quick fire brainstorming was particularly common in the #headline channel, where journalists rapidly suggested phrases, tweaking and building on each others’ ideas, as illustrated in the following exchange between three journalists spread between Nairobi, London and Oxford:

Journalist 1: photo feature on survivor stories who were rescued in the med. what shall we call it? Rescued in the Mediterranean: “We thank God we are alive!”?..

Journalist 2: can't we be more narrative?

Journalist 1: In a headline?

Journalist 2: Reportage: After days at sea, shipwreck survivors turn up alive on Europe's shores or whatever

Journalist 1: Crossing the Mediterranean in a rubber dinghy: survival stories...

Journalist 3: Rescued! Survivors recount Med ordeal (we use so many question marks, time to mix up the punctuation a bit)

Journalist 1: Rescued! From shipwreck to safety If you can call a deflating dingy a shipwreck...

Journalists 3: that'll do (Slack, May 8th, 2015).

These interactions also helped the journalists develop organizational norms just as a physical newsroom may do (e.g. Breed 1955). During our study, IRIN was in a particular state of flux. As noted above, the outlet had become independent from the United Nations, and was searching for new funding streams as well as a new, independent identity. This involved debates from board level down about IRIN's purpose and values. Against this backdrop, Slack was a platform where journalists could debate the boundaries of their news beat, and establish reporting norms. Journalists would post a story idea, and ask the group, "is it humanitarian enough?", "is this too inside baseball?" or, "how do I do this in an IRIN-ish way?",

These debates about the boundaries of the newsbeat were then visible to other journalists and new hires, who could use Slack to help them 'learn the ropes' – just as Perkel described a lab of scientists using the OCS (2017). In addition, they could message to quickly seek clarification on small points. One journalist described a new hire learning the boundaries of the beat: "his private messages are about...the distinction between humanitarian and development and, you know, and that kind of murky line...he seems to have fitted in very quickly and very well" (Interview, 1/10/15).

These conversations – like many of the interactions on Slack - would be extremely challenging or frustrating to have by email, and would likely be considered too minor to discuss in the skype editorial meeting, particularly if there was trouble with the internet connection. As one journalist commented, "everyone's spread out all over the world – so we use Slack really to avoid those endless emails which don't really work. Instead, everyone can communicate instantly on streamlined themes" (12/5/2016). In other words, Slack brought journalists in to the same 'room' in a way that other technological platforms had not previously done. In doing so, it changed the properties of relative space at IRIN.

Although Slack facilitated collaboration across distance, the location that journalists accessed the platform from continued to be important. Counter-intuitively perhaps, the journalists with the worst internet connections found Slack the most valuable. Two journalists – one in West Africa, and one in South East Asia - had constant issues with their internet and were rarely able to join the editorial skype conference calls. For these journalists, Slack was the only platform (outside of email) where they interacted with colleagues. One noted: "group calls on skype were a disaster, but for the most part, even if I couldn't actually participate on the group calls, usually after [I would] be talking via Slack." (Interview, 1/7/2015).

By contrast, a cluster of journalists based in London would sometimes work together in the lounge of a flat. This created a small, more closely knit network with additional layers of interaction above and beyond Slack. This group often included IRIN's editor and manager, and members of the admin team. A

journalist who had spent time working in both London and remotely felt this made a big difference:

the thing on Slack that's difficult is...[you] haven't quite got that feeling of 'We're all working together on this one project' ...when things have worked is when you had everybody kind of chipping in and helping out, and that really in the London office was much better (Interview, 1/10/2015).

There was also a strong connection between location and activity level, which meant that geography continued to shape the user experience. It is possible to search the Slack archives for the handles of the IRIN employees, and see the number of times each user posted a public message or was publicly 'tagged' by another user. These searches show that employees based in the UK produced more than half of all the posts on Slack during our study (see Figure 1), meaning that Slack was busiest in the working hours of British Standard Time. By contrast, few messages were sent when the Asia correspondent was online, meaning less opportunity to collaborate in live time.

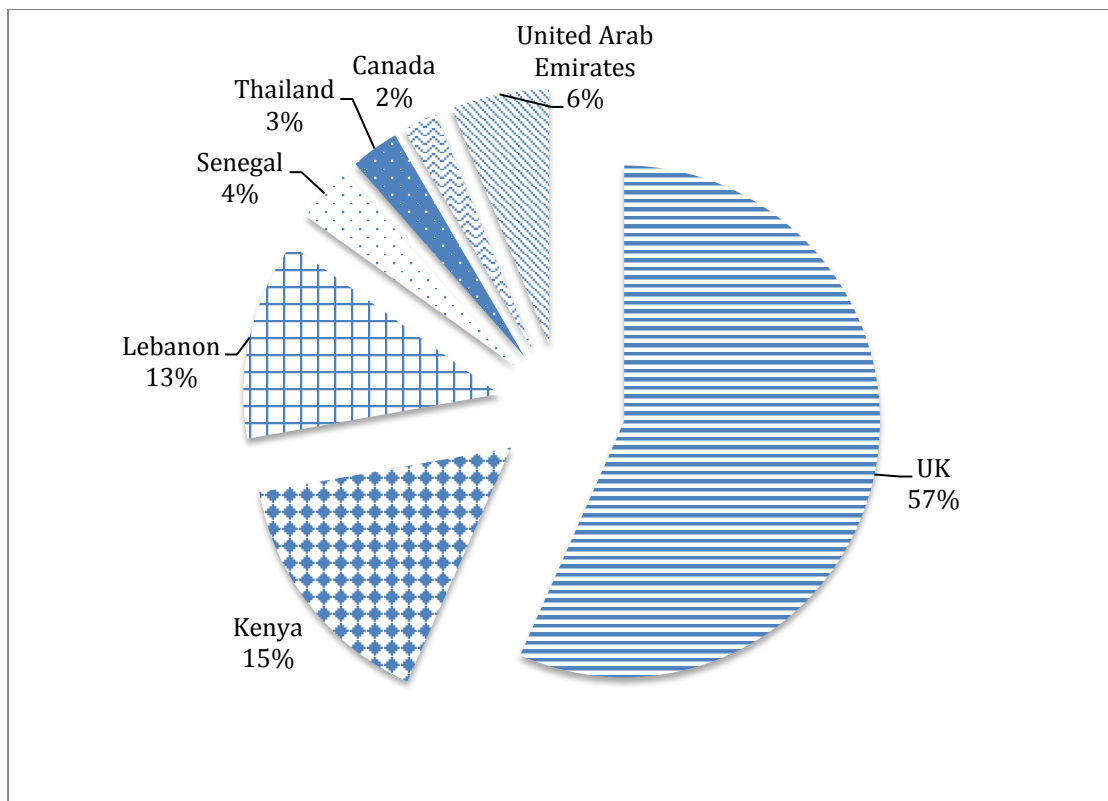


Figure 1: Location of employees messaging / tagged on Slack¹

¹ This pie chart includes messages from 18 employees. Some of these were only employed for a small period of the study period. These locations refer to where the employees were usually based (i.e. not the exact location they messaged from if they were travelling).

Searches identified big differences between how individual journalists used the platform. The Lebanon based correspondent accounted for 14% of the handles on Slack (almost the same percentage as four employees in Kenya combined). The Senegal-based correspondent, by contrast, posted only 4%. In interviews, these two journalists suggested a number of factors behind their differing use of Slack. This included the challenges of internet and electricity where they were based; the amount of travel they did for work; whether or not they were working on projects with other journalists; as well as their subjective enjoyment of online chat.

These findings further illustrate the appropriateness of using Harvey's concept of space (2006) to analyze OCS. As Harvey contends, space is inherently relative, and its meaning and significance can vary between individuals. Slack supported connection and collaboration – which reduced the impact of physical distance on the news culture. But this did not mean the journalists had identical experiences of the space. Factors such as time zones and internet connectivity – in addition to personal preferences – continued to influence their experience and feelings about the virtual newsroom.

RQ3: WHAT RELATIONSHIPS DOES SLACK SUPPORT?

Harvey argues that one of the key characteristics of space is relational; spaces make some relationships possible and these relationships, in turn, shape what a space means to users. In our final results section, we consider the way that Slack shaped relationships between journalists, as well as management at IRIN.

The industry commentary suggested that Slack may help build relationships between workers. This is what we observed at IRIN. Almost every journalist commented that Slack helped them feel closer to their colleagues, and that it sparked and solidified friendships that would not exist otherwise. One praised the platform for helping him “have relationships with all of the people, direct relationships with all of the people in every desk” – despite having not met in person (Interview, 30/1/2015). The journalists chatted on Slack throughout the workday – interacting far more than they had in the past. As one commented: “it was a way of maintaining [connections]. Obviously not quite the same as all being in the same room but better than...corresponding only on email cause email's not real-time” (Interview 16/2/2016). These comments echo the deep research literature showing that the widespread adoption of any technology can promote new connective patterns among formerly disassociated workers (e.g. Haythornthwaite, 2006).

More broadly, Slack helped create a team identity at IRIN because conversations that might have been one-to-one in the past were now communal. One user commented: “that's what I'm loving about this new IRIN, is that a lot of that [is] happening on the public channels like 'Oh, happy birthday' or 'Hey, did

you see ha ha', a lot of that seems to be a shared experience across the whole team, which I've found really refreshing" (Interview, 23/6/2015). Interactions on Slack were often light-hearted; a #random channel was used to share weird and wonderful things from the internet, for example, and one senior journalist enjoyed customising the welcome message to make fun of his colleagues. A journalist described this banter as supporting "nice little bits of bonding" (Interview, 22/5/2015). Slack improved team spirit, as the duty editor told the Board members at the annual meeting: "It's very good for feedback and, generally, for the morale of the team, so that everyone knows they're part of something, and they can interact on it, rather than just feeling isolated. It's really become quite an essential tool." (12/5/2016).

Slack also became an important space for mediating the relationship between the manager and the journalists. Several commentators have predicted that Slack will create more egalitarian or lateral power structure (e.g. Kiss, 2016). Our findings on this question were mixed. As noted above, the journalists did have more opportunity to contribute to creative practice at the news outlet than they had in the past. There was, for example, a lot of peer-to-peer discussion around how the humanitarian news beat should be defined. This contrasts with the previous 'spoke and wheel' arrangement at the organisation, where journalists tended to communicate up to their editor rather than laterally.

In addition, interactions on Slack were largely informal and all members felt they could contribute to conversations. Indeed, such was the egalitarian nature, that there were occasions when it wasn't clear who was in charge. Early in the study, for example, a breaking news story took place over a weekend. The editor posted some ideas on Slack, and assumed the journalists would act on these. This was not clear to the journalists, some of whom did not see the posts or recognize them as a request. As one commented afterwards: "I completely understand that this is a breaking news story, but who's in charge?... If you wanted to do something, call." (Interview, 22/5/2015). If the same comments had been made in an editorial meeting, the journalists would likely have recognized them as instructions, suggesting that they do not see Slack as a particularly hierarchical space.

Another way that Slack appears to support more egalitarian working conditions is that it provides a permanent platform for management to share information about strategic decisions and key performance indicators. For example, monthly progress reports were shared on IRIN's Slack, showing which stories had performed well. An admin stated that: "It's also shared with the team to help them better understand what's working online, what's popular and how well we've done at the end of each month" (Interview, 29/5/2015). This may increase organisational transparency. But it is important to remember that information can also be strategically shared (or withheld) as a form of discipline – encouraging journalists to focus on particular ideas or measurements, such as the audience metrics. Thus although Slack has the potential to create a 'flattening'

of hierarchy through its increased transparency (Bilton 2015; Rosenberg, 2015), this may not be how it operates in practice.

Our study also found that Slack creates opportunities for managerial teams to shape group culture and practice. Indeed, top-down management is inherent in the platform's architecture. Although most journalists could, in practice, set up a new channel, at IRIN this was generally done by senior staff. The existence of these channels may then inform the range of topics that are discussed, moving conversations towards managerial priorities. For example, 'impact' is an important consideration for non profit news organisations such as IRIN that seek funding from private foundations and governments. These news outlets are often required to demonstrate the impact of their journalism in order to secure grants. Because of the importance of impact to the managers at IRIN, there was a Slack channel dedicated to measuring it, which sent a clear signal to journalists about its importance. As one journalist had noticed, "impact is to be...trumpeted, that's why there's an impact channel on Slack - the more impact the better" (Interview, 16/2/2016).

In addition, Slack provides a permanent platform for managers to give 'public' praise and censure to their employees, which constitutes an important form of influence in the digital newsroom (Bunce, 2017). Editors praise journalists and articles they deem appropriate, and criticize those which are not, sending messages about organizational priorities. The managing editor, for example, describes using Slack to give an individual's feedback publically in an attempt to change behaviour across the organization: "when it's more critical stuff... you know 'This article, it really didn't work for me'... I intentionally made that public so that we can all engage in that discussion." (Interview, 23/5/2015). Slack was also used to send specific praise to stories that were doing well. Several journalists were sensitive about the use of Slack for these 'herograms' that elevated some work (and journalists) above others.

Finally and importantly, the omnipresence of Slack was also perceived by some staff as a form of surveillance and a source of stress. The name of each user is listed on the left hand bar with a small dot indicating whether they are online and available. One journalist commented:

I do end up working very late and being on there all the time and I, I genuinely don't know whether that's a kind of... a peer pressure thing. It almost becomes a kind of unconscious, 'macho-er than thou type thing...you see people that were on there from ten or midnight...I think that puts a greater pressure on the [individual] to time-manage themselves and to set their own boundaries (Interview, 22/5/2015).

It is important to note that this was not necessarily the intention of management. Indeed, as noted above, the managing editor had told IRIN employees to leave Slack if they needed space to think or more time to do more 'on the ground' investigations. Nonetheless – as Foucault argues – the simple act of monitoring can result in employees self-policing their own behavior; the sense of being visible can encourage journalists to comply with managerial priorities, without needing

to be asked. This pressure may be felt particularly strongly by workers on casual contracts, worried about their future employment.

In sum, then, Slack had a significant impact on relationships at IRIN. First, because it made journalists feel a lot closer and more connected to one another. Its impact on the relationship between journalists and management was more ambiguous. On the one hand, it opened up the possibility for more horizontal conversations about important issues at the organization. For the first time, journalists could have extensive conversations with one another, not just their editors and line managers. On the other hand, management can use the constant platform to send public messages of praise and censure. And because the manager and administrative team tend to control the settings, there is scope to push conversations in certain directions. As Harvey suggests, one of the most important properties of any space, such as Slack, is the way in which it changes and shapes relationships.

DISCUSSION & CONCLUSION

This article has provided the first analysis of how remotely working journalists collaborate in a virtual newsroom supported by Online Collaborative Software. Our year-long observations and interviews found that this virtual space supported many of the functions that a traditional, place-based newsroom does. The journalists at IRIN used Slack to share ideas and make news production decisions, and they developed friendships and organizational norms through its channels. The team felt more connected, collaboration increased and it supported the production of cross-boundary, global journalism. Slack also created more opportunities for managerial incursion, and pressure on journalistic time.

IRIN is just one news organisation. Their geographic spread, employees and market niche are all unique. In particular, IRIN journalists are highly specialised, have a collegiate respect for each other's expertise, and they adopted Slack very comprehensively: using it to replace almost all internal communication. These variables may create a unique experience of Slack. Our study cannot, therefore, reach firm conclusions about the impact the introduction of Slack will have in different contexts. Rather, this study operates as a 'revelatory' case study (Yin 2003:42), including descriptive information that can be tested in future work. It would be helpful to see future research testing our findings in other team dynamics, and exploring whether different digital layouts and platforms – both within Slack and on other OCS – may support different practices.

More theoretically, our article has suggested *how* other researchers might study and theorise these platforms in the future. We have argued that the tripartite concept of space, as developed by Harvey, is a useful theoretical framework for analyzing OCS. As Harvey argues, and our research has demonstrated, a space like Slack has absolute, relative and relational properties,

and examining these helps us understand what a space means to participants. This approach has a number of strengths.

First, by drawing attention to relative space, we are reminded that individuals use and experience technology differently from one another. As we saw at IRIN, some individuals were prolific users of Slack, others were not; some loved it, others found it a source of stress. We cannot assume that the impact of new technology will be consistent across the organization – a fact that can be overlooked in the journalism literature that often focuses on the macro and meso level of organizational practice (Schudson 2003).

Second, Harvey posits that spaces do not exist independently of how people make use of them, and the relationships they facilitate. Our study has illustrated how digital platforms may create new power dynamics; and suggested that these power dynamics may reside in the very architecture of the space, and the categories into which users must place their thoughts before being able to articulate them to other users. Our research adds further evidence to Hendrickson's (2009) contention that this casual and chatty appearance can veil managerial influence on these platforms.

Finally, Harvey's approach is sensitive to temporal dynamics. Many of our observations related to the users' experience of time – its impact on productivity and wasted time; its blurring of the boundaries between personal time and professional time; the manner in which time zones created different 'types' of Slack for users. It is crucial that we take these into account if we are to understand what a platform means to users. As Harvey writes: "it is impossible to disentangle space from time...A wide variety of disparate influences swirling over space in the past, present and future concentrate and congeal at a certain point to define the nature of that point" (Harvey, 2006: 274).

It is worth underlining a final point: the remarkable potential of Slack and other OCS as research sites. It may be difficult to access an organisation's virtual newsroom: news organisations are often sensitive about sharing access to internal communications with ethnographers (Robinson & Metzler, 2016: 456). However, where this is achieved, the sheer quantity and depth of data, from an ethnographic point of view, is phenomenal. Researcher can observe multiple simultaneous interactions, rather than being limited to one physical position in the newsroom. And significantly, Slack is already in textual form. This makes it practical to study very large quantities of communication using content analysis tools. Researches can quantify interactions, relationships and change over time: what words are used, in proximity to which others, who speaks to whom, what topics they address and so on. This enables an exciting new lens to view journalistic production. As well as altering journalism practices, Slack may change the way researchers study them.

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