Moving Across Lands: Online Platform Migration in Fandom Communities

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When online platforms rise and fall, sometimes communities fade away, and sometimes they pack their bags and relocate to a new home. To explore the causes and effects of online community migration, we examine transformative fandom, a longstanding, technology-agnostic community surrounding the creation, sharing, and discussion of creative works based on existing media. For over three decades, community members have left and joined many different online spaces, from Usenet to Tumblr to platforms of their own design. Through analysis of 28 in-depth interviews and 1,886 survey responses from fandom participants, we traced these migrations, the reasons behind them, and their impact on the community. Our findings highlight catalysts for migration that provide insights into factors that contribute to success and failure of platforms, including issues surrounding policy, design, and community. Further insights into the disruptive consequences of migrations (such as social fragmentation and lost content) suggest ways that platforms might both support commitment and better support migration when it occurs.

CCS Concepts: • **Human-centered computing → Empirical studies in collaborative and social computing**; **Computer supported cooperative work**.

Additional Key Words and Phrases: fandom; fanfiction; history; online communities; platform design; policy; social media; tumblr; usenet

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1 INTRODUCTION

Over time, patterns of use for online platforms rise and fall as both technologies and communities change. Older online spaces where we once spent so much time–Friendster, LiveJournal, MySpace–have now largely fallen to the wayside in favor of Facebook, Twitter, and Tumblr. Eventually, these too will decline in favor of something new. Social computing scholarship considers the reasons for and impacts of leaving a platform at the individual level [4, 52], though these shifts can also impact whole communities of people. As the number of platforms in our social ecosystem increases, entire communities leaving and joining platforms might become more common. Common examples of migrations of whole communities from one platform to another, however, are typically single instances–e.g., when online games close [45] or when a group of people are forced to leave [9, 44]—that largely focus on the lead-up to an exit rather than relocation and resettlement. In this

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paper, we look to an example of a community that has been through multiple migrations over time, experiencing both exit and resettlement at large scales. As a result, this case provides insights into not only consequences over a long period of time, but also patterns that go beyond a single platform.

This specific community of digital travelers is transformative fandom, which Henry Jenkins once referred to as "textual poachers" that "move across lands belonging to someone else" [32]. Lacking direct access to typical means of cultural production, these "poachers" instead remix existing media into fanworks that create new narratives [32]–from stories about a romantic relationship between Star Trek's Kirk and Spock to artwork depicting the unseen characters of the Harry Potter universe. Over time, communities of media fans who create, share, and discuss these fanworks (or "fandom") have become critical to popular culture, as well as prolific contributors to online user-generated content. To put the scope of this activity into context, there are more than 6 million stories and at least 1.4 million authors on fanfiction.net, the oldest major fanworks archive [60] and as of January 2020, more than 2 million authors and 5.5 million works on Archive of Our Own, currently the fastest growing archive. These millions of creators and consumers not only move across different media, but across another type of land belonging to someone else: online platforms.

Over time, fandom has frequented Usenet, LiveJournal, Tumblr—and even constructed a new platform, "owning the servers" for themselves [20]. Few communities are both so long-lived and so dependent on technology to connect; fandom therefore provides a unique opportunity to examine the causes and effects of moving across platforms over time. What are the common factors that lead to leaving one platform, or joining another? How do these moves impact communities? How might these lessons deepen our understanding of how and when online platforms—or attempts at moving between them—succeed or fail?

To investigate this phenomenon both in depth and at breadth, we began with a set of 28 semi-structured interviews, and then used our findings from a thematic analysis to construct a survey to examine themes at scale with nearly 2,000 additional participants. These combined analyses uncover patterns of reasons for migration (platform-based and community-based) and consequences of migration (technical and social). Causes of migration reveal nuances of online community commitment and network effects, and findings further illustrate the resulting negative outcomes for communities, including lost content and social fragmentation. In addition to concluding with broader insights for success and failure of social platforms, we also suggest design principles that could support migration in order to mitigate negative consequences and encourage community growth. Finally, our findings suggest the importance of considering community as separate from platform, not only for design decisions, but in supporting commitment.

2 BACKGROUND AND RELATED WORK

2.1 Online Fandom

The term "fandom" can apply to communities of media fans generally, from people who discuss Star Wars on Twitter [1] to people who curate information about media properties on wikis [43, 63]. However, we use the term here to mean transformative fandom, the community constructed around people who create, share, and discuss fanworks based on existing media. Though fandom easily existed without the support of the internet [32], today the relationship that fans have to technology and online platforms is integral to the culture of these communities.

These multifaceted online communities also provide support and a safe space for members. The primary goal of these communities remains to provide fans a place to share and archive fanworks, as well as to support social interaction and discussion around these activities. However, fandom is also a diverse space with a range of benefits to participation. Younger fans on the site FanFiction.net

have access to a strong network of mentorship for becoming better writers [8]. A group of women learned to code in order to create their own fanfiction archive [21]. Fans across Tumblr find a place to be authentic and find positive social experiences [29], including community support for exploring issues related to identity [13, 31], and fandom itself is known to be an important LGBTQ support space [17].

The fact that fandom participants began creating their own online spaces is also a testament to fandom's migratory nature. After several instances of fans feeling either overlooked or exploited by the platforms they were using, they overwhelmingly decided they needed a space of their own [20]. In 2008, Archive of Our Own (AO3) launched as a not-for-profit platform to host fanworks. Created and run by fans, the archive was specifically designed to host fanworks, after decades of repurposing existing platforms. Over a decade later, AO3 is now the fastest growing fanfiction archive, with over 5 million users. However, because AO3 is an archive and not a social platform, it still does not meet all needs. Therefore, platforms like Tumblr and Twitter still host large fan communities and are only the latest in a long line of appropriated platforms for fandom activity.

2.2 Migration

The traditional definition for migration in the offline world is a "permanent or semi-permanent change of residence" [38]. For our purposes, online migration entails changing primary use of one online platform for a purpose to primary use of another online platform for that same purpose. Importantly, this does not necessitate deleting accounts at the first platform, or even leaving it behind entirely; if you move to a new city, you may visit your previous home every once in a while. Migration might also occur over a long period of time, with some temporary overlap where both platforms are in heavy use, before use of the first platform drops off. The end condition, however, is that the second platform becomes the new primary location for that purpose.

Traditional migration typically occurs because of a combination of push and pull factors–that is, conditions at a current place that make someone want to leave, versus conditions at a new place that make them want to join [38]. Though there are few examples of full migrations in prior social computing scholarship, we know more about what it means to leave a platform. For example, newcomers might leave a platform because it doesn't satisfy their needs [59], they have trouble learning norms [36], or they don't fit in [58]; longtime members might leave because (particularly in the case of support communities) they feel that they don't need it anymore [59], their relationships in the community change over time [58], or they become disenchanted with some feature of the platform [52].

Examples of full migrations in prior work often point to push-based factors (that is, what makes a community leave), though they may be either voluntary or "forced" (e.g., a platform shutting down [45] or banning users [9]). As an example of one large-scale voluntary movement, the social question-and-answer site Answerbag experienced a precipitous drop-off in users following an unpopular redesign of the site [23]. Another example of a mass migration followed "community unrest" on Reddit, causing some alternative platforms to see an uptick in users [42, 44]. A case study of the "life and death" of an online guild identified a constellation of factors that led to destabilization, including social, pull factors (key group members leaving for a new game) and technical, push factors (the game being hacked) [46].

Migration patterns in a number of offline contexts, from international immigration [15, 27] to changing mobile phone providers [2] or cryptocurrencies [40], emphasize the important pull factor of network effects—that as the number of network connections in the new location increases, the cost of migration decreases [41]. Because the first migrants to leave for a new destination have no social ties to draw on, migration is costly–but the costs for their social connections left behind are then substantially lowered [41], due to factors like social and informational support [15]. Once the

number of migrants reaches a critical threshold, the probability of migration rises [41]. In other words, migrations are optimal when a lot of people move at once.

Though the cost-benefit analysis of a migration might change over time, there are always costs. For example, in the case of physical migration, these are often financial [15, 27], and for technology, "switching costs" include factors like incompatibility and learning curves [40, 64]. Some costs are exacerbated by coordination failures–for example, overcrowding [27], for which an online equivalent might include increased server load for a new platform. Moreover, migrations that are driven by network effects depend crucially on the cost of coordination, since coordination is required for the inertia of the first wave of migrants [40]. These costs not only impact whether a migration occurs, but also the consequences to a community following a migration.

Prior work about migrations also provides some insight into these consequences–for example, challenges adjusting to the content or affordances of a new platform [23, 44]. However, most examples of community migrations from prior work are one-off examples, in a single context, often for a single reason. Our findings will show some similar patterns with respect to migration motivations, but also contribute a broader perspective of multiple migrations over time.

2.3 Ecologies and Commitment

As prior work emphasizes, "leaving" may not be a singular moment, but rather a process by which the possibility of return remains open [4]. This remains true even for migrations, where community members resettle in addition to leaving; when it occurs over a period of time, a common consequence is temporary overlap, where people use more than one platform at once. Increasingly, social computing research has pushed to study not just single platforms but entire ecologies of use. A number of studies have shown that people do not use a single social media platform, and that the relationships between them can be complex [24, 61, 62].

People are also often part of multiple communities across a single shared technology platform. Though the obvious drawback to overlap is competition for membership efforts [57], in some cases this effect may be outweighed by positive benefits such as communities learning from and sharing knowledge with each other [63]. Additionally, on a shared platform like Reddit, when new communities emerge they bring with them membership from prior communities, though that membership in the parent community decreases over time [53]. However, the case of fandom is more similar to overlapping use in distinct social media platforms (as opposed to sub-communities on a single platform), where we know that relationship-based interaction on a new platform can lead to decreased interactions for that same relationship on a previous platform [61]. Particularly in cases where the overlapping platforms fulfill a very similar purpose, the eventual outcome is likely to be one platform being discarded–which means that a migration has occurred.

These reasons for discarding platforms can also provide insights into failure modes, since some in our study are inactive, whether entirely out of use now or effectively so. Though there are a number of challenges inherent in creating and maintaining successful online communities–from solving the critical mass problem to socializing newcomers to effectively regulating behavior–one important factor in the context of potential migration is commitment [35]. Moving away from one platform in favor of another signals the disintegration of commitment, not necessarily to the community, but to the instantiation of it on that platform.

Kraut and Resnick's 2014 book that examines the "critical design challenges" of successful online communities lays out three types of commitment drawn from theories of group psychology: (1) affective commitment (based on feelings of closeness to the group or individuals); (2) normative commitment (based on feelings of obligation or rightness); and (3) need-based commitment (based on incentive structures and/or a lack of alternative options) [35]. These different orientations have suggested strategies for encouraging commitment among members of a community, from

building closer bonds between individuals [54] to solidifying group identity [49] to ensuring that the community fills a specific ecological niche [57]. Our findings about both the causes of and barriers to migration will provide further insights into specific forces that can break or solidify these types of commitment to a community.

3 METHODS

This paper describes a sequential expository mixed method study, in which insights inductively derived from qualitative data are examined at scale with a larger sample [12]. We began with interview data collected as part of a broader research project about platform design in fandom, with a focus on AO3 [20]. Though the research questions for that study were not specifically related to causes and consequences of migration, all participants spoke to this topic in the course of comparing and contrasting experiences on different platforms. Therefore, we conducted a targeted, secondary analysis of the interview data with new research questions in mind. Following this analysis, we conducted a survey based on interview findings to broaden our understanding of the phenomenon.

3.1 Interviews

For the broader study of platform design in fandom, the interview sample included 28 fandom participants with experience on AO3. Initial recruitment occurred in summer 2015 via social media posts in online spaces that fans occupy, including Tumblr and Twitter, using appropriate tags and hashtags ("fanfiction", "AO3", etc.) and encouraging sharing and reblogging. This recruitment targeted AO3 users who were at least 18 years old, and stated a preference for those who had used other fanfiction archives or online communities in the past. Our initial recruitment post was reblogged over 700 times on Tumblr, and we received more volunteers than we had the resources to interview; to ensure a broader range of experiences on different platforms we privileged those who reported longer involvement in fandom and then chose randomly from that group. Most participants reported having been in fandom for a decade or more.

During interviews, in addition to topics relevant to the broader study outside the scope of this paper, we asked participants about their history in online fandom, what their experiences and communities were like on each platform they used, and (because AO3 was formed in the wake of a significant fan migration) what their experiences were in moving between platforms. Two researchers collaborated on a thematic analysis [3] of interview transcripts, first conducting inductive, open coding and then converging on higher-level themes through discussion. They iterated on themes that emerged from the data; some major themes were outside the scope of the current study and are explained in detail in previously published work [20]. One additional important theme uncovered related to the causes and effects of platform migration.

Subsequently, we conducted a secondary thematic analysis of data related to migration identified in the previous round of analysis. Informed by the new research questions outlined in the introduction of this paper, two researchers conducted open coding independently, meeting periodically to discuss the data, and together constructed a set of second-level themes. The resulting themes accounted for: (1) common reasons for joining platforms; (2) common reasons for leaving platforms; and (3) common consequences of or challenges associated with these transitions.

Though our interview participants spoke to a range of experiences on different platforms (often spanning multiple decades), we recognized that our insights may have been limited by a focus on AO3 as a current platform. We wanted to broaden our perspective to even more fandom platforms, as well as to people who may no longer be active fandom participants (in order to help account for survivor bias). Therefore, our next step was a survey that allowed us to both study a larger sample population.

3.2 Survey

For the survey, we recruited participants via public postings on social media (Twitter, Tumblr, and Facebook) in early 2018. These posts had significant reach beyond the initial network (e.g., over 2,000 reblogs on Tumblr). We did not require that participants have experience with AO3, nor that they be current fandom participants. However, because it was important that we capture a significant snapshot of a person's movement across platforms, we required that they had been involved in transformative fandom for at least ten years, even non-consecutively. In the survey, we collected demographic information in part because fandom demographics differ from other online spaces in systematic ways (for example, having a large percentage of LGBTQ participants [17]). All demographic questions (including gender and sexual orientation) emphasized the voluntary nature of answering, and were open-text responses.

We constructed the survey questions with two primary goals: (1) to examine themes from the interviews at scale, which resulted in multiple choice questions where the options were derived from interview findings (e.g., "Have you encountered any of the following issues when moving across fandom platforms or sites?"); and (2) to collect additional qualitative data from a broader sample, which resulted in open-response questions that were very similar to interview questions (e.g., "Does anything stick out in your mind about your transition to or from Usenet, such as challenges, good experiences, specific reasons for this change, etc.?"). Multiple choice questions and answers are included in Appendix A.

The survey maps out which platforms participants had used for fandom activities and when, in addition to their experiences with transitioning across platforms. We asked participants to indicate which platforms they had used from a list (derived based on findings from the interviews; see Appendix A) and to write in any platforms that were not included on the list. For each platform they indicated using, participants filled in a textbox with a year range. Participants then received a list of questions for each platform they indicated.

For each platform, participants provided non-mutually-exclusive multiple choice answers for: (1) the primary fandom-related activities on that platform; (2) what drew them to the site; and (3) what compelled them to leave. The open-ended questions allowed participants to describe their experiences moving to and from sites, reflect on how it impacted their community, and provide personal thoughts. For a few sites, we included questions unique to each platform based on information from interviews (e.g., specific design features).

In the last section, we asked participants to identify from a checklist (again, based on findings from interviews) of common experiences they encountered related to migrating across platforms (see Appendix A). We also included open answer questions about the negative and positive effects of migration, and space to provide their thoughts on how migration has affected fandom in general. We piloted the survey on a convenience sample of fandom participants from our own social networks, and used their feedback to refine and clarify questions, including validation of the multiple choice response options.

Our research questions about the causes and effects of migration were best answered with a mixture of qualitative analysis and descriptive statistics. In addition to using provided date ranges to map platform use over time (see Figure 1), we used descriptive statistics for multiple choice answers to illustrate the frequency at scale of concepts we uncovered in our interviews. We conducted additional thematic analysis [3] of open-response questions; we began with codes based on themes uncovered from interviews, deductively grouping survey responses under these themes, but with authors also conducting open coding for new, emergent themes. During this process in which authors met to discuss and iterate, we were able to use interviews as a starting point, but both expanded and teased out related themes based on the broader range of experiences in our

survey sample. The qualitative data discussed in our findings comes from both studies; anonymized participant numbers quote from interview participants with [PI] and survey responses with [PS].

3.3 Participants

In the interview sample of 28 AO3 users, a majority of participants stated they were female and white, which are typical demographics for fandom communities [17, 19, 32]. They ranged in age from 23 to 62.

Nearly 2,000 people participated in the survey, and after removing participants who stated they were under 18 or had participated in fandom for less than 10 years, we were left with a final dataset of 1,886 responses. Tracking to interview demographics, 80% of survey participants stated they were female; the next most prevalent were non-binary and transgender individuals, with the least number of cisgender men.

Participants also identified overwhelmingly as non-heterosexual. Only 24% of respondents recorded their sexual orientation as heterosexual or "straight." Most prevalent was "bisexual", making up 34% of all participants. Also common was asexual (16%), lesbian (10%), queer (8%), and pansexual (6%). This was an open response, and the remaining 2% used a variety of other unique identifiers (including one response that was simply: ¯_(ツ)_/¯). In addition to a predominantly female space, fandom has long been considered a queer-friendly space [14, 17], and Tumblr is also a popular platform for queer youth [13].

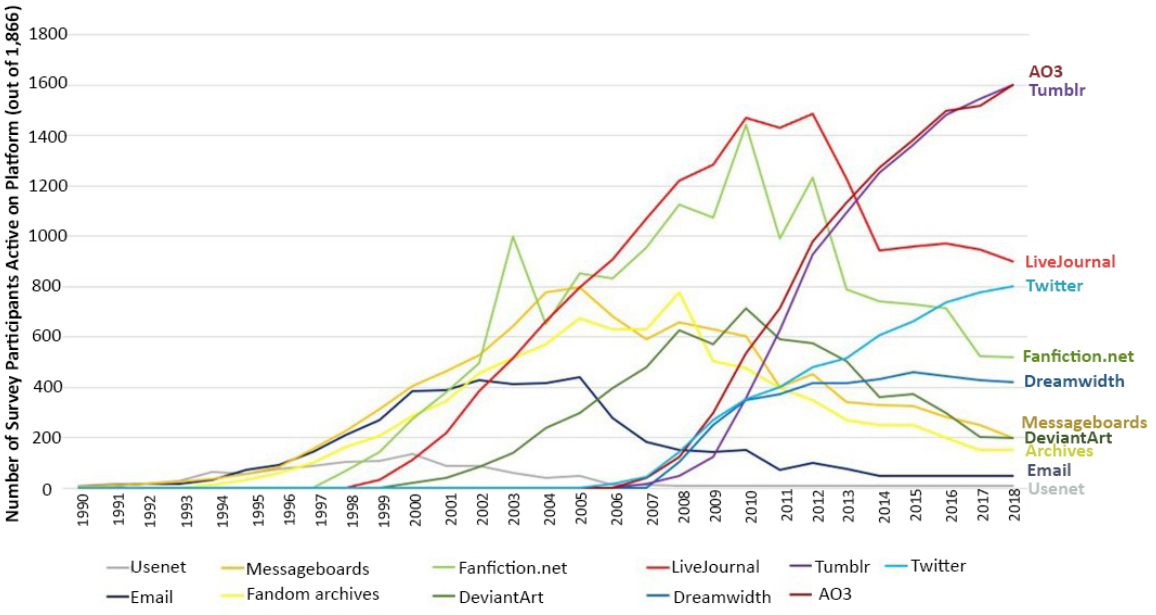
The mean age of survey participants was 30 (sd 8). We also collected ethnicity and location from those comfortable disclosing; 77% of participants stated they were white, and the remaining 23% scattered across a wide range of ethnicities, including variations on mixed-race identities. Though the demographics of many transformative fandom communities are predominantly white, it is important to note that we may be missing important voices in this data [51], including from fans of non-Western media properties. Location also varied for participants, but 66% recorded their country of residence as the United States, followed by 7% in Canada, 5% in the United Kingdom, and the rest from a range of other countries.

3.3.1 Limitations. Though this was not a participation requirement, our survey data samples largely from current fandom participants, and required at least 10 years of participation (mean participation 15 years, sd 6) so likely skews older than the overall demographics of fandom. For example, FanFiction.net users tend to be younger [8]. Additionally, because Tumblr had the largest reach during survey recruitment it is likely overrepresented in our findings as a current site for fandom participation. Our findings may also be impacted by limitations such as survivor bias, in which our data may underrepresent individuals negatively impacted by an event [34]–in particular, those who left fandom behind entirely and thus are less likely to have encountered our recruitment materials. Therefore, though our sample could include people who have remained on a single platform for a long period of time, it does not contain the perspectives of fandom novices who might have different perspectives about the utility or challenges of current fandom platforms. Our population might therefore be best described as older fans, most of whom have experienced platform migration over time, with many landing on Tumblr–which may not accurately represent all of fandom, but is appropriate for answering research questions about platform migration.

4 PLATFORM MIGRATION OVER TIME

In representing our findings, we begin with a description of the migrations themselves: for the nearly three decades since transformative fandom moved online, what platforms have been popular, and when? Fan studies scholarship considers Usenet to be the first formal platform where fandom flourished online [6], and our interview participants confirmed this, with several noting that Usenet

Fig. 1. Platform use over time, illustrated by the number of survey participants who reported using a platform in a given year, beginning in 1990 and ending in 2018.



was the first place they read and shared fanfiction. Usenet therefore became the earliest platform in our dataset, continuing to the current popular fandom platforms—notably Tumblr, Twitter, and AO3. Participants had the option to provide additional platforms, but there were relatively few "other" responses; the most common were Discord (N=41) and Facebook (N=38). Figure 1 shows the popularity of each platform by year—in other words, their rise and (usually) fall.

Qualitative data from interviews and surveys aid interpretation of this data, and in particular the reasons for platform rise and fall, which we discuss in the next section. It is also important to note that platforms serve different functions, and therefore, overlap significantly. For example, FanFiction.net and AO3 serve archival functions, whereas Twitter serves a primarily social function; others are a combination of both. In other words, fans archive fanfiction on AO3, but talk about it on Tumblr or Twitter. Fandom social spaces also become broader social spaces—for example, for social support [17], which cannot happen only in the comments sections of fanworks, which is the only social affordance of AO3. Therefore, migration tends to occur between sites with similar functions—from one archive to another (e.g., fanfiction.net to AO3) and one social space to another (e.g., Tumblr to Twitter). Consequently, some platforms that serve both functions (e.g., LiveJournal) were replaced by multiple platforms. Figure 1 also represents the relative popularity of each platform among our survey participants now; for example, over 1,600 currently use AO3, whereas less than 50 currently use email lists.

5 REASONS FOR MIGRATION

Figure 1 shows at scale how platform use shifted over time. Here, we describe patterns of reasons for those migrations, and how they related to individual platforms. Though issues related to the platform itself (e.g., technical affordances) intertwine with issues of community (i.e., interactions that take place), we were able to pull apart patterns of responses that focus on one or the other.

5.1 Platform-Based Reasons

Interview participants mentioned three major reasons related to the platform (as opposed to the community of people there) that contributed to joining: features and design, values and policies, and content, which we reflected in survey questions. Nearly across the board, the pattern was the same: respondents ranked content as most important, followed by features, and then values. For nearly every platform, over 90% marked "the site had content I liked" as a reason for joining. Dreamwidth and AO3 were the only sites for which a majority of participants stated values as a reason for joining (63% and 65% respectively), which likely has to do with the unique circumstances under which they were formed, discussed in more detail in section 5.1.2.

Similarly, common reasons given in interviews for leaving a platform were design changes, policy changes, technical problems, or just that there was a new platform that was better. We represented these in survey questions, and Figure 2[1] shows for each platform the percentage of participants who have left that did and indicated each reason. Note that for AO3, Tumblr, and Twitter, very few participants have left; AO3 is not included because of over 1,500 survey participants who have used the site, only 3 have stopped using it.

Generally, the most common reason for leaving a site is that there was another site that was better (or "new and sparkly"), which points to largely positive experiences with the platforms. However, the most notable exception is LiveJournal, where the majority of participants left for policy-related reasons. It is also worth noting that though participants indicated that "another site was better" as a reason for leaving, the open responses reveal that there were often design or policy issues at the heart of that "better." For example, we heard from participants that the lack of simple archival properties on email lists led to many fans leaving Yahoo Groups, and that better search and tagging features was one reason for migrating to AO3. Sometimes they also simply spoke of the lure of something new; as PS1015 put it, "There were new sparkly online options that drew EVERYBODY away." While issues with any platform are more apparent in hindsight, reflections on a platform's problems and limitations highlight that there is often simply a better suited tool.

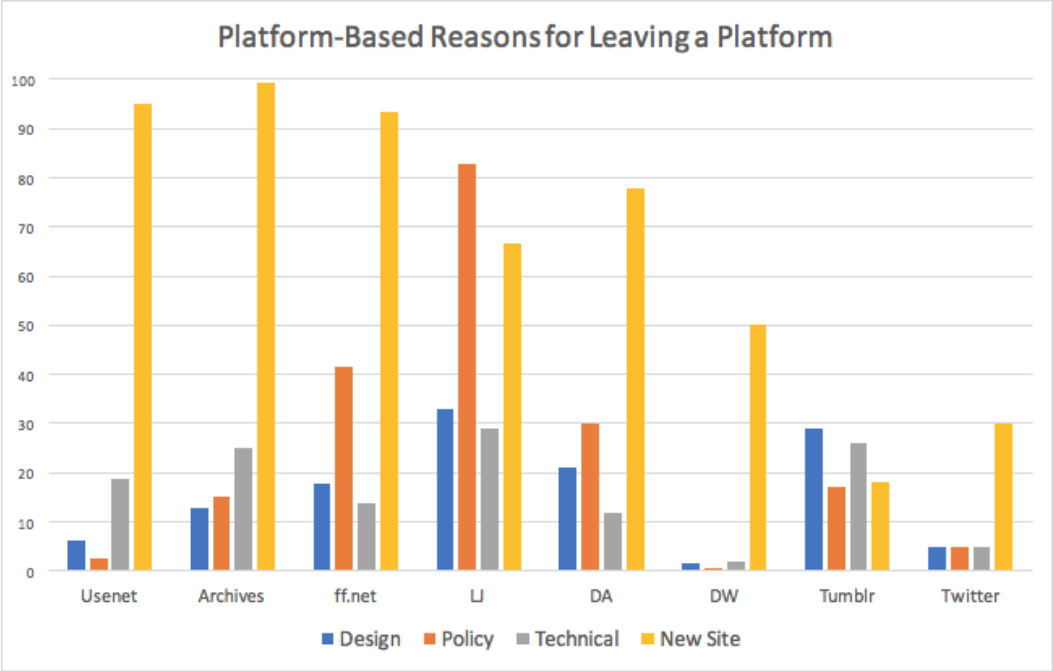
5.1.1 Design. Just as new affordances might bring in new users, changes in design or interface can drive people away; prior work has even described significant design changes as a kind of "attack" against a platform's users [23]. Though for every platform at least some survey participants noted design changes as a reason for leaving, nearly all of the relevant qualitative responses (as well as data from our interviews) were about LiveJournal. One often-cited example was a design decision to remove the ability to add subject lines to threaded comments—a seemingly simple change that "completely broke" the ways the platform was being used for anonymous fanfiction exchanges. They saw these changes not only as targeting a different audience, but as actively pushing them out:

> It's obvious that [fandom is] not the demographic they wanted to cater to, because despite the fanfiction sect on LiveJournal being very local, they were like, 'Well, these are the changes we're making. Deal with it.' So, a lot of us migrated to other platforms. (PI9)

5.1.2 Policy. Just as specific design decisions were interpreted by some as hostile to fandom, policy changes or new enforcement mechanisms were even more consequential. Despite common wisdom that people do not know or care about platform policy (and often, a lack of attention to the

[1]Email lists and messageboards are not included in the visualization for Figure 2 due to missing data. However, our analysis of free responses about leaving and joining those platforms show these same general patterns, and that the most common *platform*-based reason for leaving was because a new platform came along that was better. For messageboards, more common reasons were community-based.

Fig. 2. Percentages of responses from survey participants (who reported leaving a given platform) about a platform-based reason for leaving.



importance of policy in the design of collaborative systems [30]), our data shows that it played an important role–both with respect to bad policy leading to exodus or good policy encouraging uptake. For example, participants mentioned LiveJournal's policy changes after they were acquired by a Russian company. One described "cracking down" in ways that were "not friendly to fandom":

> I left LJ during one of several rounds of crises in which people's work...was being deleted/removed/accounts closed in large swathes for 'inappropriate content' or whatever the policy term was–too much sex, basically. (PS62)

FanFiction.net also created and enforced policies that drove users to different platforms. Several years after launching, they began enforcing policies against "mature" content, as explained in a site policy that participants found difficult to find and interpret. They described a seemingly random enforcement of policy that targeted adult content, deleting fanworks without warning.

> I left [FanFiction.net] on September 12, 2002, after they went dark for a 'moment of silence' on the one year anniversary of 9/11, and then when they came back they were like '[just kidding,] we went down to do database work that deleted everything explicit' and we're no longer hosting that. (PS1060)

In addition to the open warning against adult content, Fanfiction.net to this day warns that it will remove any fanworks based on works by authors who have requested fanwork of theirs not be hosted online; Anne Rice in particular gained a level of infamy in fandom for policing fanworks with the threat of legal action [5]. One participant complimented AO3 in contrast to FanFiction.net for not incorporating rules based on external pressure from authors:

> [Using AO3] was like seeing joy. They didn't exclude fandoms based on crappy author behavior (Anne Rice fandom), they were created by adults, with great design principles, stable code, useful features, and, most importantly, easy to save. (PS1725)

This comment reflects an appreciation for sites with policies that protect the interests of fan creators. As Figure 2 shows, a significant number of FanFiction.net participants left the site due to policy reasons, but the largest single factor in migration away from LiveJournal was their policy changes. Similarly, Dreamwidth and AO3 (which were both formed partly in response to the LiveJournal controversies [20]) both show many users joining them because of positive values or policy.

> AO3 came out and was not censoring you and said 'You can post whatever you want. We don't have to like it, but you can post it.' That was a huge contribution to why people started flocking to AO3. FanFiction.net was well known for deleting and taking down your work, and they may not give you any warnings. (PI11)

Participants also noted that leaving LiveJournal for policy-related reasons was possible in part because there was immediately another platform that responded to the problem. This "viable option" requirement also potentially explains why FanFiction.net did not have as quick a drop-off in use, despite similar policy complaints; as PI11 notes above, it may have taken the creation of AO3 to motivate movement from FanFiction.net.

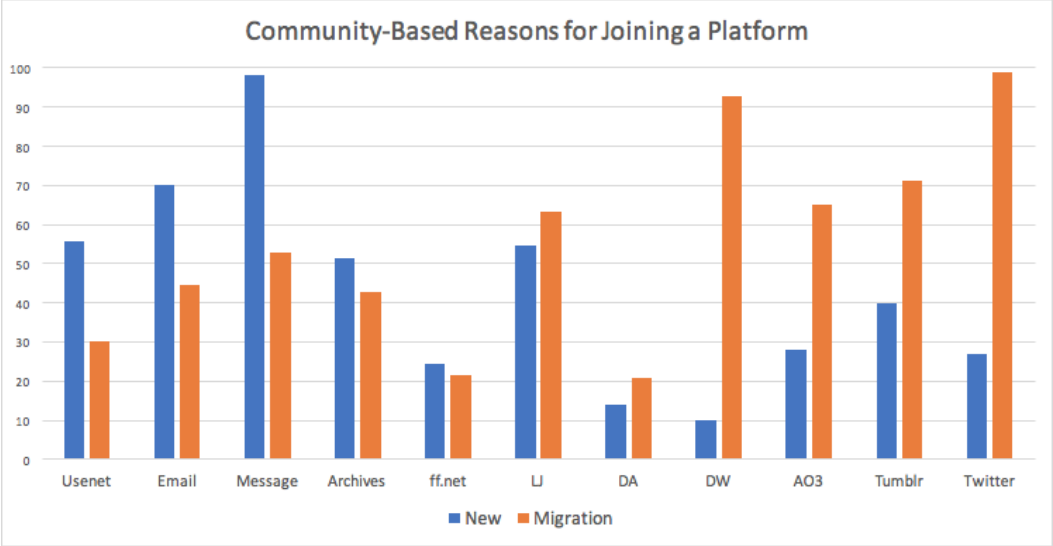
5.1.3 Content. Sitting between issues of values and design, there are also reasons for leaving a site related to protection of content. These often relate to trust in the platform–either conceptually, or not trusting the technology. Fan platforms, particularly the smaller ones, have always been vulnerable to content disappearing, both intentionally (a web host shutting down a site for TOS violations) and incidentally (a web host folding).

For example, some participants mentioned receiving cease and desist letters for fanworks, prompting worry about their work being removed from a platform. Because copyright law as applied to fanworks is notoriously gray and a source of confusion, chilling effects (when an action is suppressed due to worry over legal consequences) are common within fan communities [19]—particularly when they do not trust the platform to support them. For example, many fans who create fanvids (remix videos of media content, set to music) have fled from YouTube for fear of takedown notices [19]. Participants mentioned being afraid that other platforms would also cave to copyright owners, but felt comfortable with AO3 as a contrast, since its policies emphasized their dedication to copyright advocacy [55]:

> Archive of Our Own came onto the scene and they had the specific copyright where it would protect your fannish material...AO3 coming out with that protection was a really, really big attractor to a lot of people. (PI8)

In addition to fearing legal ramifications, many fans described concern over uploading content onto a site that may no longer exist in the future. This was especially a problem when fandom was even more disperse, and fandom-specific archives or individual email lists may come and go. Notably, many archives were hosted on Geocities, which one day disappeared in 2009 when Yahoo shut down the site, resulting in a "tragic" amount of lost content in both fandom and beyond [37]. This problem was so pronounced that one of the goals of AO3 as an archive was to help preserve fandom history, and as part of its design implemented an "open doors" system to easily import entire archives of fanfiction as well as the ability to "orphan" works to discourage users from deleting content [20].

Fig. 3. Percentages of responses from survey participants (who reported joining a given platform) about a community-based reason for joining ("I joined a new fan community" versus "my fan community started using it.").



> They couldn't make it all disappear. Geocities exodus wouldn't happen again, because the servers would belong to us. It wouldn't matter because no one could buy it out from under us. (PS709)

In addition to content vanishing for technical reasons, spaces such as FanFiction.net and LiveJournal also suffered from site administrators tightly regulating content. One participant described LiveJournal as having a "craven lack of concern for users" that made them feel uncomfortable. This concern extended beyond specific actions; it took form in the perception of the company itself being "intolerable," which impacted how safe their content felt. Here, we see distrust not for the technology but for the people or company managing the platform.

> I miss LJ 2005 SO MUCH. Strikethrough '07 [when LiveJournal deleted journals without notice] was the mark of the end, though; it never got better after that. They never apologized, never even explained their mistakes. (PS158)

5.2 Community-Based Reasons

Most often, participants expressed multiple reasons for leaving a platform–usually, a combination of platform-related and community-related issues. Unsurprisingly, for the earliest platforms (e.g., Usenet), community-based reasons for joining were more often to join a new community; for later platforms (e.g., Tumblr) reasons for joining were more often to follow a previous community (see Figure 3).

Similarly, reasons for leaving a platform might also include joining a new community (elsewhere), not wanting to be a part of the current community, or because their previous community left. Sometimes communities change, and sometimes people change. For example, one participant described that as she got older, it felt like she had outgrown the FanFiction.net community (which tends to have younger participants [8]).

> [Leaving FanFiction.net] was partially that the aggregate age there was lower than on LJ...FanFiction.net didn't quite feel like my audience and my community anymore due to age-difference purposes. (PS329)

Following a community elsewhere as a reason for migration is also more common with earlier platforms, whereas on newer platforms it is uncommon–both because fewer people have left and because there may be nowhere else for a community to go:

> The communities are here [on Tumblr]. And until such time that a community starts to leave, I will be here. I'm sure there will be another migration at some point, but there is no platform coming into view at the moment. (PS1349)

These findings underlie that a huge contributor to migration is that people follow their friends and communities. Something of a chicken-and-egg problem, these movements tend to be tied to other reasons (i.e., those listed as platform-based reasons). However, this factor is also necessary for large scale migration due to the critical impact of network effects on migration decisions [41], and causes a snowball effect even among those who may not care about the underlying reasons. Of course, whereas this snowball effect was ultimately successful for some platforms, others might have struggled with getting this critical mass–the point at which there are enough users to create the content that would attract others [35]. In other words, this is a collective action problem, and as one participant described, this creates a game of chicken:

> Most of my friends were very adamant that they were not going to move to a new platform until their entire [network] did. So you had this game of static chicken where no one was willing to move first. (PI3)

Though not an exhaustive list of the motivators we uncovered in our interview and survey data, these platform and community-based reasons represent major themes, and also speak to the complexity of migration decisions, particularly when a number of these factors are intertwined.

6 CONSEQUENCES AND CHALLENGES OF MIGRATION

Regardless of why platform migration occurs, participants also spoke to the consequences of movement across platforms and the resulting challenges, both for them personally and for communities as a whole. Some challenges are based in the technology/platform itself, and others are more about social ties and the community. Though these factors are intrinsically related and this is a sociotechnical problem, for the purposes of organization we are able to extract each theme's emphasis on either the social or the technical.

With respect to multiple choice responses we constructed from interview data, only 40 survey participants chose an "other" option, suggesting that these were fairly comprehensive. The responses were evenly distributed, with at least half of participants stating that they had experienced each one, which included: people losing track of each other (N = 1518); losing community members (1207); content disappearing (1141); norms or values changing (1092); difficulty fitting into a new community (1066); and difficulty learning a new platform (814). When examining descriptions of individual platform migrations as well as open-ended answers, we found that participants were acutely aware of these consequences, but also accepted them as an unwavering reality of participation in fandom over time.

6.1 Technical Challenges

When moving to a new social platform (e.g., migrating from Facebook to Google+), the loss of content from the previous site may be frustrating, but likely not debilitating, depending on how one used the site. In the case of fandom platforms, many serve archival purposes. As a result, moving means managing content, and as one participant says, something always ends up lost:

> Regardless of whether the platform change is positive or negative, you end up with some content getting lost...If certain fan content is very important to you, you have to save it yourself, because you can never be 100% sure the link isn't going to suddenly stop working one day. (PI8)

This loss is particularly troubling to many fandom participants because, as we described earlier with respect to anxieties around content lost, fandom history is an important value. As a result, preservation was one of the important values that drove AO3's design decisions [20]. Loss has a cost, particularly in the context of women and other traditionally marginalized voices whose creative contributions are often overlooked or even erased entirely [11], as one participant noted in the context of their own identity:

> [Migration] has really messed with our collective sense of fandom history. As a queer person, that stings maybe a little bit extra. (PS937)

As a result of interview participants voicing these concerns around content loss, we integrated questions on the topic into the survey (see Appendix A). Across all platforms, for the majority of participants who had stopped using a platform, their content is still there; for example, only 20% of LiveJournal users deleted their account. Most frequently, users kept old content on a platform they no longer use, but were not adding new content. However, some had content on both the old and new platform (cross-posting or "mirroring", which 20% of LiveJournal users who started using another journal site did). Some platforms also have technical features to help this process; 60% of participants who started using Dreamwidth imported content from their LiveJournal. The result of content remaining in multiple places (and in some cases, ongoing mirroring or cross-posting) is overlap and redundancy, which can be both arduous for content creators and confusing for consumers.

Another problem inherent in joining any platform is that it requires learning to use it. For example, many participants mentioned difficulty with the design of Tumblr, particularly because the style of interaction was so different than on previous platforms. Sometimes these technical problems seem insurmountable; some participants indicated that they simply gave up:

> I think [moving to Tumblr] killed the fandoms I was in...I don't know anyone or how to use the platform so I left fandom. (PS144)

6.2 Social Challenges

Though social consequences may be shaped by technical ones, the act of migration also results in patterns of social changes and subsequent challenges. Many participants spoke of how communities inevitably splinter, because some members will refuse to move, or because old friends become difficult to find. Beyond losing content in a technical sense, this also means losing social connections.

The decline of communities over time reveals the impact of network effects, as the cost of leaving decreases. For example, those who attempted to stay on Usenet found that the community dwindled as time went on, and even those who lingered moved on eventually:

> Usenet's decline was a lot like watching a shopping mall slowly go out of business. Like, when it's still open, but a lot of shops are leaving, and the ones that stay see less and less activity, and there's less and less to keep you returning, and it just gradually succumbs to entropy. I enjoyed Usenet, but it just became less active and less interesting. (PS956)

One consequence of the deserted mall metaphor is simply more migration, but sometimes there are breakdowns in that process. A commonly used term for this consequence was "fragmented"– when some people move and some people don't, the community necessarily splinters, or even "disintegrates" all together.

> Some fandoms have disintegrated because they have left one platform but not really landed anywhere as a whole, different people going off to different platforms and not communicating. (PS67)

Somewhat opposite of fragmentation, another source of problems is when communities that might have been more isolated are thrown together—an issue that has come into focus with the increased centralization of fandom on platforms like Tumblr and Twitter. Previously popular online spaces like email lists, fandom-specific archives, or even LiveJournal communities or Usenet groups were self-contained to sub-groups–e.g., Harry Potter or Star Trek or even specific aspects of each. Though broader fandom does have a stable set of social norms [19, 20], there may be still be different norms and practices in subcommunities–particularly those with distinct demographic differences (for example, Blake's 7 fandom skews much older than My Little Pony fandom).

As prior work has shown, when people with different ideas of what norms are interact in the same space, this can be a source of conflict [22]. For example, on Tumblr (which as a platform overall skews younger [13] than most of our participants), many described either feeling unwelcome on that platform or "get off my lawn!" with respect to the younger generation of fans.

> Fandoms have gotten younger over the years, and for older fans changing platforms (especially LiveJournal to Tumblr between 2008-2012) there's a lot of stigma in still participating in fandom from the younger members. (PS294)

> I think fandom has sort of splintered by demographic. Fandom isn't being handed down like it was in my youth...Older fans are sometimes alienated by younger fans' zealous attitudes...They don't know the history, by and large. And that shows. We have lost our commonalities. It hurts. (PS876)

However, a broader issue is not just that older fans and younger fans (or Star Trek fans and Star Wars fans) interact, but that all of fandom is embedded within the overall ecosystem of Tumblr. Many participants feel that this has changed the culture of fandom, which again, some described as positive and some as negative.

> I am also always curious how Tumblr became the fertile ground for social justice discourse around fandom. I never encountered that anywhere else, and I'm not sure if the fact that it is now so intimately connected to fandom is a byproduct that can be tied specifically to Tumblr. (PS1874)

In other words, one social consequence of an existing community moving to a broader platform is that the culture and norms of that community will inevitably shift in reaction to the broader culture of that platform. Overall, these kinds of social changes were the most commonly cited consequence of migration by our participants—both for the good and the bad.

7 DISCUSSION

In some ways, fandom is a unique online community due to its longevity and its lack of ties to any particular platform. In other ways, it is the prototype example. Though "much ink has been spilled" in trying to define the concept [48], one explanation of community that emerges is that "the cumulative impact of interactions among individuals adds value over pairwise interactions" [26]. This definition seems appropriate, since fanworks by their very nature are created within a community of fans [10]. Therefore, though some of the nuances of interaction and impact may be unique to fandom, there may also be broader lessons that can inform the study and design of online communities–particularly since there have thus far been so few opportunities to examine platform migration in any community over this amount of time and at this scale.

7.1 Motivations and Barriers to Migration

By laying out the reasons that fans left platforms in order to join others, this work illustrates a number of potential failure modes for online platforms, as well as factors that contribute to success. Our findings support some of the known "critical design challenges" for online communities [35], but also provide nuance with respect to how they relate to migration of an entire online community, particularly when considered in relationship to important features of offline migration such as network effects and coordination. For example, the "critical mass" problem for starting an online community looks very different when the community itself is not starting from scratch but rather relocating onto a new platform. Though network effects are critical for initial adoption of technology as well (what use is any social platform, or a fax machine, with one user? [35]), adoption costs are quite different than switching costs, which require more coordination [40, 64]. In other words, the "game of chicken" that a participant described represents the critical early stage of network effects for migration, in which individuals must coordinate with each other to encourage contribution in the new community. Some of these specific challenges suggest design principles (discussed in the next section), but our findings also help illuminate the concept of commitment (or why someone might want to remain either in a community regardless of its embodiment, or on a platform), which helps explain both why migrations happen and why they don't happen.

One might interpret our data about migration as suggesting that it is common, or easy–that despite the potential for negative consequences, people are leaving and joining platforms and it has not brought an end to this community. However, our survey data covers a span of over two decades in which many new platforms, and entire technologies that drive platforms, have been born and also died. One important lesson from this work is exactly what it takes to leave a platform–that is, to break a commitment to it.

7.1.1 Social Motivations (Affection and Normative Commitment). The feeling of wanting to remain a member of a community signals affective commitment, and there are two major bases for this: (1) identity-based, feeling that you are part of the community; and (2) bond-based, feeling like you are close to other members of the group [35]. Closely related is normative commitment, feeling as if you have an obligation to the community–often because of feeling strongly about the purpose that the community serves [35]. The community of fandom, beyond any specific platform, is notable for having strong social norms around issues like attribution and credit [28], copyright [19], and positive feedback [8], which likely both stem from and subsequently contribute to a sense of group identity [19, 49]. Additionally, the group identity includes elements of commitments to a cause or mission, with advocacy groups having spun out of fandom around issues such as LGBTQ rights [17] and copyright-related legal advocacy [56].

Our findings highlight that the role of commitment in community migration can be very different from its role in staying at or leaving a platform. In the case of fandom, both affective and normative commitments to the community contributed to abandoning platforms in favor of following members of that community. In fact, the importance of these types of commitment were enough to overcome barriers to changing platforms, such as lost content or steep learning curves. This nuance suggests that understanding movements across platforms requires distinguishing between community and platform when it comes to commitment. After all, communities are not reducible to factors found solely in the technology through which they primarily embody themselves [46].

With respect to the platform itself, our findings reveal that value clashes (sometimes triggered by policy changes) can also have a large role in reducing feelings of obligation for–and therefore commitment to–a particular platform. Similarly a new platform can be a pull factor for migration if it signals a stronger sense of group identity and/or a stronger commitment to the cause or purpose of the group (e.g., the pull from AO3 was even stronger than the push from LiveJournal). By having

strong statements of values, and moreover by building values into the design of the platform, AO3 created a strong sense of both affective and normative commitment among community members—which explains why, after a decade of use, so few of our respondents have left.

7.1.2 Barriers to Migration (Need-Based Commitment). Need-based commitment depends on the net benefits that people experience from the community, as well as the cost of leaving [35]. Recommendations for increasing need-based commitment involve not just surfacing the value of the community, but also making it more difficult for members to leave (for example, by making it difficult to export assets to another platform) [35]. Platforms like AO3, where users have strong feelings about the value and utility of the site, inspire need-based commitment due to the net benefits. Other platforms seem to inspire need-based commitment due to the difficulty in leaving–providing us insight into what the barriers to migration are. For example, our survey data is full of people who say that they hate Tumblr:

> God, I hate Tumblr. It is terrible for conversations. You can reblog and reply, but there's no guarantee the original poster sees your reply. I HATE TUMBLR. DIAF TUMBLR. (PS361)

> I HATE TUMBLR. I think that's almost de rigeur for fandom olds, though, isn't it? I mean, we've been bitching about Tumblr since it started, and still do. (PS275)

> I hate [Tumblr] but there's nothing better. (PS1346)

As the last quote reveals, the answer to "so why don't they just leave?" is that the perception is that there is nowhere appropriate to go. As one participant put it, she hopes there will be "another great migration" at some point, but "until such time that a community starts to leave, I will be here." Though most Tumblr users in our data also use AO3 for archiving their fanfiction, AO3 does not provide affordances for the social interaction that is critical for fandom and currently largely concentrated on Tumblr [17]. Since the time of our data collection in early 2018, this unrest with Tumblr has become even more pronounced, in the wake of a new policy implemented in December of that year. In a move that in some ways mirrored the policy changes by LiveJournal and FanFiction.net that we described, the platform announced that it would no longer host "adult" content. The outcry against this change led to speculation about whether the fandom community on Tumblr would find a new home, and where that might be, given the lack of a single obvious alternative [39].

Figure 1 provides some historical insight into this problem as well. As shown in Figure 2, the primary reason that survey participants reported leaving LiveJournal was because of policy. However, these policy changes took place mostly in 2007–and Figure 1 shows that LiveJournal use does not begin to noticeably drop off until 2010/2011. If policy change was the catalyst, why did they not stop using LiveJournal sooner? There is a constellation of answers to this question (including, for example, that some may have been cross-posting to LiveJournal or reduced their activity gradually over time), but the overall patterns and our qualitative data support the conclusion that a significant problem was the lack of viable alternatives.

Tumblr officially launched in 2007. AO3 went into open beta in 2009. Many participants describe them as having a kind of symbiotic relationship when used together—that the archival qualities and searchability of AO3 make up for the ephemerality of Tumblr, and that affordances for social interaction on Tumblr make up for the lack of socializing features on AO3. Figure 1 shows that as use of those platforms rise, LiveJournal's falls. Therefore, our findings confirm an intuitive principle: For a migration to occur, there has to be both a compelling reason to leave and a viable alternative option. Need-based commitment can serve as a pull factor to bring people to a new platform that

better serves their needs, but it can also be a barrier if there is a lack of a better option, making the cost of leaving too high.

It is also important to note that viable does not only refer to the technical, but also the social. It means that the new platform must both be socially appealing (e.g., reflect the values of the community) and also not incur social costs. Non-use of any platform has opportunity costs [47]. On a platform like Facebook, this could be anything from not being invited to parties to missing out on important organizational communication to, in some parts of the world, not having access to a major avenue for getting online [16]. For fans, this might mean losing friends or content Moreover, our findings support the importance of network effects, showing that migration can only be successful if enough people take the leap (and aren't playing "chicken" over who will leave first) to bring everyone else with them. These factors complicate what constitutes a "viable" alternative. In some ways, it has to be perfect, which is perhaps why AO3, built by the fans themselves, was such a successful migration.

7.2 Designing for Community Migration

Though our findings might suggest guidance for the design of platforms for the specific community of fandom users, they also suggest some principles relevant to online communities more generally: (1) "Leaving" a platform does not necessarily mean leaving a community, and may be more about relocation than exiting; (2) Users often join new platforms with deep experiences in others, which can impact their expectations for and subsequent experiences of a new platform; and (3) There are opportunities for the creation of new platforms that take advantage of the shortcomings of or attrition from others. Taken together, these also suggest the importance of designing with migration in mind. Though fandom has provided an early example of many migrations over time, it is also likely that as the number of platforms in our social ecosystem continues to increase, whole communities leaving and joining platforms will become more common.

We already know that technology can provide support for offline community disruption–for example, an online platform might consider providing communication tools that reconnect communities, facilitate information sharing and gathering, and support community organization [50]. What similar role might platforms play in supporting communities during online disruptions that implicate those platforms? If we know that communities will migrate (which is at least the case for fandom), what could platforms do to support users and mitigate the kinds of negative consequences revealed by our data?

It is worth noting that there are two types of platforms implicated in a migration–the platform that users leave and the platform that users join. We recognize that in a practical sense there is likely little motivation for the abandoned platform to make it easier for users to leave. Therefore, we focus more on support for new arrivals, though there are design opportunities on both sides.

7.2.1 Designing for Overlap and Platform Ecologies. We found that it is common for a migration to result in a period of overlap between platforms, where users are still engaged with both. Overlap can be both arduous for content creators and confusing for others when it is not clear where someone's desired platform for interaction is. Because overlap is likely to happen, one design strategy for making it less arduous is to include functionality for cross-posting content. For example, after its launch Dreamwidth included easy functionality for also posting new content onto LiveJournal; as a result, many users kept posting content to LiveJournal for a long period of time despite rarely or never visiting the site.

However, this also suggests a broader design principle: platform designers should take into account the entire ecology of platforms rather than their own in isolation, which has also been

suggested by studies of tool use in other contexts [24]. Recognition of overlap and support for cross-posting via Dreamwidth is one example, though a less extensive version is AO3's support for posting its content on Tumblr (or Twitter), by providing a formatted embedding link [20]. Considering the prevalence of seeking the "new and sparkly" as a reason for leaving a site, recognizing and supporting that a platform might be used in conjunction with others also might encourage users to stay (and use both) rather than leave (and migrate entirely to the newer platform)–therefore facilitating optimal use of both platforms. Such complementarity between multiple platforms might encourage the benefits of membership overlap revealed by previous work, while decreasing the drawbacks of direct competition [63]. However, designers must also have an understanding of when platforms complement versus compete; for example, many of our participants use AO3 and Tumblr simultaneously (for archiving and socializing respectively), but LiveJournal and Dreamwidth share essentially the same function, so even cross-posting eventually faded in favor of a complete migration to the newer platform.

It is also critical that any connection between two disparate platforms is designed carefully (and not implemented as a default), particularly in the context of fandom. As with other potentially sensitive contexts (such as people going through gender transition [25]), fandom has strong privacy norms that often involve maintaining separate identities on different platforms [7, 17, 19].

7.2.2 Designing for Loss Prevention and Resettlement. One of the most consequential negative outcomes of migration for many participants was loss of content or friends. Therefore, a significant barrier to migration is the fear of leaving something behind. Again, there is likely not a strong motivation for the platform being abandoned to support users taking content with them; in fact, one suggested strategy for encouraging commitment is to make it difficult for members to export or transfer assets [35]. However, there is significant motivation to help users join a platform. For example, both AO3 and Dreamwidth (designed specifically with migration in mind) had functionality for directly importing content from other platforms. Dreamwidth also had functionality for importing a list of LiveJournal friends to automatically add any Dreamwidth users with those same usernames.

The broader design principle is that platforms–especially new ones–should consider potential users who are not joining from nothing, but instead may have with them bags packed from elsewhere. Supporting importing content and social structures (e.g., lists of friends or organization of subcommunities) could overcome a major burden of migration and thus encourage new users to join. However, as with any other potential connection between otherwise separated platforms, such a feature would have to account carefully for context. A link between, e.g., Facebook and Tumblr (even a "people you know" feature) could in many cases be as obviously problematic for fandom as it would be for someone going through gender transition [17, 25] due to the connection of real names to pseudonyms, but even connections between fandom-specific platforms could also be upsetting or instigate context collapse for someone who is purposefully shifting between communities within fandom. Though such features could also be helpful, they should be designed to give migrants complete control.

This kind of support can also be critical for preservation efforts, in cases where the original content would be lost entirely. For example, when Geocities closed, a great deal of content was just erased from the web [37], including a large number of fandom-specific archives. As part of its goal to support migration and preserve history, one design feature of AO3 is the "Open Doors" initiative that imports stories from smaller archives that might otherwise be abandoned [20].

However, even lighter weight ways to simply make new users feel welcome can be helpful; for example, when another site became a frequent landing place for ex-Answerbag users, that site noticed the traffic spike and reacted, creating a welcome message and support for finding other

migrants [23]. These structures are also helpful for mitigating the inherent coordination costs incurred by a migration. Smooth coordination can be difficult, particularly when different people would prefer slightly different outcomes. However, research in other contexts has shown that standard setting can be critical for reducing these costs, particularly for technology adoption [18]. New platforms that share "standards" with previous ones reduce these costs as well—for example, how some parts of AO3's design are based on conventions from LiveJournal [20].

Support for a seamless transition could be one characteristic of a viable alternative, which might be through design supportive of loss prevention, but could also be culture or policy-based. Giving communities ways to preserve their norms and practices can be valuable, so that not everything feels new. When a new platform performs a similar function to a previous one, users will come with prior experience, which if well-supported can result in higher initial retention of newcomers [33]. However, if the design or utility of the platform seems too different, the learning curve might turn users away–but the "new and shiny" of a platform with better features can pull users in. Therefore, there is an important line to walk between familiarity and improvement, which can likely be best navigated with user feedback–as with the design of AO3, where extensive input was sought in the very early stages to determine what features of previous platforms to keep and which to discard [20]. In the best case scenario, if one is designing for a particular group of migrants, norms can be built into the design–for example, the way that AO3's content headers mimicked existing conventions on LiveJournal [20].

Moreover, resettlement of an entire community brings up the challenge of not just socializing newcomers into a community [35], but of socializing an entire community into a new platform that may be home to existing communities. One option is allowing space for a community to as remain such rather than forcing integration into a broader platform, which means designing for subcommunities. For example, when AO3 imports existing archives (often small archives that would otherwise be shuttered), they turn into "collections" that can be both self-contained and part of the broader ecosystem. In contrast, a common complaint about Tumblr was that subcommunities are not possible, which makes it difficult for a smaller community to maintain distinct norms. Preservation of community spaces is one way of maintaining continuity for migrants.

8 CONCLUSION

As our digital communities grow more and more complex, we should try to better understand what connects an online community beyond the platform where it is embodied. Communities rarely emerge in a vacuum, carrying with them a history of previous relationships and community memberships [53]. Fandom is a unique domain with which to study this phenomenon, since the community has existed across so many different online spaces over a very long period of time, demonstrating how communities can exist separate from and across platforms simultaneously, and ultimately survive beyond them.

Our findings about platform migration suggest common motivations for leaving as well as joining, and suggest that policy and values based problems can be particularly important, but that these alone may not be enough to inspire a mass exodus. Just as a "new and sparkly" alternative can draw people away from a platform that is serving them well, that same viable alternative must be available to draw them in. Subsequently, the network effects that occur when users follow their friends and communities (or flee empty shopping malls) can lead to a new platform becoming a home. Why don't people just leave Facebook, in the wake of so many complaints about it? The same reason fans don't just leave Tumblr. They need somewhere to go first, and that place must importantly support both their technical and their community needs. In other words, without a *good enough* place to go, migration becomes a collective action problem.

One of the lessons of this work is how one might make that alternative good enough, an accounting for what factors contribute to viable alternatives and successful migrations, as illustrated by data about thousands of individual moves across platforms. These findings have the potential to assist platform designers in mitigating the challenges of users leaving and joining new platforms. Moving across lands need not stymie creativity and fracture communities if we build better paths to travel on.

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A SURVEY QUESTIONS

Survey questions with multiple choice answers; not all survey questions are included in this table.

Question	Response
What do you do in fandom online? Choose all that apply.	1. Read, watch, or view fan creations 2. Write fanfiction 3. Make fan videos or other remixes 4. Draw fan art 5. Create fan graphics (like gifs, icons, or photomanips) 6. Participate in fan meta-discussion 7. Fan roleplay games 8. Other (please specify)
Please select sites where you participated in fandom. List the years you were active in the textbox provided (for example: 2000-2003). If currently active, please indicate 2018 (e.g., 2010-2018). If you don't know for sure, your best guess is fine!	1. Usenet 2. Email Lists 3. Message boards/Online forums 4. Fandom-specific Archives (e.g., Gossamer) 5. Fiction Alley [open answer] 6. Fanfiction.net 7. LiveJournal 8. DeviantArt 9. Dreamwidth 10. Archive of Our Own 11. Tumblr 12. Twitter 13. Other (please specify)
Section: Questions asked for all platforms	Section: Questions asked for all platforms
How do/did you use [all sites listed] for fannish activities? Choose all that apply.	1. Social interaction 2. Fannish meta-discussion 3. Posted/archived fanworks 4. Viewed and interacted with others' fanworks 5. Roleplaying 6. Other (please specify)
What prompted you to join [all sites listed]? Choose all that apply.	1. My fan community started using it 2. I joined a new fan community 3. The site was easy to use or had features I liked 4. The values of the site aligned with my fandom or with my own values 5. The site had content I liked 6. Other (please specify)

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If you have left, what prompted you to leave [all sites listed]? Choose all that apply.	1. I never stopped! I still use [site] 2. My friends/community left 3. I no longer wanted to be part of that community 4. Design change(s) 5. Policy change(s) 6. Technical problems like downtime or loss of content 7. There was another site that was better 8. I changed fan communities 9. I stopped participating in fandom 10. Personal/life circumstances 11. Other (please specify)
If you are no longer an active user of [all listed sites], is your content still there?	1. Yes 2. No 3. Some content but not all of it 4. I did not have content there 5. I don't know
Section: Consequences	Section: Consequences
Where do you feel your fan community is most present right now? Choose all that apply, though try to choose the ones that you use the most!	1. Usenet 2. Email List 3. Fandom-specific Archive 4. Fanfiction.net 5. Livejournal 6. DeviantArt 7. Dreamwidth 8. Archive of Our Own 9. Tumblr 10. Twitter 11. Other (please specify)
Have you encountered any of the following issues when moving across fandom platforms or sites?	1. Losing community members 2. People lose track of one another, for example—names change 3. Difficulty fitting into or engaging with a new/different community 4. Content disappearing 5. Norms or community values changing 6. It is difficult to learn the new platform and find relevant content 7. Other (please specify)