

# **Fragmented Digital Infrastructures – The case of Social (News) Media**

*Full Paper*

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## **Abstract**

Digitization and contemporary use of social media platforms is changing how we perceive and use IT, both in organizations and as citizens or consumers. These developments have also transformed and changed many industries, bringing both opportunities and challenges. One industry that was affected by digitization relatively early is the media industry, leading to studies on online journalism, gatekeeping, reader interaction and other changing practices enabled by IT.

This study attempts to highlight the IT infrastructure behind the changing practice to understand the relationship between the IT and the use. Through an online ethnography, this paper investigates the use of social media platforms in the newspaper industry. The findings indicate that newspapers either use an integration strategy, where they relinquish control over the feature to the social media platform, or an appropriation strategy where they take the integration a step further, to have the social media platform work for them.

## **Keywords**

Social Media, Platforms, Newspaper Industry, Digitization

## **Introduction**

The way contemporary organizations utilize social media platforms challenge how our community perceives, and has traditionally perceived, information systems (Tilson et al. 2010). Digitization and the connectedness that digitalization has brought with it has enabled and in some cases forced organizations to use information technology in novel ways, ways that may or may not have been intended or anticipated even by the creators of said technology. Blogs, wikis, social networking and other types of social media have changed the landscape regarding users, ownership and how we manufacture, distribute and manage information technology and digital artefacts (Alfaro et al. 2012; Kaplan and Haenlein 2010; Von Krogh 2012).

Digitization and organizational use of social media leads to paradoxes (Tilson et al. 2010), one such example is the traditional centralized management perspective on IS versus the decentralized features of the social media platforms (Stenmark and Zaffar 2014). Paradoxes such as this, in combination with the malleability of social media often leads to unexpected or unintended use scenarios (Mansour et al. 2013). Issues such as these become highly relevant to investigate further as the use of social media becomes more and more common, not only in business but also in society as a whole, as users in the role of citizens or consumers are offered more services through, for example, media services or e-health initiatives (Aral et al. 2013; Tilson et al. 2010).

The media industry can be considered to be one of the fore runners when it comes to digitalization, since the effects of the digitization of media has reshaped the entire business (Nylén et al. 2014). The news media industry, with the digitalization of the newsroom and the first online newspapers in the mid 90's, tell tales about the struggles of, for example, gate watching (Bruns 2003), moderation of reader generated content (Hermida and Thurman 2007) and other types of user participation that has drastically changed

the playing field for all parties. In order to problematize social media platforms as a bridge between end users and organizations, this study therefore adapts the view of digital infrastructures (Tilson et al. 2010) to investigate the practice of social media use in the news media industry through an online ethnographic study of newspapers' use of social media. The aim of the study therefore is to investigate the role social media platforms play when utilized by newspapers.

The paper is organized as follows: First the research is positioned in relation to literature on digital infrastructures and social media use in the news media industry. The next section describes the method and data gathering, followed by a summary of the empirical findings. The findings are then discussed in relation to the related literature leading up to the conclusion of the paper and suggested further research.

## **Social Media as Digital Infrastructures**

Social media as a platform for participation has gained a lot of interest within both the research community and practice during recent years (Kaplan and Haenlein 2010; Von Krogh 2012). Kaplan and Haenlein (2010) defines social media as “a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content”. Through their definition, Kaplan and Haenlein (2010) highlight the ideological and technological inheritance of the open internet and decentralized philosophy as an integral part of the social media definition, an important distinction, especially within the field of information systems (IS). Others chose to emphasize on the community building aspect of social media and it's role for knowledge workers in organizations (Von Krogh 2012). The definitions paint the picture of social media as a bridge between the organizational sphere and users in the role of consumers or citizens, calling for nuanced perspectives that are able to capture a rich image of both the organizational and societal view.

Digital infrastructures (Tilson et al. 2010) offer a powerful conceptual lens when investigating contemporary IS use, not only in organizations but also by highlighting that these systems are not islands residing within an organization, but are instead connected to other systems and society as a whole. The view of IS as a digital infrastructure provides us with a framework that helps us uncover nuances in contemporary IS use regarding, for example, control and change, which in some cases challenge what these concepts mean for the IS community.

### ***The Digitalization of an Industry***

Digitalization, which is the process of digitization of analogue signals and goods, has spawned much turbulence in many industries. Mainly through breaking down boundaries that previously existed in many organizational ecosystems by creating direct links to other firms as well as consumers (Tilson et al. 2010). These changes are evident in the news media industry, which was affected by digitization relatively early. In the news media industry digitization of media has opened up the arena for publishing media to new stakeholders, as well as end-users (Nylén et al. 2014; Picard 2010). These changes have opened up new venues for interacting with users, for example through direct dialogue with readers through comments (Hermida and Thurman 2007) or other types of user generated content (Jönsson and Örnebring 2010). The developments have also questioned the role that traditional news media plays in the future of reporting news, such as citizen or participatory journalism (Paulussen 2007; Paulussen 2008).

These changes are in line with how the process of digitalization also presents challenges in terms of changing business models; the infrastructure changing from print to digital platforms requires new demands for a tech savvy workforce (Nylén et al. 2014). The turbulence spawned by digitization and digitalization within such a prominent platform makes the news media industry a highly relevant context to study from an information systems standpoint.

### ***Social media in the media industry***

The shift from analogue products to digital started in the mid 90's for many newspapers, however, it has still been very challenging to digitalize the newsroom and digitize the media. This also means that many newspapers have maintained a web presence for many years and have experimented with different ways to utilize digital and social media. Krumsvik (2013) proposes a typology of four key strategies for user involvement through social media often found in traditional news media organizations, the typology consists of deliberation, donation, distribution, and data strategies.

The deliberation strategy is deeply rooted in the role of the newspaper as a forum for public debate and as a curator (Krumsvik 2013). Traditionally, the scarcity of space in the printed paper presented a challenge in terms of what contributions to publish. Online media has changed this as it has the potential to provide limitless space, however, with the deliberation strategy the news media organization retains their role as curator by upholding professional norms and practices to provide readers with a sound platform for debate, thereby avoiding unwanted content. The digitization of the newspaper as a forum for public debate also has implications for the newspaper in the role of gatekeeper, for example if content should be pre- or post-moderated, how it should be moderated and by whom. The gatekeeper role of a journalist, deciding what news stories to present, what sources to use, and if a story is newsworthy, is also challenged by the role of the gate watcher (Bruns 2003). The gate watcher role being an approach to news reporting, where a user or news caster doesn't need traditional journalistic training, but instead uses digital tools to quickly gather and link newsworthy material from online sources for readers to consume at a faster pace than a traditional "writing up" of the story. The gate watcher approach provides challenges for a journalist, not only by challenging the professional role of a journalist, but also because it goes against good business practice in the media industry, where you traditionally want to keep the user from leaving the newspapers' website as opposed to offering them links to content that takes them away from the platform that generates revenue (Larsson 2013).

The donation strategy covers approaches such as citizen or participatory journalism (Bentley et al. 2007; Krumsvik 2013). The journalists' role is to encourage and select appropriate content from what has been gathered or collected from the users. Although reader contributions through interactive features seem to be appreciated by many newspapers, in many cases they seem to be hesitant to allow the reader to write and contribute content themselves, as the majority of newspapers seem to favor news-tip off functions over user generated content that is actually created by the readers (Larsson 2011). These findings are supported by Jönsson and Örnebring (2011) who suggest that mainstream news media to a great extent addresses users as consumers in a context of consumption, rather than co-creators of editorial content. However, this doesn't mean that users aren't invited to participate, but that the participation is often manifested in comments on a newspaper article in contrast to contributing to the news production. Furthermore, a tension is identified between users-as-citizens and users-as-consumers, as newspapers tend to identify users as consumers but approach them as citizens. One of the reasons to approach them as citizens is to strengthen identity and the brand with the users. From this point of view, the mainstream media can be considered to dictate the rules for the infrastructure and the production process (Jönsson and Örnebring 2011). The user participation can also be viewed from two different perspectives. On one hand, user participation can be viewed as a democratic and empowering process where the user can have a dialogue with the journalist through, for example, comments. On the other hand, user participation, through the eyes of an online editor becomes an important metric for what news stories have the highest value, and in the prolongation economic value (Strömbäck and Karlsson 2011). The economic driver in this scenario creates a venue for users to influence through participation, but also might risk deemphasizing content with other types of less monetary value.

The participation of readers also relates to what Krumsvik (2013) refers to as the distribution strategy. The distribution strategy utilizes recommendations and viral effects as the driver through encouraging users to recommend and share news stories with their friends. Noteworthy cases include The Washington Post, Yahoo News, The Independent and The Guardian, who have all utilized a distribution strategy to generate increased traffic to their online presence (Krumsvik 2013).

The last strategy often used by news media houses is the data gathering strategy (Krumsvik 2013). Much like social networks, such as Facebook and LinkedIn who are able to capture contextual data about their users, the news media organizations also see the potential in gathering extensive data about their readers to provide a platform for more tailored experiences and advertisement. The data gathering strategy revolves around encouraging readers to log in while using the services offered by the news media organization, thusly enabling them to harness information about the users that can be used to provide a personalized service with more precise targeted marketing that not only benefits the users, but also the news media organization and advertisers.

## Method

In order to investigate the use of social media in the context of the newspaper industry, an online ethnography was carried out (Garcia et al. 2009). Studies utilizing publicly available online data have become a common way to investigate online platforms in the IS field during recent years (Eaton et al. 2015; Ghazawneh and Henfridsson 2013).

During the study, publicly available data from the newspapers' own webpage, and data from their Facebook groups was systematically collected to enable analysis. Previous research has shown that larger newspapers in general tend to offer more interactive features compared to their local counterparts, even though there are exceptions to this rule (Larsson 2011). Therefore, both local and national newspapers were selected to provide a breadth in cases. The newspapers were selected based on geographical coverage (two newspapers with national coverage, and two with regional coverage), circulation of the printed edition, and site visitors per week on their online publishing platform based on data from the Swedish Media Publishers' Association (Hedström 2014).

	Site Visitors Per Week (2014)	Circulation, Print (2013)
Aftonbladet	5100000	199000
Expressen	2622000	193000
Göteborgsposten	598000	191000
Helsingborgs Dagblad	319000	70000

**Table 1. Circulation of Selected Newspapers**

The online ethnography consisted of two steps. During the first step each newspapers' Facebook page data was captured over a period of 6 months. The data capture included all posts by the newspaper as well as all comments, reviews and likes by readers. The data capturing was done using Ncapture and Nvivo 10. The purpose of this step was to gain an understanding of what type of posts were published on each newspapers' Facebook page.

During the second step, each Facebook page and newspaper website was examined iteratively, including other relevant social media platforms that the newspaper utilized. The observations were guided by Kaplan and Haenlein (2010) definition of social media and brought into a protocol detailing how each of the observed online editions utilized social media technology to provide content or interact with their visitors. The researcher took the role of a newspaper reader during these investigations and browsed through the front page and Facebook page. Notes were made based on what type of content was generated, by whom it was generated as well as how and where the exchange of media took place. The process for examining the newspaper website and newspaper presence on social media platforms followed the following steps and was documented in a logbook:

1. Index features that interact with social media platforms
2. Analyze type, content, author, action, response

The two steps were iterated until the researcher couldn't identify any new connections to social media platforms through these outlets. The ethnography took place over the period of 14 days, with the researcher visiting the newspapers' online edition and social media platforms on a daily basis to make notes, document findings by saving entire webpages and taking screenshots. At this stage the findings were color coded and clustered based on content type (.e.g. comments, viral videos), author/creator (e.g. newspaper, user created), where (e.g. which platform), what (.e.g. sharing, aggregation) and why the connection/link was made to the social media platform. The data was then used to cluster relationships between the publishing platform and the social media platform from the perspective of the respective platforms all being part of a digital infrastructure.

## Findings

The following chapter provides a snapshot of how the scrutinized online publications utilized social media during the study to interact with their users. All of the newspapers maintain a presence on several different social media platforms such as YouTube, Facebook, Twitter and others. To what degree differs to a great extent between the different newspapers. However, this study specifically focuses on the newspapers own publication platform, their linking practices to other platforms and specifically how they utilize functionality from Facebook. This is important to point out since the larger newspapers utilize several different Facebook pages and other social media platforms.

### *Activity and participation*

From the perspective of participation, we can see that the newspapers with the greater circulation also spend a considerable amount of time and effort on maintaining their Facebook page. The local newspapers update their Facebook page a couple of times a day, spotlighting a few news items, meanwhile the two national newspapers have a continuous flow of news throughout the day, sometimes updating several times an hour.

The posts by the newspapers follow a recurring pattern, a short description to advocate the content, a picture and a link back to the newspaper. The posts contain just enough information to describe the overall topic of the linked newspaper article and a very brief description of the story, but rarely go into detail.



**Figure 1. Newspaper post.**

At the bottom of each post the user can also see the amount of people that have “liked” the post, how many other users have commented on it and how many users have shared the post in their own networks. The comments usually stay on topic and provide a dialogue between the readers of the article, while also being open for journalists from the newspaper. The likes, comments and shares generated for each post provides a foundation for a lot of functionality at the newspaper's own publishing platforms, such as lists of the most “liked” or shared news articles on the social media platform. The comments are also used to

provide interactivity for the readers, but they are utilized very differently between the different newspapers.

One of the local newspapers uses the discussion platform Disqus, to provide comment functionality on their own publishing platform. This means that the users have two different platforms for commenting on each article, however, the Disqus platform allows you to use either Disqus, Facebook, Twitter or Google+ to log into the platform.

In the case of Aftonbladet, the comment fields from Facebook are integrated into their own publishing platform, by placing them at the end of the article. This means that the user is able to read and comment through using their Facebook account at two places, either at the Aftonbladet article, or at Aftonbladet's Facebook Page. This also means that they do not utilize any comment feature apart from the Facebook comments. To comment on Aftonbladet's Facebook Page you also have to agree to a set of rules that are accessible next to the comment feature on the article page, there is however nothing that stops the user from writing comments without reading or accepting these rules. The rules you have to adhere to (which are similar to the rules from Helsingborgs Dagblad) is that you refrain from spamming, you stick to the topic and show respect to all other posters. If you do not adhere to the rules, the newspaper will remove your comment, however they only do this to a certain degree, since the comments are still visible to friends and other people in the posters' own Facebook network. Finally, the newspaper bears no responsibility for your comments, since they are not published on their own platform.



**Figure 2. Comment at article, with linked rules**

The other representative of the evening press, Expressen, who also has a high reader activity on their Facebook Page has picked a completely different solution, as they don't have any comment functionality at all on their own publishing platform. If the readers want to discuss the newspaper articles they are free to do so – on the social media platform only.

## Sharing

Sharing of published news articles, blog posts, movie clips and other editorial content is a common feature on the investigated online publications. The same type of sharing was prevalent in all the cases, namely sharing to the readers' social network on Facebook or Twitter.

The sharing feature consists of a simple button, which leads to a popup with prewritten text including a link back to the newspaper, and in the case of Twitter, the newspaper's twitter handle or hashtag(i.e. @newspapername or #newspapername).



Figure 3. Sharing an article

The shares have several functions. Firstly, they provide a link back to the original content, which can potentially lead to more users ending up at the newspaper's site, secondly they provide a point of interaction between the users who shared the link and other users in their respective social networks. The shares also serve as a way for the newspaper to rank content and present it for the users.



Figure 4. Most shared articles (Göteborgs-Posten, Expressen, Aftonbladet)

All the newspapers have a section on their front page where they present the articles that have the most shares in order to provide an easy way for their users to see what other people are reading or sharing. The lists feature a picture, the title of the article and the amount of shares. While all of the included newspapers have this list on their website, Göteborgs-Posten has a slightly different approach; instead of highlighting this popular feature, it is hidden on the third tab of their "recent" list (Figure 4, left picture).

## Aggregation of content

While none of the newspapers shy away from picking up news online and publishing it under the appropriate section, newspapers from the evening press take it one step further by aggregating content shared by others online. Expressen does this under the label of “omtalat” (“spoken about” in Swedish), a separate section of the site, branded differently with less ads, but with a clear connection to the Expressen brand at the page footer, however, the page is not linked to from the Expressen main page.

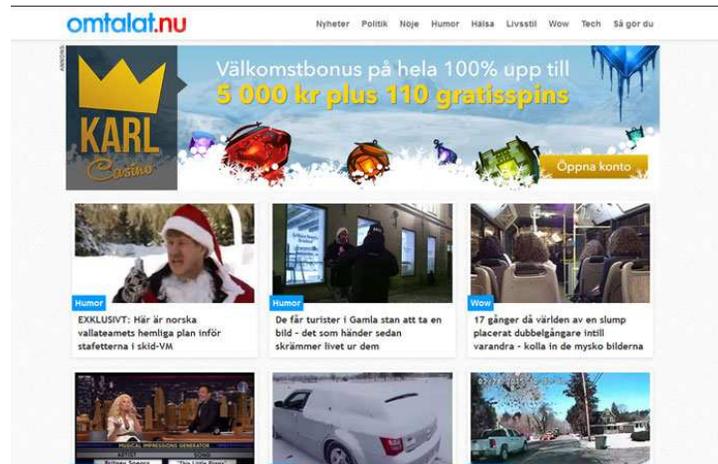


Figure 5. Expressen TV, with surrounding banner ads.

Aftonbladet also embraces the aggregation of news by utilizing two special sections of their website named lajkat (Swedish slang for "liked") and viralt (Swedish for "viral") where they aggregate the most popular content that has become very popular on the Internet. What makes these two sections of the website different is the lack of traditional banner advertising, which otherwise covers a large part of the screen while consuming the evening press.



Figure 6. Aftonbladet Viralt

The viral page only contains a small link to the Aftonbladet main page, and the user can browse viral content from all over the world and from various sources such as Youtube and other popular platforms. It is also possible to share the viral page on Facebook and Twitter, however, it is the Aftonbladet Viral page you share instead of the original source, thus linking back to their own brand. The users are also able to watch all the content without leaving the viral page by going to the source. Even though the page is branded differently from Aftonbladet, the viral page is shared alongside all the other content from the publishing platform on the Facebook Page.

## **Discussion**

Previous research on news media industry in the digital age has highlighted that mainstream media can be seen to dictate the rules for the infrastructure and production process of news (Jönsson and Örnebring 2011). When viewing social media practice of the newspaper industry, from the perspective of digital infrastructures, we get a slightly different view.

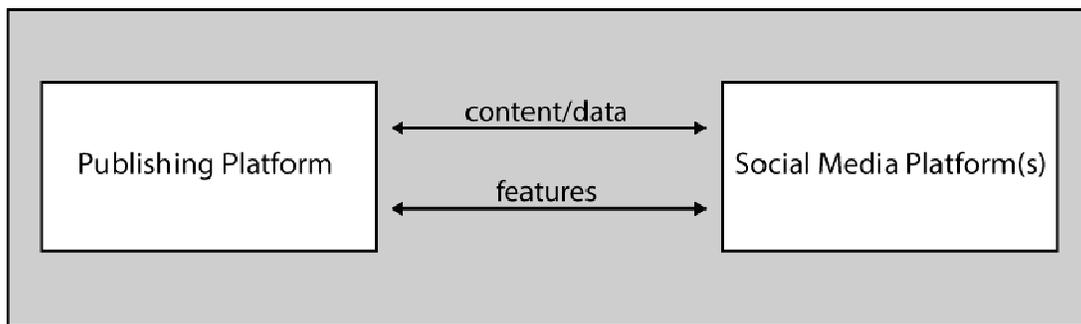
Through the mapping of newspapers' online publishing platforms and social media platforms as a web of fragmented infrastructures, an emphasis on the relation between the different platforms is made. The relationships that were illuminated in the empirical data were mainly content exchange and different types of user participation, which resonates well with the definition of social media (Kaplan and Haenlein 2010), but would be easy to dismiss as merely characteristics of different types of features.

However, when viewing it from a control over content perspective, we see that external links to content or sources outside the newspaper are still very uncommon, and accurately reflects previous linking practices (Larsson 2013). The majority of the links used simply link to articles within the newspaper's own platform, or to the newspaper's Facebook or Twitter page to aid the user in sharing content in an effort to attract more readers. However, when using aggregated content we see a different linking strategy and a difference in how content sources are handled. In these instances, the page where aggregated content is presented contains a link to the source, but the actual content is still provided on the newspaper's own webpage. That is, the user is lead to consume the aggregated content on the news site, instead of using the link to consume it elsewhere. The aggregation could have been designed in several other ways, but it can be argued based on best business practice and similarity in how newspapers handle hyperlinks (Larsson 2013), that it was designed in this way to keep the user from leaving the boundaries of the newspaper webpage, while still providing the user with attractive content generated by sources other than the newspaper. The sources of aggregated content vary from other Swedish news media houses to popular social media sharing sites such as Youtube. This practice shares many similarities with the notion of gate watching (Bruns 2003), where the emphasis is put on fast paced, brief news reports and links to sources that the user themselves can explore. However, in this case it is not suggested to leave the newspaper's website in order go to the source of the material, as the majority source material is browsed through the newspaper's aggregation service within the boundaries of the newspaper's own website. Looking at the practice of the aggregation of news from a user involvement strategy perspective (Krumsvik, 2013), we see that different types of strategies converge in what seems to be an attempt to bolster distribution. In the before mentioned scenario, parts of the reasoning behind the donation strategy and gate watching practice, is used to improve distribution.

The findings also indicate that the newspapers have different perspectives when it comes to how to enact donation strategies, at least when investigating the use of comments on the different platforms. Commenting in different forms was one of the first types of interactivity that was introduced to the online newspapers with all the challenges of pre- or post-moderation that came with it. The empirical findings illustrate how the newspapers utilize the comment feature on the social media platforms in very different ways. Some integrate it at the end of the article on their own webpage with their own terms of agreement, while others use separate commenting platforms, while yet again, others choose to move all comments to the social media platforms without having any commenting feature at all at the newspaper platform. The different strategies do not seem to have a correlation to the size of the newspaper, since the practice differs between all of the newspapers in the study. It is also evident that it is challenging for the newspapers to moderate comments on a platform where they themselves are users as well, and thusly on the same level as the users that access their page, having to play by the rules of the platform owner, in this case Facebook.

The use of features and content by the newspapers covered in the empirical data suggests a bilinear relationship between the newspapers publishing platform and the social media platform regarding content and features (see Fig. 7), that is, content is both produced and harvested which doesn't come as a surprise. However, the same relationship is true for the features, which highlights that adopting the use of social media in the newspaper industry is not just about utilizing a new technology by integrating its features such as likes, shares and benefiting from its social network connections between readers. It is also about moving features previously native to the publishing platform such as comments with all its

accompanied issues such as gate keeping and pre- or post-moderation (Hermida and Thurman 2007) to the social media platform.



**Figure 7. Relationship between Publishing platforms and Social Media.**

Looking at the bilinear relationship between the publishing platform and the social media platform, we see two patterns. The pattern of *strategy of integration*, that is, organizations that integrate features such as comments, likes, tweets and shares as intended without remixing them. In a sense, the control of the design of these features is relinquished to the hands of the social media platform owner. However, integration is not enough to describe the nuances in the dynamics between these digital infrastructures; which is where the *strategy of appropriation* comes into play. An organization that appropriately uses the social media platforms gains sufficient command of the content and utilization of features, going beyond merely integration. An example of this is aggregation of popular content harvested from the social media platforms, that is then presented at the newspaper's platform to generate more views of the newspaper's own platform or social media page. Another example is how the comments feature is moved to the social media platform, thusly enabling the organization to take less responsibility over the timeliness of moderation and putting the pressure of curating the content in the hands of other users and the social media platform owner (bypassing the whole pre/post moderation issue). The purpose of highlighting integration and appropriation is not to replace the typology of user involvement (Krumsvik, 2013), but to provide an additional perspective on how strategies such as these are enacted in current practice. For example, viewing content or donation strategy from the perspective of integration or appropriation of a platform can provide insights for how a platform can be utilized in practice in terms of where content/data or features can or should reside.

## Conclusion

Two overarching strategies of dealing with social media features in the newspaper industry have been identified in the empirical data: the *strategy of integration* and the *strategy of appropriation*. The two strategies differ regarding how control is enacted and how the modularity of features leveraged by the digital architecture is utilized.

When using an *integration strategy*, the organization relinquishes control to the social media platform owner by integrating social media features on the platform owner's terms in order to create a platform for user participation and a hub that can provide links back to the organization.

When using an *appropriation strategy*, the organization exerts control over users utilizing social media through shifting the interaction and moving it either closer to their own platform, or further away from their own platform towards the social media platform as they see fit. The shift is created through customization on the organization's own platform, as they have to abide by the social media platform rules when utilizing the social media platform.

Future research could focus on an in depth investigation of the integration and appropriation strategies in other industries, and what other strategies that are used by organizations. Other venues for research could be to investigate the role of revenue streams in the dynamics between features and content.

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