Instagram as a Platform to Capitalize on the Photo-Journalists’ or Freelancers’ Work

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Abstract. As a dominating trend in journalism is the measurement of its success related to social media platforms and their users. Offering the opportunities to get and to deliver real-time photos, Instagram creates a new way to present news stories, and to find new audiences. Thus, Instagram becomes not only a portal and a portfolio of photos, and also a good tool by journalists, freelancers, and photographers. Consequently, this paper follows two specific goals. The first goal aims to collect a big volume of data from Instagram, and to analyze them; the second goal exploits the professional potential of the platform from the photo-journalists and freelancers’ perspective, in the context of delivering of visual content. Even though we expected the results of this research to show a great connection between people, the social networks generated on the Instagram, created either by hashtags or by geo-location, are little connected. However, it can be observed that the information flowing between the participants is between the influential persons in the networks, and they are photo-journalists. The main conclusion shows that photographers and freelancers use Instagram to capitalize on their work, to be known and to have more appreciations, but also to gain jobs.

Keywords: Journalism on Instagram; Social network analysis; Photo-journalism; Online reputation.
1. Introduction

Currently, journalism measurements ensure the success of many publishers and media products. Thus, in an interview, Powers (2018) says that “journalism is becoming more sensitive and fueled by measurement”. This trend has become very important since the advent of social media platforms that allow users to react quickly to each type of content posted. In this regard, the Instagram platform has become an important platform for advertisers and businesses, but also journalists, freelancers, and photographers.

The development of data journalism and the emphasis put to the process of audience analytics have determined a higher interest in this topic. We can talk about journalism from a new perspective and name, called measurable journalism.

In time, Instagram has become a good tool for journalists, facilitating the delivery of photos in real-time. At the same time, the platform allows the creation of news and finding new audiences. For photo-journalists, these facilities are very valuable, because they can share their photos and videos, and present their views; meantime for the audience, Instagram is a good portal for the photos that can be viewed.

Considering that Instagram has gone through many changes since 2016, it offers a lot of features like Instagram Stories, live-streaming, and carousel photo albums, and consequently, Instagram could be considered a good platform for photo-journalism. Considering the audience, tools such as NewsWhip Analytics shows various measures related to the users’ activities on Instagram. Thus, more studies prove that engagement on this platform is generated by the photos who tended to drive more likes per post, while videos drove on average to more comments (Boland, 2017).

This work takes Instagram as a platform to be analyzed and research the relationship between the journalists’ work and social media. This paper follows two specific goals. One goal considers the methodological approach related to big data collection and the way to analyze data from Instagram. The second goal of this work exploits the potential of the platform from the photo-journalists and freelancers’ perspective, in the context of delivering photos that show beautiful places from Romania. The novelty of this study is given by the analysis of Romanian virtual space on Instagram and the working practices of a professional community, like the photo-journalists.

As working conditions and hypothesis, this paper considers two specific elements of the Instagram platform, which are the hashtags, and geo-location, both mentioned by the author. The network analysis method applied to the data collected from Instagram brings to view who are the influential people that give visual content on Instagram and describe the touristic potential of Romania.
For this analysis, there are considered photos that are tagged as “Top RomaniaPhoto” (this hashtag was rated in the analyzed period at 31.6 K posts). The case study considers the touristic potential of Romania, illustrated by places and hashtags that can be useful for discovering important touristic destinations, or just beautiful places.

The reason for this research is the fact that Instagram is becoming an increasingly important network for people for personal and professional purposes. Moreover, more platform facilities that have appeared allow users to do many new things, more related to the profession than to personal interest. Thus, facilities such as using a maximum of 30 hashtags per post, or uploading the videos on Instagram, that can be longer than 60 seconds give more time to make an impact with the audience and thus they can be appreciated in the professional environment.

Instagram continues to roll out new features and all are leading to journalistic stories and live video. All these facilities are exploited by the users, but also in the interest of the researches.

2. Literature review

From the perspective of the journalists and photo-journalists, Instagram is judged as a good platform for promotion and self-presentation, but also research. All these purposes have been approached by various authors, lately. At the same time, these subjects are related to the audiences, and how to gain more engagement from them. The concern to get bigger and new audiences is manifested both in the media business and at the people who work in the media industry.

As we know, the specificity of Instagram is given by the usage of hashtags. They are applied to classify and index the visual content. Likewise, the geo-location mentioned by the authors in their posts is another kind of information that marks content on Instagram. These data are considered in the specialized literature to approach various topics and research concerns. The data characterizing the content on Instagram is studied separately or inter-connected one each other.

Starting up these data, Chang (2016) dedicated a study to the importance of hashtags and geo-locations in the social network construction on Instagram. He analyzed the main data given by this platform and used visualization methods to show the relationship between geo-location and the number of likes given by the users with the purpose to underline artistic trends for different cities. Considering the most popular hashtags in different locations, he made comparisons between different cities.

Focusing on the same data, the hashtags and geo-locations, Borges-Rey (2015), Boland (2017), and then Larsson (2018) refer to Instagram as a platform for journalists and analyze it from the perspective of journalistic practices. All mentioned authors are preoccupied by the users’ engagement on this social platform.
Borges-Rey (2015) presents to what extent the photos on Instagram help the professional photo-journalists and freelancers to add value to their brand. The visual analysis used in this study shows that each both citizen journalist and professional photo-journalists use performative discourse aesthetic conventions to create a hyperreal depiction of the world. He considers that hyper-reality is generated by the combination of technologies, journalistic practices, and subjectivity. Thus, both categories of photo-journalists create altered photo reportages on Instagram. But, the most important conclusion given by the author is that the visual imagery on Instagram generates a simulated reality that “need a further explanation”.

Both Borges-Rey (2015) and Chang (2016) take the visual approach as a way to solve the research concerns. It seems that this is a good model to explain how social networks work. Also, both authors are preoccupied with the relationship between hashtags and users’ engagement, expressed by the number of likes. In which way users select and choose a hashtag through a filter selection is another concern of these studies. It is noticed that Chang (2016) uses the programming language Python to codify and analyze these relationships between hashtags and users’ engagement.

It is a fact that successful media brands have already considered the Instagram platform for their marketing strategies related to users’ engagement. Boland (2017) gives some clues about journalistic strategies of main publishers, and she notices that publishers use both photos and videos to engage users with the content. Her conclusions show that photos draw more likes per post, while videos draw on average more comments. This conclusion can be extended also to journalists, not just for media brands.

In the same manner, as Boland (2017), Larsson (2018) gives a comparative approach for the two main social media platforms Facebook and Instagram, and on the engagement of the online news media users in Norway. This study is dedicated to possibilities adopted by the journalists to distribute their content and to gain new and more consistent online audiences. Regarding the engagement for news media on social media platforms, this study stats that Instagram attracts younger users, and the audience prefers “lighter” or “less-demanding” online news content on these platforms.

In addition to the topic of journalism on Instagram, another topic, that of self-presentation and promotion or popularity is also very important on this social media platform. Studies by Smith & Sanderson (2015), De Veirman, Cauberghe & Cauberghe (2017), Serafinelli (2017) or Djafarova & Trofimenko (2018) address these issues.

Smith & Sanderson (2015) show how visual media is used for self-presentation and promotion considering for analyzing the Instagram posts of professional ath-
letes. Analyzing the photographs and their captions, the authors identified the preferred topics taken by the athletes and their behavior.

Going even further than what promotion and self-presentation on Instagram mean, De Veirman, Cauberghe & Cauberghe (2017) go on to identify the perceptions and opinions of others for specific content. Related to self-presentation and popularity, authors have done two experimental studies that show that Instagram influencers, due to their high number of followers and based on their popularity, have influenced the people’s perceptions, and increase the opinion that they distribute. An interesting conclusion of their study shows that there is a reverse action for this conclusion and that influencers who follow a small number of accounts are considered less “likeability” by the people. On the other hand, from a marketing perspective on Instagram, authors concluded that cooperation with the influencers that have a high number of followers could determine a negative impact on promoting a divergent product, because of the decrease in the unicity of the brand.

Djafarova & Trofimenko (2018) give an insight into the relationship between product endorsement and the opinion of a micro-celebrity. Their study based on interviews identifies consumer behavior based on celebrity credibility and their self-presentation. The conclusion of this study mentions that users appreciate the opinions of the celebrities, only if they approve the celebrities’ online behavior and their self-presentation on Instagram.

Bearing in mind the influencers’ behavior in life and online, as a sketch, Serafinelli (2017) analyze Instagram to find how this platform modifies the users’ life and the individuals’ perceptions about interpersonal relationships. The conclusion of her study shows that social media affect and influence the sociality and also the means of expression for the people.

Instagram as a social platform and network offers a lot of topics to be analyzed in recent contexts. All the topics addressed so far, even if they have a personal or professional interest, consider Instagram from the perspective of its use and consequences. As a novelty, the study in this paper reveals a new point of view which is the production of content on this platform.

3. Methodological approach

The collection and analysis of the huge volume of data posted by the users on Instagram represent a challenge for researchers. As a response to this challenge, many studies use Social Network Analysis (SNA) as a research method. This method uses graph theory to calculate important values that measure how the network works. The values of each property show the importance of any node in a network, revealing the most important parts in it. For instance, the measurement of centrality in the social network shows the most influential person. In this study, the calculated mea-
measurements on the social network identify the most influential people who publish photos and describe content based on a hashtag or geo-location. Thus, based on the obtained results, this study sets who are the influential people in the network, and also if they are journalists or photo-journalists. As a consequence, this study finds whether journalists use this social channel to capitalize on their work on Instagram.

This study takes as a challenge to the stage of data collection on Instagram and considers two approaches. It is considered both the text-based research that uses the hashtags, comments and posts description and also the geo-location-based research and visualization of the content consisting of the posted photos. Each of these approaches invokes specific solutions and tools for analysis. Thus, in the case of the first approach is designed and visualized the social networks, while in the second approach, the study one discovers and analyzes the visual content.

Because the hashtag mechanism on Instagram indexes the content, it is also considered the network generated by the relationships between the used keywords and the visual content posted as photos or videos. The research in this paper targets both the social networks created on hashtags and geo-location, and also on the cloud-based text analysis and its network.

Because Instagram blocked the use of its API in June 2016 for researchers, this study implements other different research tools. Consequently, NewsWhip Analytics and Iconosquare Instagram hashtag Explorer are the tools implemented to analyze Instagram data. Tools such as NETVIZZ and NETLYTIC have been used to collect data from the platform.

The tools implemented for the graphs visualization were Muxviz.net, open-source software that can do multi-layer data analysis, and also the Gephi software. In this paper, the network visualization and analysis, and also for visualizing communities in the network were done with Gephi tool, and it is a good tool for this paper because Gephi works with Instagram hashtags networks. This tool operates with a large collection of data saved in .CVS files.

In the interest of this research, the data collected with the NETLYTIC tool for this analysis gather 2500 records per day that have been used as a working dataset. The data was imported from Instagram based on geographic and hashtag queries.

Knowing that Romania has an important touristic potential, this study considers places and hashtags that can be useful for discovering important touristic destinations or just beautiful places. The hashtag “TopRomaniaPhoto” is taken for the analysis because it is a “popular hashtag” as Instagram points on the feed. The hashtag #TopRomaniaPhoto had at the moment of analysis 31.6 K posts. In the same context, it was chosen Brașov city for its touristic potential and as a very beautiful and visited location in Romania.

The data related to hashtag #TopRomaniaPhoto were collected each day for one month, in the period 2018-03-23 to 2018-04-30. The data were collected each day
because it was used NETLYTIC the free version that accepts a maximum of 2,500 registration per day. For geo-location network, the collected data considered the city of Brașov.

During this one month, the collected database shows an average number of 2166 messages per day and an average number of 920 unique posts with the #TopRomaniaPhoto hashtag attached. Nevertheless, in the database, only 18% of posts are geo-targeted, namely 385, which means that there is an average number of 17 messages and 149 unique posts that are also geo-tagged.

4. Findings

4.1 Findings based on a dataset collected using hashtag #TopRomaniaPhoto

The datasets collected using the hashtag #TopRomaniaPhoto were considered to configure two types of social networks: (1) the NAME network or the people’s network, and (2) the CHAIN (reply-to) network, or the communication network.

The NAME network considers the names that are addressed in the posts collected from the Instagram platform consequently, there are considered all texts that are found in the posts or their comments and are composed using @name. This network could be considered as a communication network that connects any user to any person that comments on his/her post. Thus, the NAME network is a social network that connects the post author with all users who are comments to his/her posts.

The CHAIN network or REPLY-TO network is a communication network that connects the commentators (people) who give photos about the same place.

In the network analysis, each situation is interpreted considering and analyzing the network properties such as the diameter, density, reciprocity, centralization, or modularity.

The properties of the network NAME defined by the hashtag #TopRomaniaPhoto analyze how the network created by the photo-journalists and freelancers on Instagram works. The values measured for this network’s properties defined by the hashtag #TopRomaniaPhoto are listed in Table 1.

| Table 1. Social Network Properties for the hashtags #TopRomaniaPhoto / NAME Network |
|---------------------------------|-------------------|
| Diameter:                       | 7                 |
| Density:                        | 0.001180          |
| Reciprocity:                    | 0.012570          |
| Centralization:                 | 0.037280          |
| Modularity:                     | 0.865700          |
The diameter of a network gives the length of a path between two participants, meaning the total number of nodes necessary to get from one side to the other. In this case, the diameter has value 7 and tells us that the path between two individuals in the network is very long.

As may be noticeable, the network has a low value for the centralization property. The network centralization indicates the average degree centrality of all nodes within a network. The value associated with network centralization (0.037280) is much close to zero, consequently, it can be considered as a ‘decentralized network’ where information flows freely between most of the participants. This situation suggests that there are no special participants who dominate the information flow in the network. Thus, the average degree of centrality of all nodes within this network is almost nonexistent.

Regarding the network density which refers to the speed of information flow, it is noticeable that the obtained value is very low (0.001180). Consequently, we can conclude that people in this network are not well-connected.

Another network property is reciprocity. The reciprocity refers to the ways of communication, meaning the two-way communication, where participants in the network have a conversation. The two-way communication is based on “reciprocal ties” in the network. Reciprocity (value = 0.012570) shows that the two-way communication (or reciprocal ties) is closer to zero, and this means that are no so many participants having a two-way conversation. It is noticeable that it is low reciprocity and many conversations are one-sided, so there are no conversations in this network.

Commonly, in a network appears clusters, meaning network hubs that group the most of the other nodes. These clusters are created where people communicate with each other. This aspect is revealed by the modularity dimension of the network. The modularity value (0.865700) identifies five distinct communities in this NAME network.

In light of the same considerations as in the NAME network, the values calculated for the properties of the called CHAIN network based on the hashtag #TopRomaniaPhoto are shown in Table 2.

<table>
<thead>
<tr>
<th>Table 2. Social Network Properties – CHAIN Network for hashtag #TopRomaniaPhoto</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter: 9</td>
</tr>
<tr>
<td>Density: 0.001698</td>
</tr>
<tr>
<td>Reciprocity: 0.096720</td>
</tr>
<tr>
<td>Centralization: 0.030980</td>
</tr>
<tr>
<td>Modularity: 0.868600</td>
</tr>
</tbody>
</table>
Following the diameter of this network, the path between two participants in this network is given by the 9 nodes to go through. This is the value of the diameter of this network. It can be said that this distance between the participants is very long. This property associated with the density of the network (value = 0.001698) indicates that the speed of information flow in the network is low and the individuals in this network are not connected.

Regarding the conversation in the network, it is observed that reciprocity that shows the two-way communication (or reciprocal ties) is closer to zero, and it means there are not so many participants having a two-way conversation. In conclusion, this network has low reciprocity, and many comments are one-sided.

However, the modularity of this network (value = 0.868600) shows there are some clusters organized around some individuals. Table 3 reveals the values for social network properties that show the connections between users and their commenters. The social network formed on hashtag #TopRomaniaPhoto counts 186 posters with links, an average of 1076 names, and 745 links, even if people have no conversations.

Table 3. Network Properties for the hashtag #TopRomaniaPhoto

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td># Posters with ties:</td>
<td>186</td>
</tr>
<tr>
<td># Ties (incl.self-loops):</td>
<td>745</td>
</tr>
<tr>
<td># Names found:</td>
<td>1076</td>
</tr>
</tbody>
</table>

Although the people do not start a conversation, some of the users post a lot using the hashtag #TopRomaniaPhoto (Figure 1).

Figure 1. Top ten people that post using hashtag #TopRomaniaPhoto

Figure 2 illustrates the ranking of the people the most mentioned in all messages. According to this chart, it can be noticed that some people are very active and more tagged by others, in the comments. These individuals are the most important content producers who give the most pictures named with the hashtag #TopRomaniaPhoto. In general, the people who give comments are the same as the
people who post with this hashtag. The difference consists in the place occupied by these people in the created rankings. This conclusion is also seen in the two graphs given in Figure 1 and Figure 2. The figures show that there is a personal connection between the people in the network, even though the values of the network properties do not illustrate this aspect.

The visual representation of the network created between people who are used the hashtag #TopPhotoRomania user behavior is shown in Figure 3. It is noticeable that it is an agglomeration of the network nodes, with few important or hub nodes. Also, there are independent nodes outside the network that it means that are also other people who are used hashtag #TopPhotoRomania and are not at all connected with the others. From this perspective, the properties of the network say the same aspects as Figure 3 shows. Figure 4 adds more details on how people react with comments to images that are tagged with #TopPhotoRomania. While Figure 3 shows what content people post, Figure 4 uncovers how they react to that content.

The CHAIN network shows “who replies to whom” and it is the social network based on the participants’ behavior of posting. Figure 4 shows how commentators are connected based on photo content. The image shows the clusters created in the network by the influential people. It is noticeable that are few important clusters created in the communication network. In conclusion, it can be said that photo-journalists and freelancers are more interested to promote and to show their work, even if they do not have a lot of reactions from other people. Generally, this type of users’ behavior who just look at the content, and not react could be a cultural aspect that can be researched further.
Figure 3. The graphical representation of the network with the names of those who use the #TopRomaniaPhoto hashtag and their commentators.

Figure 4. The graphical representation of the network with the names of those who use the hashtag #TopRomaniaPhoto.
4.2 Findings based on geo-location

A similar analysis to the one above considers the social network generated by geo-location. The network visually represented in Figure 5 has properties that show what is happening with people in this network.

The network-based on the geo-location “Brașov” and who describes how who replies to whom, it is a communication network that connects each person who comments to the image post. The network created based on the geo-location “Brașov” (an important touristic city in Romania) has the following values for its properties and presents the following situations.

The property of centralization in the network suggests the main (the central) individuals who dominate the flow of information. The value of 0.030160 for centralization, who is situated very close to zero indicates that this network could be characterized as being “decentralized”. This means that information flows freely between most participants and that there are no specific, central, participants who dominate the flow of information in the network. In other words, we can say that no one is a central node in this network.

The density property in the network shows the proportion of existing links compared to the total number of possible links. This property illustrates how close the network’s participants are. The density of this geo-location-based network is closer to zero (0.006084), which suggests that almost no one is connected to other people in the network. So, the people in this network who mentioned the geo-location are not connected. The density property is complementary to the diameter because both evaluate the speed of information flow.

The diameter of a network calculates the longest distance between two network participants and count out the total number of nodes that must reach from one side to the other. The diameter in the geo-location network has value 3 and it is more significant than in the network based on the hashtag #TopRomaniaPhoto. This means that the longest distance between two participants in this network consists of 3 nodes.

The reciprocity of a network shows the proportion of ties that define two-way communication comparing to the total number of existing ties. The property of reciprocity has the value 0.129900 and points out the strength of the ties in the geo-location network. Because this value is closer to zero, this means that many participants do not have a two-way conversation. As a result, there is low reciprocity and many conversations are one-sided, which means that there is no two-way conversation on the geo-location network.

The modularity is related to the concept of the cluster in the visual approach of the network. A cluster is a group of densely connected nodes, which are more likely to communicate with each other, than with nodes outside the cluster. Modularity helps to decide if the found clusters are distinct communities in the network.
In the geo-location network, the value 0.956000 for modularity indicates a clear division between communities, because they are represented by clusters.

The value 0.044260 for centralization in the network shows that communication has low connectivity between participants. This means that information flows freely between most participants, but there are no specific central persons who dominate the information flow in the network.

Two properties that assess the speed of information flow in the network, the density (value = 0.002847) and the diameter (value = 12), demonstrate low connectivity in this network, and also a slow speed of information flow. These properties show that almost no one is connected to others in the network.

The zero value for the reciprocity property proves that there is no reciprocal connection in this network and therefore there are no conversations generated before and after users’ posts.

Moreover, the value of modularity measured at 0.957000 indicates that there are few clusters in the geo-location network. The network has 5 distinct communities and they are strictly different and separate.

The network properties do not give many insights related to it. Generally, it is a low-connected network, as shown by the values for network properties and it is visualized in Figure 5. It is noticeable that the social network created based on a location is less connected comparing to the network based on a hashtag #TopRomaniaPhoto. However, the geo-location network has more clusters than the

![Figure 5](image-url)
hashtag network, but it can be observed that they are dispersed (Figure 6). This means that people are less connected. As in the hashtag network case, the content does not generate comments and debates between people, although photo-journalists and freelancers post their content with a mentioned location.

Figure 6. Clusters created in the network created using geo-location

The graphical representation in Figure 7 shows the names of the people who posted more using the geo-location of Brașov. In this network, other people mention this place compared to the network that uses the hashtag #TopRomaniaPhoto. However, in the geo-location network, a person is very active and holds almost a third of posts (33%) with the Brașov location.

Figure 7. Top 10 people who mention Brașov as location.
However, looking at the word cloud for the hashtags associated with the city of Brașov, one can see that this location is not very well linked to the hashtag #TopRomaniaPhoto, but is well connected to the hashtag of the same name (Figure 8).

Figure 8. Top 10 most frequently used hashtags associated with location Brașov.

Analyzing the two networks, one based on a hashtag and the other based on a location, both of them addressing the touristic potential of Romania, it is evident that there are many differences. It is observable that in both social networks, photo-journalists and freelancer promote their content, their work, even if the content does not cause many conversations and comments. Their Instagram accounts are used as a portfolio of their work and capitalize on the person’s potential related to good photos. A further direction in this research can be to analyze the reasons why other people do not get or give more comments and debates for photos.

5. Conclusion

The conclusions of this paper show how important is the visual content for promoting the work of the journalists and photo-journalists. The results of the research could give clues about the fact that beautiful photos could be a generator of emotions and appreciation for an author, as well as some insights related to visual culture. Moreover, this paper identifies that the journalist uses this social channel to capitalize on their work.

The networks generated by the Instagram hashtag #TopRomaniaPhoto and geo-location Brașov consist of people that are photo-journalists and freelancers, and others who work in the communication domain. Despite this situation which is very important for an individual’s work recognition, the networks generated by the Instagram based on posts and location checked in by the authors, are low connected and create few clusters around an important person which is the content generator. It is noticeable that there are few reciprocal ties in these networks, both for hashtag network, and geo-location.
The conclusion based on the properties of the network shows that there are no special participants that dominate the information flow.

Although this topic is widely used by the users, the above data illustrate that information is just displayed, the speed of information flow is low and the individuals are not connected in this network, according to the values for centrality and density of networks. Based on this fact, and confirmed by the value of the reciprocity in the networks, it can be concluded that communication does not exist in the network, and the participants do not have conversations.

The people’s networks generated on Instagram using popular hashtag #Top RomaniaPhoto and the geo-location named Brașov connect mainly more photo-journalists and freelancers, but also people who work in the communication area. This information was collected from the people’s profile, and the best-represented category is photographers, and they are the most influential in these networks. The photographers and freelancers use this social channel to capitalize on their work, to become known, to get more appreciations from the others, and to gain possible jobs.

This study is designed for a short period, and only for one hashtag. All of these are limitations to this study. So, it is necessary that other “popular hashtags” to be considered to be analyzed. Therefore, the next research will consider also the hashtag #explorezromania. Further, another direction to research would be the comparison between the two social networks, one created by the hashtag #Top RomaniaPhoto, and the other by the hashtag #explorezromania.

As future research, the intention is to create a longitudinal study with new data, in a recent period. The comparisons between different social networks, at different moments, for different hashtags and geolocations, would bring in view new aspects related to journalists’ work and their ways to promote online. Moreover, the longitudinal study would show new trends related to Instagram’s importance to the journalists and photo-journalist and their preoccupations, and also to identify the most appreciated places in Romania based on the locations viewed by them from the Instagram posts.

References


