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Social media for interactions with customers within the short food supply chain: the case of the SKIN project

Consumers have great power in the marketing process and social media represents an opportunity for farmers/producers to promote and strengthen ties with consumers by building short supply chains. Current business trends involving the application of social media for communication with costumers can also be observed among farmers/producers. The paper studies the use of social media by farmers/companies – here, the EU SKIN project partners registered within the SKIN Good Practice Repository. A first step included investigation of company webpages (native language version), which usually provided a general background to the company's activities and information about its products. A Facebook page was identified as the primary social media channel (used by 81% of the investigated group) as farmers/producers who did not have it also did not refer to any other social media. Research results indicate a relatively wide audience for the Facebook pages of farmers/producers (numbers of likes and followers) but interactions with consumers are limited (a low number of comments and sharings). The conclusion is implied that a number of farmers/producers use social media for providing information but they mostly interact with their costumers offline.

Keywords: social media, customers, supply chain.

JEL classifications: Q13, Q18

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Introduction

Companies use social media to provide users with information about the offer, new promotions or organised events. More specifically, they refer to consumers' needs to share knowledge on various topics. The non-formal nature of user-brand conversations may be more effective than typical marketing activities. The idea and mechanism of social media operation consists in encouraging people to take an active part in discussions about a company or brand that becomes so interesting or delightful that users themselves become their promoters (Evans and Schmalensee, 2007). This is why constant stimulation of discussions should be encouraged and care given to maintaining good relations with users of social media as it may have a fundamental impact on business development (Brunk, 2010).

Describing social media available today is not a simple task. This is due to the diversity of their applications, functions and goals around which users of online communities gather (Henderson and Bowley, 2010). The most popular, largest and at the same time the most dynamically developing social networking site in the world is Facebook. Its history goes back to 2003, when Mark Zuckerberg, a psychology and computer science student at Harvard University, decided to create a social networking site allowing Internet users to create their own profile, find and continue their contacts, and exchange with other messages and photos (Mezrich, 2010). This market leader as the first social network surpassed 1 billion registered accounts and currently (2018) sits at 2.27 billion monthly active users (Statista, 2019). Facebook fan pages give a lot of possibilities to present what a company does, especially resulting from (Kamiński, 2010):

- gaining fans - promoting a company gives an opportunity to win new customers;
- users of social media are usually open to new products;
- opportunity to present a company as friendly to the environment, caring for employees, or actively implementing social values - this can affect potential consumers when choosing a specific product, and it can also affect potential employees;
- a discussion forum, where users can exchange opinions about companies or products;
- interesting information presented by a company is noticed by fans, and consequently on their home pages, helping to increase the interest in a company among other users - this is so-called viral marketing, which relies on the free transfer of various content between users;
- placing links to company websites or online stores;
- organisation of competitions and promotions which allows to strengthen contacts with regular consumers and gives an opportunity to attract new ones;
- high efficiency and ease of implementation of promotional campaigns, with low or even zero financial input, what is a big saving for enterprises.

It is also important to notice that every relationship established between users and brands will be displayed on the board visible to all friends. This action may cause curiosity and willingness to visit the brand fan page among friends, and consequently they may even interact with it (Schüller and Schwarz, 2010). However, if a company or organisation has nothing interesting to convey to its fans, it is pointless to clutter up its fan page and bother users with unnecessary information, risking their loss. A big advantage is the placement of content useful to users, for example information about promotions or new offers (Bonek and Smaga, 2012).

Taking into account this important role of social media for business development we decided to study their use by farmers operating within short supply chains as this is a phe-

nomenon hitherto not studied deeply. The literature around the application of social media for business purposes will be enriched by demonstrating its use in food production, by farmers and within the short supply chain – and our study fills the gap in the literature dealing with all of these aspects together. To complete the study, the remainder of the paper unfolds as follows: the first section analyses the theoretical background of networks and social media in short food supply chain; then, the methodology section includes the study design and data collection; afterwards the analysis is provided, the findings are described and discussed.

Literature review: networks and social media in SFSC

Short Food Supply Chain (SFSC) is one of the six priorities of EU rural development within CAP 2014-2020. According to the European Regulation n.1305/2013, a 'short supply chain' involves a limited number of economic actors linked by close geographical and social relations among producers, processors and consumers. Mundubat (2012) defines two typologies of short supply chains: direct short chains with no intermediaries and the indirect short chains with only a single intermediary between farmers and consumers. SFSCs display an extensive creativity: 'direct selling, box schemes, farmers' markets, pick-your-own, on-farm sales, consumer cooperatives, direct internet sales, community supported agriculture, and e-commerce' (Giampietri *et al.*, 2016). In addition, a recent work presents an exploratory study investigating another channel that is local food logistics services implemented to distribute local food to restaurants: then, the platform provides logistics facilities focusing on local farms that strengthen the direct relation and knowledge exchange between farmers and consumers (Paciarotti and Torregiani, 2018). Indeed, farmers try to decrease dependency on retail and to avoid 'unidentified' supply chains thus promoting direct sales to consumers (Wubben *et al.*, 2013). Fiore (2016) highlights major benefits and social advantages of direct sales for consumers and for farmers. Not only lower costs of intermediation and correlatively major income and power for farmers can be counted, but also the quality of products in terms of higher safety and sustainability and the quality of relations in terms of higher trust and proximity can be seen to be the best result.

Alternative and trust-based networks certainly help and stimulate sustainable and economic positive impacts for increasing cultural identity of rural areas (Blom-Zandstra *et al.*, 2016; Le Velly and Dufeu, 2016; Bazzani and Canavari, 2013), thus reducing the informative gap among consumers, farmers and stakeholders (Barati *et al.*, 2017; De Pascale *et al.*, 2017; Contò *et al.*, 2016). Active communication, plus the quality of the exchanged information are positively associated to trust levels in buyer or supplier interactions and communication and cooperation envisage a willingness to participate in SFSCs (Charatsari *et al.*, 2018).

Levels of cooperation have to be strongly raised by means of each actor becoming the basis of new cultural approach towards competition, the "multi-actor" approach. This approach explores needs, and implies participatory acts undertaken in order to share problems and relative solutions (De Pascale *et al.*, 2017). Shortening the distance between knowledge and practical application is at the core of the multi-actor communities in the SKIN project. Four pillars characterize the methodology: 1) Consortium's partners have complementary skills and knowledge; 2) Involving actors is both at regional scale, called regional nodes, and at the international level named transversal subthematic workshops; 3) The quality and quantity of knowledge exchanges is ensured and 4) Planned organization and management is the backbone of the project.

Therefore, the SKIN multi-actor approach can be considered an approach which aims to considering dissimilar EU actors, methods and chances for creating a knowledge-based multi-party community of stakeholders.

Knowledge exchange via local networks makes it possible for agri-food systems to move towards adoption of a sustainable approach (Sacchi *et al.*, 2018). Short supply chains depend on an alternative form of social organisation, which is influenced by group norms that are important preconditions for the sustainability of these alternative food networks (Charatsari *et al.*, 2018). Policy makers and public organisations promote more and more innovative agri-food sustainable practices and regional and local foods because people are worried about food safety and animal health scandals and want to know food supply chain dynamics better and to be informed about food's origin and production models (Elghannam *et al.*, 2017; Fiore, 2016; Wubben *et al.*, 2013).

Using the Internet can be a crucial driver for farmers: thus, we can define two models, online and off-line. Via the online chain model, it is possible to buy food directly through the network or just to keep in touch consumers with sellers. Online models include: a) online platforms, for broadcasting purposes, and allowing purchasing online directly; and b) on-line sales websites where e-commerce is implemented. The offline model is clearly related to farms that do not offer their products via the web (Elghannam *et al.*, 2017).

Building on-line SFSCs using social networks seems likely to be a future buzzword in social media marketing. SFSC improves the tie with customers, while at the same time, getting direct feedback from them (Elghannam *et al.*, 2018), thereby meeting consumers' new requirements. Agri-food businesses can find in social-media marketing a potent tool for overcoming their weaknesses and the obstacles they face.

Methodology

The basic research problem was to study use of social media by farmers operating within short supply chains. We referred to farmers/companies registered within the SKIN Good Practice Repository. Shortening the distance between knowledge and practical application is the core of the SKIN project (Short Supply Chain Knowledge and Innovation Network) that is a significant and striving initiative in the domain of Short Food Supply Chain (SFSC) within the framework of H2020 - RUR-10-2016-2017 - Thematic Networks compiling knowledge ready for practice. 14 EU countries and

Table 1: Website content of investigated farmers/producers.

Website parts	Farmers/producers	
	No	%
Background	196	91.6
Products	193	90.2
Phone	182	85.0
Mail	176	82.2
Contact form	110	51.4
Shop	55	25.7

Source: own composition

Table 2: The most popular social media among investigated farmers/producers.

Social media	Farmers/producers	
	No	%
Facebook	174	81.3
Twitter	68	31.8
Instagram	45	21.0
YouTube	33	15.4

Source: own composition

22 partners belong to the SKIN project which will see its conclusion in November 2019. The main goal of the project is to build a new community of relations for re-connecting the two extremities of the food supply chain, producers and citizens. Trust represents the glue for establishing a short chain based on common values on food, its origin and production method by promoting innovation from the ground. The underlying idea and philosophy is to provide concrete and planned support to the stakeholders of short food supply chains and to enable actions aimed at the empowerment of the potential innovators (farmers, small business owners, innovation support services providers, regional services etc.) to be taken.

We checked how active farmers/companies of the SKIN project were and which social media they used. Investigation was completed within one month. The first step was to prepare a database. It involved 214 partners with websites available, out of 814 SKIN producers/farmers. The process of verification if a website worked or not brought us to the conclusion that 15 entities used Facebook as the only available source of information on the Internet. For the rest, we can conclude about using different combinations of presence online. Therefore, we are dealing with an observational study where the researcher merely records (observes) what happens in reality. In this way, we were able to collect basic information useful for further studies and for delineating a line of research.

The vast majority of studied entities among the investigated producers/farmers provided a general overview of their activities and information about products of their websites. They usually included phone numbers and email addresses, whereas contact form was not such a popular method of communication (Table 1). Nearly 26% referred to a possibility to purchase on-line (it was a classical on-line shop as well as an offer list with prices and description how to order particular items).

It is crucial to stress that the Facebook activity seems to be the basic social media channel as farmers/producers who did not have it, also did not refer to any other social media. It was used by 81% of investigated group (Table 2). Next popular were: Twitter, Instagram and YouTube. A number of entities (46, 21.5%) linked other platforms or ways of communication (decreasing order: blog, LinkedIn, Google+, TripAdvisor, Pinterest, RSS, Flickr, Vimeo, Tumblr).

However, 25 investigated entities with Facebook activities (nearly 13%), did not refer to it on their basic webpages. Qualitative analysis of these cases can lead to a conclusion that webpages were established much earlier, and nowadays Facebook was used to current communication – this can be proven for example by photos provided (much more updated on Facebook) and also a general outlay of a webpage – not following the modern look or navigation schemes. It does not mean than the webpages communicated wrong or misleading information. Probably Facebook is easier for communication than a classical webpage but this hypothesis needs further qualitative research among farmers.

Basic approach in this research assumed looking for a link to a Facebook page at the website (native language version), as this approach is logical and establishes a coherent method of communication with consumers. We noticed single cases where a related Facebook page was not directly linked to, it was possible only to like it. In such a situation we searched Facebook using a name of an entity included the SKIN Good Practice Repository.

The limitations of this study, which is indicated also in other similar ones, is the short time framework for data collection. Evaluating a longer period could identify seasonal differences and strategies for creating messages for holidays or special events (Klassen et al, 2018). What is more, we were not able to collect general info (age, gender, education, income, size of the producers etc.), as a privacy agreement of the SKIN project does not allow, in this step, the utilisation of such data.

Research

Entrepreneurs can name their activity in different ways when they establish a Facebook fan page (a business account representing a company or organization). In case of our research, 5 farmers/producers used a Facebook profile, which by theory is dedicated to individual, non-commercial use. As a group we researched included these individual profiles, we apply the term Facebook page for all types of accounts for further analysis.

An important part of the entities (34%) presented themselves as running selling activities, sometimes adding more detailed descriptive as: vegetable, wine, meat or referring to features of their products as: local, ecological or healthy (Figure 1). Facebook pages often included a few names for activities, as for example a shop and a farm – in such situation we identified the main descriptor basing on the content of the profile or a more detailed one (for example company *vs.* shop). It seems that naming the activity in a way related to selling products somehow stressed possibilities of establishment of relations with potential purchasers. But this state-

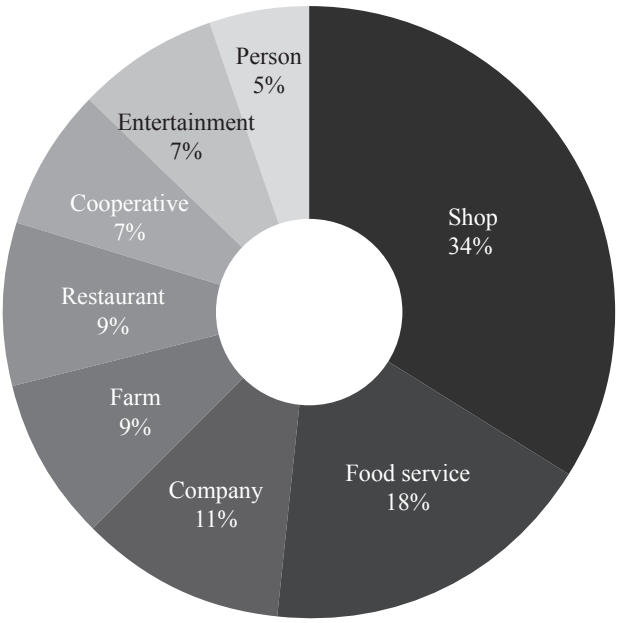

Figure 1: Structure of activities according description of Facebook pages
Source: own composition

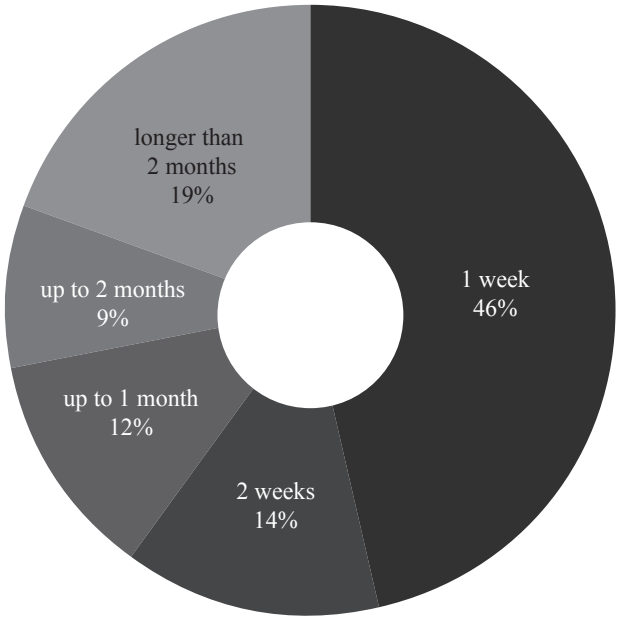

Figure 2: Time of last post publication
Source: own composition

ment can be treated only as a hypothesis for further research. Using a general phrase of entertainment we refer mainly to accommodation but also to educational services. Text mining techniques seems to be applicable to deeper analyses of this aspect of Facebook pages.

The oldest pages were started in 2009 (9 profiles, 5.4%) and cross-analysis shows that these were classic fan pages, so using a personal profile is not related with time of starting Facebook activities. Nearly half of investigated farmers/producers started their profile up until 2012. It proves significant time experience in this social media channel.

Generally it can be concluded that farmers/producers kept their profiles updated (Figure 2) - 60% published a post within last 2 weeks. On the other hand, there was also a group of those whose last post was published more than 2 months ago, with single cases of activities older than two or even three years ago. This lower level of activity of one fifth of the investigated group raises a question about reasons of maintaining a profile, as a significant outdating can discourage potential consumers from purchasing products or services.

Facebook has been developing different ways to allow users to build their pages. Publishing short videos is also a popular activity, compared to a similar possibility offered by YouTube. Nearly 82% of farmers/producers with a Facebook page published videos there. Usually a number of these videos was not high – in the case of 60% of investigated entities up to 10 short films. However, there were also 10 entities with 50 and more videos. Use of this way of communication did not replace activities on YouTube as 32 out of 33 farmers/producers referring to YouTube on their main web pages, published also videos on their Facebook pages.

What refers also to a presence in other than social media is a fact that, it was quite usual that a classic webpage gathered links to various social media where a company was present. However, it was not so obvious with links to others on a Facebook page - they were included in a list of Facebook content (left vertical menu) only by 10 producers/farmers.

Table 3: Descriptive statistics for numbers of likes and followers

Descriptive statistics		Number of likes	Number of followers
Average		3,163	3,405
Minimum		9	11
Maximum		45,688	45,309
Percentile	25	613	606
	50	1,529	1,580
	75	3,184	3,196

Source: own composition

The content of the majority of investigated Facebook pages was found to be quite standard. There were a few cases of newsletters (also with use of MailChimp) and information on promotions as well as single examples of: polls, testimonials, brochures on Issuu platform, book now function and fan of the week. On this background, a shop was a relatively popular functionality – present on 19 Facebook pages; 10 out of them had also a shop on a standard webpage. What is interesting, a shop on the Facebook page was present in case of entities describing themselves as shops (a natural connotation) but also a food service, restaurant, farm, entertainment and a cooperative. At this point, we assume that this kind of activity was run in accordance with the relevant legal regulations regarding, for example, food safety.

Liking and/or following are one of the easiest ways to display user's interest on Facebook as it requires only one click, without a necessity of providing own message or even selecting an appropriate graphic. Data on a number of users engaged in this way we got for 168 farmers/producers (Table 3).

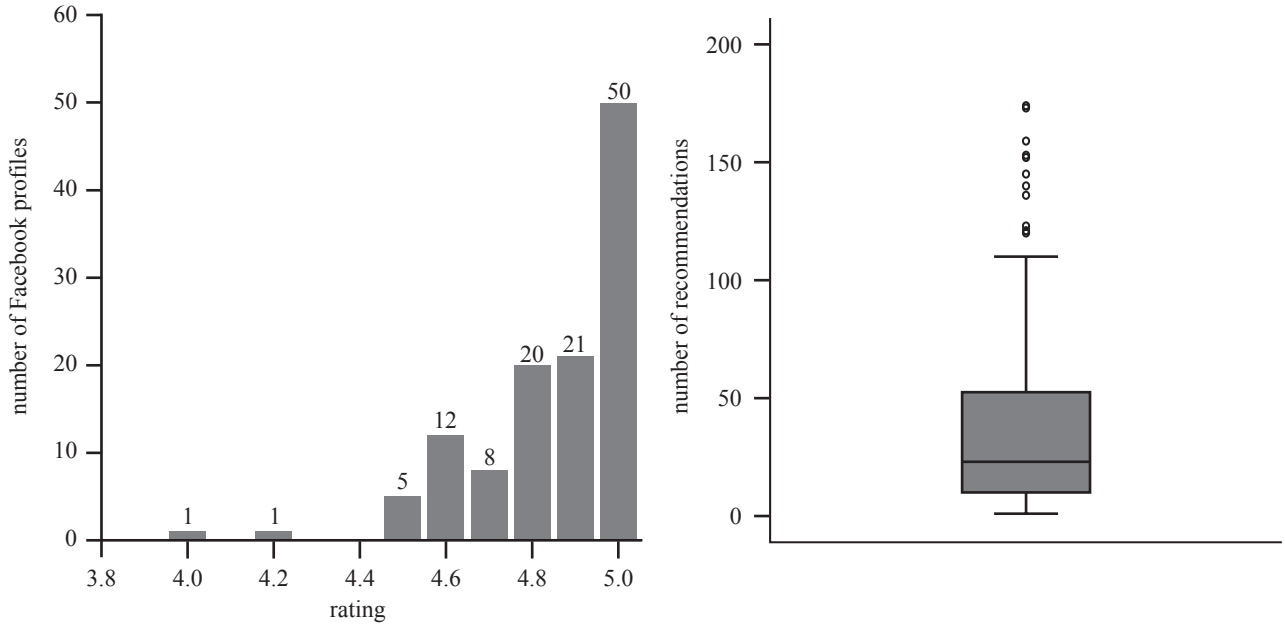

Figure 3: Rating of Facebook pages and number of recommendations.
Source: own composition

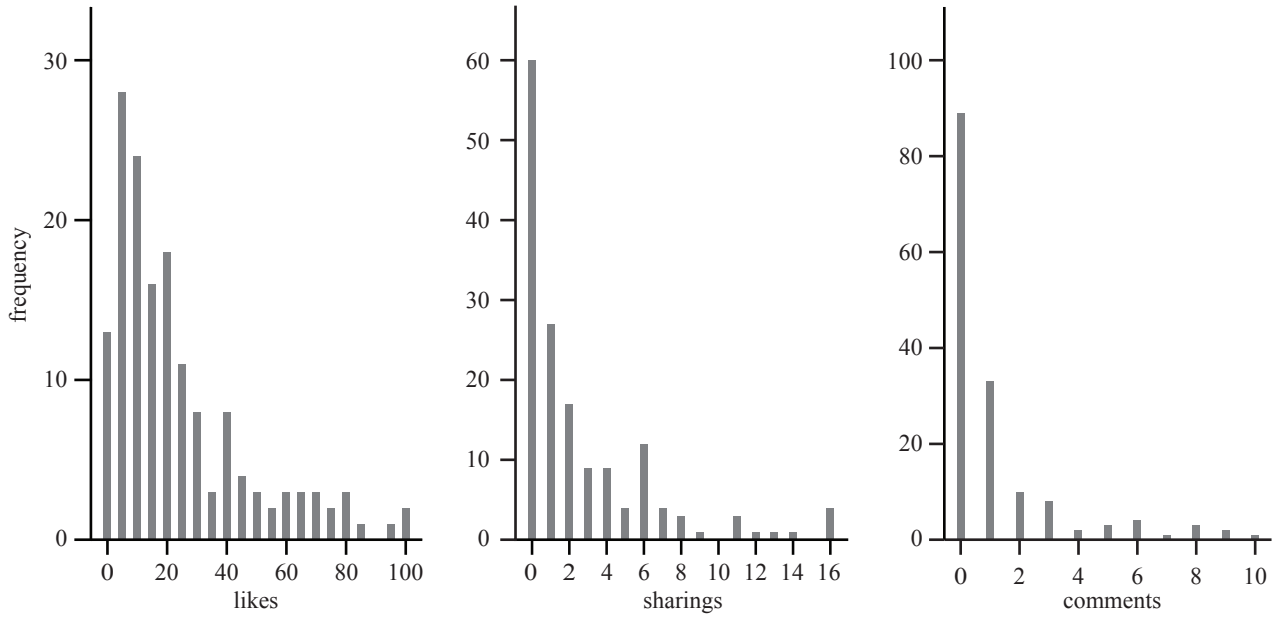

Figure 4: Likes, sharings and comments to the last post published.
Source: own composition

Usually, the numbers of likes were very similar to a number of followers. It can be a result of a scheme working in a way that when a user likes a page, it is automatically set to follow that page as well. Anyway, the first look at the Table 3 can lead one to a conclusion about relatively wide audience of investigated Facebook pages – 75% of them had more than 613 likes and 606 followers. The next step of the research was to investigate if users were active in communication with the farmers/producers. Firstly, we investigated rating of Facebook profiles and a number of recommendations (Figure 3).

Generally, investigated farmers/producers got a high rating – 50 out of 118 rated (42%) got 5 out of 5. Numbers of recommendations used for rating were very diversified, starting from 1 to maximum 865 recommendations. The second part of the Figure 3 illustrates numbers of recommendations (three biggest outliers: 865, 320 and 227 were removed from this figure). The "middle" value of a number of recommendations (median) was 23, which means that 50% of rates were based on no more than 23 recommendations. The third quartile's value was 55, which means than 75% of them were based on no more than 55 recommendations. Altogether, it proves rather limited number of stakeholders engaged into leaving recommendations. Afterwards, we summarised the numbers of likes, sharings and comments to the last post published (Figure 4) which can be interpreted as a next descriptor of a level of activity of Facebook users at the pages of investigated farmers/producers.

Clusters Input (Predictor) Importance

1.0 0.8 0.6 0.4 0.2 0.0

Cluster	1	2	3	4
Label	farms	services and companies	shops	big market players
Size	28.2% (49)	36.2% (63)	31.6% (55)	4.0% (7)
Inputs	activity farm (30.6%)	activity food service (46.0%)	activity shop (100.0%)	activity shop (57.1%)
	post likes 26.31	post likes 29.76	post likes 28.78	post likes 289.29
	sharings 2.55	sharings 3.46	sharings 3.44	sharings 34.57
	comments 1.61	comments 1.86	comments 2.33	comments 101.14

Figure 5: Average values of investigated characteristics across clusters.

Source: own composition

Clusters Input (Predictor) Importance

1.0 0.8 0.6 0.4 0.2 0.0

Cluster	1	2	3	4
Label	farms	services and companies	shops	big market players
Size	28.2% (49)	36.2% (63)	31.6% (55)	4.0% (7)
Inputs	activity	activity	activity	activity
	post likes	post likes	post likes	post likes
	sharings	sharings	sharings	sharings
	comments	comments	comments	comments

Figure 6: Distribution of absolute values of investigated characteristics across clusters

Source: own composition

The order of characteristics presented on Figure 4 can be interpreted as a ranking of ways of interactions on the investigated Facebook pages. Likes were the most popular way, but posts with more than 40 of them were not very numerous. Sharings were much less common whereas comments were really rare – 4 comments and more were noticed in single cases. Partly it can be a result of lack of engagement in the moderation of the discussion, where farmers/producers provide answers to comments. In some cases it was clearly seen that communication through social media had a cyclical character to it as the most recent posts typically informed followers about completing of next successful season of (vegetable, fruit, wine, etc.) production.

We applied the two-step clustering algorithm in order to investigate Facebook interactions with costumers and types of activities run by investigated entities within short food supply chain (Figure 5 and 6). A silhouette method was used to assess the validity of the identified clustering solution. In our case the value was 0.4, which can be considered particularly fair (Li *et al.*, 2018).

The revealed five clusters were:

Cluster 1 was dominated by farms – it included all entities describing themselves as farm, entertainment and persons as well nearly all cooperatives. It can be characterized by the lowest number of last Facebook post's likes, sharings and comments. Undoubtedly, this is a group with the least developed Facebook interactions from the perspective of these quantitative measures.

Cluster 2 represents moderate Facebook interactions and includes 29 out of 31 food services, all companies and restaurants.

Cluster 3 represents only entities describing themselves as shops (55 ouf of 59 shops) with Facebook interactions comparable to the previous cluster.

Cluster 4 can be treated as a group of outliers with the highest measures of Facebook interactions; it consists only of 7 entities (4 shops, 2 food service entities and 1 cooperative).

Discussion

As stated in the methodological part of this study, there have not been a lot of studies on the role of social media within short food supply chains. However, it is noticed that they can contribute significantly to development of such contemporary issues as the circular economy or ecology approaches, for example as a forum for many bottom-up initiatives like: discussion group platforms for the exchange of products which also have as their aim product promotion, providing information or the exchange of opinions (Drejerska *et al.*, 2018). What is more, as it is simple to implement, social media can be important for small and medium sized enterprises operating in the food and beverage sector, which usually use relatively simple and cheap IT solutions for activities in local markets and to facilitate cooperation with local suppliers (Wicki and Franc-Dąbrowska, 2013).

A detailed study on the application of social media within the supply chain was performed for Austria (Meixner *et al.*, 2013). However, this particular research focused on food and beverages companies, so there exist entities possessing different characteristics to the investigated farmers and producers. The research team drew conclusions about the use of social media for interactions with costumers for building accountability. These methods of communication were indicated as innovative alternatives for customer relationship management. Through using social media farmers, like companies, can also communicate their social responsibility.

Scholars (Elghannam *et al.*, 2018) have recently investigated the use of social networking sites within short food supply chains in Mexico, Spain and Egypt. Their study examines the free-listing tasks and sentence completion techniques from 424 actual social media users. Results demonstrate both that consumers show high acceptance for this approach and that social networking sites might serve to increase sale levels and, therefore, increase profitability and reduce costs within the SFSC.

For example, the Landwinkel co-operative in the Netherlands helps and develops marketing tools either off-line (posters, price tags, newsletters) or on-line (farmers blogs, farmers family Facebook, professional site) (EIP-AGRI, 2015). In addition, visits to other farm-shops, lessons in social media and on "how to develop a webshop", workshops and learning activities for farmers are aimed at professionalising the shops and farmers' activities in SFSC. Regarding the category of home delivery/box schemes/webshops, most of them are initiated by distributors and buyers instead of the estimated suppliers (Wubben *et al.*, 2013).

However, we can find also indications of a limited role of social media. Research results on this topic done in Poland presented by Jaska and Werenowska (2016) indicates that whereas Internet users search for information about a brand on online forums (78%) and official websites (68%), only one third declared that they search for information on social networks. If this low figure is related to the limited engagement of businesses in popular social networking sites and/or a lack of confidence in the new ways of communication with consumers, then we have a kind of vicious circle. Although research into the behaviour of Hungarian consumers of products provided within short food supply chains did not refer directly to social media, they identified buying food directly from the producer, farmers' markets and farm shops as the most popular ways to buy food. Other options scored low aver-age values, with purchasing options from the Internet (mail order and e-commerce) being the least popular (Szabó, 2017).

Conclusions

Undoubtedly, it is reasonable to study social media application across short supply chains as social media marketing has been receiving a growing level of interest recently. As can be assumed based on the general leadership of the company in the market, Facebook was identified as a basic social media channel – as those farmers/producers who do not use it, also do not refer to any other social media. Numbers of likes and followers are one of the simplest indications of the level of popularity of a Facebook profile. A number of likes indicates how popular the brand is, as its posts and updates will appear in the news feeds of all its followers. As a result, when a page has more 'likes', conventional wisdom can state that it is more successful (Phua and Ahn, 2014). Our research results indicate a relatively wide audience of Facebook pages of farmers/producers (numbers of likes and followers) but feedback relations with consumers are limited (number of comments and sharings). The cluster analysis also proves that entities describing themselves as farmers can be characterised by a relatively low level of Facebook interactions with costumers, as compared for example with stressing their selling activities (introduced on Facebook as shops). Taking the above into account as well as conclusions from other research in this topic, a question arises – is social media mostly only a source of information within short supply chains whereas interactions take place in the real world (for example thank to proximity between producers and consumers)? This can be considered a feature of the investigated group, which in fact operates within an offline model of short supply chains.

To sum up, the results we found allow one to expect that there is still potential for the application of social media across short food supply chains, especially when viewed from the perspective of getting direct feedback from consumers. Taking it into account as well as the need for more detailed research indicated by the study, further steps seem to be necessary in relation to this topic. The issues studied here can be reviewed at the end of the SKIN project, scheduled in November 2019, in order to collect important data on the role of social media within short food supply chains and analyse them, for example, by means of SEM (structural equation modelling).

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