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USING SOCIAL NETWORKS AS AN INTEGRATION TOOL IN RURAL AREAS OF THE CZECH REPUBLIC – AGRICULTURAL ENTERPRISES

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Abstract

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The present paper is aimed at introducing a pilot study on the use of social networks in agricultural enterprises. It is focused in particular on using social media as a development tool with a view to increase the market competitiveness of agricultural enterprises. The primary data have been retrieved from a questionnaire survey of ICT use in agricultural enterprises of the Czech Republic (the so-called Exploration 2011). The questionnaire survey was targeted at agricultural enterprises farming at least the area of 100 hectares (a basic selection criterion of the complex survey). The survey dealt not only with monitoring social networks use in agricultural enterprises as such but as well with the promotional potential of social networks in agricultural enterprises with non-agricultural activities. The survey was focused on the Central Bohemian Region as it shows a high concentration of agricultural enterprises. The present view of social networks in agricultural enterprises within the framework of the above-mentioned complex survey has not been, as far as the authors are aware, neither researched nor published. The thematic focus of the paper follows recent development in this field and current world research trends. The data obtained in the survey were statistically processed and some of the interdependences were monitored.

social network, Facebook, agricultural activities, non-agricultural activities, enterprise, hypothesis, test

Social media upsurge, or the upsurge of the social network as a whole, enables companies to establish new communication channels to groups who would otherwise be very hard to target and maintain a permanent active contact with. Not only can the agricultural enterprises use the developing social network as a personal communication tool but first of all as an effective marketing tool. Social network can work as a bridge providing active communication with the target group that would otherwise be hard to get in touch with or even impossible to reach at all (Červenková *et al.*, 2011).

Social media have become an integral part of marketing strategies and cost structures of many companies all over the world (rem.: It is necessary to mention that social media user support differs and is not the same all over the world. The difference subsists not only in their popularity but as well in the cross-cultural differences). The costs of these marketing activities have been growing constantly and so has the number of companies providing integration of corporate services with the social media. The Internet has become a transmitter for further rise and development of social network targeted at different user groups. Internet social media overcome one of the biggest limitations – the place of residency, respectively the bond to a certain location–place of business. They incorporate a structure of "nodes" representing individuals, groups or organizations. In the Czech Republic, social networks are still perceived as a tool for private interpersonal communication and not as a marketing tool. However, the number of companies using social networks as a source

of information or company promotion has been growing recently and the awareness of social media corporate potential has been raised too. It is therefore very interesting to research this expansion marketing life cycle both in general and within agricultural enterprises (Marquardt *et al.*, 2011) and (Bittner and Müller, 2011).

Social media

We can say that social media are an artificial platform of "common knowledge" where an event or product can be highly valued. This can even be one of the reasons why social media have been gaining, compared to other media, increasing popularity. Advertisement, newspapers and leaflets are not so trustworthy, or in other words popular, within the new generation and modern users.

Social networks offer a wide range of functions suitable for promotional activities; we can use advertisement, predefined Applications and first of all Like Pages or Groups.

As for recent marketing trends, Like Pages that act as spot brands are the most popular offering adaptability, SEO URL and permanent development. Facebook is trying to actively predetermine these for marketing purposes on social networks (Knowles and Espinosa, 2011). Nevertheless, from the point of view of virtual spread possibilities, Groups seem to be more suitable even if they have just a limited possibility – in spite of ever developing – of adding Applications and customizing. At the very beginning the Facebook was created as a tool for community communication. However, within the last two years, progressive and flexible companies started to use Facebook as a marketing tool.

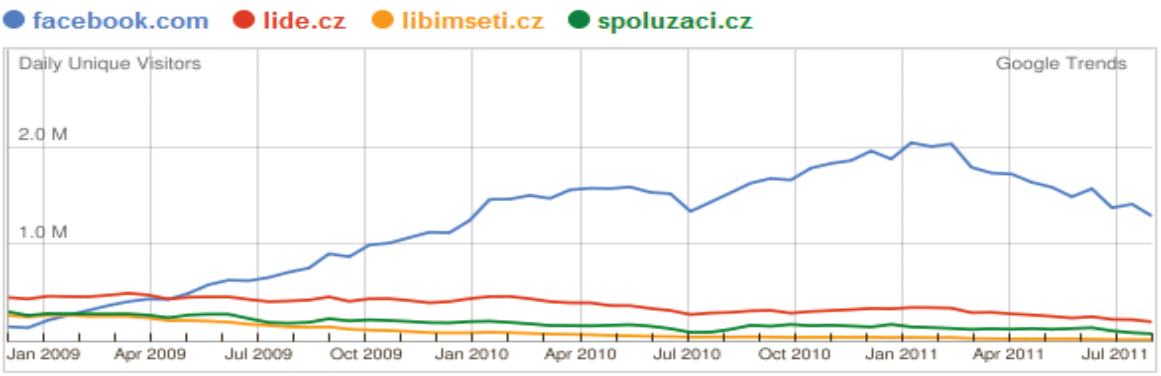
Suitable communication infrastructure providing broadband connectivity is conditional for the use of all modern internet technologies and applications, including social media. Social media develop very fast towards multimedia content that is closely related with high quality connection requirements. Rural areas generally face substantial connectivity problems (even with connection availability), especially with the connection quality. These problems have been monitored and analyzed by the Department of Information Technologies in the long term and are described e.g. in the following papers: (Jarolímek and Vaněk, 2003) and (Vaněk *et al.*, 2008).

Social media users

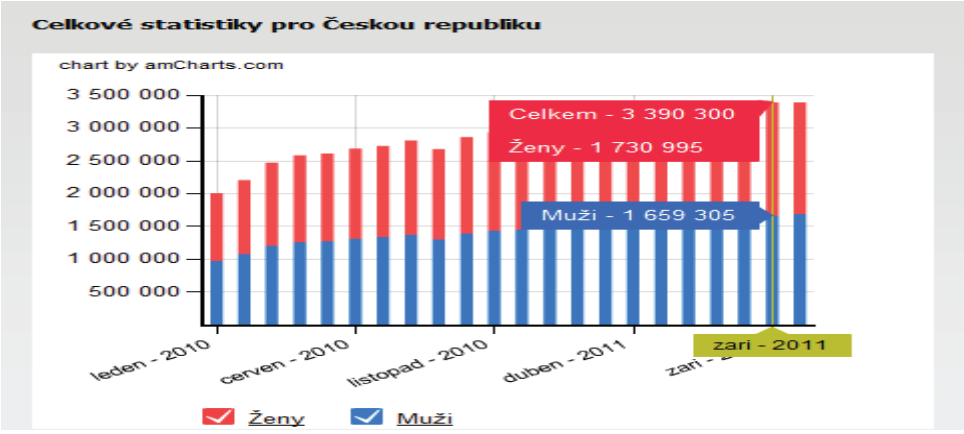
Social network works as a standard company and its investments. Facebook (the most spread social network in the Czech Republic) started to be an effective tool when it exceeded the so-called critical limit. This limit represents at least a 15% share on the social networks market. After having enough registered users to exceed the critical limit, its user numbers have not ceased to grow, resulting in higher popularity and approval. Fig. 1 clearly shows that Facebook has been recording high user numbers in the long-term while other social networks have been significantly falling behind. With an exception of Facebook, we can observe a general downward trend in user numbers. We will see in the next period whether the Facebook user numbers will stop decreasing or not. Since 2009, formerly very popular networks such as LíbímseTi, Spolužáci and Lidé have been being replaced by Facebook whose number of registered users has rocketed. Fig. 1 clearly shows that the highest rate of daily users was recorded in the first quarter of 2011 and then started to go down reaching approximately the levels of the second quarter of 2010.

In the course of Facebook's six-year presence on the Czech market, 3,390,000 users were registered – as at 30th September 2011 (Fejsbůček, 2011b) – see Fig. 2, 3. These figures as well indicate the age structure of Facebook users and the male/female user ratio. As we can see, these figures are almost identical (Fejsbůček, 2011b). In Fig. 3, we can observe that Facebook is the most popular within the age group of 25–35.

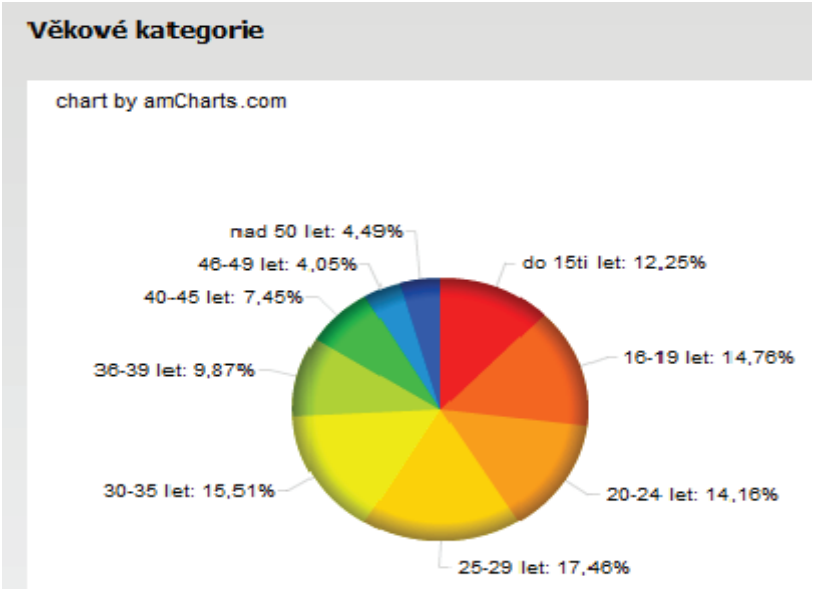
Facebook users are influenced by their lifestyle and that of their friends. Like Pages that are very popular among target groups integrate presentations of many companies whose focus is on agriculture and agricultural products. So far, the BIO category is the most popular – Individual companies present their products to new or existing target customers (Fejsbůček, 2011a) and (Oreszczyn *et al.*, 2010).



1: *Social networks use (Google Trends, 2011)*



2: *Facebook users in the CR (Fejsbůček, 2011b)*



3: *Facebook users – age groups (Fejsbůček, 2011b)*

AIMS AND METHODS

An extensive questionnaire survey – Exploration 2011 – on the ICT use and development in agriculture addressed all agricultural enterprises farming more than 100 ha of agricultural land. The focus on bigger agricultural enterprises resulted from the complex view of ICT development which can be monitored in particular within larger enterprises. Nevertheless, it does not influence the viewpoint related to the individual forms of enterprise. More than 1,000 questionnaires were collected. The survey was aimed at the current state and development of ICT, including questions related to the internet connectivity, internet use, mobile communication and last but not least social media use. The use of social media was analyzed in general and then in detail from the following points of view: social media use for company communication, for company presentation (promotion) and finally as a source of information. The survey paid special attention to those enterprises that diversify into non-agricultural activities – such as e.g. agrotourism, transportation, wood processing etc. The data obtained in the survey were then statistically processed and some of the interdependences were monitored.

Statistical tests have been carried out for all four relationships shown in tables I–IV. The tests were aimed at verifying the correlation between the row and column variable. Both variables had two variants and were shown in the so-called association table. Two tests have been used for this purpose: the Chi-squared test and Fisher's test. Employing the first or the second test was conditioned by the expected frequencies. If at least one cell of the table recorded an expected frequency lower than five, the Fisher's test has been adopted. If one none of the expected frequencies has been lower than five, the Chi-squared test has been chosen. Both tests are based on the null hypothesis, i.e. hypothesis that there is no relationship between the phenomena measured. The validity of null hypothesis has been tested on

the basis of predefined type I error alpha (0.05) and maximum type I error, the so-called p-value, arisen from the test. If the p-value is higher than the predefined alpha, the null hypothesis is not rejected. Otherwise, the null hypothesis can be rejected and as a result, the alternative hypothesis is valid while the relationship between the phenomena measured is considered to be proven.

For the analysis sake, the SAS statistical software has been used.

RESULTS

It stems from the survey that the target group actively uses social networks. The reasons for using social networks are shown in the tables below (table I, II, III, IV). All these enterprises diversify to some extent into non-agricultural activities. The use of social networks differs from using social networks in general through using social media for company communication and company presentation to using them as an information source. The social networks

I: *Social networks in general*

Table of non-agricultural activity and social networks use				
		Social networks use		Total
		NO	YES	
Non-agricultural activity				
NO	**Frequency**	476	36	512
YES	**Frequency**	459	49	508
Total	**Frequency**	935	85	1 020

Own source (Exploration 2011)

II: *Social networks used for company communication*

Table of non-agricultural activity and social networks use for company communication				
		Social networks use for company communication		Total
		NO	YES	
Non-agricultural activity				
NO	**Frequency**	498	14	512
YES	**Frequency**	485	23	508
Total	**Frequency**	983	37	1 020

Own source (Exploration 2011)

III: *Social networks use for company presentation*

Table of non-agricultural activity and social networks use for company presentation				
		Social networks use for company presentation		Total
		NO	YES	
Non-agricultural activity				
NO	**Frequency**	507	5	512
YES	**Frequency**	491	17	508
Total	**Frequency**	998	22	1 020

Own source (Exploration 2011)

IV: *Social networks as a source of information*

Table of non-agricultural activity and social networks use as a source of information				
		Social networks use as a source of information		Total
		NO	YES	
Non-agricultural activity				
NO	**Frequency**	477	35	512
YES	**Frequency**	474	34	508
Total	**Frequency**	951	69	1 020

Own source (Exploration 2011)

are used primarily for company presentation, secondly for corporate communication and last but not least as a source of information.

The following hypotheses have been tested:

There is no relationship/correlation between non-agricultural activities and

- using social networks (H1)
- using social networks for company communication (H2)
- using social networks for company promotion (H3)
- using social networks as a source of information (H4).

It stems from Table V that no significant correlation within H1, H2 and H4 has been proven (*p* is higher than 0.05). It means that no substantial correlation exists between non-agricultural activity and using social networks in general, for company communication or as a source of information.

However, a correlation between non-agricultural activities and using social networks for company presentation has been proven (H3). Therefore, it can be assumed that if an enterprise incorporates some non-agricultural activity, the probability of using social networks for company presentation is higher than within those enterprises that do not diversify into any non-agricultural activity.

Furthermore, a correlation between the individual kinds of non-agricultural activities and social networks use has been tested. The most relevant activities are shown in Table VI.

The following null hypotheses have been tested:

There is no relationship/correlation between using social network and

- agrotourism (H5), transportation (H6), wood processing (H7), metalworking (H8), forestry (H9), transportation and machinery maintenance (H10), hospitality industry (H11), construction industry (H12), meat processing (H13) and milk processing (H14).

It stems from Table VI that a notable correlation has been recorded only for two hypotheses – H5 and H11 while p-value is lower than 0.05. We can therefore assume that enterprises diversifying into agrotourism or hospitality industry are more likely to use social networks.

Other tested correlations are insignificant.

Correlation testing in a chosen region – Central Bohemian Region

Further testing was focused on agricultural enterprises that diversify into non-agricultural activities in a particular region of the Czech Republic. The most enterprises of this kind, 165 to be precise, are situated in the Central Bohemian Region.

At the beginning, basic hypotheses (identical to previous testing) were formulated. See Table VII.

V: *Correlation between providing non-agricultural activities and using social networks*

	Hypothesis	Degrees of freedom	Chi-squared test	Type I error "p"
Non-agricultural activity	**social networks use (H1)**	1	2.482	0.115
	social networks for company communication (H2)	1	2.746	0.116
	social networks for company promotion (H3)	1	6.955	0.008
	social networks as a source of information (H4)	1	0.001	0.974

Own source (Exploration 2011)

VI: *Correlation with the individual kinds of non-agricultural activity*

Hypothesis		Degrees of freedom	Chi-squared test	Type I error "p"	Correlation proven
agrotourism	Social networks use	1	*)	0.032	YES
transportation		1	0.001	0.971	NO
wood processing		1	*)	0.615	NO
metalworking		1	0.103	0.748	NO
forestry		1	*)	0.437	NO
transportation and machinery maintenance		1	1.134	0.247	NO
hospitality industry		1	7.387	0.007	YES
construction industry		1	*)	1	NO
meat processing		1	*)	0.108	NO
milk processing		1	*)	0.264	NO

Note: *) the Fisher's test was used due to non-meeting the Chi-squared test criteria
Own source (Exploration 2011)

VII: *Correlation between non-agricultural activity and social networks use – Central Bohemian Region*

	Hypothesis	Degrees of freedom	Chi-squared test	Type I error "p"	Correlation proven
Non-agricultural activity	**social networks use**	1	1.264	0.261	NO
	social networks for company communication	1	*)	0.499	NO
	social networks for company promotion	1	*)	0.077	NO
	social networks as a source of information	1	*)	0.734	NO

Note: *) the Fisher's test was used due to non-meeting the Chi-squared test criteria
Own source (Exploration 2011)

VIII: *Correlation with the individual kinds of non-agricultural aktivity – Central Bohemian Region*

Hypothesis		Degrees of freedom	Chi-squared test	Type I error "p"	Correlation proven
agrotourism	Social networks use	1	*)	0.201	NO
transportation		1	*)	0.71	NO
wood processing		1	*)	1	NO
metalworking		1	*)	1	NO
forestry		1	*)	1	NO
transportation and machinery maintenance		1	*)	1	NO
hospitality industry		1	*)	1	NO
construction industry		1	*)	0.411	NO
meat processing		1	x	x	X
milk processing		1	*)	1	NO

Note: *) the Fisher's test was used due to non-meeting the Chi-squared test criteria
Own source (Exploration 2011)

It stems from Table VII that no correlation was proven (p is higher than 0.05).

As we can see from Table VII, no statistically significant correlations were recorded while all p-values were higher than 0.05. Meat processing correlation was not even tested at all as none of the enterprises declared to diversify into this activity.

CONCLUSION

The data and results obtained from the testing have not proven (neither in the Czech Republic as a whole nor in the chosen region) any correlation between non-agricultural activities and using social networks as a marketing tool. We can therefore say that this interesting opportunity to attract more customers (in the social network terminology "visitors" or in the Facebook terminology "Likes") is wasted as there exists a significant potential of acquiring new customers from the most numerous user group (25–35 years of age). The social network users could become active regular customers (Google Trends, 2011). It is clear that Prague has more social network users than any other region of the Czech Republic. On the other hand, the number of agricultural enterprises is obviously low and the number of those using social networks for promotional purposes even lower. However, the most enterprises (165) of this kind are situated in the Central Bohemian Region and so the capital city of Prague provides a promising market thanks to its vicinity. Respectively, agrotourism, hospitality or accommodation are (can be) perspective for more distant rural regions.

Further development of social media marketing tools offers numerous interesting issues for a new paper and a follow-up survey in the forthcoming year as social networks development is closely connected with developing customer acquisition strategies.

The paper authors will keep on monitoring the development of social networks in this specific domain and expect to see a general upward trend in using social media in agricultural enterprises.

SUMMARY

The present paper is aimed at introducing a pilot study on the use of social networks in agricultural enterprises. It is in particular focused on using social media as a development tool with a view to increase the market competitiveness of agricultural enterprises.

The primary data have been retrieved from an extensive questionnaire survey of ICT use in agricultural enterprises of the Czech Republic (the so-called Exploration 2011). The use of social media was analyzed in general and then in detail from the following points of view: social media use for company communication, for company presentation (promotion) and finally as a source of information. The survey paid special attention to those enterprises that diversify into non-agricultural activities – such as e.g. agrotourism, transportation, wood processing etc. The data obtained in the survey were then statistically processed and some of the interdependences were monitored.

The study was targeted first at the Czech Republic as a whole, second at the Central Bohemian Region (resulting from a high concentration of agricultural enterprises) and third at the individual agricultural enterprises (cooperatives, joint-stock companies, limited liability companies and natural persons). All the fore-mentioned enterprises farm the total area of at least 100 hectares (conditional selection criterion of the survey). All legal forms of enterprise were included in the sample, i.e. cooperatives (accounting for 21% of respondents), joint-stock companies (17%), limited liability companies (22%), sole owners (37%), other or non-specified form (3%).

The topic of the paper, i.e. social networks use in agricultural enterprises, offers an original view of social networks within the framework of the complex survey and has not been, as far as the authors are aware, neither researched nor published. The thematic focus of the paper follows recent development in this field and current world research trends.

The data obtained in the survey were subsequently analyzed and interpreted using statistical software. More than 1,000 questionnaires were collected from the respondents (enterprises) and processed statistically. The testing showed that the target group of enterprises slowly starts to be active on social networks. Social networks are used for company communication, company presentation (promotion) and last but not least as a source of information. However, statistical testing did not prove any correlation between using social networks in agricultural enterprises and their promotion on social networks. It can be therefore stated that agricultural enterprises have not been using social networks with a view to increase their competitiveness yet. Social networks are used the most as an information source.

Furthermore, the use of social networks has been analyzed within those enterprises that also pursue a non-agricultural activity. A correlation between diversifying into non-agricultural activities and using social networks for the sake of company presentation has been proven. Based on the survey, we can say that enterprises involved in agrotourism and hospitality are more likely to use social networks in their operation. However, even these enterprises do not employ the potential of social networks fully and the use is still at a low level.

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