

# COMPARISON OF CZECH, SLOVAK AND SWISS PRODUCT INNOVATION ORIENTED FIRMS' COMMUNICATION IN SOCIAL MEDIA

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## Abstract

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Objective of the research described in this article is to analyze and compare the use of social media communication channels in Czech, Slovak and Swiss product innovation oriented companies, where Swiss set of the companies is used as a benchmark. Primary research was made through manual activity scanning of the selected companies within social media. European company database Amadeus provided by Bureau van Dijk was used for the company selection in all three countries under the same search criteria. There were made two research sets of the companies in each country. One set covers top turnover product innovation oriented companies, second set avoided product innovation orientation search criteria and covers top companies by turnover in the respective country. Each particular sample set covered 74 to 100 companies.

Activities of the selected companies on Facebook, YouTube, Twitter, Google+ and LinkedIn were manually scanned and particular metrics were scaled. Microsoft Excel was used for storing, statistical processing and graphic outputs of the research. Evaluated results show significant gaps in use of social media communication tools in Czech and Slovak companies comparing to Swiss benchmark. It has been also confirmed that social media communication activity in product innovation oriented companies is equal to other companies. The hypotheses were statistically tested and results confirmed.

Keywords: social media, marketing communication, interactive web communication, marketing communication mix, market orientation, e-marketing, digital media marketing

## INTRODUCTION AND RESEARCH OBJECTIVES

Internet marketing has become one of the key communication tools used by companies. Development of social media started with technology improvements allowing bidirectional communication between web content publishers and content users, so called web 2.0 (Bednář, 2011). Media that creates internet environment allowing effective content sharing between users are called social media (Janouch, 2010). Social media allow users to keep social contacts with others in the network. So called socializing can be used on the private base but can also be used by companies within their communication with stakeholders

(Shih, 2010). When it comes to the company communication with stakeholders through social media, there are two important facts that have to be taken into consideration. Active content sharing and bidirectional communication is essential for social media, thus whenever any feedback is received from any stakeholder it has to be processed and communicated back (Shih, 2010). Second fact is that there is no possibility to control the content shared by other users in social media (Bednář, 2011).

The four most widely known categories of social media are:

- a) social networks such as Facebook, LinkedIn, Xing, and others;
- b) corporate blogs or microblogs such as Twitter, Present.ly, and others;

- c) multimedia content-sharing websites such as YouTube, Flickr, SlideShare, and others; and
- d) wiki-based knowledge-sharing tools (Eurostat, 2013).

Besides general literature focused on social media, there is quite a high number of published researches focusing on particular subjects related to social media and its active application in company communication (e.g. Bhanot, 2012 or Eurostat, 2013). There are also studies available that summarize actual approach to social media from the perspective of sellers on one side and buyers on the other.

The research presented in this paper follows previously made research (Chlebovský, 2012) and was prepared and executed to find out more precise data and make analysis of Internet and social media usage in communication of Czech and Slovak product innovation oriented companies comparing to Swiss companies used as benchmark. The data were collected in July 2014.

Previous research (Chlebovský, 2012) showed two major gaps identified in usage of both traditional Internet marketing tools as well as social media in the marketing communication of the Czech companies.

The first identified deficiency is in the level of active usage of both traditional Internet marketing tools as well as social media in marketing communication by Czech companies compared to their western counterparts. Globally made researches (e.g. Spilker-Attig, 2010 or Stelzner, 2012 and confirmed by Stelzner, 2014) showed for both traditional Internet Marketing tools as well as social media in marketing communication approx. 15% higher rates in active usage of these tools by global companies compared to the findings of our local Czech research (Chlebovský, 2012).

The second identified deficiency is between very clear image and good understanding in the minds of respondents how the marketing communication through traditional Internet marketing tools as well as through social media should work for their company and the reality how it works at the moment.

Majority of respondents realize and sensitively see that usage of social media can help to get a highly effective and fast feedback from all the stakeholders as well as to make better communication targeting. They also see good future perspective of social media use in marketing. Responses and statistical test show that majority of the companies are using social media in an old-fashioned style – as a one way communication channel from the company to customers (Chlebovský, 2012).

Based on the previous research and actual experience, following research questions were formulated:

- Q<sub>1</sub>: Are the communication activities of Czech and Slovak product innovation oriented companies at the same level as activities of Swiss companies?

- Q<sub>2</sub>: Are the communication activities of product innovation oriented companies equal to activities of other companies?

Respective zero and alternative hypotheses were formulated for each research question:

- H<sub>10</sub>: Czech and Slovak product innovation oriented companies are equal in activity and success in communication through social media comparing to Swiss companies.

- H<sub>11</sub>: Swiss product innovation oriented companies are more active and successful in communication through social media comparing to Czech and Slovak companies.

- H<sub>20</sub>: Companies with higher product innovation orientation are equal in activity and success in communication through social media comparing to other companies.

- H<sub>21</sub>: Companies with higher product innovation orientation are more active and successful in communication through social media comparing to other companies.

### Used Methods

Defined goal of the research was to analyze and compare the usage of social media communication channels in Czech, Slovak and Swiss product innovation oriented companies, where Swiss set of the companies was used as benchmark. Swiss companies are well known as highly effective product innovators. Swiss companies are statistically proven as European leaders in product innovation orientation. Switzerland has the highest number of patents per million population (WIPO, 2013). This was the main reason to use set of Swiss companies as benchmark in this research.

Primary research was made through manual activity scanning of the selected companies within social media. European company database Amadeus provided by Bureau van Dijk was used for the company selection in all three countries under the same search criteria. There were made two research sets of the companies in each country. One set covers top turnover product innovation oriented companies, second set avoided product innovation indicating search criteria and covers top companies by turnover in the respective country. Each particular sample set covered 74 to 100 companies. Six sample sets were processed within the research.

First important step was to define proper search criteria for Amadeus database in order to get comparable sets of companies in all three countries. After discussions with various experts following search strategy criteria were selected and used to search companies in Amadeus database in all three countries. The goal for the selected search strategy was to get in each country comparable set of 100 companies that are strongly focused on their product innovations and with the highest revenues (turnover). Patent statistics are widely used as good metric and indicator of product innovation orientation of the company, thus patent statistic was used within the selected search strategy. Database

searching was processed for each country in the following four steps:

1. All active companies and companies with unknown situation.
2. Region/Country/region in country: Czech Republic/Slovakia/Switzerland.
3. Number of patents: Top FourthQuartile.
4. Operating revenue (Turnover) (th EUR): Last available year, Top 100.

Based on this search strategy there were 100 companies processed in the Czech Republic, 92 companies in Slovakia and 74 companies in Switzerland.

In order to test properly  $H_{2x}$  hypotheses, alternative sets of companies were created again out of Amadeus database with the following search strategy avoiding number of patents criteria:

1. All active companies and companies with unknown situation.
2. Region/Country/region in country: Czech Republic/Slovakia/Switzerland.
3. Operating revenue (Turnover) (th EUR): Last available year, Top 100.

When it comes to branches of the selected companies, In the group of product innovation oriented companies the vast majority of the companies in all three countries is focused on industrial production (70% in the Czech Republic, 85% in Slovakia and 75% in Switzerland). Machine building and engineering is mostly covered by Czech and Slovak selected companies. Besides machine building and engineering also

pharmaceutical and food industry is covered by Swiss selected companies.

In the alternative group of selected companies avoiding number of patent criteria are additional important branches – trade and service organizations.

Limitations of the search strategy are primarily in the fact that some of the companies do not publish their financial data. These limitations are influencing company search in all three countries with similar intensity, so for the purpose of this research it can be ignored.

Second step was definition of social media metrics to be measured for each selected company. Based on the discussions with experts following social media following respective metrics were selected (Tab. I).

First metric always shows whether respective scanned social media is used at all by the company independent to its activity. Second metric indicates the frequency of use and thus whether the company is using social media actively. Third respectively fourth metric indicates level of communication success of the company through scanned social media.

Sum of the points gained by company makes social media activity rate. Its theoretical maximum that can be gained by a company is 52 points.

Social media activities of every company selected by both search strategies were manually scanned on the Internet and particular metric value was inserted in the MS Excel evaluation sheets. Besides activities on the selected social media also basic web pages of the companies were scanned.

I: *Used social media metrics (source: author)*

Social media	Internet domain	Used metrics and scales
Facebook	www.facebook.com	Is Facebook used for communication?: Yes = 1; No = 0
		Up-to-date information (not older than 3 months) on Facebook?: Yes = 1; No = 0
		Number of fans of the Facebook pages: less than 100 = 0, 100 to 1000 = 1, more than 1000 = 3, more than 10000 = 5, more than 100000 = 7
Twitter	www.twitter.com	Is Twitter used for communication?: Yes = 1; No = 0
		Up-to-date information (not older than 3 months) on Twitter?: Yes = 1; No = 0
		Number of followers on Twitter: less than 100 = 0, 100 to 1000 = 1, more than 1000 = 3, more than 10000 = 5, more than 100000 = 7
YouTube	www.youtube.com	Is YouTube used for communication?: Yes = 1; No = 0
		Up-to-date information (not older than 3 months) on YouTube?: Yes = 1; No = 0
		Number of subscribers on YouTube: less than 100 = 0, 100 to 1000 = 1, more than 1000 = 3, more than 10000 = 5, more than 100000 = 7
Google+	Plus.google.com	Is Google+ used for communication?: Yes = 1; No = 0
		Up-to-date information (not older than 3 months) on Google+?: Yes = 1; No = 0
		Number of fans of the Google+ pages: less than 100 = 0, 100 to 1000 = 1, more than 1000 = 3, more than 10000 = 5, more than 100000 = 7
LinkedIn	www.linkedin.com	Is LinkedIn used for communication?: Yes = 1; No = 0
		Up-to-date information (not older than 3 months) on LinkedIn?: Yes = 1; No = 0
		Number of followers of the LinkedIn pages: less than 100 = 0, 100 to 1000 = 1, more than 1000 = 3, more than 10000 = 5, more than 100000 = 7
		Number of company employees registered on LinkedIn: less than 100 = 0, 100 to 1000 = 1, more than 1000 = 3, more than 10000 = 5, more than 100000 = 7

Gained data stored in the MS Excel were further processed in order to test given hypotheses.

### Data Processing

Values shown in the further text were calculated in the MS Excel.

Data were compared with previous research (Chlebovský, 2012) and with research published by Eurostat (Eurostat, 2013).

Statistical tests were performed to test research hypotheses.

## RESEARCH RESULTS

### Product Innovation Oriented Companies

Important findings of the research can be summarized as follows:

100% of the selected and scanned companies in all three countries are actively using standard web pages. This result corresponds to the previous research (Chlebovský, 2012) that also showed that almost 100% of the Czech companies that responded to the research are using web pages. On the other hand the research made by Eurostat (Eurostat, 2013) shows for the Czech Republic and Slovakia that 80% of the companies are presented on the Internet by their website. The reason for this difference is following – the questionnaire in research (Chlebovský, 2012) was distributed only to companies with their own web domain and respondents were primarily active Internet users. In the actual research there were selected top 100 in turnover product innovation oriented companies. Thus small and micro companies were not covered by the research. Other researches show that the highest number of companies without website are within small and micro company size groups.

Active use of social media by the selected and scanned companies is varying country by country. 75% of the selected Czech companies are actively using at least one scanned social media. In Slovakia it is only 36%. Research benchmark in Switzerland

shows that 90% of the selected companies are actively using at least one scanned social media.

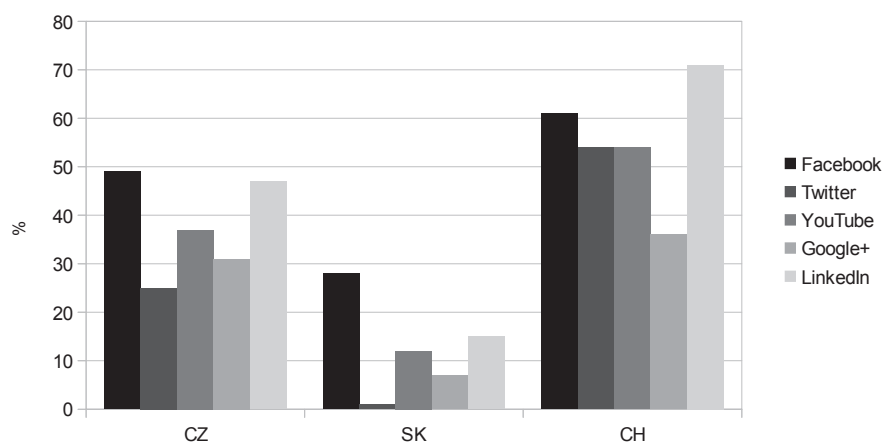
Two and more scanned social media are actively used by 50% Czech companies, 23% Slovak and 73% Swiss companies.

The most popular social media are Facebook and LinkedIn. Active use of scanned social media in all three countries shows following Fig. 1. It shows that especially Slovak scanned companies are significantly behind Swiss benchmark, when Czech companies show also less activity but the difference is not that significant. Research also confirms higher popularity of LinkedIn in company communication – it even overcome Facebook in active use by Swiss product innovation oriented companies.

Research also shows that Swiss companies are taking social media in complex way – the only social media that is actively used by less than 50% of the companies is Google+. This confirms previous research (Chlebovský, 2012) that showed low active use of other social media besides Facebook in Czech firms.

In order to compare not only regular activities of the scanned companies on social media, the metrics indicating communication success where used while scanning the activities of product innovation oriented companies in social media. Thus number of fans, followers or employees (LinkedIn) were scanned for each selected company and respective social media. The sum of all points gained by respective company makes social media activity rate. As mentioned, theoretical maximum that one company can rich by scanned social media activities is 52 points. Tab. II summarize the results.

There was at least one company scanned in each country that gained 0 points. But the difference in between the countries is that it was just one company in Switzerland comparing to 7 companies in the Czech Republic and 27 companies in Slovakia. This general comparison clearly shows the significant gap in use of social media by Czech and Slovak product innovation oriented companies on one side and Swiss benchmark on the other.



1: Active use of various social media in product innovation oriented companies by country



II: Social media activity rate of product innovation oriented companies by country

Country	Maximum	Minimum	Average	Median	Variance	st. deviation
Czech Republic	38	0	8.25	6	58.97	7.75
Slovakia	21	0	2.8	1	16.19	4.05
Switzerland	44	0	14.47	13	113.36	10.72

III: Social media activity rate of top turnover companies by country

Country	Maximum	Minimum	Average	Median	Variance	st. deviation
Czech Republic	41	0	10.2	8	62.53	8.21
Slovakia	29	0	6.2	5	21.14	5.08
Switzerland	47	0	15.2	14	114.21	10.88

Statistical test of hypothesis  $H_{10}$  was performed based on the values listed in Tab. II. For the statistical testing there was created sample set out of both Czech and Slovak companies social media activity rate values to be compared with Swiss benchmark. First F-test was made to confirm that the variations of the sample sets are equal. Then t-Test of two mean sample sets with equal variances was performed on the level of significance 0.05.

Test calculations were made in MS Excel and  $H_{10}$  was rejected in favor of  $H_{11}$ .

#### Set of Companies Avoiding Number of Patent Criteria

Also in these research sets 100% of the selected and scanned companies in all three countries are actively using standard web pages.

When it comes to social media, activity rate is shown Tab. III.

Again also in these sets of selected and scanned companies there was at least one company in each country that gained 0 points. It was again just one company in Switzerland comparing to 6 companies in the Czech Republic and 19 companies in Slovakia.

Statistical tests of hypothesis  $H_{20}$  were performed based on the values listed in Tab. II and Tab. III. There were made 3 tests – separately for each country. First F-tests were made to confirm that the variations of the sample sets are equal. Then t-Tests of two mean sample sets with equal variances were performed on the level of significance 0.05.

Test calculations were made in MS Excel and for all three countries  $H_{20}$  was confirmed.

## DISCUSSION

The research introduced in this article shows two important results confirmed by statistical tests. Firstly the hypothesis  $H_{10}$  was rejected in favor of  $H_{11}$ . This means that Swiss product innovation oriented companies are more active and successful in communication through social media comparing to Czech and Slovak companies. This research result is inline with one of the results of the previous research (Chlebovský, 2012) indicating deficiency in the level of active usage of both traditional Internet marketing tools as well as social media

communication by Czech companies compared to their western counterparts.

We can see out of the actual research that especially Slovak companies are significantly behind Swiss benchmark. Important outcome of the research is also discovered structure of the social media communication of Swiss product innovation oriented companies. They are not concentrating on one social media only but using multichannel opportunities. The most popular are Facebook and LinkedIn but very widely used are also Twitter and YouTube. Especially increase in use of YouTube is highly recommended to Czech and Slovak companies, because it is proven excellent tool to show company products and services in action.

Performed research also confirmed hypothesis  $H_{20}$  for all three countries. It means that companies with higher product innovation orientation are equal in activity and success in communication through social media comparing to other companies.

Product innovation oriented companies scanned within the research are primarily industrial production companies involved in machine building and engineering, in Switzerland also in pharmaceutical and food industry. In the second group of sample sets of scanned companies (avoiding number of patents search criteria) also trade and services companies were involved. Research performed by Eurostat (Eurostat, 2013) shows slightly higher level of social media use by trade and services companies. Results of actual research is inline with it – values of social media activity rate were slightly higher in all three countries within the second sample set of companies comparing to product innovation oriented company set.

General recommendation for Czech and Slovak companies is improvement of their social media activities to stay competitive in the global markets. As mentioned in (Spilker-Attig, 2010), customers do not prefer pushing styles of Internet marketing communications like pop-ups or banners. They prefer to search needed products and services themselves and make their own received value oriented researches to find and sort out available solutions to their needs. Thus it is of major importance for the companies to establish effective bidirectional and multichannel communication on

the Internet. Social media is the proper tool to be used.

As presented in (IBM, 2011), major global marketing managers are aware of this impor-

tance and are going to invest massively into the improvements of all these communication tools usage to keep their company competitive in the global markets.

## CONCLUSION

Objective of the research described in this article is to analyze and compare the usage of social media communication channels in Czech, Slovak and Swiss product innovation oriented companies, where Swiss set of the companies was used as benchmark. Primary research was made through manual activity scanning of the selected companies within social media. European company database Amadeus produced and maintained by Bureau van Dijk was used for the company selection in all three countries under the same search criteria. There were made two research sets of the companies in each country. One set covers top turnover product innovation oriented companies, second set avoided product innovation indicating search criteria and covers top companies by turnover in the respective country. Each particular sample set covered 74 to 100 companies.

Activities of the selected companies on Facebook, YouTube, Twitter, Google+ and LinkedIn were manually scanned and particular metrics were scaled. Microsoft Excel was used for storing, statistical processing and graphic outputs of the research.

The research introduced in this article shows two important results confirmed by statistical tests. Firstly Swiss product innovation oriented companies are more active and successful in communication through social media comparing to Czech and Slovak companies. Especially Slovak companies are significantly behind Swiss benchmark. Swiss product innovation oriented companies are not concentrating on one social media only but using multichannel opportunities. The most popular are Facebook and LinkedIn but very widely used are also Twitter and YouTube. Especially increase in use of YouTube is highly recommended to Czech and Slovak companies, because it is proven excellent tool to show company products and services in action.

Performed research also confirmed that companies with higher product innovation orientation are equal in activity and success in communication through social media comparing to other companies. General recommendation for Czech and Slovak companies is improvement of their social media activities to stay competitive in the global markets. As presented in (IBM, 2011), major global marketing managers are aware of this importance and are going to invest massively into the improvements of social media communication to keep their company competitive in the global markets.

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