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ÚVODNÍ SLOVO

Vážení čtenáři,

Jsem rád, že vám mohu představit první vydání časopisu *Littera Scripta* v roce 2015. Tentokrát vám nabízí vědecké práce z oblasti podnikové ekonomiky, ekonomiky veřejného sektoru a marketingu. Jedná se bezesporu o velice zajímavá a přínosná témata, která jistě přispějí k rozšíření odborného povědomí o této problematice. Jsem potěšen, že si stále řada autorů i čtenářů nachází svou cestu k četbě recenzovaných časopisů, jakým je i *Littera Scripta*. Budeme velice rádi, pokud to tak bude i v dalších letech a vy se rozhodnete svými články přispět k vydání dalších čísel.

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České Budějovice, červen 2015

Za redakční radu
prof. Ing. Jan Váchal, CSc.

INTRODUCTORY WORD

Dear readers,

I am glad that I can introduce you the first issue of the journal *Littera Scripta* in the year 2015. In this issue we offer you the scientific works in the field of business economics, public sector economy and marketing. These are undoubtedly very interesting and worthwhile topics that will certainly contribute to the expansion of professional awareness about the problems. I am pleased that a number of authors and readers still find their way to reading peer-reviewed journals such as *Littera Scripta*. We will be very happy if it will continue in coming years, and you decide to contribute with your articles to next issues of the journal.

I would like to thank not only contributors but also reviewers, who participated in the preparation of the magazine, which significantly contributes to its quality. Furthermore we have no choice but to wish all readers a pleasant and enlightening reading, which can be found on the following pages. Any comments, suggestions or ideas can be send to us by e-mail or through comments that are accessible immediately under each published article. Finally, let me also wish you a pleasant summer and enjoying the pages of our magazine.

České Budějovice, June 2015

on behalf of the editorial board
Prof. Ing. Jan Váchal, CSc.

PRŮBĚH RECENZNÍHO ŘÍZENÍ / REVIEW PROCEEDINGS

Do čísla 1/2015 bylo zařazeno 6 recenzovaných příspěvků od 9 autorů ze 3 pracovišť. /

In issue 1/2015 6 reviewed articles written by 9 authors from 3 institutions were included.

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Počet doručených článků / Number of articles received: 6

Počet článků vyřazených v 1. kole recenzního řízení / Number of articles rejected in 1st round of review proceedings: 0

Počet článků vyřazených ve 2. kole recenzního řízení / Number of articles rejected in 2nd round of review proceedings: 0

Počet článků přijatých k tisku po dokončení recenzního řízení / Number of articles agreed to be published: 6

Recenzní rozhodnutí / Review conclusions

Počet zpracovaných recenzí / Number of reviews delivered: 13

- z toho recenzováno recenzentem s titulem doc. nebo prof. / from which was reviewed by reviewer with Doc. or Prof. degree: 8 (72.7 %)

	Recenzenti s doc. či prof. Reviewers with Doc. or Prof. degree	Ostatní Other	Celkem In total
Přijato beze změn Published without changes	5	3	8
Přijato, doporučeno zohlednit navrhované úpravy Published, suggested considering some remarks	4	0	4
Přijato po celkové revizi příspěvku Published after over-all revision	1	0	1
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The Austrian Pension System: Its Current Issues, Pension Privileges, and the Latest Developments

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Abstract

The subject of this paper is to outline and examine the hot issues in the Austrian Pension System (Although it is not very diverse from the other countries within the EU, the economic background is different. However, the way of dealing with them can prove to be useful for other countries, especially for those with a common history and similar systems). The attention is also drawn to the groups which have so-called pension privileges (which influence the country expenditures) and last, but not the least, the latest developments in this pension system. This contribution also gives suggestions which could be implemented into the new pension system, which is required by the experts to amend the current one.

Keywords: pension, scheme, expenditure, developments

Introduction

This paper briefly analyses the historical, economic and cultural background of the two countries: the Czech Republic and Austria. Since 1520, when Anna of Bohemia married Emperor Ferdinand V from Austria, the Bohemian crown has linked all of the countries together under the Austrian crown (Genersich, 1824). This connection did not really end after WWII. The main trading partners with the Czech Republic in 2012 included Germany, Slovakia, Austria, Poland, the UK, France, Netherlands, China and Russia (factmonster.com, 2015b). The main trading partners with Austria in 2013 were Germany, Italy, Switzerland, Netherlands, the US and France (factmonster.com, 2015a). The agriculture is also comparable. Both countries cultivate wheat, potatoes, sugar beets, fruits, pigs and poultry (factmonster.com, 2015a, factmonster.com, 2015b). The fact that seven of the original 49 members of the Viennese Secession in 1897 (the Association of Austrian Artists) were Czech, shows how strong the cultural link between the two nations has been (Brzyski, 2011). Another fact is that both countries have Celtic roots. The first appearance of the Celts took place in the

Bronze Age (before 800 BC), when their settlements (tumulus – ‘earth mound’) could be found in an area from Bavaria to Bohemia. A Celtic settlement was identified in Hallstatt – Austria during the Iron Age (800 BC to 450 BC)(uni-due.de, 2015).

Pension Austria has a statutory pension system which is based on a PAYG – pay as you go principle. Basically, it means that the people who work pay fees from their salaries. The fees are collected by the state. The people, who have already retired receive those fees. However, Austria has to add a lot of money because the fees collected from the working force do not cover the costs of the pensions. According to the 2012 Pension Adequacy Report, the set retirement age for women is 60 and it is 65 for men. This report also states the conditions for early retirement. As in other many countries, the pension system has drawn a lot of attention, such as in the 1990 Pensionkassen Act or in 2002. The Pensions Funds Act of 1990 is the legal framework which introduces the so-called second pillar for the social security system. The first pillar is the national pension system; the second pillar includes those pension funds which are public limited companies. These companies sign contracts amongst them and the employers. That contract also handles the amount of the contributions paid by the employer and the employees, and, of course, the type of investment allowed (within the legal restrictions). The next Acts focusing on the pension system were the Act on Corporate Staff Provision which dealt with the new severance pay system, in 2004 The Act on Harmonization of Austrian Pension system (came into effect in 2005) and it introduced the following pattern 80/65/45 (IOPSWEB, 2015). It states that if a person has 45 years of insurance, he / she will retire at the age of 65 with 80% of the guaranteed gross rate from those life-time earnings (the EU Commission, 2012). The reform from 2010 gives the exact measures enabling early-retirement (e.g. the long-term contribution period and invalidity periods).

The projections on pension system below show the expenditures of the Austrian Pension System in comparison with other European countries.

As you can see from the chart, the possible working force (aged between 15 and 60) will drop from 62.06% in 2012 to 52.11% of the population in 2050. On the contrary, the possible retirees will rise from 23.44% in 2012 to 34.29% of the population in 2050.

On the other hand, the EU estimates that the public expenditures for the pension system will drop from 13.4% of the GDP in 2004 to 12.2% of the GDP in 2050 as you can see in Tab. 2.

Tab. 1 scenario of the Austrian population until 2050 – including the percentages of the ages

	1960		2000		2012		2050	
	Total	Percentage	Total	Percentage	Total	Percentage	Total	Percentage
Up to 14 years	1.533.923	21.82%	1.371.750	17.14%	1.224.361	14.50%	1.268.372	13.60%
Sum	1.533.923	21.82%	1.371.750	17.14%	1.224.361	14.50%	1.268.372	13.60%
15 to 29 years old	1.461.909	20.79%	1.522.816	19.03%	1.577.255	18.68%	1.474.524	15.81%
30 to 44 years old	1.274.321	18.13%	1.983.428	24.79%	1.790.809	21.21%	1.647.319	17.66%
45 to 59 years old	1.491.906	21.22%	1.497.816	18.72%	1.871.309	22.16%	1.738.887	18.64%
Sum	4.228.136	60.14%	5.004.060	62.53%	5.239.373	62.06%	4.860.730	52.11%
60 to 74 years old	981.714	13.96%	1.066.462	13.33%	1.299.541	15.39%	1.610.839	17.27%
75 plus years old	286.409	4.07%	559.914	7.00%	679.743	8.05%	1.587.051	17.02%
Not classifiable	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Sum	1.268.123	18.04%	1.626.376	20.32%	1.979.284	23.44%	3.197.890	34.29%
Total population (Statistik.at, 2013)	7.030.182	100.00%	8.002.186	100.00%	8.443.018	100.00%	9.326.992	100.00%

Tab. 2. Gross Public Pension Expenditure (% of GDP) – Baseline Scenario

Country	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050	Change 2004-2050
BE	10.4	10.4	10.4	11.0	12.1	13.4	14.7	15.5	15.7	15.7	15.5	5.1
CZ	8.5	8.5	8.2	8.2	8.4	8.9	9.6	10.6	12.2	13.3	14.0	5.6
DK	9.5	9.6	10.1	10.8	11.3	12.0	12.8	13.3	13.5	13.1	12.8	3.3
DE	11.4	11.1	10.5	10.5	11.0	11.6	12.3	12.7	12.8	12.9	13.1	1.7
EE	6.7	7.1	6.8	6.0	5.4	5.1	4.7	4.5	4.4	4.3	4.2	-2.5
GR	:	:	:	:	:	:	:	:	:	:	:	:
ES	8.6	8.7	8.9	8.8	9.3	10.4	11.8	13.4	15.2	16.2	15.7	7.1
FR	12.8	12.8	12.9	13.2	13.7	14.0	14.3	14.8	15.0	14.9	14.8	2.0
IE	4.7	4.6	5.2	5.9	6.5	7.2	7.9	8.5	9.3	10.3	11.1	4.8
IT	14.2	14.3	14.0	13.8	14.0	14.4	15.0	15.6	15.9	15.4	14.7	0.4
CY	6.9	7.0	8.0	8.8	9.9	10.8	12.2	13.5	15.0	16.7	19.8	10.5
LV	6.8	6.4	4.9	4.6	4.9	5.3	5.6	5.9	5.9	5.7	5.6	-1.2
LT	6.7	6.7	6.6	6.6	7.0	7.6	7.9	8.1	8.2	8.3	8.6	1.8
LU	10.0	10.0	9.8	10.9	11.9	13.7	15.0	16.4	17.0	17.7	17.4	7.4
HU	10.4	10.7	11.1	11.6	12.5	13.0	13.5	14.6	16.0	16.9	17.1	6.7
MT	7.4	7.5	8.8	9.8	10.2	10.0	9.1	8.4	7.9	7.5	7.0	-0.4
NL	7.7	7.4	7.6	8.3	9.0	9.7	10.7	11.4	11.7	11.4	11.2	3.5
AT	13.4	13.2	12.8	12.7	12.8	13.5	14.0	14.0	13.4	12.7	12.2	-1.2
PL	13.9	13.7	11.3	9.8	9.7	9.5	9.2	8.9	8.6	8.3	8.0	-5.9
PT	11.1	11.5	11.9	12.6	14.1	15.0	16.0	17.4	18.8	20.0	20.8	9.7
SI	11.0	11.0	11.1	11.6	12.3	13.3	14.4	15.6	16.8	17.8	18.3	7.3
SK	7.2	7.4	6.7	6.6	7.0	7.3	7.7	7.9	8.2	8.5	9.0	1.8
FI	10.7	10.4	11.2	12.0	12.9	13.5	14.0	14.1	13.8	13.7	13.7	3.1
SE	10.6	10.4	10.1	10.3	10.4	10.7	11.1	11.4	11.6	11.4	11.2	0.6
UK	6.6	6.7	6.6	6.7	6.9	7.3	7.9	8.3	8.4	8.4	8.6	2.0
EU15	10.6	10.5	10.4	10.5	10.8	11.4	12.1	12.6	12.9	13.0	12.9	2.3
EU10	10.9	10.9	9.8	9.2	9.5	9.7	9.8	10.1	10.6	10.9	11.1	0.3
EU12	11.5	11.5	11.3	11.4	11.8	12.5	13.2	13.8	14.2	14.3	14.1	2.6
EU25	10.6	10.6	10.3	10.4	10.7	11.3	11.9	12.5	12.8	12.8	12.8	2.2
EU9 (EU10-PL)	8.8	8.9	8.8	8.8	9.3	9.8	10.4	11.1	12.2	13.0	13.6	4.8

(Europa.eu, 2013)

As the authors have mentioned before, the population of the developed world is getting older, but on the other hand, the fertility rate has become lower in those same countries. This situation has been partly solved by the immigrants. However, they bring other problems that are related to their own country of origin, as well as their cultural, historical and economical background.

Materials and Methods

As for the methodology, the analysis of the current and relevant papers has been applied. The reason for this paper is to reflect upon those parts of the Austrian Pension System which have proved to work and to learn from the missteps that have occurred within the country.

The Austrian Pension System deals with a number of difficulties. It would require more space than a size of this article to explain them all. That is why only some of them will be tackled: the retirement age, rising age of the population, fertility rate, cost of pensions, pension privileges.

The Retirement Age

One of the largest problems (which not only Austria is facing) is the fact that the Austrian society is getting older (Statistik.at, 2013). In 1960, only 18.04% of the Austrian population was older than 60. In 2012 the percentage grew to 23.44% and it will be 34.29% in 2050. This rise means that certain steps ought to be taken against this tendency (or tax payers) will be paying more. Joseph Urschitz wrote in an article published in the "Die Presse" newspaper on the 4th October 2012, that the problem of the pension system can only be solved, if the actual retirement age (which is right now below 60 years, around 58 years) will be risen to the statutory retirement age, which is actually 65 years (Urschitz, 2012). As the percentage of the old people is rising, the percentage of the working people is continuously falling (Statistik.at, 2013). In 1960, 60.14% of the Austrian population was aged between 15 and 59. This percentage will continue to fall to 52.11% by 2050.

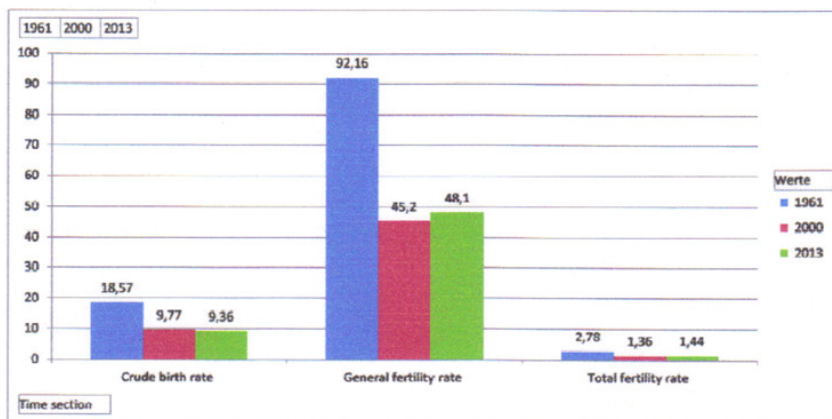
The Rising Age of the Population in Austria

Not only the starting point of the retirement is current, it is also a problem that the population is getting older each year. In 1961 an Austrian man had a life expectancy of 66.47 years. This expectancy grew to 75.11 years in 2000 and in 2011 it was 78.11 years (Statistik.at, 2013). For women the situation looks even worse: they started with 72.84 years in 1961 and it grew to 81.12 years in 2000 and in 2011 it was 83.45 years (Statistik.at, 2013). This also means that men have been catching up with women in the life expectancy.

The Fertility Rate of Austria

One solution to having more working people is to increase the fertility rate in Austria, but unfortunately the opposite thing is happening. The fertility rate of Austria has declined from 2.78 in 1961 to 1.43 in 2011 (Statistik.at, 2013) and to 1.44 in 2013 (Statistik.at, 2015).

Graph 1: Fertility rate in Austria



(Statistik.at, 2015)

This tendency is an unfortunate turn of events in many countries. The political and economic situation in the world, in the country itself, different lifestyle, career life, abroad life opportunities (the broadening the horizons), lowering state support of new families are in charge of it.

The Cost of the Pension System in Austria

The Austrian Government annually spends €9.6 billion for pensions in 2011. Another €4.6 billion is spent on the federal and regional politicians and teachers (Budgetbericht). In addition to that, another €2.1 billion has to be paid for pensions of the ÖBB (Austrian Federal Railway) and €1.2 billion has to be paid for pensions of the Austrian Post (Budgetbericht). Maria Fekter, Austria's Finance Minister, said in an article, published in FORMAT Magazine, that 3.2 million Austrians are receiving money from the state, which includes pension payments, public employees, social help and children-help-receivers. On the other hand, 3.4 million Austrians obtain money from private businesses (Koch and Knoll, 2012). Although Austria has budgetary problems, the budget deficit is still close to the 3% Maastricht margin. The Social security System reduced its debts in 2012 (Schnauder, 2012). The normal pension system is being financed by fees from the employees. These employees pay 10.55% of their monthly salary. The employers pay another 12.55% of the monthly salary (Pensionsversicherung.at, 2012a). However, this percentage is only being paid up to a salary of €4,400 monthly (Pensionsversicherung.at, 2012b). All in all, the fees collected from the employees and the employers cover in total 97.2% of the actual costs of the normal pensions.

Pension Privileges in Austria

There are a lot of groups in Austria which have Pension Privileges. Here are some examples:

- a) The Austrian Federal Railways (ÖBB): a state employee of the Austrian Federal Railways in Austria BEFORE 1996, is an employee of the state of Austria and can use those rights such as receiving 80% of his / her last salary as a pension. Compared with the ordinary workers, their pension has been calculated from the average salary of the last 45 years. In 2006 about 2,000 employees of the Austrian Federal Railways changed from being employees to pension receivers. However, on the other hand, the Austrian Federal Railways hired 13,000 new employees from 2002 (Bauer, 2010). Another impressive detail is the fact that the employees of the Austrian Federal Railways start to receive their pension at an age of 52 years on average (Bauer, 2010). The Austrian Court of Auditors stated that the Austrian Government could save € 920 Million between 2015 and 2050, if the pension system of the "normal federal employees" would also apply to the Austrian Federal Railways. It is also important to mention that the retirement age of the state employees of the Austrian Federal Railways is not rising as quickly as it should. About 90% of the "new"

retirees received their retirement due to diseases which disable them from working. Their retirement age is about 53 years. The remaining 10% have received their retirement because of their age. Their retirement age is about 59 years. Both retirement ages are far away from the 65 years which have been applied to the “common worker” (www.news.at, 2015).

- b) **The Austrian National Bank:** A person, who joined the Austrian National Bank before 2007, can receive a pension as a “Rentner-Rothschild”. Those individuals will receive 85% of their last salary and only need to work for 35 years, and can then retire at the age of 55 (Bauer, 2010). Although the retirement of the Austrian National Bank employees is paid by the government, the collective agreement of the Austrian National Bank requires that the collective agreement of the banks has employed them instead of the Collective Agreement of the Federal Employees. If this collective agreement is taken into account, the Austrian National Bank could save up to € 80 million from 2015 to 2026. It is also remarkable that – in addition – another €178 million could be saved from 2015 to 2050, if the retirement age of the employees of the Austrian National Bank would be raised. The Austrian National Bank staff could retire at the age of 55 after having worked there for 35 years. The “normal worker” has to work for 45 years – until the age of 65. If the “normal worker” retires earlier, he or she would have to retire earlier; otherwise he or she has to live with a reduction of that pension. Therefore the Austrian Court of Auditors has recommended the introduction of a reduction fee of 3.36% annually, with a maximum reduction of 18% (www.rechnungshof.gv.at, 2014).
- c) **The National Insurance System:** Austria has 22 different kinds of social insurance. It employs 26,000 employees in total; 16,000 work in the administration and another 10,000 are employed in hospitals, surgeries and rehabilitation-centers. Those employees receive €17,000 annually on average for their retirement. Unfortunately, this amount is only covered from a small amount of fees from these same employees! When the Social Minister Herbert Haupt tried to introduce a fee of 15% of their pensions from already retired persons in 2004, he failed because the employee representatives, unions and the heads of these various types of social insurance were against it (Bauer, 2010).
- d) **The Power Industry:** The Austrian Power industry has been a very generous employer as for pensions for years, (if not decades). In the middle of the 1990s, many of the Austrian Power industries changed that pension system from generous company pensions to the usual pension system. but the companies paid the newly retired pensioners from €13,000 to €34,000 (Bauer, 2010).
- e) **Federal State Employees:** Compared to the Government employees who were forced to accept painful reductions in its pension system, a lot of the Federal State Employees did not have this done to them, even though the Federal States agreed to the fact that during the Federal States will

change their pension system in accordance to the Government system during the financial equalization (financial transfer). Some of them can retire with 80% of their last salary; the average retirement age is 53 years (Bauer, 2010). A pension reform has been done in Carinthia where the recalculation period has been raised from 15 years to 34 years; this fact will reduce the pensions dramatically (Ktnv1.orf.at, 2010).

The Latest Developments in the Pension System in Austria

The Austrian Retirement Pension Insurance served about 3.1 million customers on average in 2013. Although the Austrian Retirement Pension Insurance Programme has received €25.4 billion from fees as income, other income has amounted to €2.7 billion, the government of Austria had to subsidize them with an additional €4.6 billion (www.pensionsversicherung.at, 2014). Christopher Prinz, an OECD pensions-expert, demands the Austrians work until the age of 70 so as to enable the pension system to remain financeable. He points out that nowhere else in Europe has the life-expectancy grown so strongly as in in Austria. On the other hand, a lot of reforms have been introduced during the last years, but the political parties need to execute these reforms. It is important for the Working Regulation to end. This will automatically put an end to early retirement. If the reform of the invalidity pension is working as planned, it may cause a lot of unnecessary side effects; it will hardly be possible to rehabilitate handicapped employees, instead of sending them into pension (John, 2012).

On the other hand it could happen that the VfGH (the Austrian Constitutional Court) would abolish a pension reform at the ÖBB which was introduced years ago. This reform, which has been made in 2003/2004, adjusts the ÖBB pensions to those of the pensions of normal workers. Therefore this reform would put an end to the early retirements of the ÖBB. This reform now abolishes (as the VfGH checks on) whether a claim of a former ÖBB worker would be correct if he/she would receive early retirement. If this claim is correct, it would put to an end to all pension reforms, as all the other ordinary workers could also have the same claims. On the other hand, the Constitutional Court has already said that the intervention of those laws which regulate individual contracts between employees and the ÖBB is admissible (Ettinger and Hierländer, 2012). The eligibility age of the Working Regulation was raised by two years in 2014; men will have to work until 62 years old and women will have to work until they are 57 years old. An ÖBB employee, making a claim before the Austrian Constitutional Court, might think that the protection for the reliance on the existing law has been bruised with the rising eligibility age. The social expert Franz Marhold wants explicitly to comment on the chances of that appeal against the ÖBB pension law. He thinks that even in the event of a repeal of the regulation on the grounds that the legitimate expectation of the trust has been violated, it would be considered as "unpleasant", but "not as dramatic". This would depend on the grounds in the Constitutional Court decision in which way the law has to be amended ("Die Presse", 2013). The President Andreas Khol of the ÖVP-elderly (Austrian Peoples Party) said

that if the Austrian Constitutional Court repeals the law which regulates the adjustment of the ÖBB pensions to those of the ordinary workers, no more reform would be made. He is also for the further harmonization of all the pension systems and he is against all of those luxury pensions. The harmonization of all those pension systems has to be done in the future by any new government (Ettinger, 2013).

A monthly pension solidarity fee was introduced by the government for the state employees in 1995: up till 2003 the retired state employees, who earned more than €2,50, had to pay a pension solidarity fee of up to 3.3% monthly of their gross pension, which has been declining from 2003 to 0; that will be reached in 2028. The reason why it is declining is the fact that the State Employees' Pension System is being adjusted to the Ordinary Workers Pension System, which should be reached by 2028. The Social Democratic party demanded a monthly "pension solidarity fee" of 10% of all state employee pensions in 2006, which is higher than €2,505. On the other hand, the State Employees Union demanded the cancellation of the monthly pension solidarity fee below the €2,505 limit ("Die Presse", 2006). The State Employees Union continued to demand the cancellation of the pension solidarity fee for lower incomes in 2011. They said that state employees are worse off than the ordinary workers because they have received dismissal pay; they can go into the corridor pension, etc. When these negotiations take place has not been decided (Oeab.fcg.goed, 2011). Instead of lowering the monthly pension solidarity fee for retired state employees, social minister Rudolf Hundstorfer (of the Social Democratic Party) introduced a rise of the fee by a monthly 6% sum, although the General Accounting Office of Austria claimed a rise from monthly 3.3% sum to monthly 9.9% ("Die Presse", 2012).

On the other hand, the recent government introduced a monthly pension solidarity fee of 3.3% for the Austrian National Bank. This fee has to be paid by all the employees (who retired before 1 January 2013) from 1 January 2013 the monthly pension solidarity fee ONLY amounts to 3% (Ris.bka.gv.at, 2013). This monthly pension solidarity fee of 3% is only half of the monthly future pension solidarity fee of the state employees; it is going to be 6%.

One last item: University Professor Dr. Emmerich Talos gave a speech in 2007 entitled: "Disabled People are at the Edge Meritocracy from the Beautiful Appearance of Integration". One part of his speech took a deeper look at the pensions that disabled people receive. Disabled people (as well as women) are often not pension-insured. The problem is that women and disabled people are often marginally employed. Seeing as marginally employed workers one do not make payments of any fees into the pension systems, therefore they do not collect any months for their pensions, even though they do work. Another difficulty for disabled people is that it is even harder for them to find a job, as employers are not willing to employ disabled people even if there are a lot of governmental subsidies. The consequence will be a huge loss in pension income. The fact can be effectively shown that 400,000 women do not have their own pensions-income by the time they reach the age of 60. What is unfortunately true for women is also true for disabled people as well. Another fact is that the

invalidity pension (which disabled people usually receive) amounted to €730 in 2001, but the average non-invalidity pension amounted to €896.60; that shows a gap of 22.7% (Talos, 2007).

The Latest Developments in the Pension System in Europe

Some of the young people aged between 15 years and 24 years were lucky; they managed to find jobs and, with the help of their parents, they were able to get their own places to live. The way in which this generation is treated those same young people may be find it rather irresponsible of the present older generation that is not prepared to cut back in order to give the younger generation a chance for their pensions in the future. On the other hand, the pensions of the older generations will not be paid anymore money if the younger generation cannot also develop its prosperity, while it is hardly possible to develop prosperity without jobs. The culprits are many: the policy that shirks pension reforms, those workers who are well-off who insist on having everything as a result of the laws that have been introduced, and the economy that has not offered sufficient training places for the training of specialized staff. This is absurd. It is generally known that the demographic time bomb is ticking, and when that clock is even being pushed further ahead with the birth of fewer children. It is a simple economic statement that growth is primarily generated through more people who are gainfully employed. If fewer people are employed, then less money can be spent and therefore the recession will rise. However, on the other hand as of 2014, there are 7.5 million people and “only” 5.1 million young people are without any jobs and 3.41 of those young people are within the Euro zone. This costs the member states in total €153 billion in transfer payments and low productivity (Böhm, 2012).

Another European-wide initiative has been proposed to the European Commission. This initiative demands an unconditional basic income. The aim of this initiative is to ensure a debate about the unconditional basic income debate at the European level and to finally introduce it. It is specifically intended to ensure that the European Commission uses all of its available options in order to clarify the risks associated with the introduction of basic income issues and in regard to this, that the European Commission will coordinate all of the issues with its Member States, which are responsible for social issues (Grundeinkommen.at, 2013). An open letter was written to all of the candidates in April 2014 before the EU parliamentary election and they were asked to take a position on the Unconditional Basic Income in Europe (UBIE) (Grundeinkommen.at, 2015b). In addition to that, a conference was held by the European Economic and Social Forum in April 2014 regarding the UBIE where 180 participants took part from all over Europe. It turned out that the UBIE is very well known in the German speaking countries as well as in the Benelux countries. This particular discussion started there in the 1980s, but a lot of discussion still has to take place in the former Eastern European countries, as to the first book regarding the UBIE was published in the Czech Republic in 2010 (Grundeinkommen.at, 2015a).

What Kind of New Pension System is Need in Austria

The experts demand a completely new pension system for Austria, but it is not completely new, as the one Sweden introduced as a similar system in the 1990s. The budget deficit of Sweden (12% of the GDP in the 1990s) was turned into a budget surplus (4% of the GDP at the beginning of the new century) as a result of this reform (Felderer, 2015). The principle of the Swedish System is easy: First of all, the pension fees which are paid are added to a personal account for each worker. Those fees will then receive interest. The amount of the pension, which each person will receive, will be calculated by a simple division process:

Paid in fees					
-----		=		Pension	
Life expectancy					

This means that if one lives longer, the pension will be lower. On the other hand, the longer one works, the more fees one pays into the system and the higher pension one will be received. The newly suggested system indicates that there is NO fixed date when people are to retire. The people who are now between 40 and 50 years old would have to work up until the age of 70 in order to receive a pension which is similarly high as it is as nowadays for those people who are 65 years old. Of course, it is possible to pay extra money into an additional pension. The state will add some financial contribution also in the new system as well (e.g. for child education, military service and community service). However, those amounts would be immediately visible and therefore individuals would know how long each person still has to work until that person can obtain the pensions they would like to have. If Austria would change the existing system to this new system, it would have to pay for several years, as long as those people live who have paid into BOTH systems. so both systems have to be exist during that period of time.

The representative from the unions and the representative of the president of the Pensioners Association of Austria are not satisfied with this new system. They say that this debate just unsettles the public. On the other hand, the president of the economic chamber is satisfied with this proposal. He thinks that the entry age into the pension system (which is now at the age of 58 years) has to be increased urgently. The age of entry is nowadays three years lower than it was 40 years ago, although life expectancy rose by 12 years during the same period (Krone.at, 2012).

Austria introduced a new Pension system in 2014: the Pensions Account. It was introduced by the 1st January 2014. It is valid for each Austrian, born after the 1st January 1955 (Sozialversicherung.at, 2014a). As a result, the co-author received a letter from the Austrian Retirement Pension Insurance to tell him what he did from the age of 14. The Austrian Retirement Pension Insurance already states how high that pension will be. This amount is only

temporary, as the future deducted fees are not included. The pensions account is valid for all kind of employees, no matter where they are insured. As has already mentioned, all of the working times and all of the paid in fees have to be visible on this account so that the insured person automatically knows how much he has already earned for his or her retirement (Sozialversicherung.at, 2014b). Working people will receive information annually about his pension account. So 1.78% (a percentage, which has been fixed by the Austrian government) from all earned pension fees will be added to the Pensions Account (= partly credit amount). The sum of the paid in fees from previous years will be upgraded and the sum of the actual year will be added to this sum. Then the total amount will be divided by 14 which then results in the amount of the pension (Sozialversicherung.at, 2014c). Due to the fact that the whole system is completely new, each and every person who was born after the 1st January 1955 and had worked at least one month before 1st January 2005, received the first information about their own pension account (Sozialversicherung.at, 2014d). One last point (which is brand new) has to be mentioned: Parents can agree on a so-called voluntarily pensions splitting. This means that the partner who works can give 50% of his annual partly credit amount to the other partner. This can be done for the first for years of the child (Sozialversicherung.at, 2014e).

Conclusion

The Austrian Pension System is based on the so-called generation treaty: the younger generation (the children) pays for the older generation. This system worked as long as there were enough people who were paying into the system and not so many people who were receiving from the system. However nowadays this generation's treaty has a lot of problems: the society is getting older, there are fewer people who work and can pay for the older generation and the fertility rate is decreasing lower and lower.

Social Minister Hundstorfer's statement at the Alpbach Forum (which was published at the *Wirtschaftblatt* in August 2013) said that if each and every Austrian would only go on to retirement seven days later, his ministry would save €1.3 billion annually. He also said that the Austrians are living five weeks longer each year. Therefore a rise in the age when one is to receive that pension will be inevitable. On the other hand, he said that it will not be a problem to integrate the young people into the workforce, as the number of the young people is steadily declining (*Wirtschaftsblatt.at*, 2013).

Karl Blecha demanded the full inclusion of the retired representatives in the upcoming reform and consolidation debate in 2012. He said that it must be prevented that those who are not responsible for the financial crises must be prevented from carrying the burden to pay these rising debts. Mr. Blecha said that he is concerned about the savings plans from the government. Those would mainly influence elderly people, as the plans would hit the pension system, the health care system, the spending power and the fiscal policy. However, saving is not enough. The economy needs to grow in order to create new jobs. Working

place reform is also required, i.e. to create more jobs for elderly people, where they can work longer (Blecha, 2012).

All in all, the New Pensions' Account which has been introduced in 2014, is a huge step forward into the right direction. For the first time, each and every worker knows what is to be received as a pension when it is time to retire. Individuals will be aware of how long each of them will have to work until it is time to retire for the first time. Of course, there will be a lot of work until the system is working smoothly.

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Tendency of Customizing Aftersales Services to Support Agility in Automotive Business

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Abstract

Presented article discusses the importance of the customized after-market and aftersales services in automotive business. It is focused on the characteristic of the selected trends in the information society associated with changes of business model in automotive sales. The article looks for the answers to how new social and technological trends will change the automobile industry value chain because new conditions are providing new opportunities for the automotive business. The introductory part of this paper describes selected trends that change the automotive business environment from the global point of view. In this ever-changing world, automobile manufacturers and dealers are constantly confronted with new and unexpected challenges. The next section of the article presents that to growth automotive business, the key will be to transform today's dealer network into a profitable, modern, multi-format sales channel that combines the opportunities of the online world with the strengths of the traditional dealership channel.

Keywords: automotive business, online marketing, after-sales activities, car-related services

Introduction

Today, a number of global trends are shaping the automotive industry and business. The customer across all vehicle segments still wants innovation in traditional automotive areas such as fuel efficiency and safety, and the customer wants to receive a high-quality vehicle with functions he deems as important, useful and affordable. The technology revolution of the Internet and mobile devices has also had an impact on automotive sector. Automotive development has never been as challenging as it is today. Innovation cycles are becoming shorter. At the same time, the share of electronics and software in vehicles is increasing just as significantly as the number of variants. More vehicle variations are offered today as automakers try to meet increasing customer requirements and technical possibilities. In the 21st century, certain

mega trends have changed the automotive industry in such a way that the future is less predictable than ever before. As a result, automakers now need to develop products in shorter cycles and focus on functions to better meet quickly changing customer needs. These short release cycles demand a high level of flexibility and the automobile industry must infiltrate the aspects of agility into its business process. Agility, in general, is defined as the ability to thrive in a competitive environment of continuous and unanticipated change and to respond quickly to rapidly changing markets driven by customer-based valuing of products and services. The competition in automotive business is very strong and the market turbulence is unpredictable. In addition, the structure of the value chain is changing continually. For example, the trend toward e-mobility means that more and more new players, such as information technology, telecommunications, and mobility providers are participating in the value chain in automotive.

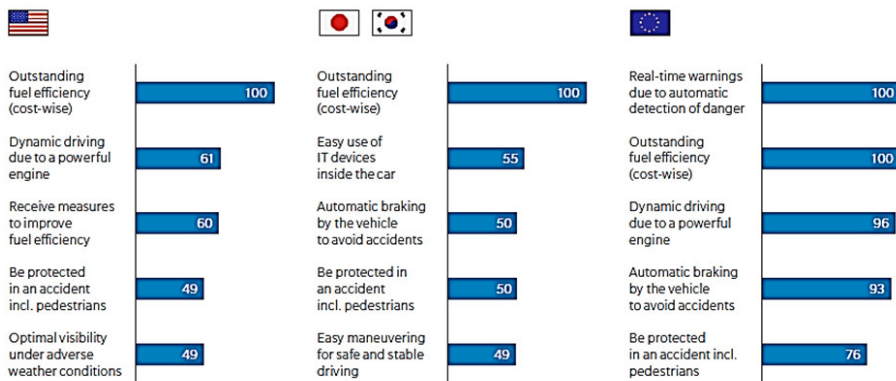
The article characterizes the description of key influences that are identified within the framework of analysis of the published studies about the acceleration of business in automotive sector. The interpretations of information presented in this article are based on the combined data set of many published papers, the data was obtained through mapping of different reports and analyses of studies in the field of automobile industry, that were published from reputable institutions, mainly carried in online version.

Preferred customer's purchase criteria

Many vehicle manufacturers in particular are under pressure to act because they face a growing number of model variants with smaller sales volumes and higher costs. They need to quickly address the new trends if they want to secure their market position over the long term (Roland Berger, 2013). As a starting point, all automakers will need to develop more detailed information about their customers and then use this data to determine the extent to which they can differentiate themselves in categories such as comfort, infotainment, safety and efficiency. Automakers must look at technical innovation through the eyes of their customers and decide whether their functions need to be simplified or redesigned to be more user-friendly (KPMG, 2013a).

According to published survey (Reiner, Cornubert, 2014) the top priority for today's car buyers is a longer lasting vehicle with low gasoline consumption. Fuel efficiency remains by some way the number one purchase criteria, as customers vote in the face of fast-increasing prices at the gas pump. Enhanced vehicle lifespan has risen in importance – respondents citing this factor as influential. Another aspects present fig. 1.

Fig.1: Top 5 customer's preferences per region – ranked on regional importance (in %)



Source: Oliver Wyman report (Reiner, Cornubert, 2013)

In the context of the focus on future vision of autonomous driving car, the automakers' fascination with what is technically feasible will need to give way to making customer value and customer experience the priorities. In the coming years, vehicle innovation will be characterized by four global trends (Reiner, Cornubert, 2013):

- The first trend is to provide a stress-free and relaxed journey for all of the car's passengers.
- The second trend is to offer features and services that integrate the car into the user's everyday intermodal because going beyond mere vehicle usage is gaining in importance.
- The third trend is: long-term complexity reduction, which ranges from the models on offer, to the configuration tools, to the installation and use of features.
- And, finally, the next factor – pricing is becoming more important as well.

In line with adapting features to the customer, the entire marketing and sales process will need to be adjusted as well. In the future, the sales person will need to start by asking customers what they want, what they don't want, and then help them "build" the car that meets their desires (KPMG, 2013b). Furthermore, marketing the customer experience will need to begin from the moment a customer starts thinking about buying a new car, through the sales process, and right up until the customer actually uses a particular vehicle function (Reiner, 2013).

Internet – source of information in automobile retail

The Internet applications are becoming more important tools to support automotive retail. In the past, the only way to draw up a shortlist was to collect catalogues of cars by visiting retailers. Now customers are doing more and more of pre-purchase research online and the first place a buyer is likely to find “my car” is on the Internet (Bütterlin et al., 2012).

Other consumers, influential websites/blogs, news articles (and these sources automotive companies cannot control or restrict) are influencing buyers’ decisions. Another used sources of information influencing customers’ choice within the vehicle selection are summarized below in tab. 1.

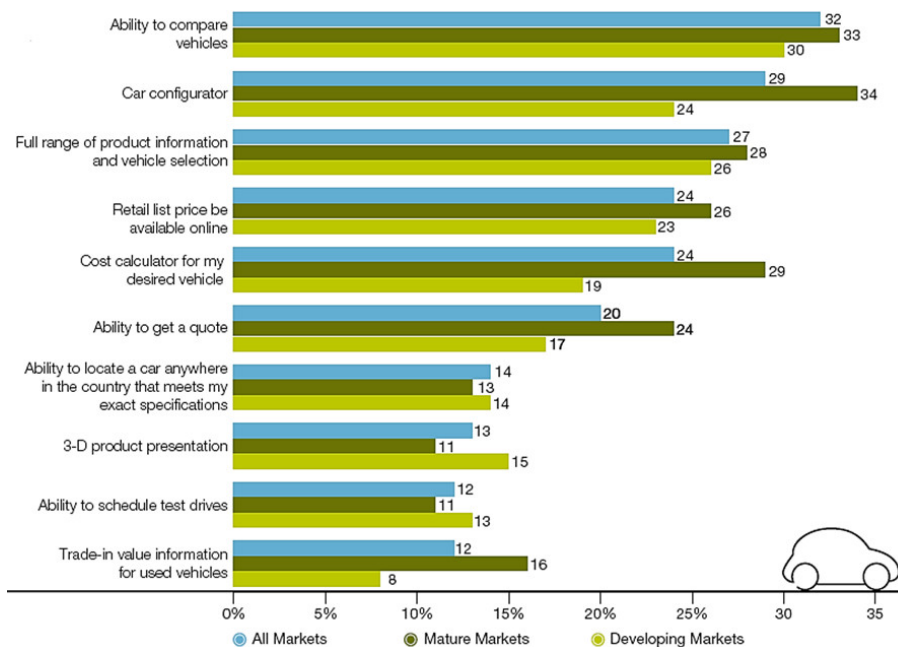
Tab. 1: Use of information sources to research vehicle (% saying)

Information Sources	All Markets	Mature Markets	U.S.	U.K.	France	Germany	Developing Markets	Russia	Brazil	India	China
Car dealer (both new and used cars)	56	63	64	64	61	64	49	39	57	52	47
Vehicle manufacturer websites	47	49	56	55	35	49	46	45	42	51	46
Information websites/independent car valuation services	39	43	54	43	35	39	35	39	19	38	44
Search engine	39	32	32	36	27	35	46	52	34	48	51
Dealer websites	38	37	44	44	29	32	38	41	39	37	37
Family and friends	36	30	29	32	26	33	43	36	38	52	47
Specialist motoring/automotive press	35	34	17	37	42	39	37	35	32	34	49
Web forums, blogs or internet discussion groups	23	15	13	19	17	13	30	35	17	26	43
TV advertising	22	14	16	13	12	13	31	18	27	45	35
Print advertising	22	15	18	18	10	15	28	19	27	39	25
Auto shows	22	13	10	09	19	14	32	24	21	38	44
Independent e-tailer sites	19	18	11	13	14	34	19	21	11	20	24
Manufacturer or dealer social media page	16	07	07	08	07	06	24	22	19	29	28
Car dealer (used cars only)	14	14	10	17	11	17	14	09	15	17	15
Non-specialist motoring/automotive press	13	8	05	11	06	09	17	21	9	15	24

Source: Capgemini review (Capgemini, 2013)

OEM (Original Equipment Manufacturer – motor car company) and dealer websites are top sources of information for buyers. The social media influences consumers – positive and negative comments have an increasingly higher influence on what product people buy and where they buy it. The Internet gives consumers the power to compare, configure, calculate, and communicate (Arena et al., 2014). New technologies have taken the customer much closer to a buying decision point before visiting the retailer. Before purchasing a car, the customers check OEMs and dealers websites, probe social media sites, as well as third-party automotive blogs and forums, looking for vehicle features and rating, reputations for fairness and customer care, drivers’ satisfaction levels, and other types of information (see fig. 2). With car configurators, customers can specify their vehicles and have a good knowledge of the list price. Today’s car shopper starts on the web, the customer has often made product choice before entering the showroom (McKinsey, 2014).

Fig. 2: Most important website options (% saying important/very important)



Source: Capgemini survey (Capgemini, 2013)

The Internet and online applications are growing at a rapid pace. The online channel has changed “the rules of the game” and marketing goes online, also in automotive business. First contact can make or break a sale – and that first contact is probably online. Most automotive manufacturers have initiated transformation programs, often using an experimental approach to new marketing tools or new ways of managing different customer touch points. Online channels are rapidly taking the lead in marketer’s preferences for brand promotion and customer relationship management initiatives at the expense of traditional media (Bütterlin et al., 2012). Online channels need to provide a more realistic and enhanced product experience – the customers repute the configurator to be a key factor in making a new car purchase decision. OEMs are aware of the importance of this tool and that it is considered to be a high impact conversion trigger in the pre-purchase phase. Therefore the majority of OEMs provide a configurator seamlessly across the online website, social media and mobile applications (Tonko, Nagashima, 2014). OEMs seem to focus on elements like technical stability and ease of configuration while customers also value a more tangible experience such as a 360° exterior and interior view. The industry does not have an answer on how to cope with the fact that a major motivation for customers to purchase online is the expectation to achieve a price advantage compared to the purchase at a dealer site. Automotive players still consider other factors, like anytime availability, to be the key. OEMs are

still hesitating to launch online sales initiatives as it requires a review of overall retail agreements (Arena et al, 2014).

Despite the digital transformation that is occurring in the automobile and other industries, the dealer is still an integral part of car buying. Actual online sales of new vehicles are rare because the car purchasing process is complicated and because almost all jurisdictions require the involvement of a dealer, and also because the online sales models do not offer the “feel” of a “real” purchasing experience for customers. The emotional aspect accompanying the process of choosing and buying a car represents a clear barrier to the acceleration towards ‘online’ (Capgemini, 2013). The main reasons to buy a car online are for a better price and a distant, for an easier and faster transaction. While actually buying a car online is still relatively rare, consumers do purchase accessories and parts. On the other hand the purchasing of parts (such as batteries, spark plugs, seat covers and tires) and accessories online is strong (McKinsey, 2014).

Although social media plays a secondary role in influencing the actual sales conversion, it represents a very important and cost effective way to increase loyalty and actively manage the brand image (Gissler, Muller, 2008).

The on-line information tools managed by wholesale should focus on (Tonko, Nagashima, 2014):

- product pre-selection, e.g. via virtual world vehicle model exploration and test driving,
- pre-selection of shops which have the model of interest actually on display
- test drive reservation
- trade-in pre-evaluation.

OEMs develop mobile applications for two main reasons (Arena et al., 2014):

- to generate leads when launching a new product (especially young people who are more inclined to convert on mobile devices), and
- to keep the customers engaged after sales. In general, customers most value the post-purchase mobile apps (from navigation to reminders for car check, safety & security, remote diagnostics).

The growing penetration of smartphones has educated the consumer to access information on demand wherever he is – the car is just another logical place where this information is created, used and stored. Specification of smartphone features by category to car user can be summarized (Capgemini, 2013):

- Care information:
 - service reminders when maintenance is due
 - service scheduling support (e.g. to easily schedule required maintenance with preferred dealership)

- special offers and promotions from manufacturer or dealer
- manufacturer vehicle notifications (e.g. vehicle or accessory recalls and warranty changes)
- Vehicle information
 - vehicle owner's manual with easy navigation
 - explanation of vehicle features (e.g. the most requested information by new owners)
 - video instruction (e.g. for more complex vehicle operations such as changing a flat tire or jump starting another vehicle etc.)
 - instrument panel and driver information console supplemental information (e.g. explaining lights, indicators, messages etc.)
 - car care tips
- Driving support
 - vehicle "health" information (e.g. status of vehicle operations)
 - diagnostic trouble code (e.g. dynamically provide supplemental information when specific instructions is important such as contacting dealership immediately or stop driving vehicle)
 - remedial action support (e.g. identify most likely causes of a specific situation with prompts as necessary to identify driving conditions, packaging of information with analysis for service technician, sending to servicer via e-mail etc.)
 - live vehicle data display (e.g. dynamically changing display of vehicle metrics such as driving efficiency for fuel economy and performance-related information)
- Remote support:
 - remotely sound horn and turn on lights to find car
 - remotely start and stop vehicle
 - remotely lock and unlock vehicle doors
 - parked car locator (using GPS)
 - locate stolen vehicle
- Communications:
 - call roadside assistance
 - single click to call dealership (e.g. about questions)
- New vehicle purchase:
 - vehicle configurator

- vehicle locator with configurator
- schedule a test drive
- vehicle showroom (e.g. explore vehicles using touch-screen, pictures and videos to understand features, see vehicle “in action”).

Web-based applications and services specifically designed to enhance the driving and ownership experience represent in automotive business a significant chance to generate consumer interest.

After-sales services to automobile customers

For the car buyer, “service” means customer care – in the showroom, during the sales process, and through pre- and post-sales communication. In this larger context, service begets trust, and trust grows loyalty. The OEMs and dealers want to communicate with the buyer after a sale for many reasons, e.g.: to provide vehicle specifications through owner’s manuals and quick reference guides; to inform the owner about recalls or service schedules; to build brand awareness through newsletters and magazines; and to develop a relationship with the customer through offers, promotions, events, and other activities (Kliemann et al., 2013).

The after-sales business in automotive industry is very profitable. The new technologies open up the market and make it possible for new players to enter the automotive after-sales business – especially companies from the IT and communications sector, except OEM and automotive suppliers. The market player (manufacturers, suppliers, parts wholesalers, authorized and independent repair shops, repair shop chains, insurance companies, automotive banks, mobility services providers and Internet platforms) that best knows its potential customers can put together optimal product packages and accurately design its communication (KPMG, 2013b). A model of networking of car services providers in after-sales market and their activities related to generate revenues is presented at fig. 3.

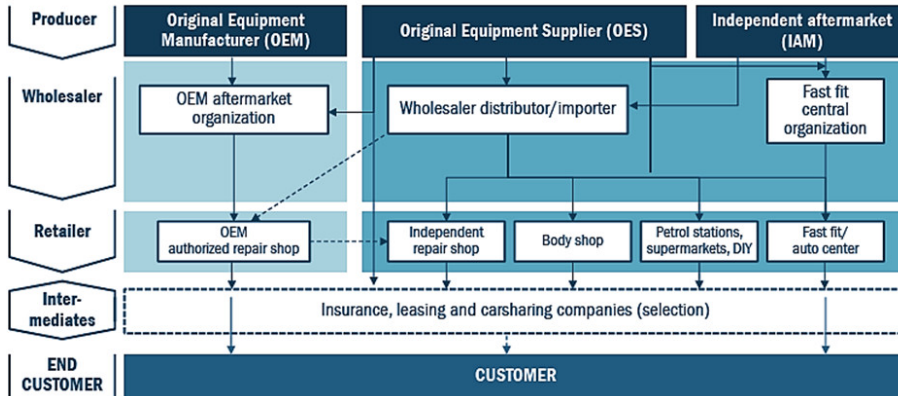
Customers are changing their telematics and infotainment preferences more or less monthly. These short release cycles demand a high level of agility and a fast pace of business process development (Reiner, 2013). The management of new systems, e.g. in terms of cars networking and connectivity solutions, involves partnerships and collaborations with various interested players, such as (Roland Berger, 2014):

- Automotive manufacturers and suppliers
- Telecom carriers, operators, software and service providers
- Industry associations and research institutions
- Legislators, etc.

Established and new players in automotive industry can also use new technologies to create innovative business models. One example could be a lucrative

retrofitting business for manufacturers, dealers and repair shops: incorporating smartphones (and connecting them to the car's peripheral devices), car-to-car and car-to-infrastructure communication (such as for innovative navigation systems) or complete entertainment systems (Tonko, Nagashima, 2014).

Fig. 3: Distribution flow in the after-sales automotive market



Source: Roland Berger study (Kleimann, 2013)

It is essential that OEMs understand which services are relevant to which group and develop an adequate portfolio of services that build on a common infrastructure and can be seamlessly integrated into the according ecosystem requirements. Depending on the OEM's strategic goals these players can become competitors or partners to the OEM. Some players such as telematics service providers can cover all stages of the value chain, others such as content or connectivity providers focus on selected services (Roland Berger, 2014).

The growing number of cars on the road coupled with their higher average age confirms the importance of the aftersales business. In the future, users' loyalty to the car brands will be gradually turned to the service providers, such as dealers and the independent aftermarket (Gissler, Muller, 2008).

Conclusion

Customers, dealers, suppliers, and prospects are discovering, connecting, and sharing their experiences with automotive brands through social media and digital platforms. Brand advocates and detractors now share their purchase and ownership experiences through text, photo, and video postings on their personal networks. That's having an impact on the cars consumers buy - and driving the need for more innovation. Consumers want a seamless buying experience, in which online and offline channels are fully integrated, and this requires:

1. The showroom experience should be enhanced with new, digital technology that enriches the shopper's access to information and enables dealers

to take full advantage of the limited time available to engage with consumers.

2. OEMs and dealers need to capture their customers' channel preferences and then use this information to personalize post-sale communications. Short of doing this, OEMs should use predictive analytics to build customer segment profiles, which would make possible successful, targeted messaging.
3. OEMs should continue to improve the “mobility” experience, since smart-phone consumers want to use apps for such services as online reminders and scheduling. Mobile solutions provide a competitive differentiation and establish a one-to-one connection with the customer. The rise in mobile technologies and social media is redefining interaction and communication patterns, digitization is revolutionizing the sales and service process.

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Tendence adresného přizpůsobení po-prodejních služeb pro podporu agility automobilového průmyslu

Příspěvek prezentuje důležitost zákaznického přizpůsobení služeb doprovázejících prodej a užívání vozidel. Je zaměřen na charakteristiku vybraných trendů vztahovaných na rozvoj informační společnosti, které jsou spojené se změnami obchodního modelu v prodeji automobilů. Článek je reakcí na skutečnost, že nové sociální a technologické trendy mění v automobilovém průmyslu hodnotový řetězec, protože nové podmínky poskytují nové příležitosti pro zintenzivnění automobilového marketingu. Úvodní část této práce popisuje vybrané impulsy, které ovlivňují automobilové podnikatelské prostředí z globálního hlediska. Na neustále se měnícím trhu jsou výrobci a prodejci automobilů neustále konfrontováni s novými a nečekanými výzvami. V další sekci článku se uvádí, že pro růst odbytu v automobilovém průmyslu bude klíčové transformovat dnešní dealerskou síť na ziskový, moderní prodejní multi-formát, který skombinuje možnosti on-line služeb s na automobilovém trhu silně tradičním způsobem autorizovaného distribučního kanálu.

Klíčová slova: automobilové odvětví, online marketing, po-prodejní aktivity, služby vztahované na automobily

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Possibility of Increasing the Quality of Communication in Public Administration

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Abstract

The aim of this paper is a proposal for an effective selection of communication toolkit within public involvement in the process of improving the quality of public sector activities. The proposal is aimed at optimizing the selection of communication tools depending on the weighting of the criteria required quality in the planning of strategic communication in the public administration. This proposal builds on the recommendations of the Ministry of the Interior of the Czech Republic, aimed at involving the public in the preparation of government documents. Application of the recommendations in practice is associated with risks of miscalculation suitability of communications tools to the communications context. Application of that proposal would lead to a reduction or complete elimination of this risk.

Keywords: communication, quality, public administration; public participation, communication strategies

Introduction

The Strategic Framework for the Development of Public administration in the Czech Republic for the period 2014-2020 (Ministry of the Interior of the Czech Republic, 2014) defines topics for the next stage of modernization and development of public administration and eGovernment, particularly towards streamlining and improving the work of public institutions (National Quality Policy, 2014) in accordance with the strategic documents of the European Commission and and Czech governments (CR International Competitiveness Strategy 2012–2020 and the National Reform Programme of the Czech Republic 2014) (Ministry of the Interior of the Czech Republic, 2015a). Associated aim of this material is to provide for the realization of the set objectives and topics most efficient use of funds from the state budget and structural funds and investment funds in the programming period 2014–2020. For the new programming period, there is a plan to substantial modernization of public administration through the use of eGovernment tools. Ministry of the Interior of the Czech

Republic issued papers for public participation in projects removing red tape in the modernization of public administration. Such documents are Methodology for Public Involvement in the Preparation of Government Documents and the Manual for Public Participation in the Preparation of Government Documents (Ministry of the Interior of the Czech Republic, 2015b).

Methodology for Public Involvement in the Preparation of Government Documents defines minimum standards for public participation in the preparation of Government documents and is aimed at both the general forms of public participation in the preparation of government documents and to concretise these general forms in the process of Regulatory Impact Assessment RIA. However, the basic requirements of the RIA process relate to the content of the issues that should be analyzed even government documents non-legislative nature. It is expected, therefore, using this methodology also for government documents non-legislative nature. The methodology is recommendatory in nature and does not require the use of all forms contained therein to prepare a particular government document and vice versa does not limit the central authorities in any other forms of public involvement. Selection of specific forms of belonging within the laws of the respective central administrative office (Blaha, 2009). Same as methodology, the manual is recommendatory and not limit the central administrative authorities in any other forms of public participation in the preparation of government documents. In accordance with the methodology, manual can be helpful in the process of regulatory impact assessment (Blaha, 2010). The manual is not confined to the connection with the evaluation of the impact of regulation, such as legislative proposals, but it can also reasonably be used in the preparation of other government materials such as proposals for concepts and strategies in which it is appropriate and necessary involvement of lay and professional public (Ministry of the Interior of the Czech Republic, 2015b).

The manual offers a catalog of communication tools and techniques for public involvement, which can be used in the process of involving the public in conjunction with the procedures described in the methodology. The actual decision on the selection of appropriate tools in terms of efficiency leaves for each communicative intent upon themselves leaves office. The manual is not confined to the connection with the evaluation of the impact of regulation, such as legislative proposals, but it can also reasonably be used in the preparation of other government materials such as proposals for concepts and strategies in which it is appropriate and necessary involvement of lay and professional public.

The manual offers a catalog of communication tools and techniques for public involvement, which can be used in the process of involving the public in conjunction with the procedures described in the methodology. The actual decision on the selection of appropriate tools in terms of efficiency leaves for each communicative intent upon themselves leaves office (Blaha, 2010).

The degree of involvement of subjects to be consulted

The aforementioned degree of involvement of the public express the relationship between the author of the document and the consulted entity (Blaha, 2009). The methodology to each level of public involvement, there are assigned practice techniques that can be applied at the relevant level. The list of communication tools and techniques is not comprehensive and should be understood as possible or appropriate (Weberová, 2013). Methodology distinguishes these four basic degree of public involvement (Blaha, 2009):

1. Information – a one-sided flow of information from the processor of the document to a consulted subject. Informing is the lowest level of involvement and can be seen as a prerequisite for the realization of higher degrees. Manual presents (Blaha, 2010) these recommended techniques: information board, information telephone line, press conferences / press releases, leaflets and posters, publications and information brochures, internet portal, public hearing, information centers / counseling centers and other.
2. Comments (Blaha, 2009) – is the one-sided flow of information, requests, opinions or criticisms from the consulted subjects towards the processor of the document. Here we can include not only commenting on the text, but also different ways of listening and gathering information from the consulted subjects. The manual (Blaha, 2010) recommends for this level of involvement of these tools: questionnaires, surveys, personal interviews (individual, group, focus group), phone interviews and others.
3. Consulting (Blaha, 2009) – is the two-way exchange of information, opinions or suggestions. Processors can choose their own way and lead consultations. Ideally consultation takes place at the same time and same place (ie all participants in the consultations will gather together and discuss the topic). This type of consultation can be described as direct (ie face to face). Of course, there are numerous cases of indirect consultations that do not run at the same time or one place (eg. different internet forums, discussions in press). Manual (Blaha, 2010) lists these communication tools appropriate for consultation: public meetings (in various forms), public debates, conferences and seminars, internet discussion forums, internet chat, happenig events and other.
4. Partnership (Blaha, 2009) – occurs when the document processor and consulted stakeholders work together on a given topic. Consulted subject is on an equal footing to the document processor, even if it is necessary to take into account the fact that the main responsibility has a always processor. Communication tools (Blaha, 2010) are particularly suitable for the partnership: workshops, working groups.

Selection of an effective set of communications tools

Manual for Public Participation in the Preparation of Government Documents (Blaha, 2010) gives a recommended set of communication tools for public involvement degrees. This list represents only a recommendation to the authorities themselves, so that they could roughly estimate the appropriate communication tools, in accordance with the communications monitored intention. The efficiency of the selection will be conditioned by the ability to estimate their interconnectivity and the final effect by a person (Farkašová and Rolková, 2013) who prepares a communication plan. One way, which would result in increased efficiency of choice of communication tools could lead through the determination of the criteria which are required by the communication target and the specific character (target group public, financial budget etc.). Obtaining basic parameters for subsequent optimization of the communication set is conditional not only by establishing their own criteria, but also by assessing their view of the importance of communication in terms of intent. For determining the required quality criteria imposed on the communications actions we may make use of a set of recommended quality criteria, which discloses Ondrůšková (2007) in her work.

This set of criteria is the supplemented by some additional criteria with regard to the specifics of the environment Public Administration:

- credibility of information ,
- speed transmission,
- specificity – the degree of relevant (specific) information,
- number of recipients,
- clarity – how the information is comprehensible,
- an amount of needed information – the level of satisfaction of information needs of the recipient communication through the communication process,
- brevity – whether the transmitted messages contain too much redundant information,
- obtaining feedback – can be monitored from several aspects (speed feedback, receiving feedback, frequency of providing feedback to the recipient),
- anonymity (relevance of information based on anonymity),
- transmission direction of information (direction from authorities or towards authorities),
- distortion or loss of part of information.

We can determine the appropriate value of the individual criteria for planning communication by an application of these criteria to the specific conditions of public administration. Criteria as desired direction may represent a limiting factor which will determine the appropriate set of communication tools that will be examined in the context of optimization of choice.

Determination of the valuation criteria

Based on the comparison of the suitability of optimization methods from Ocelníková (2004), the most appropriate for the set of issues seems Saaty's method. We can use the Saaty method for determining the values of the criteria to determine the importance of individual criteria. The principle of Saaty's method lies in the fact that instead of using a numerical scale, it enables the users to express their preferences verbally which is often a much easier way of expressing themselves. Verbal expression is automatically transferred into a numerical scale. The level of importance of one parameter before any other is expressed by the user on a whole number scale 1 to 9. The value 1 means that the pair of parameters has the same importance (Jablonský, 2002). The value 9 means that the value of one parameter is absolutely higher than the value of the other parameter. If one parameter is less important than the other, the reverse value of the whole numbers of the given scale is used. The information from pairwise comparison can be put into a matrix $S = (s_{ij}, i, j = 1, 2, \dots, k)$ known as Saaty's matrix. The elements of this matrix s_{ij} can be interpreted as estimates of the share of the i th and j th parameters (relation 1) (Jablonský, 2002):

$$s_i \approx \frac{v_i}{v_j} \quad i, j = 1, 2, \dots, k \quad (1)$$

User's preferences are contained in the matrix of pairwise comparisons S . It is important to use the information about these preferences for the estimate of the weight of the parameters. One of the conditions for usability of this information is its appropriate quality. The matrix of pairwise comparisons must be sufficiently consistent. Matrix S is fully consistent if for any index trio i, j, q it applies that $s_{iq} = s_{ij} s_{jq}$. For example matrix (relation 2) (Kampf et al., 2014 and Jablonský, 2002):

$$S = \begin{bmatrix} 1 & 2 & 6 \\ 1/2 & 1 & 3 \\ 1/6 & 1/3 & 1 \end{bmatrix} \quad (2)$$

A good estimate of vector v can be obtained as a geometrical average of elements in each line of the matrix. Matrix S normalized so that the sum of its elements is equal to 1 (relation 3,4) (Jablonský, 2002):

$$v'_i = \left(\prod_{j=1}^k s_{ij} \right)^{1/k} \quad i = 1, 2, \dots, k \quad (3)$$

$$v_i = \frac{v'_i}{\sum_{i=1}^k v'_i} \quad i = 1, 2, \dots, k \tag{4}$$

In this procedure we obtain the values of parameters from a subjective point of view of the evaluator. To determine the objective values of the parameters we need to get data from a representative group. The total value of the *i*-th parameter is the arithmetic average of the values obtained from a representative group (Kampf et al., 2012). Exemplary use Saaty matrices for solving problems in this paper is shown in a model example. For simplification, the model situation is assessed to only one expert. We assume that it is necessary to optimize the selection within the communication flow from government units to the public. Communicative intent is to gain public favour and inform about a project of regional development. We can compare a set of communication tools by assessment under six criteria (K1 – speed transmission, K2 – credibility, K3 – the number of recipients, K4 – quantity mediated information, K5 – feedback, K6 – no distortion and loss of information). First, it is necessary to determine the value of each of the criteria for the communication flow and intention (see Table 1).

Tab. 1: The weights of criteria using s method

Criteria	K1	K2	K3	K4	K5	K6	v'_i	v_i
K1	1.00	0.11	0.17	0.50	0.14	0.14	0.238330	0.02721
K2	9.00	1.00	1.00	5.00	4.00	4.00	2.993795	0.34180
K3	6.00	1.00	1.00	6.00	0.33	0.17	1.124288	0.12836
K4	2.00	0.20	0.17	1.00	0.14	0.14	0.331737	0.03787
K5	7.00	0.25	3.00	7.00	1.00	0.20	1.394380	0.15920
K6	7.00	0.25	6.00	7.00	5.00	1.00	2.676350	0.30556
								$\lambda = 1.00$

Source: author

In this procedure we obtain the values of parameters to chose of optimal communication tools for public inform about of a regional development project. We can assess of communication tools and take into account the price and availability, too. From this results we can see, that the mainly quality of criteria is K2 (credibility) and K6 (no distortion and loss of information). The smallest importance criteria for this specific goal are K1 (speed transmission) and K4 (quantity mediated information). Determine the weight of importance, it is possible to examine the suitability of each communication tool through selecting the appropriate option Saaty matrix, which is comparing studied communication tools designed for each criterion in Saaty matrix.

Conclusion

The target of the paper is the proposal of choosing to effective communication toolkit for public involvement in improving the quality of public sector activities. This paper presents the use Saaty’s matrix method for solving op-

timization options appropriate mix of communication tools in the context of public involvement based on the current concept of quality enhancement in public administration. The use of this method of optimization options communication toolkit allows the selection of those communication tools depending on a communication plan in order to achieve maximum effectiveness and based on specific parameters. This selection enables optimized to reduce time to decision and eliminate the increased financial costs incurred by the application is not fully effective communication tools with respect to the intent, target group and other parameters of communication actions.

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Možnost zvýšení kvality komunikace ve veřejné správě

Cílem příspěvku je návrh pro efektivní volbu skladby komunikačních nástrojů v rámci zapojení veřejnosti v procesu zvyšování kvality činnosti veřejného sektoru. Návrh je zaměřen na optimalizaci výběru skladby komunikačních nástrojů v závislosti na váze kritérií požadované kvality při plánování strategické komunikace ve veřejné správě. Tento návrh navazuje na doporučení Ministerstva vnitra ČR, zaměřená na zapojení veřejnosti do přípravy vládních dokumentů. Aplikace doporučení je v praxi spojena s riziky špatného odhadu vhodnosti komunikačních nástrojů s ohledem na komunikační kontext. Uplatnění uvedeného návrhu by vedlo ke snížení, případně úplné eliminaci tohoto rizika.

Klíčová slova: komunikace, kvalita, veřejná správa, strategická komunikace, zapojení veřejnosti

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Analysis of Development of the Most Valuable Brands in the World and the Most Valuable Brands in China

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Abstract

Brands are one of the most important assets of any entity, regardless of its area. In theory and in the practice there are lots of methods of evaluation of brands that are trying to determine the most valuable brands in the world. In this article, the authors focus on the methodology BRANDZ developed by Millward Brown, a WPP. This methodology is based on the empirical research of more than three million consumers who evaluated more than 100 thousand different brands on fifty markets. The article analyzes not only global brands, but also the development of the most valuable brands in the rapidly developing Chinese market.

Keywords: brand, brand value, Brandz

Introduction

Brands are considered as one of the most valuable intangible asset of any domestic and international company. There are only very few assets that are available to company that could provide for a company such as long-lasting competitive advantage as brands (Kapferer, 2012). Brand is a tool for identification of goods and services of a company. A strong brand simplifies the customers' decision making, strong brands are associated with customers' expectations and reducing the customers' risks (Keller, 2012). Brand brings to customers a wide range of information that leads to the identification of the source or producer of the product and differentiation of individual brands, producers or distributors. Brands and their value is made by functional, material and rational aspects, as well as emotional, symbolic and intangible aspects and perform different valuable roles for customers. Brands signal a level of quality, create customer loyalty, reduce perceived risks, facilitate purchase etc. (Kotler, Keller, 2007).

American Marketing Association defines brand as „ A name, term, sign, symbol, or design, or a combination of them, intended to identify the goods and services of one seller or group of sellers to differentiate them from those of competition“ (Keller et al., 2008, str. 2).

Brand value is a key element for creating of brands. In practice there are lots of different brand models that were created by famous marketing, advertising and research agencies or marketing gurus like David Aaker former professor of marketing at UC_Berkely. The best known brand models follow (Kotler, Keller, 2007):

- Brand Asset valuator – created by advertising agency Young and Rubicam,
- Aaker's model,
- BrandZ – model of brand value created by WPP and Millward Brown,
- Keller's Brand Equity Model.

In practice, models and ranking Interbrands Best Global Brands created by American company Interbrand Corporation and BrandZ created by company Millward Brown and WPP are probably used most (Duguleana, Duguleana, 2014).

This article focuses on the analysis of the brand value of the world's best brands and the brand value of the Chinese most valuable brands based on the BrandZ by Millward Brown and WPP.

Materials and methods

This article is based on the analysis of secondary data gathered by companies Millward Brown and WPP. Millward Brown and WPP have developed their own methodology of brand valuation that is based on three basic steps (Millward Brown, 2015a; Duguleana, Duguleana, 2014):

- Step 1: Calculating Financial Value,
- Step 2: Determining Brand Contribution,
- Step 3: Calculating Brand Value.

The BrandZ evaluation and methodology is based on consumer-level research, that is founded by Millward Brown and WPP every year. The aim of this research is to identify how brands influence purchase decision. The other part of the evaluation is based on the professional opinion and views of expert panel (Millward Brown, 2012a). The evaluation of brands based on BrandZ Methodology is based on research that covers more than three million consumers and more than 100,000 brands in over 50 markets all around the world (Millward Brown, 2015a). The evaluation of Chinese as well as global brands is based on three basic BrandZ components of brand equity. These components are Salient, Different and Meaningful (Millward Brown, 2015c). Brand evaluation represents a metric, which quantifies the importance and worth of powerful intangible corporate assets and enables not only owners, but as well as investment community to compare and evaluate brands and improve their management decisions and provide better- informed decisions (Millward Brown, 2015a).

Financial value of brand is derived from the correct portion of the earning of corporation to each brand. These information are based on the analysis of

annual reports, financial information (and sources as Kantar Retail). From this analysis the Attribution Rate is calculated (Millward Brown, 2015b).

The Brand Contribution is measured on a scale from 1 to 5 (where 5 is the highest) and represents the influence of the brand on earnings. There are lots of factors influencing Brand Contribution – for example loyalty, power of demand, style, brand's uniqueness, etc. (Duguleana, Duguleana, 2014).

Brand value is calculated as the Financial Value multiply by Brand contribution, which is expressed as the percentage of the calculated Financial Value (Millward Brown, 2015b).

The author's methodology will be based on the analysis of the development of the five most valuable global and Chinese brands for year 2015 and the analysis of development of brand value of these brands in last five years.

The regression analysis will be used for a more detailed analysis of brands of Chinese markets and their development. On the bases of the regression analysis author will try to reveal the statistical dependence of the growth of the brand value of Chinese markets to GDP growth in billions USD in the period 2011–2015. The analysis of the statistical dependence of the total brand value in the Chinese markets on the Chinese GDP growth will be carried out through regression analysis and calculation of the correlation coefficient. The author has set the null hypothesis H0: The value of brands in the Chinese market is dependent on the development of GDP, against the alternative hypothesis H1: The value of brands in the Chinese market is not dependent on GDP growth. These hypotheses will be tested at a significance level $\alpha = 0.05$.

Result and discussion

Millward Brown and WPP monitor the development of brands in a variety of categories, both in terms of global brands and brands specifically for the Chinese market.

In the area of global brands, brands are divided into the following categories and subcategories:

- Consumer and Retail:
 - apparel, cars, luxury, personal care, retail,
- Food and Drink:
 - beer, fast food, soft drinks,
- Financial:
 - banks/global, banks/regional, insurance,
- Commodities:
 - Oil and gas,
- Technology:
 - Technology, telecom providers.

The highest growth in comparison with previous year was calculated for Technology and Retail – 24%, followed by insurance (21%) and Telecom Providers (17%). There are two categories that declined during last year – global banks (-2%) and luxury (-6%). Following a 29% rise last year, when apparel was a leader of all categories, apparel category brand value flattened at the level of 0.1% this year.

Brands of the Chinese markets can be divided into 21 basic categories that follow:

- Airlines, Alcohol, Apparel, Banks, Cars, Catering, Education, Food & Dairy, Furniture, Health Care, Home Appliances, Hotels, Insurance, Jewelry Retail, Oil & Gas, Personal Care, Real Estate, Retail, Technology, Telecom Providers, Travel Agencies.

The brand value of the Chinese markets rises for more than 20% in comparison with last year. In the ranking of the most valuable Chinese brands the huge giant operating in the field of electronic commerce, whose brand value has reached a record 59 bil. USD has discovered (Millward Brown, 2015d).

Analysis of the 5 most valuable global brands

The five most valuable global brands are dominated by category – Technology. Only one brand among the five most valuable brands is included in another category – subcategory of payments (brand VISA). General overview of the 5 most valuable brands can be seen in the following table.

Tab. 1: Most valuable global brands

Ranking	Brand	Category	Brand Value \$M	Brand Value % change 2015 vs 2014
1	Apple	Technology	246 992	67%
2	Google	Technology	173 652	9%
3	Microsoft	Technology	115 500	28%
4	IBM	Technology	93 987	-13%
5	VISA	Payments	91 962	16%

Source: Millward Brown 2015b

As seen from the table 1, based on the Millward Brown's methodology BrandZ all mentioned brands (except IBM) achieved an increase in their brand value. The largest increases were registered achieved by brand Apple, which after last year's decline of nearly 40 mil USD and relegation to the second position behind Google, has achieved the largest increase during the reporting period (for detail see Table 2 and Graph 1).

From the Table 2 and Graph 1 we can see that the most valuable brand in observing period is Apple brand. Apple brand in the long term emphasis on innovation and many customers perceive this brand as a preferred brand in technology. Apple brand dominates not only the BrandZ ranking, but the ranking Interbrand and Brand Finance, too. The value of Apple brand started

growing after the company launched the first generation of iPhone in 2007 rapidly (Verstraete, 2014). Since 2007 the Apple brand has been improving its position in the ranking till the first position in 2011, in 2010 Apple was at the third position. These two brands have become a part of strong traditional technology brands that dominate raking for many years – Microsoft and IBM. As can be seen from the evaluation of brands, brand value of Apple exceeds the value of the second most valuable brand in the world Google of more than 70 billion USD. During the last five years VISA brand has registered the fastest growth. The value of this brand has only slightly exceeded 90 billion USD.

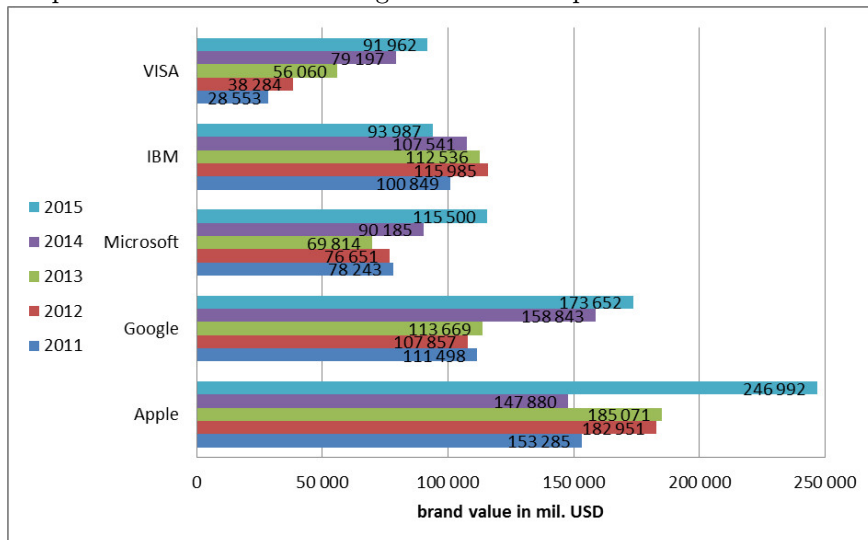
Tab. 2: Development of the ranking of selected brands in the period 2011–2015

Brand	2011	2012	2013	2014	2015
Apple	1	1	1	2	1
Google	2	3	2	1	2
Microsoft	5	5	7	4	3
IBM	3	2	3	3	4
VISA	20	15	9	7	5

Source: Millward Brown 2011a, 2012a, 2013a, 2014a, 2015b

The brand value is associated with the experience of the brand, services provided and the actual product very often (Brakus, Schmitt, Zarantonello, 2009). It is the experience with a new product and Apple customer satisfaction, strong personality of brand, innovation and nonconformity idea supported by the strong advertising and marketing strategy and communication campaign "Think Different" that makes the Apple brand one of the most valuable brand in the world (Fitzsimons, Chartrand, Fitzsimons, 2008).

Graph 1: The value of selected global brands in period 2011–2015



Source: Millward Brown 2011a, 2012a, 2013a, 2014a, 2015b

Analysis of the 5 most valuable Chinese brands

There is a new entry of a brand – Alibaba among the most valuable Chinese brands in 2015. During last 5 years this brand wasn't among the whole top 100 most valuable brands in the ranking BrandZ. The brands Tencent, Ctrip and BYD are the brands with the highest increase of the brand value – (95%), Ctrip (71%), BYD (69%).

Brands Xueersi, Ming Jewelry, Mengniu, New Oriental and Baidu have increased of more than 55%. Among individual categories, the highest increase can be seen in technology (overall more than 78%) and the largest decline in the banking industry, which decreased by 16% compared to 2014. The total value of the 100 most valuable Chinese brands grew by 22% that represents 464.2 billion USD in cash terms.

Tab. 3: The most valuable Chinese brands

Rank.	Brand	Category	Brand Value \$M	Brand Value % change 2015 vs 2014
1	Tencent	Technology	66 077	95%
2	Alibaba	Retail	59 684	New entry
3	China Mobile	Telecommunication providers	55 927	-9%
4	ICBC	Bank sector	34 521	-13%
5	Baidu	Technology	30 897	55%

Source: Millward Brown 2015c

Compared with the five most valuable global brands the most valuable Chinese brands involve only two technology brand. The most valuable Chinese brand is Tencent, which represents technology and during the period from 2011 to 2015 has increased of 442%.

Tab. 4: Development of the ranking of selected Chinese brands in the period 2011-2015

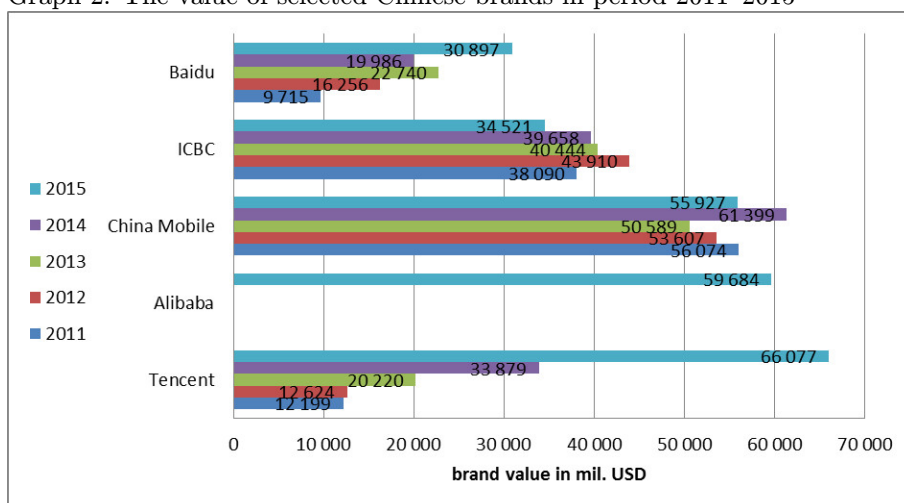
Brand	Ranking top 100 Chinese brands					Ranking top 100 global brands				
	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015
Tencent	8	10	5	3	1	52	37	21	14	11
Alibaba					2					13
China Mobile	1	1	1	1	3	9	10	10	15	15
ICBC	2	2	2	2	4	11	13	16	17	22
Baidu	9	6	4	5	5	29	25	33	25	21

Source: Millward Brown 2011a, 2012a, 2013a, 2014a, 2015b, 2011b, 2012b, 2013b, 2014b, 2015d

For comparison, the Table 4 shows the development of Chinese brands in 2011–2015 in the ranking of the top 100 most valuable Chinese brands, and in the rankings of the top 100 most valuable global brands. The highest growth scored brand Tencent, which during the five years move from the 52nd position to the 11th position in the ratings of the most valuable global brands. On the other hand, it should be noted that this brand is not involved in the ranking of Interbrands as well as any other Chinese brand.

Intebrands methodology is based on other aspects and therefore it is not possible to compare it with the methodology of WPP and Millward Brown. As the greatest success of Chinese brands can be considered the rise of brand Alibaba, which represent a new entry in this year's ranking. This brand was ranked as the 13th most valuable brand in the ranking of global brands, too. Even more Chinese can be found till the 22nd position in the renking. And only bank ICBC has registering a gradual decline from the 11th positions to the 22nd positions this year. The banking sector, however, is currently recording the biggest drop of the total value of bank brands, therefore the ICBC bank is not an exception.

Graph 2: The value of selected Chinese brands in period 2011–2015



Source: Millward Brown 2011b, 2012b, 2013b, 2014b, 2015d

The most valuable brand in Chinese markets is Tencent. Tencent has nearly doubled its value since 2014. In spite of this fact in comparison with the most valuable global brand (Apple) the Tencent brand value is nearly 4 times less.

The test of statistical dependence of the brand value in the Chinese markets on the development of GDP will be performed. The test of statistical dependence of the brands value in the Chinese markets on the development of GDP will be performed based on the regression analysis and correlation coefficient. The null hypothesis H0: The value of brands in the Chinese market depends on GDP growth will be tested against alternative hypothesis H1: The value of brands in the Chinese market doesn't depends on GDP growth on the confidence level $\alpha=0.05$.

Tab. 5: Development of GDP and the most valuable Chinese brands in the period 2011–2015

Year	GDP in bil. USD	Development of Chinese brands in bil. USD
2011	4990	0.278849
2012	5930	0.325369
2013	7320	0.320224
2014	8230	0.362462
2015	9240.27	0.443761

Source: Millward Brown 2015c, Trading Economics 2015

The following table summarizes basic statistical calculations.

Tab. 6: Statistics

Correlation coefficient – R	R ² (%)	p-Value
0.912463	83.2589	0.0307

Source: author's calculation

On the basis of table 6 we can state that since the p-value is less than 0.05, there is a statistically significant relationship between brand value and GDP at the 95% confidence level. The null hypothesis H₀ was confirmed on the confidence level $\alpha=0.05$.

The R-Squared statistic indicates that the model as fitted explains more than 83% of the variability in brand value.

Conclusion

As can be seen from the analysis of global and Chinese most valuable brands, brands represent one of the most valuable assets of all organization and we can track their constant increase in the brand value global as well as in Chinese markets. Traditionally, the most valuable brands are included in the category of technologies. Technology brands are at the first place in both cases of global brands (Apple) and the Chinese markets (Tencent). These two brands recorded the largest annual increase in its value compared to 2014, too. Based on the regression analysis, the author confirmed a significant statistical dependence between the most valuable brands in the Chinese market and GDP growth of the China.

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Analýza vývoje nejhodnotnějších značek světa a nejhodnotnějších značek Čínské lidové republiky

Značky představují jedno z nejdůležitějších aktiv, jakéhokoliv subjektu bez ohledu na oblast jeho působení. V teorii i praxi existuje celá řada metodik hodnocení značek, které se snaží stanovit nejhodnotnější značky světa. V tomto článku se autorky zaměří na metodiku hodnocení značek BRANDZ společností Millward Brown a WPP. Metodika je založena na hodnocení značek prováděného na základě empirického výzkumu více než tří milionů spotřebitelů, kteří hodnotí více než 100 tisíc značek na padesáti různých trzích. Článek se zabývá analýzou nejen globálních značek, ale také vývojem nejhodnotnějších značek rychle se rozvíjejícího čínského trhu.

Klíčová slova: značka, hodnota značky, BrandZ

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The Evaluation and Prediction of the Viability of Construction Enterprises

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Abstract

This paper provides a comprehensive method for the evaluation of a company. Specifically, it concerns the prediction of the viability of Czech construction companies. The construction industry is a very specific industry. This is primarily due to the nature of the product. The use of many production factors to convert to a form (a house, a factory building, etc.) is assumed. Each contract of a construction company (apart from the exceptions) is usually unique. In addition, the field produces long-term assets. As the generic name suggests, the product is used by a consumer (a household or firm) over a long period of time. Such a product is seen to some extent as a consumer one in the consumer market. However, it enters the market of production factors in the form of fixed assets. Due to this fact, construction is usually a field which first inhibits its activity and suffers a loss in times of crisis. On the other hand, it also becomes the first field which enters a phase of growth after a crisis period. The offered method is not only a suitable tool for managers of individual companies, but it may indicate the stage of the economic cycle in the particular country or in a particular market at a correct selection of those monitored companies. The methodology of the formation in an offered model is applicable not only in the Czech Republic but it is also transferable to other countries in Europe and the world, where it will also be able to take into account the specifics of local markets, too, after its application.

Keywords: construction company, financial health of the company, bankruptcy and credibility models, binary logistic regression, discriminant analysis

Introduction

The world economy, as well as the Czech economy, has been going through an economic recession for several years. The recession was created by the crisis in the mortgage market in the USA approximately between 2008 and 2009 (some sources state even earlier date). It spread from there throughout almost all of the world; neither the EU nor the Czech Republic was spared.

The crisis, actually an economic recession, is proved by a drop in the economic growth or a decline of the state domestic product, followed by an increase in unemployment, but it also is involved with changing the attitudes and moods of the country's population. The economy, previously drawn by a household demand, stagnates or falters and people, who are already nervous due to the negative news about the development of the world as well as the European and Czech economies, wait whether to see if there will be any change.

However, in the case of growth, which was driven by a household demand and a trend towards consumerism and spending, the situation is much more complicated because it concerns a change of the mood and the psyche of these households. Currently, there is another serious problem that we can identify in relation to the European Union. Even in the event that the Czech Republic had a tendency to increase its demand and thus the growth of the economy, the country is bound by the mood of the inhabitants of the neighboring countries.

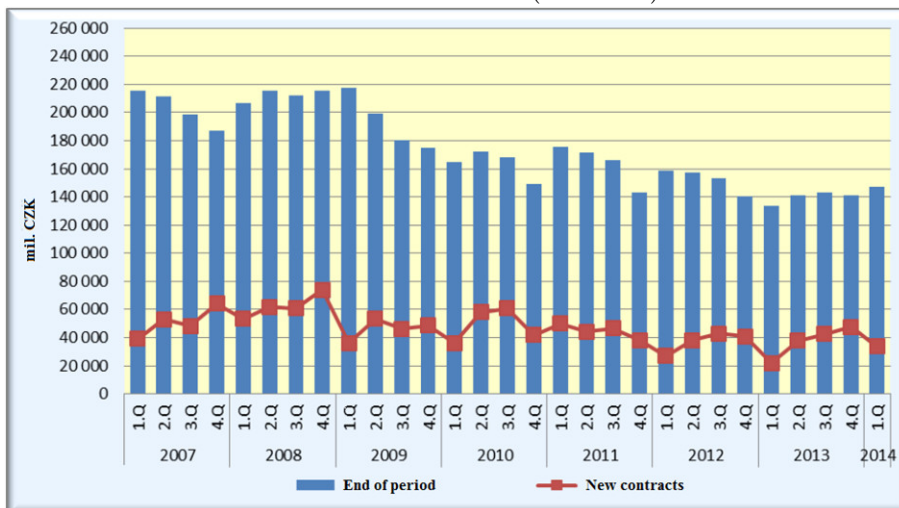
At the time when the economy of one of 27 EU Member States has been faltering, it is not such a disadvantage. These economic ties, on the other hand, can be positively seen as a stabilizing factor. At this moment, when the recession extends almost within the entire EU, the situation is more complicated since, on the contrary, the often very complex ties tend to apply a certain rigidity of the system. We should try to revive the system, which has a downward trend, rather than preserving or stabilizing this downward trend. The question is whether the right driving force of the economy is a household demand. As it follows from the discussions of the experts, it is not probable. The first impulse, which says that the economy is growing or declining, is a development of the construction sector in a given state. It is doubly true for the Czech Republic, especially when taking into account the fact that a historically maximum of the construction enterprises went bankrupt in the year 2012 (MPO, 2013). This, in itself, may indicate that a return to the growth will be relatively long and complex.

However, all of the data should be monitored in both space and time. Table No 1 shows the development of the value of the construction contracts in the Czech Republic in millions of Czech Crowns.

The value of the contracts of construction companies has been continuously declining from 2007 until the fourth quarter of 2013 (MPO, 2014; MPO, 2013). Subsequently, there is a slight increase in the total sum of these contracts in the first quarter of the following year (MPO, 2014b). However, this cannot be said for new contracts. Thus, the data show a certain correlation between the bankruptcies of construction companies and in the volume of contracts in the industry over time. It is possible to deduce that the situation is not likely to change in the near future from the trend of these contracts.

Construction companies are subjected to high pressure, to which they respond with savings within their operation by searching for new markets and with increasing the efficiency of their financial management, of course.

Table 1: The value of construction contracts (CZK mil.)



Source: The Data from the Czech Statistical Office , a figure of the Ministry of Industry of the Czech Republic (MPO, 2014b)

In practice, there are a number of methods that are employed when assessing the financial situation of a company. Bankruptcy models, value models, the economic added value, the market added value, benchmarking methods and others are employed. Most of these methods, however, do not respect the specifics of the construction industry and building businesses.

Bankruptcy models have a great potential. It should be noted that they are currently used more as a supplement of financial analyses. Although they work with relatively accurate data, their structure assumes a certain inaccuracy. This is mainly caused by a used database and by employing the data from companies of many sectors.

This paper therefore aims to create a bankruptcy model that will be used exclusively for the evaluation of construction enterprises.

The Analysis of the Current State of the Researched Problem

One dimensional discriminant analysis was used in the construction of the first bankruptcy models (Mohd-Sulaiman, 2013; Ho, McCarthy, Yang and Ye, 2013; Korol, 2013). Bankruptcy models were subsequently able to provide information on whether a particular enterprise is able to survive any financial distress or whether it is heading for bankruptcy. Then the use of multiple discriminant analysis spread and it was followed by a logit analysis (Altman and Saunders, 1998). Many classical statistical methods have been developed and described by these authors: Altman and Saunders (1998), Altman (1984), Taffler (1984), Jones (1987), Keasey and Watson (1987), Ooghe and Balcaen (2002), Dimitras, Zanakis and Zopudinis (1996), Altman and Narayanan (1997).

Currently a logit analysis, a probit analysis and linear probability models are also employed. These methods are used in the development of models of the evaluation of conditional probability (Doumpos and Zopoudinis, 1999). They consist of a combination of variables, with the best possibility to discern those failing enterprises within groups or, conversely, those which are able to survive any financial hardship. The nonlinear maximum likelihood estimation of the logit analysis was used to estimate the parameters of the following logit model (Hosmer and Lemeshow, 2000; Gujarati, 2003; Meloun, Militký and Hill, 2005):

$$P_1(X_i) = \frac{1}{1 + \exp - (B_0 + B_1X_{i1} + B_2X_{i2} + \dots + B_nX_{in})} = \frac{1}{1 + \exp - (D_i)}$$

where $P_1(X_i)$ = probability of failure with regard to the vectors of attributes X_i ;
 B_j = attribute coefficient j , for $j = 1, \dots, n$ and B_0 = limited section,
 X_{ij} = attribute values j (for $j = 1, \dots, n$) for company i ,
 D_i = "logit" for company i .

Material and Methods

The data set consists of the absolute and relative indicators of those companies operating in construction (section F classification CZ-NACE) in the years 2003–2012, i.e.:

- Building Construction:
 - o Development activity.
 - o Construction of residential and non-residential buildings.
- Civil engineering:
 - o Construction of roads and railways.
 - o Construction of engineering networks.
 - o Construction of other buildings.
- Specialised construction activities:
 - o Electrical, plumbing and other construction installation activities.
 - o Completion and finishing work.
 - o Other specialized construction activities.

The file was generated from the Albertina database and it contains 67,492 recording lines. Each row contains 191 characteristics of each company. These are the statements from the financial statements (balance sheet data, income statement and statement of cash flows), non-financial indicators and ratios.

The following assumptions will be considered in order to create the method:

- It will be a bankruptcy model (the enterprise development will be evaluated in two variables: the survival of the company or the tendency to bankruptcy. A dependent variable will be only 0 or 1).
- Absolute indicators will be used for the model (but I will assess the potential relevance of selected ratios when creating the method).
- Analyzed data do not follow a normal distribution.
- A development of a model is an iterative process that is cyclically repeated by the efforts for an improvement.
- The analyzed sample is a representative specimen of the population surveyed.
- The goal is to create a model that is as simple as possible that explains sufficiently enough of the behaviour of the dependent variable. The dependent variable is of a binary character.
- The model will have some generalizing properties; it can be used for predicting (the efficiency of classification into groups would be better than the one with a by chance basis, i.e. the classification efficiency should be higher than 50%).
- The quantitative variables of the discrete nature (e.g. the number of the employees) will be regarded as a continuous variable (a used software does not enable a better access).
- Each model is inadequate or inaccurate to a certain extent and it distorts the reality, but some models are (or can be) more useful than others.

The Mathematical Model of the Assignment Problem

The focus will be given to the nature of the problem only on the so-called binary logistic regression. In this case, the value of a dependent variable takes only two conditions. In the case of the binary variable in our context, it will be the dependent variable, defined as:

$$Z = \begin{cases} 1 & \text{if a result ends in the success} \\ 0 & \text{if a result ends in the failure} \end{cases}$$

with probabilities of $\Pr(Z = 1) = \pi$ and $\Pr(Z = 0) = 1 - \pi$. If we have an n of such mutually uncorrelated variables Z_1, Z_2, \dots, Z_n , where $\Pr(\text{Rev} = 1) = \pi$ for $j = 1, 2, \dots, n$, the random variable Y can be defined; it will be represented by the sum of all n random variables Rev , $j = 1, 2, \dots, n$. A variable Y represents the total number of "achievements" in the n performed experiments. The density probability of a variable Y , i.e. a probability function, is possible in this case note as:

$$Pr(Y = y) = \binom{n}{y} \pi^y (1 - \pi)^{n-y}, y = 0, 1, 2, \dots, n.$$

Certainly, one can imagine a more general situation in which can be obtained n of such values y_1, y_2, \dots, y_n by performing experiments and observations. These values represent a number of "achievements" in the n various groups. The individual groups themselves may vary in different conditions of our experiment, i.e. values of predictors (in our approach to various indicators of financial statements).

If we want to study subsequently the relative frequency of "achievements" in different groups depending on various explanatory variables, we can use generalized linear models to determine the probability of π_i by the model:

$$g(\pi_i) = \beta' \mathbf{x}_i.$$

The symbol \mathbf{x}_i here is the column vector of explanatory variables for the i -th observation, a β column vector represents search parameters. The function $g(\cdot)$ then presents the so-called linker, or the binding function (Meloun, Militký and Hill, 2005).

The simplest method of predicting the relative frequencies of success lies in the assumption that the so-called canonical linker function $g(\cdot)$ is an identical function. A classic linear model in the form of $\pi_i = \beta' \mathbf{x}_i$ is obtained. It is not very suitable for the probability modeling as the predicted values may lie outside the interval $[0; 1]$. To eliminate the problems that arise when using a classical linear model, it is possible to use distribution functions where:

$$\pi = \int_{-\infty}^t f(s) ds$$

The probability density of an $f(s)$ is called the tolerance distribution. An appropriate choice of the tolerance distribution can reach e.g. a logit or probit model. In the case of the probability modeling it is likely to be advantageous to use the logit linker function and the model enter as:

$$\text{logit}\pi(\mathbf{x}_i) = \ln \left(\frac{\pi(\mathbf{x}_i)}{1 - \pi(\mathbf{x}_i)} \right) = \beta' \mathbf{x}_i$$

The objective of a logistic regression¹ consists in the modeling of the conditional mean of the dependent variable y at certain values of \mathbf{x} , i.e. via logistic functions Formally, therefore:

$$E(y|\mathbf{x}) = \pi(\mathbf{x}) = \frac{\exp(\beta' \mathbf{x})}{1 + \exp(\beta' \mathbf{x})}$$

¹In essence, the name of the logistic regression is derived from the so-called linker function (the so-called logit transformation of the dependent variable is employed)

In order to estimate the unknown parameters of the logistic model, denoted by a symbol β , the method of maximum likelihood can be used. Its principle can be expressed as follows. When considering a pair of measurements, which are obtained by observation or experiment, i.e. (\mathbf{x}_i, y_i) , then the contribution of the information contained in this observed pair to the likelihood function can be expressed as:

$$\pi(\mathbf{x}_i)^{y_i} [1 - \pi(\mathbf{x}_i)]^{1-y_i}$$

as variables $y_i \sim \text{Bi}(1, \pi(\mathbf{x}_i))$. If we further assume that the individual measurements are independent of each other, then the likelihood function can be expressed as the product of all these contributions, since it is in essence the associated probability function, i.e. we obtain the following likelihood function:

$$l(\beta) = \prod_{i=1}^n \pi(\mathbf{x}_i)^{y_i} [1 - \pi(\mathbf{x}_i)]^{1-y_i}$$

Results and Discussion

The Preparation of the Data File

The division into the training and testing parts, according to the businesses, was carried out. The variables “test” and “sample” were added. We also added the variable “bankruptcy” which acquires the value 0 provided that the business is not declared bankrupt, and which acquires the value 1 provided that the business is declared bankrupt or going into liquidation.

The Primary Screening of the Variables

According to the methodology, we subsequently eliminated the variables with no links to the variable “bankruptcy”, i.e. the variables which did not contribute to the discrimination between well prospering and not prospering businesses.

Firstly, we carried out a set of tests whose objective was to reveal the variables which did not depend on the variable bankruptcy yes(1)/no(0). We eliminated the variables with insufficient number of observations at the next stage.

Afterwards, the overly correlated variables were removed and a correlogram was created. We also removed the variables of a purely categorical character for the model creation itself, which did not enter into the analysis, in order to make the final file in the smallest possible way. We created the data matrix in this way, which was subsequently used for the final model creation.

The Model Creation

A logistic regression was carried out. It was necessary to analyse the results, above all using the tests of the significance of the regression coefficients. Subsequently, suitability and predication qualities of the model were evaluated.

Firstly, the likelihood-ratio test type 1 and 3 were performed. The results of the second one are indicated in table No. 1.

Table 1 Likelihood-ratio test type 3(significant values only)

Effect	Bankruptcy-Likelihood-ratio Test type 3 (data) Division:BINOMIAL, link function: LOGIT Modelled probability bankruptcy=0			
	Degrees of freedom	Ln-likelihood	Chi-square	p
Unbilled revenue	1	-5444.37	4.84539	0.027720
Current assets	1	5454.39	24.88395	0.000001
Original capital – CZK K	1	-5444.27	4.64226	0.031194
Bank loans and accommodation (short-term)	1	-5462.30	40.70408	0.000000
Output consumption – CZK K	1	-5454.34	24.79270	0.000001
Change in reserves and provisions relating to operating activities and complex costs	1	-5456.04	28.19159	0.000000
Total financial cost	1	-5445.35	6.80446	0.009093
Cost to the government	1	-5444.00	4.10276	0.042813
Instant liquidity	1	-5448.62	13.35169	0.000258
Labour productivity of personnel – CZK K/month	1	-5456.07	28.24996	0.000000
Quick test	1	-5459.75	35.61390	0.000000
Ratio of receivables to assets - %	1	-5448.31	12.72688	0.000360
Ratio of financial assets to assets-%	1	-5460.68	37.46638	0.000000
Other liabilities in the ratio of liabilities-%	1	-5444.54	5.19664	0.022631

Note: In order to simplify, the table contains only the items that are important for further solution of the logistic regression.

Source: Authors

The regression coefficients were estimated as the last ones. The actual values are indicated with the individual items in table No. 2.

Thereafter, a repeated choice of variables was carried out. All the variables with insignificant regression coefficients were eliminated from the analysis. Each of the three tests marked some coefficients as significant and, on the contrary, some others as insignificant. It is then essential to incorporate all the significant coefficients from all three tests into the analysis.

The final model for the evaluation of the viability of construction enterprises has the following form: $\text{logit}\pi(\mathbf{x}_i) = \log \frac{\pi(\mathbf{x}_i)}{1 - \pi(\mathbf{x}_i)} = \hat{\beta}'\mathbf{x}_i = -2.78018 + 0.02346 \times \text{Number of employees}_i + 0.98379 \times \text{Profit/Loss}_i - 0.00004 \times \text{Actual capital-K CZK}_i - 0.00005 \times \text{Retained earnings of the recent years-K CZK}_i + 0.00013 \times \text{Short-term bank loans}_i - 0.00017 \times \text{Loan indebtedness-\%}_i + 0.00065 \times \text{Repayment period of debt from cash flow years}_i + 0.0004 \times \text{Gross cash flow liquidity-\%}_i - 0.01893 \times \text{Capital coefficient of total assets-\%}_i + 0.01352 \times \text{Ratio of receivables to assets -\%}_i + 0.01350 \times \text{Bank loans and accommodation in the ratio of liabilities-\%}_i$

Table 2 The estimation of the regression coefficients (significant values only)

Effect	Bankruptcy-Estimation of parameters (data) Division: BINOMIAL, link function: LOGIT Modelled probability bankruptcy=0									
	Level effect	Column	Estimate	Standard error	Wald. Stat.	Lower 95%	Upper 95%	p		
Absolute value		1	4.177385	0.088481	228.978	4.003965	4.350806	0.000000		
Current assets		5	-0.000001	0.000000	16.547	-0.000001	0.000000	0.00004		
Original capital – CZK K		6	-0.000001	0.000000	4.974	-0.000002	0.000000	0.02572		
Bank loans and accommodation (short-term)		9	-0.000003	0.000001	32.287	-0.000004	0.000002	0.000000		
Output consumption – CZK K		10	-0.000001	0.000000	25.119	-0.000001	0.000000	0.000000		
Change in reserves		13	0.000010	0.000002	25.860	0.000006	0.000014	0.000000		
Total financial cost		18	0.000005	0.000002	6.316	0.000001	0.000009	0.01196		
Cost to the government		20	0.000005	0.000003	3.869	0.000000	0.000011	0.04918		
Instant liquidity		25	0.000993	0.000244	16.487	0.000514	0.000514	0.00004		
Labour productivity of personnel – CZK K/month		26	0.000594	0.000117	25.677	0.000364	0.000823	0.00000		
Quick test		28	-0.132134	0.021764	36.859	-0.174792	0.089477	0.00000		
Ratio of receivables to assets - %		30	-0.003107	0.000969	10.285	-0.005005	0.001208	0.00134		
Ratio of financial assets to assets - %		31	0.008031	0.001330	36.438	0.005423	0.010639	0.00000		
Other liabilities in the ratio of liabilities - %		33	-0.006266	0.002310	7.361	-0.010793	0.001739	0.00666		

Note: In order to simplify, the table contains only the items that are important for further solution of the logistic regression.

Source: Authors

Table 3 the Goodness of Fit - Hosmer-Lemeshow Test (Part 1)

Bankruptcy - Goodness of fit: Hosmer-Lemeshow Test (data)											
Division:BINOMIAL, link function: LOGIT											
Hosmer Lemeshow= 116.23, p value = 0											
Response	Group1	Group2	Group3	Group4	Group5	Group6	Group7	Group8	Group9	Group10	Row Tot.
0: Observ.	314	155	105	79	56	69	49	32	24	20	903
Predict.	216	114	102	93	86	79	71	62	51	31	
1: Observ.	3812	3971	4021	4047	4070	4057	4077	4094	4102	4114	40365
Predict.	3910	4012	4024	4033	4040	4047	4055	4064	4075	4103	
All groups	4126	4126	4126	4126	4126	4126	4126	4126	4126	4134	41268

Source: Authors

Table 4 The Goodness of Fit - Hosmer-Lemeshow Test (Part 2)

Bankruptcy-Goodness of fit statistics (model-zf)		
Division:BINOMIAL, link function: LOGIT		
Modelled probability Bankruptcy = 0		
Stat.	SV	Stat./sv
Deviation	41235	8.165706E+03
Deviation in scale	41235	8.165706E+03
Pearson 's Chi2	41235	4.879660E+15
Scaled P. Chi2	41235	4.879660E+15
AIC		8.231706E+03
BIC		8.516425E+03
Cox-Snell R2		1.259661E-02
Nagelkerke R2		6.634722E-02
Log-likelihood		-4.082853E+03

Source: Authors

On the basis of the sensitivity analysis, the threshold of 0.500997 was determined. The construction enterprises whose model value reaches 0.500997 or above will probably survive the potential financial crisis. Otherwise, they will have problems and go bankrupt in the case of a financial crisis.

The Validation of the Model on a Specific Case Solution in Practice

The quality of the model will be evaluated by means of the Hosmer-Lemeshow Test (in table No. 3 and 4), fuzzy matrix (in table No. 5) and ROC (The Received Operation Characteristic curve).

The P-value of the Hosmer-Lemeshow Test and the other characteristics indicate the suitability of the model.

The fuzzy matrices for the training data are indicated in table No. 5.

Table 5 The Fuzzy Matrices for the Training Data

Observation	Predicted YES	Predicted NO	Percentage of correct predictions
YES	13928	16	99.89 %
NO	285	9	3.06 %

Source: Authors

Let us examine the obtained fuzzy matrix in detail. There are predicted frequencies in lines and after that the frequencies on the basis of real observations of the data in the columns of this table. The inner elements of the fuzzy matrix – the contingency table has their established names:

- TP – True positive (Observed YES; Predicted YES) number of the correctly classified cases of the bankruptcy of the entity.
- FP – False positive (Observed YES; Predicted NO) number of the incorrectly classified cases of the bankruptcy.
- TN – True negative (Observed NO; Predicted NO) number of the correctly classified cases when the enterprise is without difficulties.
- FN – False negative (Observed NO; Predicted YES) number of the incorrectly classified cases when the enterprise is without difficulties.

On their basis, the relative indicators of the effectiveness of the classification are determined. The first indicator, and probably the most important one, is the so-called Accuracy which is defined as the sum of the absolute frequency of the main diagonal to the total number of classified.

Formally written as:

$$ACC = \frac{TP + TN}{TP + TN + FP + FN}$$

As shown in Table No.4, the ratio in case of our model: $(13928+9) / (13928+9+16+285)=0.9901$, i.e. 97.89 %.

Other relative measures are as follows:

- The True Positive Fraction: the sensitivity which indicates the probability that our model will mark a really failing enterprise as a failing enterprise. The sensitivity can be obtained as follows:

$$TPF = \frac{TP}{TP + FN} = 54.38\%$$

- The False Positive Fraction: it is supplementary to the specificity and indicates the probability that our model will mark the enterprise as failing although it will be without difficulties in reality. The ratio as follows:

$$FPF = \frac{FP}{FP + TN} = 2.12\%$$

- The True Negative Fraction: it has become usual to use the name “specificita” in Czech, which indicates the probability that the model will mark the non-failing enterprise as not failing. The specificity can be obtained as follows:

$$TNF = \frac{TN}{FP + TN} = 97.88\%.$$

- The False Negative Fraction: it is supplementary to the sensitivity and indicates to what extent our model is not able to reveal the presence of the observed phenomenon, i.e. the bankruptcy of an enterprise. This indicator can be obtained as follows:

$$FNF = \frac{FN}{TP + FN} = 45.62\%.$$

The fuzzy matrix obtained on the basis of the training data gives a biased estimate of the effectiveness of the established model, since it is obtained on the basis of the training data that is used to the construction of the model. Therefore, it is important to use the validation data set. The fuzzy matrix for the validation part of the data is presented in table No. 6, from which it is apparent that the estimate of the classification effectiveness of our regression model makes (ACC) 97.824%.

Table 6 Fuzzy Matrix for the Validation Data

Observation	Predicted YES	Predicted NO	Percentage of correct predications
YES	40339	26	99.93 %
NO	872	31	3.43 %

Source: Authors²

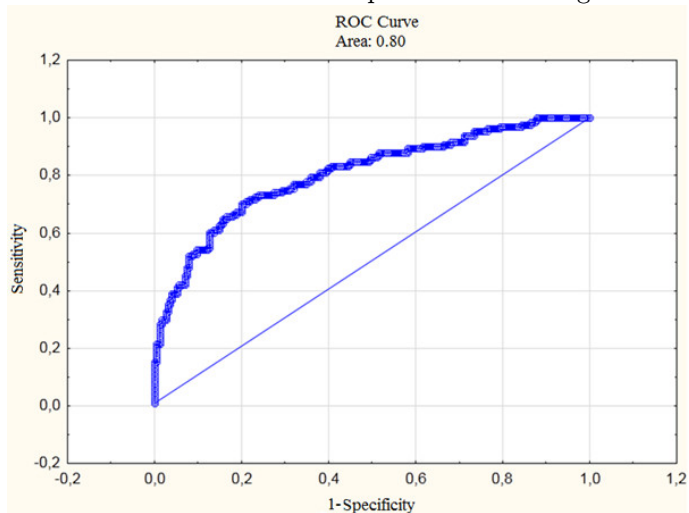
²Other characteristics are: TPF=36 %, FPF=2 %, TNF=98 %, FNF=64 %.

The Received Operation Characteristic Curve

Another possibility of evaluation of the predication abilities of our model is the so-called ROC curve.

Picture No. 1 presents the ROC curve for the training data base.

Picture 1 The ROC Curve Graph for the Training Data Base

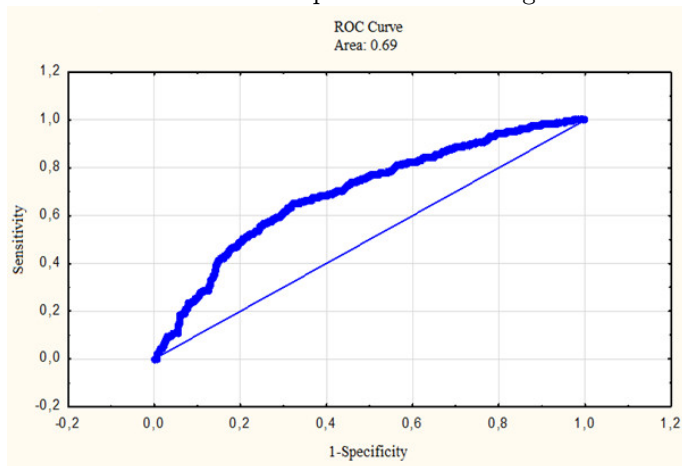


Source: Authors

The graph of the ROC curve model with null predication ability is the line segment connecting points $[0;0]$ and $[1;1]$.

Picture No. 2 presents the ROC curve for the validation data base.

Picture 2 ROC Curve Graph for the Training Data Base



Source: Authors

It is obvious that the predication ability of the model is influenced by the choice of the threshold to some extent. We can say that it is necessary to opt for such a threshold (substantially it is about probability) for which the relevant point on the ROC curve is as close as possible to the point with the coordinates [0;1]. Assuming the determination of the threshold values based on the validation data base, we would probably focus on the area of the high-lighted rectangle because it is the closest to the point with the coordinates [0; 1].

From a visual perspective of the graph, it is possible to deduce that the ROC curve and the fuzzy matrix coincide, i.e. the efficiency model is on the level of 99.9%.

Conclusion

In the introduction and in the theoretical part of this paper, the problem and the need were redefined, or more precisely, the nationwide need of a solution. A method to easily predict the viability of a construction company in the Czech Republic does not exist yet.

Creating a new model for a comprehensive evaluation of construction companies is built on the principles of binary logistic (logit) regression. The assumptions of the model creation were defined; the procedure of the data analysis of the Czech construction companies as a prerequisite for creating the test file in order to validate the proposed model was described as well. After applying the chosen methodology, a model was found whose predictive power is high (97 824%). We can say with certainty that a model was created, or rather, a new method for evaluating the viability of the Czech construction companies was found. This tool is applicable to both the management of these companies, as a top indicator of business management, and the other interest groups (the stakeholders), the lender, the owner, the competitors and others. This model offers guidance on the methodology to prepare similar models in different countries of the world to some extent; (it is not possible to say that the developed model is generally applicable to the whole world), but the methodology is certainly applicable. If the predictive power of such models obtained by these models anywhere in the world is greater than 50%, then we can speak of a valid model. A model preparation for the individual countries of Europe or the world appears to be a challenge for a further solution. The new developed models ought to respect the local conditions.

If there is a connection between the development of construction enterprises and the entire economy, a newly constructed model applied to a correct sample file of the construction enterprises in a particular country can be understood as an indicator of future economic development. We will be able to indicate fairly accurately whether the economic crisis or boom is coming.

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„Marže a přírážka“ jejich vymezení, kvantifikace a implementace v teorii a praxi

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Vážené čtenářky, vážení čtenáři,

výše uvedený časopis a jeho portál byl zřízen jak pro prezentaci nových vědeckých poznatků, tak pro vytvoření široké platformy pro výměnu názorů a zkušeností z příslušných vědních oborů. Tato platforma je otevřena pro akademickou sféru, výzkumné organizace a instituce, ale i pro odbornou a laickou veřejnost. Již v minulosti byla v rámci rubriky polemik a názorů řešena řada aktuálních a ne zcela vydefinovaných problematik. Uvést lze např. příspěvek k paradigmatu vývoje světové ekonomiky, vztah pojmů management a řízení, podnik jako organizovaný systém. V tomto svém příspěvku si Vás dovoluji oslovit v problematice „Marže a přírážka“ jejich vymezení, kvantifikace a implementace v teorii a praxi. Jak ve vědecké rovině, tak v podnikové a obslužní sféře jsou tyto pojmy definovány ne vždy na stejné teoretické rovině, někdy jsou považovány za synonyma, na opačném pólu názorové hladiny naopak jako neslučitelné kategorie. Ještě větší různorodost názorů panuje v oblasti jejich kvantifikace a implementace.

Jako vklad k zahájení diskuse si dovoluji uvést některá obecně uváděná vymezení těchto kategorií, která jsou současně nabídnuta k diskusi všem uživatelům tohoto portálu.

Příklady definic pojmů marže a přírážka (náhodný výběr):

- Marže neboli margin je množství finančních prostředků sloužících k zajištění otevřených pozic.
- Marže vyjadřuje výnos z prodeje a počítá se „hrubý zisk děleno prodejní cena“ ($Zisk/ProdC$).
- Marží se rozumí podíl našeho navýšení na prodejní ceně (tzv. postup výpočtu shora).
- Přírážka je procentuální, ne finanční vyjádření podílu z ceny, který jste si k nákupní ceně připočetli a počítá se jako „prodejní cena děleno nákupní cenou“ ($ProdC/NákC$).
- Přírážkou se rozumí navýšení nákupní ceny, a tím vytvoření ceny prodejní (tzv. postup výpočtu zdola).
- Přírážkou rozumíme, kolik procent si dáte na skladovou cenu.
- Marže je stanovena jako rozdíl mezi prodejní a nákupní cenou dělený nákupní cenou.

Aby byla cesta k vymezení pojmů ještě složitější, je potřebné zmínit ještě jeden pojem související s marží a přírážkou, a to „rabat“. Zejména v obchodní praxi je často zaměňován s marží. Z pohledu obchodníků je pak marže spojována se ziskem, rabat je spojován se slevou. Sami jako pedagogové učíme naše studenty v souvislosti s obchodními operacemi, že prodejce poskytuje kupujícímu množstevní rabat z obvyklé ceny.

Už z těchto náhodně vybraných definic je zřejmé, že názory na vymezení těchto kategorií se různí a jejich uplatnění v uživatelské praxi je rozdílné. Odlišnost lze indikovat jak v samotném teoretickém vymezení, tak v postupu kvantifikace a v měrných jednotkách. Ještě větší diference u vydefinování těchto kategorií nacházíme v sektorovém vymezení těchto kategorií jako např. obchod a služby, stavebnictví, strojírenství, zdravotnictví (převládá užívání marže), oblast IT¹ a další služby (převažuje užívání přírážky, někdy též marže), závislost je zde zejména na obsahové náplni samotné obchodní operace.

Náměty na otevření diskusního fóra:

- Za teoretický základ pro vydefinování kategorií marže a přírážka je vhodné považovat oblast cenové tvorby, zejména pak nákladově orientované metody - kalkulace (zpravidla součet nákladů na spotřebované suroviny s přičtením přírážky, resp. marže).
- Finanční kalkulaci je vhodné používat v oborech, kde lze přesně vyčíslit nákladovost výrobků, jsou jasné vstupní náklady a teoreticky neomezená marže.
- Nevýhody těchto kalkulací lze spatřovat v ignoranci konkurence, nebere se reálný stav poptávky, zisk je odvozen od počtu prodaných výrobků.
- Marže je pojmový aparát z finanční analýzy, vyjadřuje rozdíl mezi prodejní a nákupní cenou u zboží nebo služeb a lze ji kvantifikovat absolutně nebo v procentech. Marže nikdy nepřesáhne 100 %. Marže obchodníka není zisk, zisk je marže snížená o náklady spojená s prodejem zboží a služby.
- U některých autorů je marže vymezena jako výnos z prodeje a lze ji stanovit jako podíl hrubého zisku a prodejní ceny.
- Přírážka vyjadřuje podíl z ceny, který je k nákupní ceně přiřazen, tedy výpočet spočívá v podílu prodejní ceny a nákupní ceny, tento postup je obchodníky používán i při naceňování zboží, kdy je stanovena v procentech přírážka na celý sortiment a tímto procentem se vynásobí nákupní ceny.

Věřím, že uvedený námět na otevření diskuse k uvedené problematice přispěje svým skromným dílem k dalšímu zpřesnění ve vymezení uvedených pojmů, jakými jsou marže a přírážka v obchodní praxi.

V úctě

prof. Ing. Jan Váchal, CSc.

¹Konkrétně právě v oblasti IT se výraz „marže“ používá pro hodnotu, kterou striktní ekonomická teorie bez zaměření nazývá obchodní přírážkou. V IT se tedy pro marži užívá vzorec $M = (\text{ProdC} - \text{NákC}) / \text{NákC}$. Nicméně toto je vždy patrné z výsledků výpočtu.