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Editorial

Editorial

RADIM VALENČÍK

Dear readers,

The four articles, which we included in the second issue of 2018 (the twelfth volume of our magazine), have two aspects in common: they are consistent with the main research strands at the University of Finance and Administration and, at the same time, they are largely the result of international cooperation.

The first one on *Extending pension coverage: Tax versus non-tax incentives* was drafted in mutual cooperation of three authors – John A. Turner, Joanna Rutecka-Góra and Jaroslav Vostatek, who come from three different countries. The article addresses an issue which is and will remain a hot topic for a long period of time – namely a pension system reform focusing on increasing the incentives of the individual participants. The paper compares the design, costs and efficiency of three voluntary methods of increasing the employees' participation in pension savings schemes. We also pay sustained attention to the issue of pension system reform because of the fact that it is related to reforms in other areas where public finance and private activities in the acquisition and preservation of human capital come together.

Also the second article, *Requirements for applicants for the position of "product manager" in the USA*, by Zuzana Wroblowska and Otakar Němec is dedicated to the issue of acquiring and applying human capital in the most advanced economy and in the field where the importance of human capital rises significantly. This paper is the product of cooperation between our university and the University of Economics in Prague. It presents the results of a research project that is, in the long-term, aimed at collecting and analysing information about the requirements on candidates applying for the position of product manager or brand manager.

The third contribution, *Theoretical basis for detection of legalisation of proceeds of criminal activity*, was prepared by Jozef Stieranka and Stanislav Backa. It is, once again, the product of foreign cooperation, specifically on an issue that belongs among the most important topics addressed at the University of Finance and Administration. It focuses, in particular, on the indicators of money-laundering schemes which are encoded in the ways how this type of crime is usually committed.

The fourth paper, *Start-up ecosystem support in the Czech Republic*, by Miroslav Pavlák and Naděžda Petrů responds to the current issues in the field of small and medium entrepreneurship, which constitute yet another priority of research activities at the University of Finance and Administration, specifically to the apparent declining interest of young people in entrepreneurship. Based on a root-cause analysis of this situation, the article also suggests specific steps that could be taken in order reverse the adverse

trend in this field. These steps include, among other, reducing administrative barriers and regulation, establishing a prompt and fully electronic relation between businesses and the state, and designing systematic and efficient support instruments for start-ups both within the regional policy and within universities.

Covering also the scientific and pedagogical life at the University of Finance and Administration, the issue is complemented with a report on the traditional Post-Graduates Conference which was prepared by Mojmír Helísek as the expert coordinator of the event.

In the next issues, we will strive for even tighter links between the different topics, monitoring the priorities of research activities and presenting the results of our cooperation with both domestic and foreign universities and other research institutions. We would be delighted if our efforts to address the current challenges, our emphasis on comprehensiveness and integration of the research results inspired the readers of our magazine to contribute to the elaboration thereof through their own inputs.

Doc. Radim Valenčík, CSc.

Executive Editor

Vážení čtenáři,

čtyři články, které jsme zařadili do druhého čísla roku 2018 (dvanáctého svazku našeho časopisu), spojují dva aspekty: odpovídají hlavním směrům výzkumu na VŠFS a současně jsou z podstatné části výsledkem mezinárodní spolupráce.

První z nich, *Daňové a nedaňové stimuly zvyšování účasti na penzijním spoření*, vytvořili ve vzájemné spolupráci tři autoři – John A. Turner, Joanna Rutecka-Góra a Jaroslav Vostatek, kteří pocházejí ze tří různých zemí. Článek se zabývá tématem, které je a ještě hodně dlouho bude aktuální – reformou penzijního systému s důrazem na zvýšení motivací jednotlivých účastníků. Příspěvek porovnává konstrukci, náklady a efektivnost tří dobrovolných způsobů zvyšování účasti pracovníků na penzijním spoření. Trvalou pozornost problematice reformy penzijního systému věnujeme i proto, že souvisí s reformami v dalších oblastech styku veřejných financí a soukromých aktivit v oblasti nabývání a uchování lidského kapitálu.

Rovněž druhý příspěvek, *Požadavky na zájemce o pozici „manažer produktu“ v USA* Zuzany Wroblowské a Otakara Němce, je věnován problematice nabývání a uplatnění lidského kapitálu, a to v nejvyspělejší ekonomice a v oblasti, kde význam lidského kapitálu výrazně roste. Tento příspěvek vznikl v rámci spolupráce mezi naší univerzitou a Vysokou školou ekonomickou v Praze. Příspěvek prezentuje výsledky výzkumného projektu, jehož dlouhodobým cílem je shromažďovat a analyzovat informace o požadavcích na kandidáty na pozici manažera produktu a manažera značky.

Třetí příspěvek, *Teoretická východiska odhalování legalizace příjmů z trestné činnosti*, připravili Jozef Stieranka a Stanislav Backa. Je rovněž výsledkem zahraniční spolupráce,

konkrétně na problematice, která patří mezi nejvýznamnější témata řešená na VŠFS. Pozornost zaměřuje zejména na indikátory legalizace příjmů z trestné činnosti, které jsou zakódovány ve způsobech páčání tohoto druhu trestné činnosti.

Čtvrtý příspěvek, *Podpora startupového ekosystému v ČR* od Miroslava Pavláka a Naděždy Petřů, reaguje na aktuální problematiku v oblasti malého a středního podnikání, která je další prioritou výzkumné činnosti na VŠFS, konkrétně pak na to, že zájem mladých lidí o podnikatelskou činnost klesá. Na základě analýzy příčin této situace navrhuje konkrétní kroky, které mohou změnit nepříznivý trend v této oblasti. Mezi tyto kroky patří snížení administrativních bariér a regulací, urychlený plně elektronizovaný vztah mezi firmou a státem, nastavení systematických a účinných nástrojů podpory startupů v rámci regionální politiky i v rámci vysokých škol.

Číslo je doplněno zprávou z vědeckého a pedagogického života VŠFS o tradiční Konferenci doktorandů, kterou zpracoval odborný garant akce Mojmír Helísek.

V dalších číslech se budeme snažit o ještě větší propojení jednotlivých témat, sledování priorit výzkumné činnosti a prezentování výsledků spolupráce s našimi i zahraničními univerzitami a dalšími výzkumnými institucemi. Potěší nás, pokud naše snaha o řešení aktuálních problémů, důraz na komplexnost a integraci výsledků bádání bude inspirovat čtenáře našeho časopisu k tomu, aby se na jeho tvorbě podíleli vlastními příspěvky.

Doc. Radim Valenčík, CSc.

Výkonný redaktor

Extending pension coverage: Tax versus non-tax incentives

Daňové a nedaňové stimuly zvyšování účasti na penzijním spoření

JOANNA RUTECKA-GÓRA
JAROSLAV VOSTATEK
JOHN A. TURNER

Abstract

This paper compares the design, cost and effectiveness of three voluntary approaches for increasing pension coverage. The first facilitates plan features designed to attract workers. The second provides tax and other financial incentives. The third mandates autoenrollment of workers with opt out. The non-tax incentives of plan features in the United States have had little effect on increasing coverage. Generous tax incentives in Germany and Czechia have raised coverage but are costly. Mandatory autoenrollment with opt out in the United Kingdom has achieved the highest coverage rate of the three approaches.

Keywords

pension coverage, automatic enrollment, tax incentives

JEL Codes

J26, D14, H24, H31

Abstrakt

Příspěvek porovnává konstrukci, náklady a efektivnost tří dobrovolných způsobů zvyšování účasti pracovníků na penzijním spoření. Prvním způsobem je rozšiřování produktové palety v zájmu podchycení pracovníků. Druhým způsobem je poskytování daňových a jiných finančních stimulů. Třetím způsobem je kombinace auto-enrolmentu s opt-outem, kdy pracovník je automaticky začleněn do systému, s možností odejít. První způsob měl a má malý vliv na zvyšování účasti na penzijním spoření v USA. Štědré daňové stimuly zvýšily zapojení zaměstnanců v Německu a Česku, jsou ale nákladné. Povinný auto-enrolment s možným opt-outem ve Velké Británii dosáhl nejvyšší míry zapojení pracovníků ze všech tří způsobů.

Klíčová slova

penzijní spoření, automatické zapojení do systému, daňové stimuly

Introduction

A number of countries with voluntary pension systems have taken steps to try to increase the coverage of workers. The policy justification for this government intervention is based on a failure of rational economics, with many workers not saving sufficiently for retirement without government intervention. The different approaches rely to varying degrees on rational responses of workers; thus, permitting an investigation of whether pension policy based on behavioral economics is more effective than policy based on rational economics. The three approaches we consider for increasing pension coverage rates are voluntary for workers. Some contain other mandates, such as mandating employers offer a plan. One approach, based on rational responses to plan features, involves adding features to pension plans to make them more desirable to workers. A second approach, based on rational responses to incentives, increases tax and other financial incentives to increase the direct financial advantage to workers of participating. A third approach, based on behavioral economics, mandates automatic enrollment of workers with opt out.

As background, the paper considers the justification for government policy to raise pension coverage rates and some conceptual and terminological issues. The following three sections consider the three different policy options. First, the paper considers the use of non-tax incentives, taking Individual Retirement Accounts in the United States as an example. Second, the following section considers tax incentives, examining policies in Germany and Czechia, which have generous tax incentives. Using the official short names for countries, the Czech Republic (official long name) is called Czechia (official short name), which since 2016 is the officially preferred name (Czechia 2017). The final section considers mandatory autoenrollment with opt out in the United Kingdom. Other approaches are also briefly considered.

While extending pension coverage is the focus of the paper, the level of pension contributions to defined contribution plans, and the level of pension accumulations, are also policy goals we consider. More difficult to assess, but also more closely related to the ultimate policy goal of raising savings for retirement, is the effect of pensions on net savings. Increases in pension savings may be offset by decreases in nonpension savings (Chetty et al. 2014) and increases in credit card debt (Beshears et al. 2017) and mortgage debt.

1 The justification for government policy

Considering why government policy is needed to encourage workers to save for retirement may provide insight as to the types of government policy most likely to be effective. In the traditional life-cycle model, individuals save while working in order to pay for consumption in retirement. This model with rational expectations as to future retirement income needs and rational savings behavior to meet those needs provides no justification (or need) for government policy to encourage savings in pensions.

Public policy, however, has long recognized individuals have difficulty saving adequately for retirement. The model of rational expectations relating to retirement income and needs

and rational behavior in response does not work for many people. This recognition provides the justification for government intervention through mandatory social security programs.

Explained in more detail below, the three approaches we consider to public policy to encourage pension savings implicitly are based on three different hypotheses, based on differing degrees of rationality, as to why retirement savings are inadequate. The first approach argues the latent demand is there, but existing pension options are not sufficiently attractive. The second approach argues people may have difficulty in saving for retirement, but they can be encouraged to do so through financial incentives. The third approach argues inertia and lack of knowledge can prevent some workers from taking the actions they know are appropriate to prepare financially for retirement, but these forces can be overcome through automatic enrollment with opt out. Other people may have myopia and have difficulty planning for retirement. Once enrolled, however, inertia would tend to keep people covered. These approaches are not mutually exclusive. This paper considers which approach or combination of approaches would be most effective.

2 Terminology and Concepts

Because policy analysts use different concepts to describe pension coverage, we start with a clarifying note on coverage concepts and terminology. The concept of pension coverage we use is a worker earning rights to a future pension benefit based on current employment (Turner, Muller and Verma 2003). By pension coverage in the context of a defined contribution contributions currently are being made. Thus, we are referring to workers who are contributing to a plan, or their employer is contributing for them. Workers who have a plan available to them but they or their employers are not contributing to it, are not considered as covered. Thus, workers who have a pension account with assets with their current employer but contributions are not currently being made to the account are not considered as covered. The essence of our concept of coverage in defined contribution plans is active participation through current contributions.

3 Non-tax incentives for pension coverage

We consider the case of Individual Retirement Accounts (IRAs) in the United States as an example of the use of non-tax incentives for expanding pension coverage.

IRAs. About half the U.S. private sector workforce, and about three-fourths of part-time workers, do not participate in an employer-provided pension plan (Munnell and Bleckman 2014). All workers not participating in an employer-provided pension plan, however, have the option to contribute to a tax-preferenced Individual Retirement Account (IRA) based on their current earnings, but few do.

U.S. pension policy to encourage direct contributions to IRAs has failed. The concept underlying the approach taken is the lack of coverage is primarily a supply-side problem

rather than a demand-side problem. More people would contribute to a pension, it is argued, if it were easier to do so or if the plans had desirable features. Government policy has attempted to encourage contributions by expanding the options concerning IRAs: SEP IRAs, SIMPLE IRAs, Roth IRAs, traditional IRAs and spousal IRAs. A SEP IRA is a Simplified Employee Pension Individual Retirement Arrangement. A SIMPLE IRA is a Savings Incentive Match Plan for Employees. These two types of IRAs were developed because policymakers felt employees would be more likely to save through an IRA provided in connection with a job because of the greater convenience of payroll deductions than to contribute on their own. Roth IRAs have nondeductible contributions but no tax on benefit receipts. Spousal IRAs are for non-working spouses when the other spouse is working. As another option, a person can purchase an Individual Retirement Annuity from a life insurance company.

To further encourage contributions to IRAs, low- and moderate-income workers can receive a Saver's Credit for contributions to IRAs. The Saver's Credit reduces the person's income tax liability for persons having an income tax liability. To facilitate contributions to IRAs, personal income tax filers can request part or all of their tax refund be sent directly to their IRA. To facilitate contributions for procrastinators, workers have up to their tax filing date or April 15 of the year following the tax year, whichever comes first, to make their previous year's contribution. Qualified Charitable Distributions of up to \$100,000 annually can be made from an IRA by persons who are age 70 ½ or older. These charitable distributions reduce the person's income tax liability. IRAs can invest in U.S. gold coins, gold bullion and other precious metals, an option generally not allowed for other U.S. pension plans. Workers can take early withdrawals for first-time home purchase and for higher education expenses without paying the 10 percent early withdrawal penalty levied on withdrawals for other reasons (IRS 2014).

Despite all these features designed to make contributing to an IRA appealing to workers, almost all of the money flowing into IRAs is due to rollovers from 401(k) plans. Pension participants can roll over their 401(k) accounts to an IRA after they have left employment with the company sponsoring the 401(k) plan. In 2011, almost 13 times more money entered IRAs as rollovers than as contributions (Copeland 2013). In short, all these efforts to make IRAs desirable have had little effect on increasing direct contributions to IRAs, while rollover contributions are one of the most important flows in the U.S. retirement income system.

This situation raises the question as to why the advice on rollovers has been so effective, while all the other efforts through government policy have been so ineffective. These rollovers presumably are at least in part due to a massive advertising campaign by the financial services industry to "roll over your old 401(k)" (Turner and Klein 2014). Mutual fund companies have advertised extensively to encourage rollovers to IRAs, but they advertise relatively little to encourage direct contributions to IRAs.

Limitations of the Non-Financial Approach. The approaches may interact, with a limitation of the non-financial approach possibly being tied to a limitation of the tax incentive approach. Many U.S. workers not participating in a pension do not have a tax incentive to do so. About half of Americans pay no federal income tax in some years, with at least 40 percent paying no federal income tax in a typical year. Most households who

do not pay federal income taxes pay some other form of income or wage taxes, such as Social Security taxes and state and local government income taxes (Marr and Huang 2012), so they are not totally without a tax incentive.

Note: this paper follows the convention of using capital letters to refer to the Social Security program in the United States. We refer generally to government-sponsored old-age benefits programs as social security programs (lower case), rather than the terminology often used in international discussions of social insurance programs, public pension programs, or state pension programs.

The reason workers do not participate in defined contribution plans also may be related to the issue of non-participation in stock markets, which financial economists consider to be a puzzle (e.g., Campbell 2006). Vissing-Jørgensen (2013) has developed a model explaining non-participation in stock markets as being due in part to fixed costs of participation. Das, Kuhnen and Nagel (2017) suggest the non-participation in stock markets may also be due to negatively biased expectations as to future stock market returns by people with lower income and education, who are the groups with relatively low pension coverage rates. Because investing in the stock market is generally an aspect of participating in a defined contribution pension plan, these explanations as to stock market non-participation may also help explain low participation of low-income workers in defined contribution plans.

4 Tax incentives and fiscal subsidies for pension coverage

All countries with voluntary pension systems with substantial coverage provide tax incentives to encourage employers to offer pensions and workers to participate in them (Yoo and de Serres 2004). The idea is tax incentives will cause increased demand for pension coverage. Tax incentives, however, can be expensive to the government in terms of lost tax revenue. For example, tax preferences for retirement savings are one of the largest sources of tax expenditures (lost tax revenue) in the United States (Department of the Treasury 2016).

In voluntary pension systems, pension coverage rates tend to be low among low-income persons (Antolin 2008). Their low income makes it difficult for them to save, the progressivity in income tax rates provides them a relatively low incentive, and the progressivity in social security benefits in some countries provides higher replacement rates for low-income persons than for high-income persons.

Thus, policies to extend pension coverage in countries with voluntary pension systems generally need to focus on lower-income workers. For example, some proposals have favored replacing tax deductions and exemptions with tax credits, which are not tied to marginal tax rates, and thus not tied to the progressivity of the income tax system. They reduce taxes paid per credit equally for lower-income and higher-income tax payers, rather than reducing taxable income (Ghilarducci 2007). Tax credits may be more effective than tax deductions in extending pension coverage because they generally provide

a relatively larger incentive to low-income persons, who are the least likely to participate in a voluntary pension system. However, they only benefit low-income workers who pay income taxes.

Because of the lack of success in most countries of traditional tax incentives to produce high coverage rates, pension policy has turned to other financial incentives. For example, employers may provide matching contributions when workers voluntarily contribute to a pension plan, such as in 401(k) plans in the United States.

Against this background, Czechia has been able to achieve pension coverage rates of 60 percent in a voluntary pension system (OECD 2008). Germany has also achieved pension coverage rates above 50 percent. This paper later in this section analyzes what explains the success of the policies of these two countries.

This section focuses on tax policies to increase pension coverage rates. Two related topics not covered are whether these policies increase national savings rates and the equity of the distributional effects of the tax preferences, with a progressive income tax system causing them to be disproportionately more generous (relative to contributions) for high-income workers.

Tax Treatment of Pensions. Governments commonly provide tax incentives for pension coverage when pension coverage is voluntary. The tax incentives increase the rate of return on the pension savings of the participant, raising the rate of return on pension savings relative to other forms of savings. However, pension savings generally are less liquid before retirement than other forms of savings, which is a disadvantage. In some countries, such as the United Kingdom, pension savings are generally locked in until retirement, while in other countries, such as the United States, pension savings can be accessed before retirement, but with a tax penalty for early withdrawal.

A common form of tax treatment of pensions is known as EET, where contributions of workers and employers are exempt from taxation (E) (i.e., reduce taxable income), investment earnings are exempt from taxation during the accumulation phase (E), and benefits and withdrawals are taxed (T) when received. For example, Germany uses that approach (Whitehouse 2005).

Previous Studies of Pension Coverage and Taxation. Providing historical perspective, Dailey and Turner (1992), in an early international study of pension coverage rates for the private sector, find pension coverage rates for employer-provided pensions of 42 percent for West Germany (1987), 29 percent for the United Kingdom (1987), and 46 percent for the United States (1988). In none of the six countries studied with voluntary pension systems did the coverage rate exceed 50 percent. More recently, Antolin (2008) calculates pension coverage rates in selected OECD countries. He finds coverage rates for the entire workforce, including coverage by personal pensions, such as IRAs, and coverage of public sector workers, of 57.7 percent for the United States (in 2005) and 67.9 percent in Germany (2004). Reagan and Turner (2000) study the effect of variations in marginal income tax rates across states in the United States on pension coverage rates, finding a positive effect of higher marginal tax rates. A related study on voluntary take up of health insurance

in the United States, finds even if 90 percent of health insurance costs were subsidized, 25 percent of those lower-income persons eligible for subsidies would choose to remain uncovered (Finkelstein, Hendren and Shepard 2017).

Previous international studies of pension taxation include Whitehouse (2005) and Yoo and de Serres (2004). These studies focus on the structure of the tax incentives and not on their effects. Some effects of taxation in Germany on pension scheme participation are examined by Börsch-Supan (2004) and Kuper and Schmidt (2016).

Germany. This section considers pension tax policy in Germany because it has succeeded in raising the pension coverage rate above 50 percent. Starting in 2001, to offset cuts in its social security benefits, Germany has provided generous tax incentives for voluntary private pensions, called Riester pensions. The subsidies were increased in 2004, 2006 and 2008 (Pfarr and Schneider 2013).

Incentives. Riester Plans must provide a guarantee of principal, which is a guarantee of a zero nominal rate of return, or, in other words, a money back guarantee. The nominal value of the principal is guaranteed, but its real value can be eroded by inflation if the rate of return is less than the inflation rate.

Individuals can contribute up to 4 percent of their gross annual earnings. If they contribute the full 4 percent they receive a subsidy from the government (basic grant) of €154, plus €185 for every child born before 2008 and €300 for every child born in 2008 or later, or a tax refund, whichever is greater. Initially, at least 70 percent of the accumulated account at retirement had to be received as an annuity or phased payment, but up to 30 percent can be received as a lump sum payment at retirement (Kluth 2013). In 2014, the (partial) mandatory annuitization was abolished. One distribution option is to have a phased withdrawal with an annuity starting at age 85. Annuities starting at advanced ages, such as 85, are sometimes called longevity insurance annuities.

Tax Treatment. The income tax regime for Riester pensions is EET in the context of a progressive income tax schedule. For low-income workers and families with children, because of the German system of a general lump-sum tax exemption and family-related tax exemptions, the deduction of pension savings would not bring significant tax reductions. To make the Riester pension attractive for low-income earners and families with children, lump-sum payments to subsidize the Riester pension (basic grant plus grant per child) are provided.

Because low-income households and households with children are assumed to have the most difficulty saving for retirement, the tax incentives for the Riester pensions are most generous for these households (Börsch-Supan et al. 2013). People eligible to receive subsidies include not only workers paying social security contributions, but also spouses of those workers, unemployed persons and recipients of child-rearing benefits.

With the Riester pension, the combination of the government subsidy and the worker's contribution must be at least 4 percent of the worker's yearly gross income to be eligible for a subsidy. The higher the subsidy, the lower the required contribution by the

individual. The subsidy for each additional child reduces the required level of the personal contribution down to the lower limit of €60 a year (Pfarr and Schneider 2013).

The government subsidy has three components. After the basic grant, the second component, based on the number of children in the household, is a flat amount per child per year contributed by the government into the person's account. The third component is the tax deductibility of the worker's contribution, which was raised considerably between 2002 and 2008, but since then has been held constant in nominal terms, so it erodes in real value over time.

The tax incentives to contribute to a Riester pension increase with the number of children in the family. Pfarr and Schneider (2013) find the tax incentives are effective: people with more children are more likely to sign up for a Riester pension. However, the incentives to encourage lower-income people to contribute are not effective, according to their study. A study by Kuper and Schmidt (2016), however, shows decisions about saving in Riester plans were driven mainly by price effects (tax margins) and not by other socioeconomic characteristics (i.e. number of children).

The value of the tax subsidy relative to the contribution averages 45 percent, but ranges from 24 percent to 90 percent, depending on income level and number of children. The subsidy is slightly U shaped by income, with low-income persons receiving a relatively high subsidy due to the matching contribution and high-income persons receiving a relatively high subsidy due to the progressivity of the income tax, with them having higher marginal tax rates (Börsch-Supan et al. 2013).

Coverage. Of the 30 million eligible Germans, by early 2005 only 4.2 million had signed up for a Riester pension, or one in seven, despite generous tax subsidies. Explanations for the disappointing take-up include burdensome regulations and the money-back guarantee increasing the cost of providing benefits and reducing rates of return. In 2005, a reform simplified the application procedure, causing the demand to increase (Pfarr and Schneider 2013).

In 2006, Riester pensions overtook occupational pensions as the main source of non-government pensions. At the end of 2009, about 40 percent of households potentially eligible for a Riester pension had at least one Riester pension. Largely as a result of the increase in Riester pensions, the percentage of households with pension coverage increased from 27 percent in 2001 to 55 percent in 2009 (Börsch-Supan et al. 2013).

Cost of incentives. In 2010, Riester pensions cost the government €3.5 billion, of which about 80 percent was due to the direct subsidies and the remainder was due to foregone income tax revenue (Börsch-Supan et al. 2013). Thus, a large percentage of the cost to the government for these plans is for subsidies beyond those made in traditional systems of tax treatment of pensions.

Czechia. The Czech old-age pension system was thoroughly reformed in the 1990's. Czechia (the Czech Republic) was the first country in Central and Eastern Europe to introduce a strong personal pensions pillar. The private pension funds, legislated and

introduced in 1994, were different from the standard employer-sponsored, autonomous pension funds. But employers were allowed to start their own pension funds as corporate entities, and they were allowed to contribute to the personal accounts of their employees in any pension fund.

The original product, regulated by the law on supplementary pension insurance with state contribution and certified by the authorities (departments of two ministries), was a life insurance product that could have been administered by life insurance companies, but the former state monopoly insurer had an almost monopoly position in the market and that is why a new type of provider had to be legislated. (In Germany the main providers of Riester pensions are insurance companies.)

The original product was designed as universal life insurance: the participant had an account with the pension fund provider. All funds had to provide lifetime annuities, but in practice participants had no interest in purchasing them. The individual retirement accounts functioned like simple bank savings accounts, accumulating CZK (Czech Korunas – Czech crowns, in English), including the state contributions. The providers invested the funds almost exclusively in Czech government bonds. At least 90 percent of the yearly investment earnings of the fund was required to be credited to the participant accounts as a yield. The participants paid no regular fees, other than through the reduction in the rate of return received. The products were distributed mainly through new sales networks.

In Czechia, the peak number of personal savings contracts was attained in 2012: the number of participants, including retirees with personal savings contracts, was 5 percent higher than the number of economically active people. The 2013 reform of the personal pension scheme closed the successful products called supplementary pension insurance. These vehicles were changed into “transformed” funds, and new supplementary pension savings schemes (participating funds with investment risk borne by the participants) managed by newly legislated pension fund companies were created (Batty and Hailichova 2012). No investment guarantees are provided, but financial institutions are required to offer a conservative fund, while funds with other risk profiles may also be offered. The total number of contracts has decreased since 2013. Roughly 22–23 percent of personal savings contracts are sponsored by employers (APFCR 2017).

Incentives, The state’s matching contributions to the pension accounts are progressive. Initially, participants with the minimum monthly contribution of CZK 100 received state contributions of CZK 50 monthly in the first two years of their participation, then CZK 40 (1 CZK = US\$0.047). Participants with the maximum contribution of CZK 500 received state contributions of CZK 150 (US\$7.05) monthly in the first 2 years, then CZK 120. Starting in 2000, these state contributions were unified to the higher levels of the first two years. The participants matching contributions from the state ranged from a 50 percent state match (to their contribution of CZK 100 a month) to a 30 percent match (to their contribution of CZK 500 a month). Employer contributions were matched in the same way. The employer contributions originally could not be deducted for the purpose of determining the corporate income tax.

With the major 2013 reform of the personal pensions pillar, a sales argument was lost: the option to withdraw 50 percent of the account after 15 years of contributions. The same reform raised the (subsidy-effective) minimum participant contribution to CZK 300 monthly and the maximum to CZK 1,000. Those amounts were thus indexed to inflation and income growth. But the matching contribution rates from 2013 are lower: 23–30 percent instead of the former 30–50 percent.

Since 2017, the limit of contributions deductible from a worker's income tax base increased from CZK 12,000 to CZK 24,000 for employee's contributions and from CZK 30,000 to CZK 50,000 for employer's contributions.

Tax Treatment. Fiscal incentives provided for Czech private pensions consist of up to three main parts: 1) employee and/or employer's contribution deducted from the employee's tax base up to a limit (employer's limit is twice as high as the employee's), 2) state matching contribution, and 3) annuity benefits not being subject to income tax (Rutecka-Góra 2016). (Employer contributions are not required.) This system in the case of annuities operates as an EEE tax regime for an average employee (Rutecka-Góra 2016). The Czech standard case, with no annuitization, has two different tax regimes: ETE for the employer contributions and CTE (or ETE+matching contribution) for employee contributions. The capital income tax T is postponed and deducted at the payout phase.

In OECD countries, the level of exemptions relative to benchmark savings (usually a bank account) varies considerably, with Czechia being at the high end, with exemptions equaling 40 percent of contributions in 2004 (Yoo and de Serres 2004). In 2017, these exemptions equaled 65 percent of employer contributions.

Coverage. The Czech supplementary pension system has a coverage rate of about 60 percent (Molek 2014). Its highest coverage rate of 80 percent occurred in 2012, prior to the major reform closing the successful supplementary pension insurance funds. In 2013, these vehicles were changed into transformed funds and new supplementary pension savings schemes (participating funds) managed by pension fund companies were created (Batty and Hailichova 2012).

Despite high coverage rates, the Czech pension system has a major shortcoming. An average contribution amounts to about 2 percent of the average gross wage. Limited maximum tax deductions and state subsidies have led people with middle incomes to save mostly only up to the sum offering them a full state subsidy and tax relief – their motivation was not primarily their old-age security but tax optimization. Lower-income participants were acquired by financial advisers, but with low contributions, many of them have not raised their contribution to the new higher minimum level of CZK 300 monthly. As a result, high coverage coincides with low assets under management. Most participants' pension accounts are not large enough to guarantee adequate supplementary pension benefits in the future. That situation may change in the future due to higher limits for employee's and employer's contributions. These contributions increased slightly in the years 2013–2016 (Ministry of Finance of the Czech Republic 2017).

Starting in 2013, the new products of the supplementary pension system in Czechia have failed to attract relatively young participants who may benefit the most from state support and (prospective) compound interest rate – 57 percent of participants in the new participating funds are aged 60+ (Ministry of Finance of the Czech Republic 2016). That weak popularity among workers cannot be improved by employers' contributions because those contributions are paid only to a limited number of participants (about 20 percent of all third pillar accounts). But the employer's contribution is often paid for participants aged 35–39 (76.5 percent of all participants with employers' contributions), which means it serves as a useful motivating factor of employment policy (Ministry of Finance of the Czech Republic 2017).

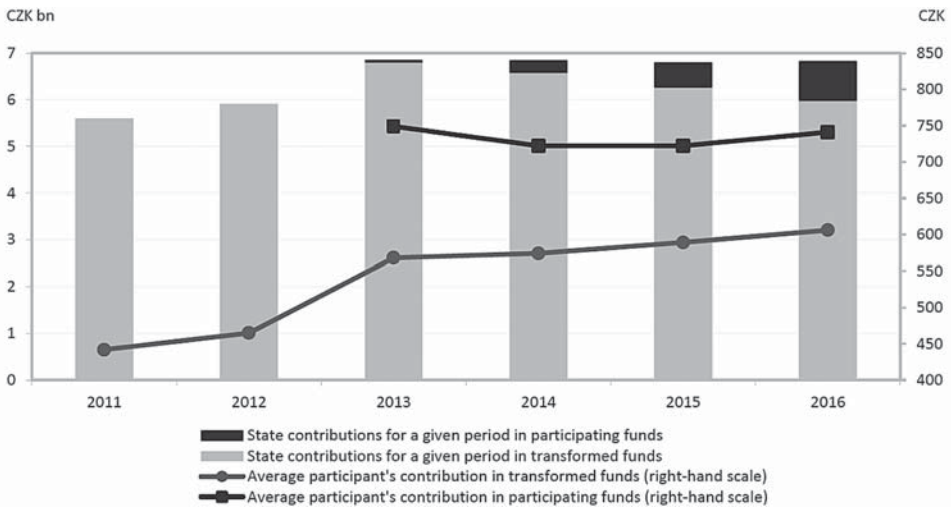
Since 2016, minors (under age 18) may have accounts in supplementary pension schemes which may increase coverage among the youngest age groups of workers in the future. In the first year, 12 thousand parents opened pension plans for their children (Ministry of Finance of the Czech Republic 2017).

Cost of Incentives. Czechia has the pension system with the highest tax incentives in the world (40 percent of the total contribution) according to Whitehouse (2006). Since 2013, these incentives for participants were reduced but the contribution limits were extended for the middle class. The substantial increase of the limit for tax-free employer contributions starting in 2017 might influence the future role of the individual retirement accounts. The tax-expenditure costs of the employer contributions are 65 percent.

The cost of fiscal incentives depends on the coverage rate, limits on the level of the state matching contribution (state subsidy), the amount of contributions paid by employees and employers, and marginal income tax rates. Before the reform of 2013 changed the system of state subsidies, 50 percent of pillar III participants received the maximum amount of state contribution. That resulted in a CZK 5.5–6 billion cost for the state budget in the years 2010–2012. Since 2013, the total amount of state contributions increased to about CZK 6.9 billion due to higher minimum limits of contribution although the relative amount of the subsidy was reduced (to 19–23 percent of total contribution). Only 30 percent of the transformed funds' participants and 46 percent of participating funds' members benefited from the maximum state subsidy (Ministry of Finance of the Czech Republic 2017).

The amount of state contributions/subsidies is regularly published (Figure 1). The tax expenditures are only assessed, the official estimates are rarely published. Our estimate of tax reliefs for 2015 is CZK 6.3 billion for personal contributions and CZK 5.2 billion for employer contributions. Together with the state contributions of CZK 6.6 billion, the total fiscal costs were approximately CZK 18.1 billion. This amount represents 41.2 percent of personal and employer contributions.

Figure 1: State contributions and average participant's contribution in transformed and participating funds



Source: Ministry of Finance of the Czech Republic (2017)

5 Autoenrollment with opt out

In traditional rational economics, default options are not expected to affect peoples' choices because those options do not affect the relative prices and qualities of the choices, and thus do not affect either supply or demand. However, behavioral economics has shown at least in part because of inertia, default options can affect peoples' outcomes, with inertia causing some people to remain in the default even though they might not have actively chosen the default. When workers face fixed costs of participating in a voluntary pension system, which include the costs of obtaining information relevant for participation and investment choices, autoenrollment may be able to overcome the barrier of the fixed costs. Thus, autoenrollment is based in part on the theory of sufficient latent demand for pension coverage, but fixed costs, lack of knowledge about investing, and inertia may prevent workers from acting on that demand. In addition, some people who otherwise would not be interested in pension coverage may continue in coverage once they are automatically enrolled due to inertia, or perhaps, once covered they feel like it is the right thing to do.

The traditional default relating to pension coverage in voluntary pension systems is for the worker to not be enrolled, with the worker needing to take some action to enroll. With autoenrollment and opt out, the default is reversed, so the worker is automatically enrolled, with the worker needing to take some action to not be enrolled. Thaler and Sunstein (2009) have called this approach a nudge.

In part because of a lack of policy developments at the national level, a number of proposals in the United States have called for auto IRAs initiated by state governments. With an auto IRA, an employer would be required to offer an IRA with automatic enrollment and automatic payroll deductions, but workers could opt out. Generally, employer contributions would not be required. So far California, Connecticut, Illinois, Maryland and Oregon have passed legislation enabling them to establish auto IRA programs. A recent survey of employees in firms with five to 250 employees finds 25 percent were unsure whether they would continue to participate in such a program if they were automatically enrolled, which suggests at least 75 percent might participate (Pew 2017). In addition, as another recent development, Ireland has announced it will implement an automatic enrollment program with opt out starting in 2020.

United Kingdom. In October 2012, the United Kingdom launched a new program designed to expand pension coverage while maintaining a minimum level of contributions (Turner and Brown 2016). The program is being phased in, and by February 2018 all employers are required to offer retirement plans meeting minimum requirements, and automatically enroll their employees, and contribute to those plans. This requirement even applies to employers with a single employee, including household employers. It does not apply to the self-employed. All employers who choose to not sponsor a pension plan meeting the minimum requirements concerning employer and employee contributions are required to enroll their employees in the National Employment Savings Trust (NEST), which is a government-sponsored plan. Once enrolled in a plan, employees have the option to withdraw from the plan (opt out).

Coverage. As a result of this program, the pension coverage rate in the private sector has risen from 42 percent in 2012 to 70 percent in 2015. Among workers with low earnings (between £10,000 and £20,000 a year), the pension coverage rate rose from 35 percent to 65 percent. With this program, the coverage rate for women in the private sector (70 percent) is basically the same as for men (69 percent), with women having overcome a 3 percentage point gap as a result of autoenrollment (Department for Work & Pensions 2016). More recent data indicates due to the further roll out of autoenrollment the coverage rate rose to 78 percent in 2016 (The Pensions Regulator 2017).

Employers must enroll their workers within three months of the workers becoming eligible, but workers can then opt out at any time. The initial results concerning opting out suggest the program has succeeded in retaining participants due to automatic enrollment. The overall opt out rate is 9 percent (Department for Work and Pensions 2017).

Opt out rates vary considerably by age, with 23 percent of participants over the age of 50 opting out, versus 7 percent of those under the age of 30, and 9 percent of those ages 30 to 49. Part-time workers are 8 percentage points more likely to opt out than full-time workers – 18 percent opt out for part-time versus 10 percent for full-time. Women were slightly more likely to opt out than men (14 percent versus 12 percent) (Department of Work & Pensions 2014). A more recent study found opt out rates of 28 percent for those age 60 or older, compared to five percent for those younger than age 30 (NEST 2015). Opt out rates may increase in the future because the required contribution rate has not fully

phased in. In 2017, the required employee part of the contributions was 0.8 percent, rising to 4 percent in 2019.

Workers who opt out but are still in the labor force will be automatically reenrolled in three years. While predicting future behavior in this area involves a high degree of uncertainty, 41 percent of those who opted out in 2014 said they would definitely or probably stay in the system when automatically reenrolled in three years (NEST 2015).

6 Other policies to raise coverage

An alternative way to provide incentives for pension coverage is for the government to make matching contributions (Palacios and Robalino 2009). Matching contributions are a common feature of 401(k) plans in the United States, where the matching contributions are provided by employers. Matching contributions, depending on the match rate, can provide a larger financial incentive than tax preferences, particularly for lower-income workers who have low or zero marginal tax rates.

Mandates are another way of raising pension coverage. Mandates of pension coverage take different forms. Sweden has taken the approach of mandating individual account plans. The Netherlands has taken the approach of quasi-mandatory pensions, through industry-wide agreements between employers and workers.

While not itself a policy to raise coverage, low replacement rates from social security tend to lead to higher pension coverage rates. For example, social security replacement rates from pay-as-you-go social security for full career workers who are high-income workers (workers earning at least twice the average wage) is less than 40 percent in Czechia. However, for low-income workers (earning less than half the average wage), they are higher than 93 percent in Czechia, and for all workers in Germany, they are about 60 percent (Antolin 2008).

Conclusions

This paper compares different policies for increasing pension coverage in voluntary pension systems. The policy justification for this government intervention is based on a failure of rational economics, with many workers not saving sufficiently for retirement without government intervention. The different approaches rely to varying degrees on rational responses of workers, permitting an investigation of whether public policy based on behavioral economics is more effective than policy based on rational economics.

The paper compares non-tax incentives for raising pension coverage to tax incentives and autoenrollment. Autoenrollment policy is based on behavioral economics. The paper examines non-tax incentives for participating in Individual Retirement Accounts in the United States. Non-tax incentives are features designed to increase coverage by making a pension plan appealing, thus presumably raising the demand by workers for pension

coverage. It examines tax policy in countries with high coverage rates for voluntary pension plans – Germany and Czechia. It examines autoenrollment with opt out in the United Kingdom. That approach is similar to the auto IRA approach being discussed in some states in the United States, and being established in Ireland in 2020. While relatively few countries with voluntary pension systems have coverage rates above 50 percent, the countries considered here have succeeded in achieving higher coverage rates. However, the tax and other fiscal incentives are costly. By contrast, the non-tax incentives in the United States have been largely ineffective in raising contributions to Individual Retirement Accounts.

The successful approaches all have features targeting low-income workers, either through government subsidies or through the autoenrollment mandate. Based on the experience so far in the United Kingdom, its program of autoenrollment with opt out appears to be highly successful in raising pension coverage rates while also setting standards for minimum contributions, suggesting behavioral approaches, in combination with traditional approaches, may be more successful than traditional, rational approaches alone.

Lastly, while raising pension coverage rates is an important goal, it is not the only goal relating to providing adequate pensions. The level of contributions, the amount of pension assets workers accumulate at retirement, and the ability of workers to convert those assets to lifetime income are also important goals.

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Requirements for applicants for the position of “product manager” in the USA

Požadavky na zájemce o pozici „manažer produktu” v USA

OTAKAR NĚMEC
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Abstract

The aim of the article is to present the partial results of a research project, the long-term goal of which is to collect and analyse information on the requirements for candidates for the positions of product manager and brand manager. To meet the research goal, Bernard Berelson's content analysis method was used, enabling the research to use advertisements on the Monster.com career portal to collect information about American advertisers' requirements. Analysis of requirements for work experience, technical knowledge and skills of candidates for product manager positions has confirmed that US business practice favours workers with specific knowledge who meet the requirements for a knowledge worker. The unexpected result was the finding that the groups of technical competence as well as the required practice and work experience for product managers and brand managers in the US had statistically significant differences. Recommendations for addressing and obtaining product managers to leverage product managers as an important source of human capital and to retain a leading role in creating competitive advantage in the fourth era of industry conclude the discussion of the results.

Keywords

brand manager, competence, human capital, knowledge, product manager, recruitment

JEL Codes

D83, M12, M31, M51

Abstrakt

Cílem článku je představit částečné výsledky výzkumného projektu, jehož dlouhodobým cílem je shromažďovat a analyzovat informace o požadavcích na kandidáty na pozici manažera produktu a manažera značky. Aby bylo možné splnit cíl výzkumu, byla použita metoda analýzy obsahu Bernarda Berelsona, která umožnila využít reklamy na kariérním portálu Monster.com pro shromažďování informací o požadavcích amerických inzerentů. Analýza požadavků na pracovní zkušenosti, technické znalosti a dovednosti kandidátů na pozici manažera produktu potvrdila, že obchodní praxe USA upřednostňuje pracovníky se specifickými znalostmi, kteří splňují požadavky znalostního pracovníka. Neočekávaným výsledkem bylo zjištění, že skupiny technických kompetencí, jakož i požadovaná praxe a pracovní zkušenosti manažerů produktů a manažerů značek v USA měly statisticky významné rozdíly. Doporučení pro oslovení a získávání manažerů produktů, které by vedly k tomu, že manažerů produktů jsou důležitým zdrojem lidského kapitálu a udržení

si vedoucí úlohu při vytváření konkurenční výhody ve čtvrté éře průmyslu, uzavírá diskusi o výsledcích.

Klíčová slova

manažer značky kompetence, lidský kapitál, znalosti, manažer produktu, nábor

Introduction

The rise of automation and digitisation is usually associated with considerations of massive job losses. McKinsey&Co. estimates the disappearance of about 5% of jobs, with 60% of jobs being fully automated in part of their activities. But there are also more optimistic views that emphasise that it will be more about job transformation. There will certainly be a higher demand for programmers, technicians and engineers. We believe that people who connect unspoken customer needs and requirements with product innovation and technology readiness in companies in the new era, denominated Industry 4.0, will continue to be the owners of the new product development process. So far, a product manager or brand manager has been the name of this owner in many companies. In order to succeed in their demanding role, the holders of such roles have had to be equipped not only with knowledge but also with a range of personal qualities and skills. What requirements they will face in the near future, what they will need to demonstrate and what development programmes will be desirable for them in order to be chosen by employers who will then have a chance to achieve and maintain competitiveness are issues we need to think about and areas where we need to look for answers.

There is no doubt that the current marketing environment is very dynamic. The set of forces, which, according to Kotler and Keller (2013), are most prominent, comprise information network technologies; globalisation; deregulation; privatisation; tough competitive struggle; convergence of fields; transformation of retail; elimination of intermediaries in distribution channels; purchasing power of consumers; a substantial part of which is further fuelled by consumer awareness and the involvement of consumers based on their ability to make their voice heard and to disseminate it quickly if not heard by the addressee. Thanks to advances in adapting technology lines to specific requirements, especially in IT and software, the authors encourage marketers to highlight brand communication through social media, feedback personified communications and the subsequent production and sales of individually differentiated goods.

1 Objectives and methodology

The aim of the article is to present the results of our own empirical research, to link them with the knowledge base concerning human factors in product management and to provide recommendations for the recruitment process.

Because gaining knowledge of the theoretical background required research in several disciplines, an interdisciplinary approach was applied. Based on research activity in the field of secondary data, we have established the first research assumption that product managers are examples of knowledge workers and are perceived as such in corporate practice, which will be reflected in the requirements applicants for these positions are confronted with in the recruitment process. We have come to the conclusion that product management is a valid form of marketing structure in an organisation and that a product manager or product brand manager has a key role to play in analytical, planning, budgeting and implementation activities. A follow-up second research goal that was determined to delve more deeply into the issue was to verify that as far as requirements for professional and general competencies, the length of practice and experience of product managers and brand managers are not different according to an analysis of US job offers.

Both empirical and logical methods, especially analysis and synthesis, were applied in our work process. The core of the research was carried out in the US, where product management has its roots. Data was collected from the Monster.com career portal and analysed using Berelson's content analysis method (1952 in Miovský, 2006, p. 118), which is defined as a research method allowing an objective, systematic and quantitative description of apparent text contents. Data operations were performed in accordance with a process described by Wroblowska (2016a, 2016b, 2016c, 2017a). With regard to the format of the article, data analysis is narrowed down to the functional and strategic competency, education and work experience of candidates for product manager positions published in three selected US states, Illinois, New York and California. The assumption that these states would be attractive enough for talented knowledge workers favoured their selection. Above all, according to the Census Bureau (2017), 24.7% of US companies are based in these three selected states, with 78.9% of these companies employing 500 or more employees.

After removing duplicates, the set of advertisements contained 148 unique recruitment advertisements for product manager positions and 58 ads for brand manager positions that were collected during four weeks in October 2015. Requirements were compared if their cumulative frequency of occurrence exceeded 5% in at least one of the analysed data files.

The findings are complemented by recommendations for the implementation of the process of obtaining the most suitable candidates for positions titled "Brand Manager" and "Product Manager".

2 Human factor in product management

We looked at marketing from a management point of view, i.e., we considered it for our research as a management process that exploits the resources of the entire company to meet the needs of selected customer groups to achieve the goals of both parties (McDonald and Wilson, 2012, p. 493). The principles of marketing apply equally to all areas of business and their use differs only in the intensity of their application (McDonald and Wilson, 2012, p. 29).

The marketing function can be organised in a variety of ways, while Kotler and Keller (2013) have expressed the view that product and brand organisation – product management – does not necessarily have to replace a functional organisation but rather serves as an additional layer of management, and, like Gorchels (2005), have integrated brand management with product management, as it is a common organisational arrangement in consumer packaged goods companies.

Product managers and product brand managers are responsible for analytical, planning, budgeting, and implementation activities. Basically, these executives are expected to manage the assigned portion of the product portfolio at both the strategic and tactical levels and participate in the process of developing a new product (Lehmann and Winer, 2005; Kotler and Keller, 2013). In innovative companies, a product manager is more often a member or leader of a multifunctional team. Their position is an example of a business function oriented towards the beginning of a corporate value chain and is characterised by the adoption of strategic decisions (Gorchels, 2011).

Keller (2013, p. 31) outlines the difference between a product and brand: anything that the market can offer is a product, while the brand exceeds the product because, as explained below, it may have a property such that the product can distinguish itself from other products designed to meet the same need. The success of brand planning and management depends essentially on the brand manager's ability to make the target audience aware of the brand; see Keller (2008) for details.

As the external forces mentioned in the introduction pose complex challenges for entrepreneurs and managers, it is imperative that in the conditions of such a transformation of most markets for products and services, companies concentrate on their sources of competitive advantage, which are provided by people in the vast majority of companies. Significant growth in the share of GDP creation in those industries not characterised by ownership of tangible assets in advanced economies evidences that successful enterprises have been able to use market forces proactively and recognise the growing importance of intellectual capital. This is made up of organisational capital, consisting of institutionalised knowledge, owned organisations; social capital, which consists of knowledge derived from a network of relationships within and outside the organisation; and human capital. Bontis (1999 in Armstrong, 2006, p. 31) clarifies the original formulation of the concept of human capital and expresses the view that human capital is a human factor in an organisation, a combination of intelligence, skills and experience, which gives the organisation its special character. The human resources of an organisation are those that are capable of learning, changing, innovating, and creative efforts, which – if properly motivated – ensures the long-term survival of an organisation. The human factor in the organisation has the potential to be an indisputable competitive advantage if the organisation has human resources with capabilities that the competition cannot imitate or replace (Barney, 1991 in Armstrong, 2006, p. 35).

One way to increase intellectual capital is to acquire, develop and retain knowledge workers. The concept of a knowledge worker as one who has knowledge was first used by Drucker (1969 in Wroblowská, 2016a, p. 92). According to Nonaka and Takeuchi (1995 in Mládková, 2004), knowledge workers can be any employees of an organisation who

have sufficient knowledge and are able to use it at the right time. However, Mládková (2004) elaborates that the main characteristics of a knowledge worker are that while working, they create, distribute and apply the knowledge. Knowledge is broken down into explicit and tacit. Explicit knowledge is knowledge that can be easily documented, pronounced and transferred, unlike tacit knowledge, which relates only to the person who has it (Nonaka and Takeuchi, 1995 in Noe et al., 2017). The fact that the term “knowledge worker” does not apply to a narrow, clearly defined group means that the determination of the qualification level and technical competence as well as the length of practice for such a worker will reflect the needs of a particular organisation; professional organisations define them in dialogue with representatives of organisations that employ members of that profession (Wroblowska, 2016a).

For organisations whose activities are creative and that approach each product individually, it is more effective to invest resources primarily in the knowledge-sharing process, i.e., “from person to person”, because these companies need information in a tacit form. Mládková (2004) urges that special attention be paid to the selection of workers with knowledge in this type of business. In particular, Mládková (2004, p. 48) emphasises the need to take into account not only their knowledge and experience, but also their style of dealing with people, and ability to communicate and work in a team.

The professional public agrees that, precisely because this concerns the sources of intellectual capital, it is always necessary for knowledge workers to conceive of the activities in the process of their acquisition and development as activities of strategic importance (Armstrong, 2012; Noe et al., 2017; etc.). As far as recruitment is concerned, it is a trend in today’s practice to use so-called *cold calling*, resulting from the war on talents, as reported by Noe and his collaborators, and causing offence, on one hand, and making an alliance between major global players in an attempt to stop such practices on the other (Noe et al., 2017). Many experts, for example Armstrong and Taylor (2015) or Noe et al. (2017), in the search for future key competence holders, refer to internal staff referrals as the most effective means, followed by addressing them through websites. These authors state that both advertising of vacancies on their own websites and placing offers on specialised servers of well-known job portals is more effective than traditional advertising in print. The growing popularity of so-called *e-recruitment* is also confirmed by FIRM research (2013 in Armstrong and Taylor, 2015). To address those who are not actively looking for a job, employers need to apply technology even more prominently. According to Sullivan (2016), new Internet services, the so-called *native ads*, and their combination with online advertising on *job boards* are needed. An example is the *paid search* service the reader may encounter when searching on the Google website. Syedain (2013 in Armstrong and Taylor, 2015) recommends working effectively in social network environments, which in the case of knowledge workers is primarily LinkedIn. The use of podcasts may also be a suitable technique for reaching out to potential product managers (Noe et al., 2017).

3 Results

This paper presents and discusses data and results that are directly related to the purpose of the article. Analysis of psychological requirements and soft skills of candidates for product manager positions available at Monster.com in the selected US states will be published in a scientific article that is currently under review.

Table 1: Requirements for education, professional knowledge, hard skills and practice of candidates for product manager and brand manager positions advertised in the US

Group	Job Requirements	USA		USA	
		Product Manager		Brand Manager	
		Abs. frequency	Relative frequency	Abs. frequency	Relative frequency
T	technical competences, knowledge and skills				
1	strong technical product management skills	14	9.5%	0	0.0%
2	strong technical skills	11	7.4%	0	0.0%
3	project management skills	25	16.9%	0	0.0%
4	expertise aligned with a company business	74	50.0%	8	13.8%
5	knowledge of project management	19	12.8%	5	8.6%
6	knowledge of product management	67	45.3%	12	20.7%
7	knowledge of marketing	23	15.5%	33	56.9%
8	knowledge of online media/knowledge of media industry	7	4.7%	1	1.7%
9	knowledge of smartphone technology and/or audio systems	9	6.1%	0	0.0%
10	information technology application	55	37.2%	27	46.6%
L	education				
1	university plus doctoral degree or/and MBA	32	21.6%	16	27.6%
2	university	99	66.9%	34	58.6%
3	high school or higher education, not university	2	1.4%	1	1.7%
S	strategic and business-oriented thinking				
	business thinking/mindset	7	12.1%	8	5.4%
	strategic thinking/mindset	32	55.2%	32	21.6%
	entrepreneurial thinking/mindset	6	10.3%	0	0.0%
R	required practice and work experience				
1	work experience in sales	18	12.2%	1	1.7%
2	professional experience	34	23.0%	20	34.5%
3	work experience in marketing	21	14.2%	28	48.3%
4	experience in the field/or preferred experience	78	52.7%	1	1.7%
5	experience with this position at least 2 years	13	8.8%	6	10.3%
6	experience with this position at least 3 years	29	19.6%	18	31.0%
7	experience with this position at least 5 years	30	20.3%	20	34.5%

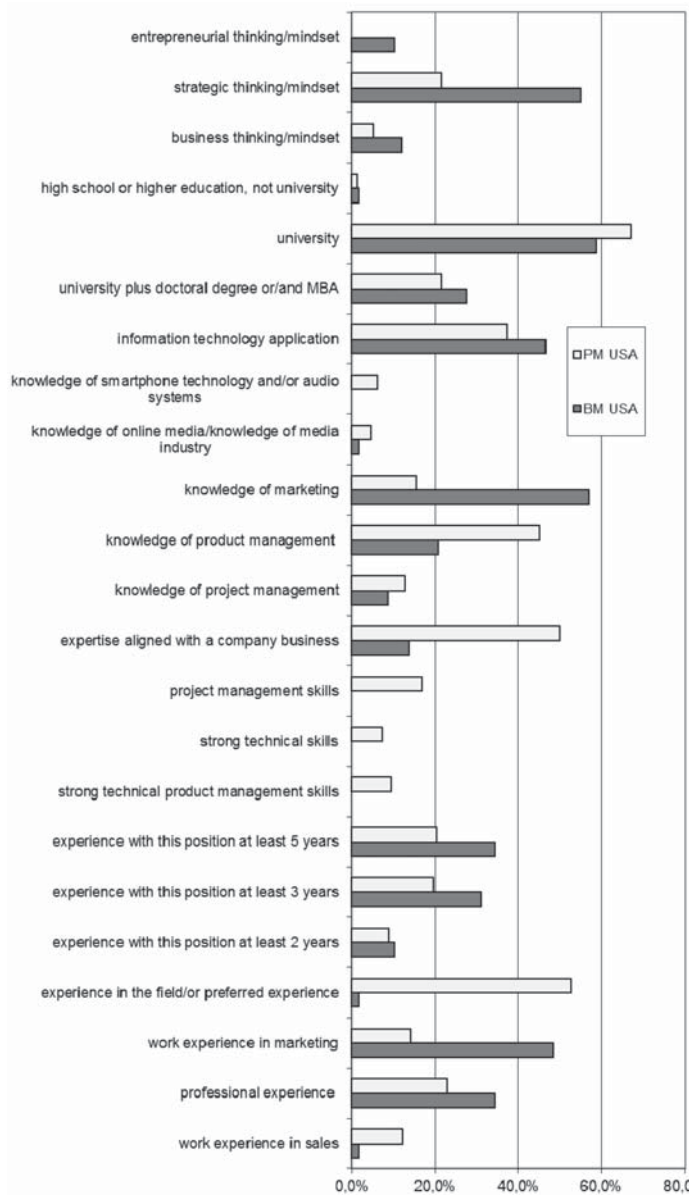
Source: own calculation in MS EXCEL

Table 1 lists the so far unpublished demand for product managers by US advertisers. The table also includes requirements for brand managers published in the scientific article (Wroblowska, 2017b). Figure 1 signals that the representation of individual characters differs across the evaluated groups.

A statistically significant difference in the distribution of requirements, marked "T", for technical competence and information technology application was confirmed for

$\alpha = 0.05$, $\alpha = 0.01$, and even for $\alpha = 0.001$. The same result was confirmed for the group "R" that aggregates requirements for work experience and required practice. The changes in the representation of the requirements are statistically insignificant for the sets of requirements for education ("L") and the requirements for strategic competence (marked "S"), see Table 2.

Figure 1: Comparison of relative frequency of requirements applied for product managers and brand managers in the US



Source: own processing

Without wishing to overtake the debate, it is necessary to clarify how the practice has been graduated. We relied on the fact that in the indicators for the evaluation of intellectual capital, according to Dzinowski (2000 in Kleibl, Dvořáková and Šubrt, 2001), the criterion “years of professional practice” is combined with the criterion “percentage of employees with n-number of years of practice”, where the shortest period of practice was expressed by the indicator “2 years of practice”. As a result, 1-year and at least 2-year experience with the position have been accumulated. There were also accumulated requirements of “5 years at least experience with the position”, “5 to 10 years”, and “over 10 years”, because at the testing phase of the methodology of the research project, which took place in the Czech Republic, the requirements of “6 to 10 years of practice” and “over 10 years of practice” were excluded from the coding vocabulary as they appeared very rarely in Czech advertisements. For detailed information on the methodology of the research project from which the partial results are discussed in Section 5 of this article, please see Wroblowska (2016a).

We add to the results in Table 1 that at least one requirement of the group that combines the requirements for professional expertise and skills appeared in 92% of advertisements for product manager positions. The requirement for education was published in 72% of cases and 95% of advertisers required professional experience or practice in that position. Of all the requirements for transferable, general competencies, only IT literacy placed above the 5% threshold, namely, working with the Internet, office software or specific database programs at a good level. These requirements are aggregated and labelled “information technology application” in research project IGA-7429/2017/8 to enable comparisons with selected secondary sources.

The statistical verification of results was done using test criteria in the Pearson chi-square test. On the significance levels of 0.1 %, 1 %, and 5 %, it was tested whether the null hypothesis regarding the independence of the analysed variable on the sign representing the position can or cannot be rejected. Table 2 illustrates the results of the chi-square test.

Table 2: Overview of results of individual requirement group testing

	Groups of tested requirements	chi-square value	df	test result
T	technical competences, knowledge and skills	76.460207	9	H ₀ rejected
S	strategie and business-oriented thinking	5.792593	2	H ₀ not rejected
R	required practice and work experience	59.382729	6	H ₀ rejected
L	education	1.110697	2	H ₀ not rejected

Source: own calculation in MS EXCEL

Table 3 demonstrates the statistical verification procedure and the result of applying the independence test. A statistically significant difference in the distribution of requirements for required practice and work experience (group “R”) was confirmed for $\alpha = 0.05$, $\alpha = 0.01$, and $\alpha = 0.001$ as proven by calculations in Table 3. Besides the requirements for strategic competence (group “S”) and for education, the statistical verification process confirmed

the difference for $\alpha = 0.05$, $\alpha = 0.01$, and $\alpha = 0.001$ in the tested sets of requirements for positions titled "Product Manager" and "Brand Manager" in the US.

Table 3: Two-dimensional analysis for a group of requirements for required practice and work experience

OVERALL CONCLUSION: On the significance level of 0.1%, 1%, and 5% we can reject the null hypothesis; the probability distribution of the individual characters does not differ in groups 'BM' and 'PM'(USA).		level			
		0.1%	1%	5%	
The hypothesis that the columns and rows are independent of the level		rejected	rejected	rejected	
				rows	7
				columns	2
TESTED DATA					
Required practice and work experience advertiser's requirements - group R		BM USA	PM USA	test of independence	
		A1	A2	chi-square	59.382729
work experience in sales = R1		1	18	level	0.0%
professional experience = R2		20	34		19
work experience in marketing = R3		28	21		54
experience in the field/or preferred experience = R4		1	78		49
experience with this position at least 2 years = R5		6	13		79
experience with this position at least 3 years = R6		18	29		19
experience with this position at least 5 years = R7		20	30		47
		94	223	0	0
				0	317
A = position and country of data collection					
Signs of group R		A1	A2	expected frequency	
work experience in sales = R1		5.6	13.4		
professional experience = R2		16.0	38.0		
work experience in marketing = R3		14.5	34.5		
experience in the field/or preferred experience = R4		23.4	55.6		
experience with this position at least 2 years = R5		5.6	13.4		
experience with this position at least 3 years = R6		13.9	33.1		
experience with this position at least 5 years = R7		14.8	35.2		
Signs of group R		A1	A2	post hoc - chi-square	
work experience in sales = R1		3.8	1.6		
professional experience = R2		1.0	0.4		
work experience in marketing = R3		12.5	5.3		
experience in the field/or preferred experience = R4		21.5	9.0		
experience with this position at least 2 years = R5		0.0	0.0		
experience with this position at least 3 years = R6		1.2	0.5		
experience with this position at least 5 years = R7		1.8	0.8		
Signs of group R		A1	A2	adjusted residuals	
work experience in sales = R1		-2.4008	2.4008		
professional experience = R2		1.3043	-1.3043		
work experience in marketing = R3		4.5822	-4.5822		
experience in the field/or preferred experience = R4		-6.3756	6.3756		
experience with this position at least 2 years = R5		0.1896	-0.1896		
experience with this position at least 3 years = R6		1.4060	-1.4060		
experience with this position at least 5 years = R7		1.7455	-1.7455		
Signs of group R		A1	A2	sign test	
work experience in sales = R1		--	++		
professional experience = R2		0	0		
work experience in marketing = R3		+++	---		
experience in the field/or preferred experience = R4		---	+++		
experience with this position at least 2 years = R5		0	0		
experience with this position at least 3 years = R6		0	0		
experience with this position at least 5 years = R7		+	-		

Source: own calculation in MS EXCEL

4 Discussion and recommendations

The results presented in Section 4 have a direct link to the purpose stated in Section 2. The discussion will first address how the assumption of the perception of the product manager by US advertisers as a knowledge worker that possesses specific knowledge has been fulfilled, whereas personality dispositions and soft skills will not be discussed. Although they have a close connection with the subject of the research, they are outside our article's focus.

It is not possible to discuss the results with regard to the available secondary resources without acknowledging the fact that research in the field of secondary data provided relatively general information concerning competencies, or partial recommendations of the desired level of selected competencies of product managers. Lehmann and Winer (2005, p. 5) stress that not only knowledge and skills acquired by education, but also the ability to work with others and communication skills with proven ability to persuade are important. Specific knowledge needed in the field or in the application fields has been identified by Gorchels (1995 in Wroblowska, 2011) as crucial for success in B2B enterprises, while knowledge of marketing and skill working with marketing tools determine the success of product managers in B2C markets (Gorchels, 2005).

What follows is an interpretation of the results and the discussion to confirm the first assumption that a product manager is an example of a knowledge worker. After that, an analysis is made of the extent to which the follow-up research goal is aimed at confirming or rejecting the assumption that there is no difference in terms of technical competence requirements, length of experience and product experience between product managers and brand managers according to analysis of job offers in the US.

In the category that combines professional skills and knowledge (marked "T"), expertise aligned with the advertising company's business emerged in 50% of advertisements for product manager positions. This is the third highest occurrence. Expertise is followed by a requirement for knowledge of product management (45.3%) and knowledge and skills in the use of information technologies (37.2%). Thanks to the research results in which the North American Human Resource Management Association in cooperation with the National Manufacturing Association asked managers what general competencies they would need in the labour market for 10 years, where IT skills ranked the second position in the TOP 10 rankings just behind problem-solving ability, with both competencies being estimated by over 77% of business representatives, we expected higher occurrence rates in the recruitment advertisements for an "information technology application" requirement. We add that this research, presented by Casner-Lotto and Barrington (2006 in Noe et al., 2010), was not focused on professional knowledge and skills.

The most frequent requirement in US ads for product manager positions included the requirement to have a university degree asked almost of 67% of advertisers whereas more than 20% of advertisers raised the demand to a further qualification or higher education. In this regard, we can remember that 28% of advertisers avoided mentioning the level of education. Given that respondents' degree of education is regularly evaluated in the Annual Product Management and Marketing Survey, a Bachelor's degree was marked by

93% of the respondents as the lowest acceptable education level for product managers in 2013 (Pragmatic Marketing, 2013). Specifically, in the last survey, which took place in November 2016 and had more than 3500 respondents from 56 countries, with 76% of respondents from the US, a Bachelor's degree was a precondition for getting a job in product management, and over 3% of respondents had a Ph.D. (Pragmatic Marketing, 2017). We can state that our findings correspond to reality and add that a university education is also the most common requirement in advertisements for brand manager positions in the US (see Table 1). The education requirement will therefore be discussed on the basis of other secondary sources.

Mládková (2005, p. 162) points out that, although in looking to fill a position requiring knowledge, organisations are oriented according to education, the fact that a "diploma" may not be accompanied by the ability to absorb new information and generate knowledge poses a dilemma. Similarly, Reich (2002, p. 265) emphasises that qualifications cannot be a guarantee of the ability to effectively and creatively using existing knowledge. With respect to knowledge workers with a high level of work complexity – product managers are included because their decision-making is very often under conditions of uncertainty and making so-called non-programmable decisions; maintaining performance relates to the ability to learn other skills and acquire new knowledge. According to Larsen (2002 in Truneček, 2004, p. 39), other factors and requirements are involved in the ability to search for common patterns, i.e., learning with knowledge: fast adaptation to a job, the ability to gain and share knowledge, the ability to cooperate with others, entrepreneurship and, last but not least, knowledge of information technologies. Also, a group of authors led by Pitra and Mohelská (2015, p. 69) emphasises the fact that at present it is evident that formal education is rapidly lagging behind the changes brought about by the driving forces of societal developments.

Now we will evaluate the last set of requirements for "work experience and practice". The second highest occurrence was recorded in this category. More than half of advertisers (52.7%) required candidates for the position of product manager to be experienced in the industry or indicated that experience in the advertiser's field is an advantage.

At the end of the analysis, we will allow the reader to take a closer look at the analysis of US advertisements for the position of "Brand Manager", which has already been reviewed and published (Wroblowska, 2017b). The visual comparison of the requirements, as you can see in Figure 1, showed differences between the findings concerning product managers and brand managers. It has already been mentioned that 52.7% of US advertisers found candidates for product manager positions possessing experience in the field as an advantage or strictly required this experience. As regards advertisements for brand manager positions, marketing experience is more highly valued (48.3%). If we compare the two positions, see Figure 1, it is clear that recruiting firms have different expectations from brand managers and product managers in the US, at least as regards a group of requirements for work experience and required practice (marked "R").

The statistical verification confirmed the difference both in the group of requirements for specific knowledge and skills (marked "T"), including expertise aligned with company business, project management skills, and information technology applications, and in

the group of requirements for practice and work experience (group "R"). The Pearson chi-square test confirmed the shift at the significant levels of 0.1%, 1%, and 5%. The assessment that the research assumption has not been confirmed is not altered by the fact that, as regards the requirements, mapping strategic, business and entrepreneurial thinking, in Table 2 marked "S" and the group of requirements for education (marked "L"), statistically significant differences were not found at any of the significance levels. These two categories of requirements were not part of the hypothesis.

As a follow-up to recruitment recommendations, we want to say at the outset that the entrepreneurial practice of the most affluent employers is an inspiration for both academics and companies that does not limit the full possibilities of available Internet services and process information from the labour market and use them as a marketing approach, as it concerns searching, addressing, gaining the attention of and engaging a suitable candidate. A company with a problematic reputation has a very difficult position in the competition for a key competency holder; that is why employers cannot underestimate investing in corporate branding and employee assimilation activities, as social networking environments make it very easy to share negative news. On the other hand, this environment gives great opportunities for recruiting.

In general, it is true that the most capable product managers, experienced, knowledgeable, and possessing a range of personal qualities and integrity, are less likely to seek new jobs. At the same time, however, they are interested in what is happening in the industry and build an extensive network of contacts. We believe that they will be attracted by a suitable combination of social networking, advertising content in blogging and articles on the Internet and downloading audio-visual programmes, i.e., job-casting.

We recommend the means of *native ads* highlighted by Sullivan (2016) to address product managers, not only the already mentioned *paid search*, but also so-called *in-feeds*, that is, content placed in an article or blog that respects the article format and at the same time carries information about an available position has high potential. According to Sullivan (2016), sponsored content placed in *native ads* differs from *in-feeds* in the fact that the message is marked as sponsored so that the advertiser cannot be accused of fraudulent behaviour.

What ensues from it? The e-recruitment priority cannot, in the case of addressing and obtaining product managers or brand managers, be limited to the placement of a vacancy in the Career section of a corporate website.

Conclusions

The purpose of the article was to present the partial results of an independent research study, to link them with the knowledge base concerning the human factor in product management and to submit a set of recommendations for the strategy and implementation of recruitment. The analysis of recruitment advertisement texts confirmed that product manager positions are offered to knowledge workers in the US. Advertisers search for university graduates, with more than one fifth of employers looking for Ph.D. or MBA graduates. Our results clearly show that prior work experience is key to getting a job. More

than half of advertisers are interested in those who already have business experience in the business of that advertiser or their customers. More than 20% of companies require five-year and longer experience for the position.

A comparison of requirements for both positions advertised in the selected US states has shown that there are significant differences between product managers and brand managers in terms of their required specific functional competencies as well as in their length of practice and work experience. It can be deduced that graduates of a Bachelor's have a limited chance of succeeding, because the search is for people with expert knowledge based on experience and specific skills. Graduates from universities who apply for key product management positions will need to demonstrate knowledge of product management, marketing, project management, and the full use of communication technologies and a wide range of Internet capabilities, as all these requirements are included in the requirements list with high frequency in the texts of recruitment ads. We recommend business practice to pay more attention in the induction phase to those who succeed and get the job and the implementation of a development plan for learning the new knowledge and skills necessary to maintain high performance in the upcoming Industry 4.0 era.

The presented set of requirements for product manager job seekers in selected US states provides inspiration to those who are preparing future managers in formal education as well as business practice, as it delivers specific information from the country where product management has its roots and geographical areas where significant globally operating companies reside.

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Theoretical basis for detection of legalisation of proceeds of criminal activity

Teoretická východiska odhalování legalizace příjmů z trestné činnosti

JOZEF STIERANKA
STANISLAV BACKA

Abstract

If we intend to prevent the negative impacts of legalisation of proceeds of criminal activity on the legal financial system and entire economy of a country, it is necessary to safeguard the efficient detection of specific crimes involving legalisation of proceeds of crime. In this respect, knowledge of the theoretical basis of detection dealt with in the first part of the paper, which represents specific criminalistic and security activity, is essential. Detection of legalisation of proceeds of crime has specific features that are based on several determinants. One of those determinants is the legalisation indicator that is deeply encoded in the mode used to commit this kind of crimes. The second part of this paper deals with the modus operandi involved in legalisation of proceeds of crime.

Keywords

legalisation of proceeds of criminal activity, crime detection, criminalistic and security activities, crime identification, indicator of legalisation of proceeds of criminal activity

JEL Codes

K14, K34, K42

Abstrakt

Pokud chceme zabránit negativním vlivům legalizace příjmů z trestné činnosti na legální finanční systém a celé hospodářství státu, je zapotřebí zajistit efektivní odhalování konkrétních trestných činů souvisejících s legalizací příjmů z trestné činnosti. K tomu je nevyhnutné poznat samotné teoretické základy odhalování jako specifické kriminalisticko-bezpečnostní činnosti, které jsou obsaženy v první části příspěvku. Odhalování legalizace příjmů z trestné činnosti má však svá specifika, jež vycházejí z vícera determinantů. Jedním z determinantů úspěšného odhalování případů legalizace příjmů z trestné činnosti je samotný indikátor legalizace, který je zakódován ve způsobech páčání tohoto druhu trestné činnosti. Způsobům páčání legalizace příjmů z trestné činnosti je věnována druhá část příspěvku.

Klíčová slova

legalizace příjmů z trestné činnosti, odhalování trestné činnosti, kriminalisticko-bezpečnostní činnosti, rozpoznávání kriminality, indikátor legalizace příjmů z trestné činnosti

Introduction

From the criminalistics point of view, legalisation of proceeds of criminal activity, so-called money laundering, may be defined as a process of the transformation of income obtained through criminal activities into legal assets via a legal financial system. Legal definitions of these terms are contained in international documents dealing with these issues and the legislation of individual countries. In the Slovak Republic, this is Act no. 297/2008 on the prevention of legalisation of proceeds of crime and terrorism financing.

The objective of offenders committing crimes, especially organised crime, is to obtain the income (profit, property) generated through criminal activities. Profit is both the driving force behind criminal activities and their main objective. The effort to benefit regardless of the price and the effort to maximise profit regardless of the means come to the fore. Unlike traditional forms of criminal activity, organised crime very often involves the transfer of proceeds of crime into a legal financial system and its subsequent capitalisation through, for instance, investment into profitable sectors of the economy. The aim is not to consume the profit immediately but to legalise it and secure its growth through subsequent capitalisation. The financial transactions used to incorporate the profit obtained via criminal activities into a legal financial system are mostly not that obvious and they often differ very little from regular transactions. The purpose of legalisation of proceeds of crime is to conceal the origin of the income (property) obtained through criminal activities, its "laundering" via a legal financial system and the subsequent use of such income (property) in a manner indicating that its origin is legal. This means transformation of proceeds of crime into legal assets giving the impression that they have been obtained legally. Each of such cases involves an effort to legalise the income (property) obtained via criminal activities. Legalisation of proceeds of criminal activity represents a substantial aspect of each significant "criminal operation", because the purpose of the majority of crimes is to generate income. Legalisation of proceeds of criminal activity is frequently separated from the original criminal activity, i.e. the crime that has generated the proceeds or served to obtain them, which makes it even harder to detect it. The proceeds of organised criminal activities are often legalised by persons with no criminal history (experts or launderers).

The enormous income generated by organised crime is associated with the task for organised groups and their "launderers" to create the impression of legal character in respect of such income and to create adequate conditions for the incorporation of proceeds of crime into a legal financial system. Handling of the assets obtained through criminal activities and their placement within the financial sector represents a very vulnerable activity as regards possible detection, and therefore "launderers" frequently transform such proceeds into other assets that can be placed within a legal financial system much more easily. This can be done in various ways, e.g. creation of a fictional financial debt or obligation that can be made use of much more easily than cash. All transactions connected with legalisation of proceeds of criminal activity must be executed so that they differ as little as possible from regular business transactions and create the impression of lawfulness, thanks to which their detectability and vulnerability is reduced to a minimum.

Due to the limited extent of this paper it is not possible to deal with all the activities carried out within individual stages of detection that represent a cognitive process focusing on legalisation of proceeds of criminal activity.

The main objective of this paper is to present, in a shortened and simplified form, the theoretical basis for the detection, as a specific cognitive process, of crimes involving legalisation of proceeds of criminal activity. A partial goal is to describe the genesis of methods used to legalise proceeds of criminal activity in order to be able to identify the indicators associated with individual legalisation methods. We will abstract this from other elements of the first stage of detection, i.e. places of occurrence, subjects from which indicators are obtained, and the ways serving to detect indicators.

1 Theoretical basis for crime detection

Basically, crime detection is a process associated with cognitive activities focusing on the detection of latent criminal activities and carried out based on the theoretical and methodological basis of "detection", which may be defined as an operational learning process. When defining the term "crime detection" in the context of the above specification, the characteristics of this activity are substantial and determined by the fact that detection is:

- a cognitive,
- procedural, and
- cyclical

activity working with information.

Detection of offences and crime may be characterised as a purposeful systematic process pursued by state authorities in order to collect, gather, classify, evaluate and analyse information about crime, offences, offenders and victims, to create preconditions for law enforcement bodies to initiate criminal proceedings and bring charges against specific persons. Learning about crime elements may be carried out using the criminalistic and security-related actions that form part of the security activities performed by the police. The security-related activities of the police may be understood as a system of tasks and measures fulfilled and applied by the police and security authorities, specifically criminal investigation, administration, organisation and management in the area of security based on constitutional laws, legislation, other legal regulations and/or international treaties, ethical principles and scientific knowledge. The aim of these activities is to combat crime and other anti-social activities and protect public order, life, health, and property.¹ The security-related activities of the police include criminal investigation, administration, organisational and management activities in the area of security, where the criminal investigation activities are further divided as follows:

- search (linked with persons and items searched for in connection with criminal activities or missing persons)

1 FILÁK, A. a V. PORADA. *Pojem, obsah a hlavní organizačně taktické formy policejné bezpečnostní činnosti. Policajná teória a prax, 2006, č. 4, pp. 5–17.*

- investigation (linked with already registered crime)
- detection (linked with latent criminal activities)²

Within the above classification of criminalistic and security-related activities, **search** represents activities aimed at finding specific persons or items who/that exist and may be identified and distinguished from other persons/items of the same kind. A successful search is connected with detention, arresting, bringing in the person or the item searched for, etc.³ Criminal **investigation** is a process relating to a known and registered crime. This process starts upon the commencement of criminal prosecution and the registration of individual cases via a crime report form completed for the purposes of the statistical registration of detected crimes. In general, **crime detection** is linked with latent criminal activities, not with reported ones. Detection involves activities through which a latent crime becomes obvious. The methodological basis for crime detection is associated with the theory of reflection “because to detect a crime means to establish, discover, and find an act classified by the law as criminal”.⁴ The learning carried out through the revelation of latent criminal activities basically means the process of collection, analysis and assessment of the information encoded in a specific actual situation that is linked with a criminal activity and its subject (detectable and decodable changes caused by a crime represent traces of the crime). Crime reflection is based on the ability of material systems and items to reflect characteristics of other material systems and items and demonstrate them in another form. The reflected system causes changes in the reflecting system. Such changes show and reproduce, to a certain extent, characteristics of the reflected system. A criminal event is one of the material phenomena of objective reality, and during its course, crime elements and events affect each other mutually, which predominantly means interactions between offenders, the means and tools used by them, the material environment (primarily the crime scene), the subject of the attack and the knowledge of people – witnesses, for instance. Such mutual interactions result in a reflection manifested as changes in the material environment (material traces) and changes in the knowledge of people (memory traces).⁵

From this point of view, detection typically focuses on:

- the offender,
- the subject of the attack,
- the tools used (also financial tools),
- the injured person, and
- a number of other objects.

During an event relevant from the criminalistic point of view, such objects meet, various contacts take place, and information is exchanged. The information transfer may take place at various levels of intensity and the disclosed information does not have to be always detectable by technical or other means. The changes in the environment caused

2 NESNÍDAL, J. *Neodvratnost trestního postihu a operativně pátrací činnost*. Praha: Kriminalistický ústav VB, 1989, p. 80

3 STIERANKA, J. a kol. *Spravodajská činnost*. A PZ Bratislava, 2013, p. 27.

4 PORADA, V. *Teorie kriminalistických stop a identifikace*. Praha: Academia, 1987, pp. 17–24.

5 PORADA, V. a J. STRAUS. *Kriminalistická stopa*. *Kriminalistika*, č. 3/1999, p. 187.

by the personality and acts of the offender may be determined based on specific signs (indicators) and their sets. A number of natural relations apply, e.g.:

- interconnections among objects and phenomena within the material world (acts of the offender – their personal features are naturally reflected by the surrounding environment),
- existence of the inevitable relationship between a cause and its effect (a specific phenomenon occurs under specific conditions in one specific way and not otherwise),
- causality – typical processes giving rise to specific changes that should naturally occur upon the existence of analogical conditions,
- unique character and individuality of each manifestation (the opportunity to identify crime indicators is manifested, more or less, as a trend resulting from research; many latent crimes remain undetected) and the possibility to perceive the differences among them, etc.⁶

There is no such event important from the criminalistics point of view during which individual objects would not exchange any information related to them, which means that changes occur naturally in the environment in which the subject (offender) carries out certain activities when committing a crime.

In general, crime detection is identified as actions performed in order to establish the existence of an act that may be classified as a crime and has as yet neither been reported to the police nor registered in police statistics.⁷ As concerns its contents, crime detection involves the collection and use of information. Detection may be characterised as a system consisting of structured elements that share one common feature – proactive actions aimed at discovering unknown information characterising an illegal or criminal event. Individual elements have their own specific subjects of detection and unknown pieces of information that are to be detected through such proactive actions.

When defining crime detection, the second important point is that it is a **procedural activity**. Crime detection is not a single action, a single activity, but a process consisting of relatively independent activities and operational actions that are carried out in a certain sequence. We can say that detection is a process within which various activities and operational actions are carried out in a certain sequence and with certain interconnections with their final objective to learn the facts that have been unknown and characterise unlawful activities, a crime or its perpetrator. Detection has the character of a **learning process** – it starts at the point of knowing nothing and ends with a specific piece of knowledge. Primarily, within this process it is necessary to capture the changes caused by a crime, i.e. those to which it has given rise within the relevant environment – to capture signals or indicators of the crime. Subsequently, these indicators are complemented by other pieces of information, focusing on all the aspects and facts of a specific case, which will either confirm or disprove the initial signals of a crime being committed. The

6 LISOŇ, M. and J. STIERANKA. *Organizovaná kriminalita v Slovenskej republike*. Bratislava: Akadémia PZ v Bratislave, 2004, p. 95.

7 NESNÍDAL, J. *Neodvratnosť trestného postihu a operatívne pátrací činnosť*. Praha: Kriminologický ústav VB, 1989, p. 92.

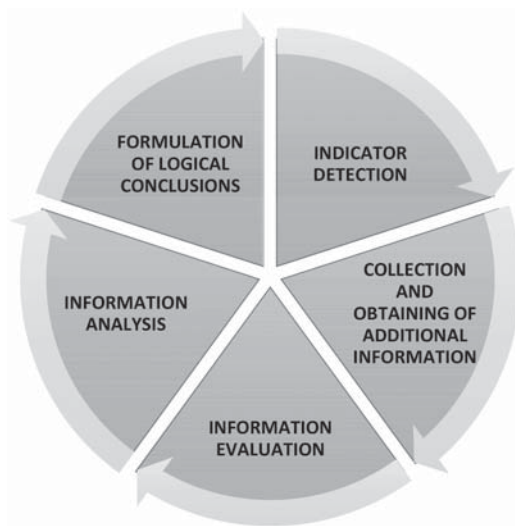
fundamental feature of the detection process is the fact that the detection starts at a point when no investigation is carried out yet based on which a well-grounded suspicion of a crime being committed could be defined because manifestations of such an activity are latent. This type of procedure is part of an extensive strategy of latent crime detection.

Implementation of the entire detection process is conditioned by the detection of an initial signal (indicator) indicating that a crime is being either prepared or committed or has already been committed. Discovery of an indicator determines the further procedure and objectives within the learning and detection processes. If we proceed based on the above defined theory of crime traces and identification, which also includes the process of collecting, analysing and evaluating the information encoded in a specific actual situation, then detection may be characterised as an operational process involving interlinked activities, in particular:

1. obtaining of initial information (a piece of knowledge, indicator, signal) on the preparation, committing or perpetration of a tax evasion or tax crime,
2. collection and obtaining of additional information,
3. information evaluation,
4. information analysis, and
5. formulation of logical conclusions.

The important features of detection, as a learning process, include the fact that it consists of stages and is **cyclic**. Detection, as a process within which the above-specified activities are carried out, is conducted in stages within a cycle. Several detection stages may be carried out simultaneously. Furthermore, within the detection process the learning may return to a previous stage. The process of crime detection is carried out in a similar way as the intelligence cycle. The information cycle forms the basis of both crime detection and intelligence.

Figure 1: Sequence of activities performed within crime detection (information cycle)



Source: authors

Due to the limited extent of this paper, we will focus on one aspect of the first detection stage (determination of indicators), i.e. the ways in which proceeds of criminal activity are legalised

2 Methods of legalisation of proceeds of criminal activity

Detection of crime indicators represents **the first stage of the entire detection process**, which is very important and determines the further steps and development. Therefore, it is necessary to find the indicators that qualify as concerns their “quality” and are able to secure the detection of a crime. **A crime indicator is to be understood as an initial piece of information about a phenomenon or fact that diverts from the normal situation that we are familiar with and means compliance with laws and regulations.** It represents the initial finding concerning a crime that is either being prepared or committed or has already been committed. The term “indicator” is multi-dimensional and this is manifested through possible approaches towards its definition. First of all, it is a piece of information about a certain phenomenon and it initiates the process of gathering knowledge concerning that phenomenon. Similarly, it may be understood as a signal indicating the occurrence of a certain event giving rise to an interest or suspicion on the part of the observer or as “a deviation from the normal situation that we are familiar with and means compliance with laws, regulations, and other social standards”.⁸ In addition, it may represent a specific external manifestation of a specific phenomenon, which means that we learn about phenomena through their external manifestations. This applies *vice versa* – external manifestations indicate the existence of certain phenomena. We do not always succeed in finding or correctly interpreting the combination of the indicator and the phenomenon that we are looking for. Offenders make use of various legal gaps. Because they carry out activities that are in contradiction with society’s interests, it is only logical that the methods and means used by offenders to achieve their intentions are concealed and frequently also well-worked out. As concerns the general detection methodology, we can state that each action, including a committed crime, leaves some “traces” within its environment, and we may consider such traces to be crime indicators.

Revealing crime indicators, in other words, their detection, is a very demanding activity that represents the first stage of the detection process and requires, *inter alia*, the thorough coordination of activities. When detecting a crime, it is necessary to consider individual elements linked with the detection process, especially:

- crime indicators themselves,
- place of occurrence of indicators,
- subjects from which indicators are obtained,
- ways of finding indicators.

Crime indicators alone represent an important element within crime detection and are contained and “encoded” in the ways in which crimes are committed. Therefore, it is vital

8 LÁTAL, I. Příznaková analýza a možnosti jejího užití v policejní praxi. *Kriminalistika*, 1996, roč. XXIX, č. 1, p. 73.

to know the modus operandi of specific crimes, including crimes involving legalisation of proceeds of criminal activity.

There are a great number of methods used to legalise proceeds of criminal activity.

A legalisation method means the steps taken by an individual or organised group to achieve a goal involving creating an impression of the legal origin of assets obtained through criminal activities. The choice to apply a specific method depends on two factors.

The first factor is defined by the character of the initial crime, i.e. the crime that served to generate proceeds, and answers as to whether the initial crime was committed by an individual or an organised group, relates to drug crimes, general crimes, economic or financial crimes, and whether the initial crime was simple or highly sophisticated. **The second factor represents the form of assets (proceeds) obtained through criminal activities.** Proceeds in the form of money will be legalised differently from those movable items, real estate, intellectual property, etc. Because of all these aspects, we can state that it is not possible to provide an exhaustive list of methods of legalisation of proceeds of criminal activity. The occurrence of new methods is caused especially by the increasingly sophisticated character of initial crimes and increasing flexibility of “criminal organisations”. One reason that cannot be neglected involves new methods of business transaction execution, which are faster and keep on improving through the application of new banking transaction methods. Based on the cases registered until now, we can discuss the following and most frequently used methods of legalisation of proceeds of criminal activity.

2.1 False increase in the turnover of a company using cash

This ranks among the oldest methods of legalisation of proceeds of criminal activity. It is a relatively simple method within which an offender or an organised group owns or otherwise controls a legally existing company in an area within which handling of cash is usual (e.g. services such as coffee shops, accommodation and catering facilities, gaming machines, facilities providing various services, etc.). Even if this method is rather simple, it does not mean that it is easily detectable. On the contrary. This method is applied where the proceeds of criminal activity are in the form of cash (e.g. drug dealing on the streets, procuring, people smuggling, etc.) and such proceeds are subsequently commingled with the legal income generated through the activities of a legally existing company. The process of legalisation of proceeds of crime starts at the point where the cash obtained through criminal activities is deposited into an account of a legally existing company and declared as income generated through the business activities of that company. In another words, this means mingling the legal income of a legitimate company with the proceeds of crimes committed by an organised group. The operator of the company then declares the combined amount as profit and pays the tax. Thus, the proceeds of crime become legal within the first stage and may proceed to the next stage – layering. Mingling of the income obtained through criminal activities with legal income and subsequent declaration of profit means a false increase in the company’s turnover. The profit created in this manner creates an impression of legality and the legally existing company has the reputation of a prospering firm. Thus, the tax authorities do not focus their attention on

the company, because the company is fulfilling its tax obligations. After complying with the tax obligations and payment of the tax on the income generated through criminal activities, such income becomes legal *de facto*. When applying this method, the first stage is the riskiest, i.e. the phase within which the proceeds of criminal activities are deposited into an account. If an organised group does not increase the turnover of a legally existing company to a significant extent, it is more than likely that the tax authority will overlook this form of legalisation of proceeds of criminal activity. A certain disadvantage of this method of legalisation of proceeds of crime is that only a limited amount of such proceeds may be declared, and income tax has to be paid.

Practical example: *Diana, a businesswoman, established and registered the Oak Ltd. company where she was the sole member and owner. The company, registered as an entity developing activities in the timber industry, hired Donna who acted as a business agent. Both Donna and Diana were in fact involved in extensive criminal activities and used the company only as a tool for money laundering. They deposited the capital obtained through criminal activities into the company's account in cash. Despite the fact that cash transactions in such amounts were not usual in the timber industry, the bank did not report them. As the result of various activities carried out by both women, the Oak Ltd company declared profit amounting to USD 100,000 for the first year of its activities. In February of the next year, Diana died. But her passport remained within the company's premises. Donna, pretending to be Diana, used her passport and withdrew USD 100,000 in cash from the account. Shortly after this transaction, the bank decided to draw the attention of the Financial Intelligence Unit to the fast growth of the company and high cash withdrawals. After checking the transactions in the account and the register of inhabitants that contained the date of Diana's death, it was obvious that Donna used the Oak Ltd. company to launder money.⁹*

2.2 False increase in the turnover or profit of a company through excessive invoicing

Within this method, an offender or organised group owns or otherwise controls one or several legally existing companies and through those companies y create an excessive profit. They increase the profit either through supplying goods with a value lower than the invoiced price or they reduce the invoiced price and part of the price is paid outside the books, using income generated through criminal activities. This is conditioned by mutual cooperation between the companies that do business with one another and invoice one another. They are usually aware of the illegal character of such transactions. This legalisation method is mostly used with goods in respect of which it is hard to determine the actual value (e.g. antiquities, artworks, items subject to intellectual property rights, etc.). A modified alternative involves a supplier delivering goods to one company and issuing invoices to two companies, where the second company pays the supplier using income generated through criminal activities and temporarily deposited in the company's account. In order to hinder information collection, the second company is often registered in another country and its accounts are also kept in that other country. This method means

⁹ *Finanční zpravodajské jednotky v akci, 100 případů Egmontské skupiny, p.12.*

that the supplier makes an increased profit and their accounting records are regular, so there is no reason to suspect them of any unfair practices. The company declares a profit and thus becomes attractive for both business partners and banking institutions. Even when applying this method, problems with the tax authorities may occur if the organised group increases its profit to too high a level.

Practical example 1: *Within a global operation entitled “Green Ice” led by the Drug Enforcement Administration (DEA, USA), it was proven that Italian and Colombian criminal organisations had been using the method of excessive invoicing. A Colombian company was selling leather containers to an Italian customer. The transported containers actually contained leather. The purchase invoice listed top-quality leather, thanks to which a high amount could be invoiced. In practice, the leather had almost no or only a minimal value. In this way it was possible to kill two birds with one stone. The Italians were able to make a settlement with the Colombians in respect of cocaine under the cover of a legal business transaction. On the other hand, thanks to this excessive invoicing, the Colombians made extraordinarily high profits and thus they included their income generated through the sale of cocaine in the legal revenues of the company.*¹⁰

Practical example 2: *A businessman (client) from Western Europe kept several accounts denominated in foreign currencies with a Swiss bank. The total balance in all accounts amounted to approximately 600,000 Swiss francs. This client, who was also the director of a smaller company in Switzerland, declared that his revenues were generated through fees paid for investment consultancy services. He transferred part of the funds to the USA. Soon afterwards, the bank found out that one of his subordinates had resigned from office because he most likely suspected that the client had been involved in criminal activities. Not long afterwards, the bank received an order to transfer another part of the funds to the USA for the purposes of purchasing a house. But the bank established, in cooperation with the Financial Intelligence Unit, that the client was suspected of a crime (there were no consultancy agreements) and therefore he was trying to transfer the assets abroad in stages. He had already succeeded in transferring part of the assets abroad.*¹¹

2.3 Borrowing method

The principle of the borrowing method is based on the fact that the offender or member of an organised group borrows *de facto* their own funds obtained through criminal activities so that neither other entities nor the state authorities are able to check the details of this transaction. This is often a loan from abroad provided by a natural person who is forced, in various ways and for various reasons, to sign a loan agreement. The loan agreement terms and conditions are unusually advantageous for the entity or person to whom the loan is provided. The loan may also be obtained from a legal entity registered in a tax haven. The managing director of such a company is a citizen of that country, authorised to act on behalf of the company, and they provide a loan to the organised group member

¹⁰ AKSE, T. A farba je špinavá, Zoetermeer 2003, p.29.

¹¹ AKSE, T. A farba je špinavá, Zoetermeer 2003, p.30.

who legalises illegal proceeds and is the beneficial owner of this so-called “shelf or paper company” within which they have temporarily deposited proceeds of criminal activities. The loan is often repaid through a consideration that is hard to value, e.g. through payments for intellectual and industrial property rights.

Practical example 1: *In 2000, it was established based on reported suspicious transactions from Hong Kong that a Chinese citizen living in the Netherlands received a loan to purchase a Chinese restaurant. The money came from a company account kept in Hong Kong but immediately before that a similar amount had been transferred from Luxembourg to the account in Hong Kong. A deeper investigation was conducted and it was proven that the same Chinese citizen was transferring his own funds generated through criminal activities to the account controlled by him in Luxembourg.*¹²

Practical example 2: *A bank provided a client with credit. The client had already experienced repayment problems in the past. Suddenly, he repaid the credit through a single payment. The client was evasive when asked questions by a bank clerk in respect of the origin of the money. Based on those facts, the bank clerk reported his actions to the Financial Intelligence Unit. Through investigation it was established that the money had been generated through criminal activities.*¹³

2.4 Back-to-back loan

With this type of so-called “back-to-back” loan, a famous banking institution is involved in the loan provision but the institution is not aware of the fact that it is being abused to legalise illegal proceeds. While the borrowing method may be executed absolutely independently, this type of loan requires the engagement of a bank or other provider of financial services that provides loans only against adequate security. Loan security provided by a financial institution to members of an organised group legalising illegal proceeds is created by another company that deposits cash and is seemingly not connected with the company receiving the loan, but in fact, it is controlled by the organised group. The advantage of this method of legalisation of proceeds of criminal activity is that a renowned financial institution is engaged in the legalisation process, thus making the entire process look trustworthy.

Practical example: *An investigation carried out by the investigation unit in the Rotterdam-Rijnmond region showed that credit had been arranged by an attorney of a Swiss bank for a client who was involved in cocaine trafficking in the Netherlands. An amount of four million guilders deposited in a deposit account was used as security. The credit was used to finance a legal business belonging to the cocaine trafficker. The funds came in cash to the Netherlands and were deposited in cash into the deposit account. Thus, everyone could see the actual credit provided by the bank but not the security.*¹⁴

¹² AKSE, T. A farba je špinavá, Zoetermeer 2003, p.57.

¹³ AKSE, T. A farba je špinavá, Zoetermeer 2003, p.57.

¹⁴ AKSE, T. A farba je špinavá, Zoetermeer 2003, p.62.

2.5 False winnings

This method of legalisation of proceeds of criminal activity is based on the following: an offender or a member of an organised group comes to a casino along with other persons from the same group and they purchase chips paying either in cash, via a cheque or credit cards. They play low stakes at tables and create the impression that they are three independent players who do not know each other, to prevent any suspicion. Players do not play actively and to a great extent because they want to preserve as high as possible an amount for legalisation. After some time, all the players give their chips to one of them and the person goes to the cash desk to exchange them for cash or asks to deposit the cash into an account while pretending that it is winnings. The majority of casinos offer the opportunity to open a deposit account for clients in which clients deposit their winnings and are able to place orders with the casino for wire transfers thanks to which funds may be relocated in a short time. Of course, this is possible provided that the casino is private, the state supervision is benevolent, and the internal supervision fails to detect the false winnings. In this way, the proceeds of criminal activity may be legalised only when there is a sufficient period of time, because if the casino finds that a player wins too often, the risk of detection increases. Moreover, some casinos check the provability of high winnings. If the player fails to prove that they have won, the casino refuses a transfer to a deposit account and asks the player to take the winnings in cash. Technical equipment and administrative means allow reverse determination and checking whether winnings are fake or not. Another form applied within lotteries and similar games is the purchase of the prize from the actual winner, who receives a "commission".

Gambling via the Internet **using player accounts** represents a new method of legalisation of proceeds of crime. Player accounts execute mutually interlinked transactions, the aim of which is to legalise illegal proceeds. This scheme of transactions among player accounts allows player accounts to be used to create a legal framework for transactions, with the funds coming through anonymous payment channels without their origin being proved. Subsequently, the funds are transferred into the bank accounts of player account holders. The typical signs of this legalisation method include:

- creation of two-player accounts pretending that these are two different persons as the rules require,
- use of player accounts by persons other than those who opened/registered the accounts; in online gambling, the same IP address is used and one player plays in favour of the other player and this even at their own expense,
- organised use of player accounts associated with the risk that the final beneficiaries, as concerns player accounts and participation in gambling, are not the players under the names of which player accounts are registered but other unknown persons, or at least one the players is such a person,
- funds are deposited to player accounts through the PAY SAFE CARD payment channel for instance, i.e. via prepaid cards that may be purchased without customer identification in shopping centres, gas stations in the SR and abroad, and via the Internet,
- organised participation of several persons in gambling who violate the relevant game rules and gambling ethics, do not play against another but in accord so that one person loses in favour of the other,

- the player gives up/throws their hand in within a gambling game despite the fact that there is a high probability of winning and thus secures winnings for the other player,
- the result of participation in a gambling game is usually winnings that equal the deposited amount, and the players act systematically so that the deposited amount returns regardless of the probability of winning. Even if the probability of winning is high, they give up the chance of winning and proceed so that the deposited amount returns with certainty,
- payment of winnings to a bank account.

Practical example 1: *Roland worked as a secret agent within a police investigation focusing on money laundering in casinos. During the investigation, Roland was introduced to Theodor who lived in the same country as Roland. Theodor claimed that he was a casino employee in a neighbouring country and offered Roland the opportunity to launder money. He claimed that it would be very simple, because he was employed by the casino. If Roland gave him cash, Theodor would give him a casino receipt amounting to the same value as the cash provided by Roland, reduced by Theodor's commission. Roland would be able to claim that he had won the money in the casino and the police would not be able to disprove it. Furthermore, the casino would know nothing about the transaction because it will seem that Roland had won the majority of the deposited money back. Roland wanted to get more information about the money laundering method and therefore accepted Theodor's proposal. Following Theodor's instructions, he deposited 25,000 dollars in cash into the casino's account. In return, he received a receipt for the same amount reduced by Theodor's commission amounting to 9%. The commission was divided among Theodor and Armin, the man who introduced Theodor to Roland. The first transaction was executed without any problems – Theodor laundered money for Roland as he had promised. But he did not know that the 25,000 dollars that he laundered was not illegal money, but money provided by the police authority for which Roland worked. Soon afterwards, Roland contacted Theodor again and asked him to execute a similar transaction but this time it was supposed to amount to 500,000 dollars. Theodor was happy to help him again but during the transaction the police arrested him for a crime involving money laundering.¹⁵*

Practical example 2: *The Financial Intelligence Unit received simultaneously from two obliged entities – Bank A and Bank B – reports on unusual business transactions involving the personal accounts of Person X, Person Y, and Person Z. Specifically, the transactions included recurring payments credited either personally in cash or transferred in smaller amounts to accounts of those persons, which were followed by cash withdrawals from the accounts kept in Bank A and Bank B.*

A detailed analysis of the data and information contained in both reports showed that the personal accounts of Persons X, Y, and Z were credited with funds in cash and/or via transfers in tens of euros with payment descriptions indicating that those funds represented various winnings of material or financial nature obtained through a competition run via Facebook. The pieces of information from the payment reports relating to the competition were partially confirmed by the information from the Facebook profile of the Police Force of the SR where the

¹⁵ Finanční zpravodajské jednotky v akci, 100 případů Egmontské skupiny, p.37.

police drew attention to the Facebook site with the competition and warned that it was a fraud. Within the competition, the persons interested in offered winnings – material prizes – executed payments that conditioned the winning of the prize; the account holders were Persons X, Y, and Z, i.e. the persons who organised the competition but never handed over any prizes. Based on the reports, it was established that the funds in the accounts of Persons X, Y, and Z consisted mostly of cash deposits made by various persons and transfers from the account of a company organising lotteries and other gambling games in the SR (a “betting company”). The modus operandi of the fraudulent obtaining of funds from persons interested in the competition was based on the fact that the interested person could win various items as prizes after giving a “like” to the competition page and sharing it. After giving a “like”, the interested person was called upon via the Messenger application to pay a handling fee or postal fee amounting to up to 10 euros. Where the interested person had a prepaid mobile phone programme from Mobile Operator M, they received a message via Messenger saying that they had a chance to win if they sent a message via Messenger to the account administrator. After sending such a message, the interested person received a reply with information about the prize and the request to send a confirming SMS to the short number 3,000 within 5 minutes. Payments from such confirming SMS subject to fees were subsequently transferred to the accounts of Persons X, Y and Z kept by the betting company, but the person interested in the prize was not aware of that. The accounts of Persons X, Y, and Z were credited in this way in fact. When the person interested in the competition/prize did not have a mobile phone programme from Operator M, the interested person was informed via Messenger that they should pay a handling fee via a transfer or through a cash deposit to one of the accounts of Persons X, Y, and Z from which those persons were withdrawing cash subsequently. Persons X, Y, and Z proceeded jointly and most likely, they knew each other because mutual transfers of funds generated via the incriminated competition were identified among their accounts and they had permanent residence in the same city in the Slovak Republic.

Within an analysis of the data from both reports it was established that Persons X, Y, and Z acquired funds amounting to at least 9,000 euros in this manner. The Financial Intelligence Unit referred the information to the competent investigating officer.¹⁶

2.6 International money transfers

This method of legalisation of proceeds of criminal activity is based on the existence of organisations that offer international money transfers and provide the opportunity to transfer cash to anywhere in the world. The advantages of this method include the speed at which funds are relocated. Because the contact between the sender and the institution arranging international money transfers is only temporary, unlike in the case of banks, the use of forged identity documents is much simpler. The advantage is that there is no “accounting track”, i.e. a trail based on which it would be possible to establish further movements of money, because the money is deposited in cash and then withdrawn in cash as well. The disadvantages include the limit on the amount that may be transferred. Those limits differ by institutions and countries subject to the legislation concerning unusual

¹⁶ Výročná správa finančnej spravodajskej jednotky Prezídia PZ v SR za rok 2017.

transaction reporting. In the majority of countries, amounts exceeding EUR 10,000 cannot be sent, which necessitates the use of the services and activities of hired and usually irreproachable senders and couriers, so-called "smurfs". Such steps may be established only based on long-term monitoring of deposits and transactions and identification of regular elements within them.

In the Slovak Republic, this service is offered by Western Union, a global company, through various agents such as banks, post offices, etc. Transactions within the Western Union system are carried out at the rates defined by Western Union independently from the rates determined by the bank through which money transfers are available and independently from the rate determined by the National Bank of Slovakia. The daily limit is 10,000 US dollars. The limit for one transaction is 5,000 US dollars. Within a few minutes of depositing funds within the system, the money may be withdrawn practically anywhere in the world, because this international money transfer service has representation in 150 countries of the world in more than 150,000 cities. Money transfer may be abused to legalise proceeds of criminal activity because it allows the preservation of anonymity to a great extent of both the sender and the recipient due to the fact that the transaction is carried out with no bank accounts involved and sometimes an identity document is not even required. The sender of funds is asked to provide their name, surname, address, and telephone number and the amount that they wish to send. No other data is required, which means that the financial profile of the client is not subject to any examination that might reveal whether it is realistic for the client to send such an amount of money. In the end section of the relevant form serving to send funds, there is a question asking whether the recipient will have a valid identity document upon acceptance of the funds. If the sender enters NO, the sender and the recipient agree a password based on which the transfer is executed. This means that the recipient is absolutely protected against being identified.

Practical example: *An investigation of a criminal grouping exporting ecstasy to England commenced in Utrecht, the Netherlands. After delivery of the drug, persons were detained in both England and the Netherlands. The investigation revealed that the payment for ecstasy was supposed to be executed at a certain time and was supposed to amount to GBP 30,000 (approximately EUR 45,000). Through telephone tapping it was established that no transfer mode had been agreed yet. Finally, the payment was divided into ten money transfers that were to arrive to the Netherlands via a well-known money transfer system with branches in England and the Netherlands. The transfers were executed and amounts ranging from GBP 1,000 to 4,000 were transferred. In England, the money was deposited in favour of a member of the criminal group in the Netherlands and then withdrawn in the Netherlands.¹⁷*

2.7 Bank cheques, bills of exchange, letters of credit, capital deposits

Bank cheques and bills of exchange serve as tools within the process of legalisation of proceeds of criminal activity, especially within the second stage of legalisation,

¹⁷ AKSE, T. *A farba je špinavá*, Zoetermeer 2003, p.41.

i.e. the layering of illegal proceeds. Three types of bank cheques may be used within legalisation: the first is a personal cheque where the amount stated on the cheque may be paid only to the person whose name is stated therein. A cheque to order represents another type where the person presenting the cheque may transfer the amount in favour of any person. Bearer cheques represent a popular alternative for legalisation as well – a bearer cheque does not contain the recipient's name and thus secures anonymity. The cheque is paid out to the person presenting it. The advantage of using cheques within the process of legalisation of proceeds of crime is that they may even be purchased from a financial institution by a person who is not a client of that institution and there is no limit to the number of purchased cheques. Cheques may be purchased for cash as well. Organised groups prefer bearer cheques or cheques to order within the legalisation process where anyone can be a recipient. The great advantage is that there is no need to apply conversion because if they buy cheques for dollars, someone else can have them paid out in euros. A certain disadvantage is that cheques leave "traces" in banking documentation through which it is possible to establish to whom the funds have been transferred via endorsed cheques (cheques to order). The cheque remains with the bank used by the person delivering it for payment. The time-consuming updating of accounts represents another disadvantage. Updating is the process carried out by two financial institutions (two branches of the same institution or two different banks) where the bank to which a cheque has been submitted for payment asks the bank that sent the cheque for settlement. Within this settlement, the relevant amount is transferred to the account kept by the bank to which the cheque was presented. The account is used to pay the person who has presented the cheque. Updating may take several days when it comes to international transfers and this represents the risk to the organising group of the possible seizure of the funds.

Practical example 1: *A married couple from another European country opened a savings account with a Dutch bank. One spouse was an employee of a commercial bank in their home country where he worked with letters of credit featuring high amounts on a daily basis. Making use of the experience, he opened a false standby letter of credit amounting to USD 500,000 in the name of his wife and subsequently sent the money to the savings account in the Netherlands. After crediting the amount to their account, they executed several wire transfers to another account of theirs and third-party accounts. Since this activity did not comply with their usual transactions involving a similar type of account, the commercial bank reported their case to the Financial Intelligence Unit. The subsequent investigation carried out with international cooperation revealed that the husband was already suspected of carrying out criminal activity in his country – bankruptcy fraud and embezzlement.*

Practical example 2: *A client opened an account with a bank in order to establish a joint-stock company. At the same time, he stated that funds amounting to USD 100,000 would be transferred to that account. The bank already knew the client's history, describing him as an unreliable and indebted person. The advised funds were transferred to the account from an Eastern European country. After 8 days, the client asked to withdraw USD 50,000 in cash from his account. The bank did not pay the money to the client and reported the transaction to the Financial Intelligence Unit. The Unit established that the client had similar accounts with other banks as well. Further investigation revealed that the client had connections with the underworld and the money had been generated through crimes involving prostitution.*

Practical example 3: *In a case involving 2,200 kg of cocaine mixed with charcoal investigated by the police in the Netherlands, a certain number of cheques were issued by the cooperating administration office. An account was opened with a Belgian bank for a company from Aruba of the AVV type and the proceeds from the sale of drugs were deposited into this account. After a deposit, blank bearer cheques were drawn up in respect of the account and forwarded to a Colombian organisation. After endorsement, the cheques were paid out in favour of accounts in Panama. The administration office used two companies of the AVV type represented in Aruba by a trust company. The companies provided a cover for this structure and the companies' accounts served to execute a number of transactions. Payments were officially executed against delivered goods but in fact, they paid for supplied cocaine.*¹⁸

2.8 Real estate transactions

This method makes use of the purchase of immovables to legalise proceeds of criminal activity. Immovables represent one of the most attractive investments. Investing in immovables is nothing unusual when it comes to foreign companies, because real estate prices are quite stable and in addition often secure an increase. The second advantage of investments into immovables is that they usually have very high values and thus the proceeds of criminal activities may be legalised in high amounts and repeatedly. This legalisation method may be applied in several ways. The first is based on purchase of immovables using the borrowing method. The second option is the self-lease of immovables via companies domiciled in tax havens. Another possibility is to purchase neglected immovables and renovate them using the proceeds of criminal activities. The next step involves the sale of the renovated property for a significantly higher price. The profit obtained through the sale represents a legalised amount. The most complex alternative of this real estate transaction method is the so-called "A-B-C-D structure". It is based on the existence of several companies controlled by an organised criminal grouping. The sale of immovables among the companies is carried out as follows: Company A purchases a piece of real estate using the borrowing method and subsequently sells it for an increased price to Company B, Company B sells the property again for an increased price to Company C but for a short time only. Company C sells the property to Company D but the property is already overpriced. The legalised income is, in this case, represented by the profits achieved through the sale transactions executed by the companies while as early as the purchase using the borrowing method, part of the illegal proceeds are legalised. Subsequently, the property's owners may have legal income thanks to leasing it.

Practical example 1: *A client opened an account with a medium-sized bank. He informed the bank employees that the money that would be deposited to his account would be commission for the sale of real estate situated on Caribbean islands. A significant amount of money accrued in the account over two years. After some time, the client requested immediate cancellation of his account and transfer of funds to another bank. The bank asked the client to provide a more detailed explanation and to submit brokerage contracts. The submitted contracts were drawn up unprofessionally and the bank found out that his other explanations were also untrue.*

¹⁸ AKSE, T. A farba je špinavá, Zoetermeer 2003, p. 91.

Therefore, the bank reported the client to the Financial Intelligence Unit, which established that the money transferred to the account kept with the bank had originated from land frauds.

Practical example 2: A Pakistani organisation was interested in purchasing a hotel in the Netherlands. Using both regular bank transfers and illegal transfers, money was transferred from Pakistan to a bank to finance the purchase of the hotel. The Pakistani organisation claimed that family capital based in Pakistan served as the source. The investigation revealed that after the transaction, the investment was repaid using proceeds of criminal activities. The investors in Pakistan received back their funds along with an interesting profit. A very short time elapsed between the investment and its repayment.¹⁹

Practical example 3: The Financial Intelligence Unit received a report from an obliged entity – Bank A – on an unusual business transaction involving repeated wire transfers between the business accounts of Companies A and B in respect of which Bank A deemed especially the repeated transfers between their business accounts to be suspicious.

Immediately after receiving the report on unusual business transactions (“UBT”) from Bank A, the Financial Intelligence Unit received a UBT report from another obliged entity – Bank B – on unusual business transactions concerning the personal account of the statutory representative of Company B, where Bank B deemed to be unusual the combination of those transactions with cashless payments deposited into Account 2 belonging to Company B. From open sources it was established that Companies A and B had participated in a voluntary auction, i.e. Company A as the auctioneer, and Company B as the party that initiated the auction and participated in it. The auction involved lucrative immovables. Analysis of the data from both UBT reports revealed that funds had been transferred repeatedly and several times between the accounts of Company A and Company B, involving identical amounts ranging from EUR 400,000 to EUR 500,000 and those transfers resulted in an overall turnover amounting to EUR 2,000,000 in the account of Company A and EUR 2,000,000 in the account of Company B; the payments from Company B to Company A were declared as settlement of the “price achieved through bidding” and payments from Company A to Company B were declared as settlement of the “auction proceeds”. In this manner, turnover amounting to EUR 2,000,000 was seemingly achieved in the account of Company A and this represented the total amount received for the immovables subject to auctioning.

From open sources it was established that in this case Company B acted as the pledgee and the party initiating the auction and simultaneously as the sole bidder within the auction where Company B actually purchased immovables through bidding. The pledge over the immovables subject to the auction was registered in favour of Company B. An expert opinion determined the value of the real estate pieces as EUR 4,000,000. Subsequently, after the unsuccessful first auction round, a second round was announced, but the value of the subject-matter of the auction, the real estate, was reduced to EUR 2,000,000 exactly 50% of the value of the real estate subject to the auction.

Within the initial analysis it was not possible to determine the origin of the funds used within the described scheme and their further flow because at the beginning and end of the scheme

¹⁹ AKSE, T. A farba je špinavá, Zoetermeer 2003, p. 117.

involving the above-specified repeated transfers, the cash deposits and withdrawals were executed by the statutory representative of Company B.

In both UBT cases, the contents of which were interrelated, the established facts indicated that the auction might have been manipulated by Companies A and B to obtain a property for a price that did not reflect its market value and it might have been accompanied by causing an injury to the property owner because the owner pledged the property in favour of Company B most likely with a value corresponding to the expert opinion.²⁰

2.9 CEO transactions

The mechanism of so-called CEO frauds is based on attacks against email communication among business partners concerning standard payments between them in order to re-route the payments to an account prepared in advance. Such an account is usually opened with a bank domiciled in a country other than the country in which the account of the payer or business partner is situated. The business partner paying for goods is informed about the change in the payment details of their business partner via a fake email message, the data of which seem to be highly authentic. Such emails are sent from someone pretending to be the business partner notifying a change of the account that serves to settle business deals due to various technical or organisational changes, or by someone who is seemingly part of the business partner's organisational structure. Competent representatives are informed about the change of the business partner's account and most likely at this level no thorough checking or verification of accounting data is carried out. After a payment is executed by the business partner to the account that has been opened and prepared by the offender, the funds are usually transferred almost immediately after their crediting to:

- other accounts prepared by the offender and kept with banks domiciled in offshore countries or countries with more problematic enforcement of law, e.g. Nigeria, Ghana, China, Hong Kong,
- accounts kept with banks domiciled in Great Britain where there are indicators that the accounts were opened for the persons who have been granted asylum within third-country inhabitants' migration to Great Britain and are used by offenders as so-called dummies.

Practical example 1: *The Financial Intelligence Unit in the SR received a report from an obliged entity (Bank A) on an unusual business transaction involving two fraudulent payments from abroad, from the foreign business entity X in France, using two foreign accounts; the transfers amounted to approximately EUR 320,000 and EUR 140,000 respectively. Both these transfers from abroad amounting to EUR 460,000 in total were credited to the same account kept with Bank A for Company S. Company S was domiciled in the Czech Republic and its statutory representative and managing clerk with access to the account of Company S kept with Bank A was a French citizen ("Representative of Company S"). The foreign bank requested the return of the funds to the foreign account of the owner of Company X due to fraud and sent Bank A the criminal complaint filed in France by the injured party – Company X. An analysis*

²⁰ Výročná správa finančnej spravodajskej jednotky Prezídia PZ v SR za rok 2017.

of the unusual business transaction report revealed that the above payments from abroad were executed from foreign accounts through so-called CEO fraud, i.e. the electronic business communication of the holder of foreign accounts of Company X was “hacked” and original payments were re-routed to an incorrect account belonging to Company S. By comparing the invoices sent electronically to Bank A by the Representative of Company S in order to release the funds from the account of Company S, it was established that both invoices share a simple graphic form that does not make them trustworthy and were supposedly drawn up in order to document two payments from abroad to Bank A. The supplier data in both invoices of Company S did not comply with the data concerning the recipient of foreign payments stated in SWIFT messages – the data was only similar, which is one of the main indicators of CEO frauds. Based on those facts, Bank A assessed the situation as the intention of the Representative of Company S to use the funds in the account, suspended the unusual business transaction, and submitted the information to the investigating officer of the Police Force. The Prosecutor’s Office seized the funds in the account of Company S, amounting to EUR 450,000.²¹

Practical example 2: The Financial Intelligence Unit in the SR received from an obliged entity (Bank A) an unusual business operation report concerning a payment from abroad amounting to EUR 1,400,000 which was executed from an account in Chile belonging to a local company. The amount had been transferred in a fraudulent manner into the account kept by Bank A for Czech company X. After crediting the funds amounting to EUR 1,400,000 from abroad to the account of Czech company X, two urgent wire transfers to another country were executed from the account – EUR 150,000 and EUR 20,000 were transferred to two accounts in a bank in Poland. Furthermore, Bank A received from a foreign corresponding bank the first SWIFT report requesting the return of the payment amounting to EUR 1,400,000 transferred from Chile to the account of Czech company X. The Chilean bank stated that the Chilean company had fallen prey to so-called CEO fraud. Subsequently, Bank A applied technical measures to the account of Czech company X to prepare for possible seizure due to an unusual business transaction under Sec. 16 of the Act on prevention of legalisation of proceeds of criminal activity in order to prevent further use of the account balance. The FIU immediately informed its partner – the Financial Intelligence Unit in Poland – about the two above-specified payments amounting to EUR 170,000 in total transferred to two Polish accounts based on a CEO fraud. Immediately after sending the information, both payments were returned from the Polish accounts back to the account of Czech Company X kept with Bank A. Subsequently, the Financial Intelligence Unit forwarded the information to the investigating officer of the Police Force and the Prosecutor’s Office seized the funds amounting to EUR 1,400,000 that remained in the account of Czech company X.²²

Practical example 3: The Financial Intelligence Unit in the SR obtained, within international cooperation with a partnering foreign financial intelligence unit, information on the accounts kept by a French bank for Company A domiciled in France because funds accumulated in those accounts in a short time from several cases involving most likely fraudulent re-routing of payments (so-called CEO fraud) amounting to EUR 2,500,000 in total. The funds were supposed to be legalised as proceeds of criminal activity so were to be layered in parts and integrated via a network of bank accounts already opened in several European countries. In

21 Výročná správa finančnej spravodajskej jednotky Prezídia PZ v SR za rok 2017.

22 Výročná správa finančnej spravodajskej jednotky Prezídia PZ v SR za rok 2017.

cooperation with all the banks in Slovakia, the Financial Intelligence Unit in the SR checked Companies B and C, with a special focus on the accounts kept by those two companies in banks in the SR. Subsequently, it was established that one of the banks seated in the SR maintained accounts for both Companies B and C which were newly opened accounts X and Y in respect of which there was no history of previous transactions. Based on the above-established facts, the Financial Intelligence Unit initiated measures in the bank involving monitoring accounts X and Y. Subsequently, the bank recorded a foreign payment from France credited to monitored account YouTube amounting to over EUR 670,000. The Financial Intelligence Unit, in cooperation with the obliged entity, blocked this unusual business transaction in compliance with the Anti-Money Laundering Act and seized the funds. The competent French authorities asked the SR for legal assistance in this case.²³

Practical example 4: Funds amounting to almost EUR 460,000 were transferred via three payments to the account of Company A – a Slovak legal entity acting through a Spanish citizen, from an account of a Slovak governmental institution. As was established later, the Slovak governmental organisation had executed the payments based on an email message in which their business partner informed them of change of bank account and asked them to send all future payments to the new account. After transferring the above funds, the Slovak governmental organisation established that the account to which they had transferred the funds did not belong to their business partner who had allegedly notified them about the change of account but was kept with a bank in Slovakia for Company A which had only pretended to be their business partner. The entire transaction was executed by Company A in a very sophisticated way and was preceded by precise preparation which was evidenced by a number of accounts that had been prepared for that purpose in advance in order to make it as hard as possible to seize the funds. Immediately after the governmental organisation credited the funds in favour of the company's account, Company A executed transfers of several smaller amounts to already prepared accounts – an account of Slovak company B acting through the same Spanish citizen as Company A and another three personal accounts that he had opened for this purpose with banks in the Czech Republic.

Thanks to the prompt cooperation of the Financial Intelligence Unit with the Slovak bank that kept accounts for Companies A and B and cooperation with the Czech Republic, almost all the funds amounting to EUR 460,000 were seized in accounts in Slovakia and the Czech Republic.²⁴

2.10 Identity theft (use of identification documents, payment cards, skimming, phishing)

The mechanism of this method is based on the abuse of identification documents, especially documents confirming the identity of natural persons, and abuse of payment cards. Offenders legalising proceeds of criminal activity open accounts with banks using stolen or forged documents and use such accounts to transfer the funds generated through various criminal activities. Funds are transferred from such accounts via Internet banking

23 Výročná správa finančnej spravodajskej jednotky Prezídia PZ v SR za rok 2016.

24 Výročná správa finančnej spravodajskej jednotky Prezídia PZ v SR za rok 2015.

to other accounts from which they are withdrawn mostly via ATMs using payment cards. To prevent verification procedures, an international element is used – cash withdrawals from ATMs abroad or transfers of funds to accounts opened abroad.

Practical example 1: *Based on an unusual business transaction report, the Financial Intelligence Unit in the SR launched an investigation concerning the account of a non-profit organisation domiciled in Slovakia and unusual business transactions executed using its account kept with a bank in Slovakia. In this case, it was established that higher amounts had been credited to the relatively new account of the non-profit organisation represented by a foreigner – an EU citizen – and those payments had been executed via a POS terminal leased to the non-profit organisation upon opening the account. For three months, the POS terminal served for payments with foreign payment cards, amounting to more than 400,000 euros. After crediting funds, the managing clerk authorised to use the account executed 45 wire transfers to various accounts abroad, amounting to more than 240,000 euros, and 60 cash withdrawals were made via ATMs abroad, amounting in total to more than 24,000 euros. Smaller amounts paid via payment cards abroad were recorded as payments for goods or services. The total amount of transferred funds withdrawn via ATMs amounted to more than 270,000 euros. Further investigation revealed that unknown persons copied at least 21 payment cards into a device that saves such information, so-called skimming, and, using the POS terminal leased by the non-profit organisation in connection with the account, abused the copied card data and credited the account of the non-profit organisation. Subsequently, the bank received 61 requests (complaints) from various card companies requesting them to check payments transferred to the account of the non-profit organisation, which amounted to more than 160,000 euros, since the holders of those cards had not executed any financial transactions via the POS terminal. The bank contacted the client repeatedly and requested documentation concerning the transactions subject to these complaints and submission of documents based on which the payments had been executed, but the representative of the non-profit organisation did not communicate with the bank at all. When the bank established that various payment cards issued abroad had been abused, the balance in the account of the non-profit organisation amounted to approximately EUR 136,000. In cooperation with the bank, the Financial Intelligence Unit seized the funds in the account of the non-profit organisation in compliance with the Anti-Money Laundering Act and referred the case immediately to the investigating officer of the Police Force. Because as of the date of account blocking, further fraudulently obtained funds were credited to the account of the non-profit organisation, the total balance seized for the purposes of criminal proceedings amounted to more than 200,000 euros. The investigating officer of the Bratislava Regional Investigation Bureau of the Police Force commenced a criminal prosecution procedure dealing with the case of especially serious crime involving legalisation of proceeds of criminal activity.²⁵*

Practical example 2: *Within a case involving several coordinated phishing attacks against bank accounts of smaller Slovak municipalities, funds were transferred from their bank accounts to several personal accounts prepared in advance from which they were withdrawn in cash via ATMs abroad, using payment cards or transferred to other already prepared*

²⁵ Výročná správa finančnej spravodajskej jednotky Prezídia PZ v SR za rok 2016.

accounts abroad. Those cases demonstrated identical elements indicating that it is most likely they were coordinated (phishing). The identical signs were the following ones:

- all phishing attacks were targeted at accounts of smaller Slovak municipalities,
- all attacked accounts were kept with the same bank,
- all accounts to which funds were transferred after phishing, i.e. the funds generated through criminal activities, were kept with another bank in Slovakia,
- in all phishing cases, the accounts that served to deposit the illegal proceeds were held by the same persons.²⁶

Practical example 3: In 2011, the Financial Intelligence Unit in the SR recorded a case involving the abuse of POS terminals through which 1 665 unauthorised payments of smaller amounts were executed at various vendors in the USA within two days. The transactions were unauthorised offline transactions – declared as so-called “returned goods”, using VISA and MASTER CARD payment cards. The funds were credited to two accounts held by a company domiciled in the SR. Transactions of this type (return of goods) are executed when a client returns the goods for which they have already paid the vendor using a payment card and the client files complaints about the goods. In this case, no payments for purchase of goods from specific vendors in the USA had been executed. After crediting the funds coming from abroad to the company’s accounts, the managing clerk authorised to use the account tried to withdraw the funds in cash. Since the Financial Intelligence Unit already had information on similar activities by the managing director and members of his family in the past, the Unit blocked the transaction, and after the case was referred to the investigating officer, the Prosecutor seized the funds in the account. This case was interesting in regard to the preparation for the crime. The offenders found a socially vulnerable homeless person in advance and appointed them as a managing director of a company; subsequently, they opened bank accounts for that company in order to transfer the funds generated through criminal activities committed abroad which they wanted to legalise. The company’s managing director was supposed to pretend to undertake regular business activities, e.g. transfer payments from foreign customers for goods and services. Subsequently, he was to execute cash withdrawals in order to conceal the origin of the funds generated through criminal activities and thus hinder their seizure for the purposes of criminal proceedings. The company’s account was opened immediately before executing the fraudulent payments and no other business transactions were executed except for those during that period of time, which only confirms the fact that it was a criminal activity planned in advance. The company’s managing director was not able to provide bank employees with any explanation as to the origin of the funds credited to the company’s account. In total, 1,665 payments were executed using payment cards amounting to approximately 317,000 euros.²⁷

Practical example 4: The Financial Intelligence Unit received an unusual business transaction report concerning the opening of several accounts with Bank A based on forged authorisations and personal identification documents; those accounts were subsequently used to obtain credit from Bank A for several natural persons. After analysing the relevant data, the Financial Intelligence Unit established that Bank A had opened at least eight personal accounts for various natural persons – some of the accounts were opened via a courier service without any

26 Výročná správa finančnej spravodajskej jednotky Prezídia PZ v SR za rok 2014.

27 Výročná správa finančnej spravodajskej jednotky Prezídia PZ v SR za rok 2011.

authorisation and some were opened through employees of Bank A, who opened them outside the branch of Bank A based on the identification of a person using a personal identification document. Immediately after opening the accounts, their holders applied via Bank A's Internet banking application for credit amounting to EUR 150,000 in total. After the credit had been provided and transferred to the newly opened accounts, funds amounting to EUR 130,000 were transferred from the accounts to one account which had also been opened by employees of Bank A outside the branch of Bank A based on an authorisation. The funds generated through the credit agreements were gradually withdrawn via ATMs up to EUR 120,000. Later, Bank A found out that the data in the personal identification documents was not correct and the documents and authorisations had not been notarised, which gave rise to the suspicion that the case involved a cooperating group of unknown persons who solicited funds amounting to a total of EUR 150,000 from Bank A in a fraudulent manner and under false identities.²⁸

3 Conclusions

In addition to the legalisation indicators encoded in criminal activities, other elements such as the place where the indicator occurs, the subjects associated with the indicators, and the manner in which the indicators are obtained also play an important role within the first phase of the detection of legalisation of illegal proceeds. The places where the legalisation of proceeds of criminal activities can be detected depend on the specific manner of the legalisation and the means (financial and business tools) used within the legalisation. In the majority of cases, it is the financial market, capital market, insurance market, real estate market, etc. As concerns the place where indicators occur, an important role is played by the entities present within such markets, the tasks and legal competencies of which include the detection of possible cases involving legalisation of proceeds of criminal activity. Any deviations from regular business and financial transactions represent indicators of legalisation of proceeds of criminal activity, and the Slovak legislation in the area of legalisation prevention defines them as unusual business transactions.

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Start-up ecosystem support in the Czech Republic

Podpora startupového ekosystému v České republice

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Abstract

Lately, young people have preferred to get a conventional job rather than doing business. This is because minimum unemployment allows them to choose between offers from many employers. It is also partly due to concerns about bureaucracy and the risk of sanctions. In addition, young people refuse to deal with things that cause stress: they do not live to work, but they work to live. But it is a warning – if we want to have Czech companies in the Czech Republic in twenty years, and if we do not want to be dependent on multinational corporations, it would be a good idea to finally start doing something. Specific steps that can be taken include reducing administrative barriers and endless regulation, speeding up a fully electronic business-to-state relationship, and setting up systematic and effective tools to support start-ups both within regional policy and at universities. This paper aims to map the Czech start-up scene, to contribute to the understanding of the issue and to point out possible directions for the development of this new entrepreneurial form. Several scientific methods were used to write this paper. The literature review is based on a compilation of scientific texts. The Czech start-up scene is mapped by comparing and analysing secondary sources and synthesising knowledge, supplemented by experts' comments. The authors have contributed qualitative research in the form of semi-structured interviews with three start-up entrepreneurs. Deduction and suggestions are used in the discussion and conclusion.

Keywords

small and medium enterprise, entrepreneurship, start-up, Czech Republic, CzechInvest, Crowdfunding

JEL codes

M14, M 48

Abstrakt

Mladí lidé dávají v poslední době přednost klasickému zaměstnání před podnikáním. Je to proto, že si v době minimální nezaměstnanosti mohou vybírat z nabídek mnoha zaměstnavatelů. Roli hrají také obavy z byrokracie a hrožících sankcí. Mladí lidé se navíc odmítají zabývat věcmi, které způsobují stres, nežijí proto, aby pracovali, ale pracují proto, aby žili. Je to ale varování, že pokud chceme mít v České republice za dvacet let původní české firmy a nechceme-li být závislí na nadnárodních korporacích, bylo by vhodné pro to začít konečně něco dělat. Konkrétními kroky může být snížení administrativních bariér, nekonečných regulací, urychlený plně elektronizovaný vztah mezi firmou a státem,

nastavení systematických a účinných nástrojů podpory startupů v rámci regionální politiky i v rámci vysokých škol. Zájem o podnikání sice klesá, ale neklesá počet mladých šikovných lidí s nápady a ambicemi. Cílem tohoto příspěvku je zmapovat českou startupovou scénu, přispět k pochopení problematiky a poukázat na možné směry rozvoje této nové podnikatelské formy. Pro tvorbu příspěvku bylo použito několika vědeckých metod. Sekce „Literature review“ vychází z kompilace odborných textů. Mapování české startupové scény je provedeno na základě porovnání a analýzy sekundárních zdrojů, syntézy poznatků, je doplněno o odborné komentáře. Autoři přispěli kvalitativním výzkumem formou polotrukturovaných rozhovorů se třemi začínajícími podnikateli. V diskusi a závěru je využita metoda dedukce a návrhů.

Klíčová slova

malé a střední podniky, podnikání, start-up, Česká republika, CzechInvest, Crowdfunding

Introduction

Although considerable attention is paid to the issue of entrepreneurship in the economics faculties of Czech universities, students today show a lack of interest in setting up their own businesses. In the 1990s, however, the situation was different. Why has there been a change in attitude towards a future career? A survey conducted by the Faculty of Economics, University of West Bohemia in Pilsen (Pavláková, 2014) shows that unleashing the potential of SMEs in the economy depends to a large extent on the environment in which they exist. Globalisation is becoming a threat to some SMEs, for several reasons. Entrepreneurs are particularly worried about the strong competitive pressure of foreign companies, their capital and technological advantage. However, they do not realise the need to change their own thinking in company management. They do not perceive strategic management as one of the important aspects determining their own competitiveness. It is now certain that even small and medium-sized entrepreneurs cannot avoid radical changes in their traditional ways of working. This concerns, for example, lean and flexible production, barrier-free organisation, multifunctionality of workers and their self-management, and remuneration methods. The current young generation has become lazy, spoiled by the welfare of Western society, and this false sense of imaginary certainty does not motivate them to undertake the necessary personal effort. However, those students who want to take their fate into their own hands have an opportunity to start their own businesses through student start-ups.

Start-ups are a phenomenon that is becoming well-known by the public. However, their increasing popularity has not had the appropriate or expected response in the academic sector, whose interest in the subject is still very limited. Student start-up projects in the Czech Republic are not as successful as they are abroad; however, progressively managed universities have understood that support for business incubators and student start-ups is one way to strengthen their competitiveness in the educational institutions market. They have come to understand that only teaching coupled with practice allows graduates to acquire the necessary skills to develop their own businesses.

Through student start-ups, a university can improve its image in the public eye, because it shows that it is creating conditions for the success of its graduates in the free market; that it supports the students' efforts to start their own business activities. The Institute of Technology and Business (VŠTE) in České Budějovice can serve as an example. "We believe that the development of innovative entrepreneurship can contribute to increasing competitiveness and employment in the South Bohemian region. That's why we offer targeted support in this area. Students have a number of ideas, but the beginnings are not easy, whether because of finances, administration or support," says Ludmila Opekarová, Vice-Rector for Practice and External Relations of VŠTE. The school wants to help high-quality student projects mainly by providing support, offices and even seed capital through its Project Innovation Centre. The school has held its Idea of the Year competition for the tenth year. A total of 197 projects were registered in the 10th year of the competition, and the winners of the competition were awarded prizes worth more than CZK 925,000 (napadroku.cz, 2017). A similarly positive experience can be found in the Zlín region (Technological Innovation Centre in cooperation with the Zlín Region and its partners announces a professional and creative competition for students of secondary schools, higher vocational schools and universities). Another example is the activity of the Governor of the Central Bohemian region and the Chair of the Board of Directors of the Central Bohemian Innovation Centre, Jaroslava Pokorná Jermanová and Rector of ŠKODA AUTO University (Pavel Mertlík) – on 17 January 2017, they signed a cooperation agreement. The aim of the strategic partnership is to help university students and start-up entrepreneurs to increase their chances of success and to develop start-ups in Central Bohemia (savs.cz, 2017). At VŠE in Prague they present their approach in the following way: "We are a university, but we do not just teach business, we practise it. And we have a recipe for it. We can help you transform your business ideas into a product. In xPORT, we nurture new start-ups and then get them to experienced mentors, investors and beyond. We send the most advanced projects to the world. We find original ways to transform the business of corporations. We invite inspiring guests. We create business community at VŠE. We are here for students, graduates and corporations." (Böhmová, 2017).

Let us delve deeper into the issue of the access of the young generation to entrepreneurship, to the possibility of implementing business projects through the establishment of student start-ups, relying on theoretical principles and outputs, compilation, evaluation and expert comments in secondary data.

Starting a SUCCESSFUL start-up requires, in addition to a good idea, courage, energy, passion, patience, a bit of luck, a lot of stubbornness, the ability to count, and the ability to rebuild all those "buzz words" into something practical. There are many words ending "... ING" or "... TOR" around the start-up: Networking, Coworking, Crowdfunding, Crowdsourcing, Investing, Consulting, Banking, Incubator, Accelerator, etc., to get something practical for their start-up. It is necessary to imagine all the words as an ecosystem in which a start-up lives, with whom it communicates, which can be beneficial to it, but also harmful. Macro and Micro Environment, Incubators, Accelerators, Crowdfunding Platforms, Investors, Banks, Grant Programmes, Tutorials, Media, Other Businesses, Universities, etc. can be included in these terms (Panuška, 2018).

1 Literature review

1.1 The start-up as a tool to start a business project

In practice, we come across different start-up definitions. One of the most common criteria is the development phase of a business. This says that a start-up is defined as a new, yet-to-be established business based on an innovative business model and funded by start-up capital (Hathaway, 2016). Other definitions do not take the development phase into account and define a start-up as an organisation designed to seek a business model that is repeatable and scalable (Blank, 2010). An important characteristic of all start-ups is the entrepreneurial spirit and a high degree of risk associated with the uncertainty of the environment. This is mainly connected with the continued growth in the business environment and Industry 4.0 (Kupec, 2018).

The term start-up was first coined in 1996–2001, when it became known during the ‘dot-com bubble’. At that time, there was a tremendous boom of new Internet companies with top-level domains. Despite excellent ideas which attracted huge investments, most start-ups did not have a well-thought-out business model. This was followed by bankruptcies, the Internet bubble burst, and the inflated shares of these new companies lost their value. Only those companies survived that were able to generate profits even during the investment fever and at the same time were able to reduce costs, especially the number of employees. However, the term ‘start-up’ quickly caught on and began to be used in many other industries where all new projects or businesses were considered start-ups.

Not just any company that starts its business can immediately be considered a start-up, yet many people think that is the case. This idea is refuted by Steve Blank, the founder of many successful companies, who has his own definition of a start-up. Blank states that a “start-up is a temporary form of business designed to seek a business model that is repeatable and scalable”. He adds that the company’s business model changes as it develops. Start-up projects can therefore be contrasted with large corporations that operate on proven and established business models. He also states that a start-up is an institution created by people and designed to create a new product or service under extremely uncertain conditions (Blank, 2010).

In scientific literature, the concept of a start-up is often associated with small start-ups and their creation (e.g. Fritsch and Weyh, 2006; Fritsch and Schindele, 2011). Luger and Koo (2005) specify three criteria defining the framework of a start-up. They must be: 1. new, 2. active and 3. independent.

- new – only new entities registered in the Business Register are considered to be start-ups. Companies with a business history which have only changed their name, ownership structure, registered office or legal status do not meet this condition,
- active – the next definition criterion is the active participation of a newly registered company in business relations. This attribute excludes companies that, for a variety of reasons, only exist ‘on paper’;
- independent – subsidiaries controlled by a parent company may also fall into the category of newly established/registered companies active in business relationships.

For this reason, authors also apply the independence criterion that excludes these subsidiaries.

In his article "What The Hell Is a Start-up Anyway?" Alex Wilhelm (2014) states that not every small, newly created company must be immediately considered a start-up. Over many years of experience, the author has deduced a systematic 50-100-500 rule, which defines a start-up as a concept in a certain way. In his opinion, a company may be called a start-up if it generates an annual turnover of up to USD 50 million, it employs up to 100 core employees and its market price is estimated at up to USD 500 million.

First of all, a start-up is a legal entity that has been established as a business unit to implement a business model linked to a particular product, idea or innovation. It is usually an innovative company that seeks to expand its innovation on a mass (usually global) scale. It does not necessarily have to be IT innovation, but technology companies are predominant. If entrepreneurship or entrepreneurship were also taught in non-economics faculties, their owners would be able to manage management, marketing, cash flow management, etc. The success of a start-up need not be defined by mere survival. Other indicators of success include, for example, the number of job opportunities created, revenue growth, return on investment and return over a certain period of time, etc. (Schutjens and Wever 2000).

According to the Aspen Institute Prague (2016), a start-up is an entity from any industry that:

- develops a product or service that is unique in a given location or time;
- tries to solve a particular problem in a unique and innovative way;
- has the potential for rapid growth in terms of revenue and number of customers;
- is characterised by the fact that the founders themselves play a key role in the business;
- needs investment for its further growth.

The main tasks of start-ups can be divided into two processes: cognitive aspects and the activity itself (Korunka et al., 2003). In order to comprehensively understand the cognitive aspects such as, typically, planning, we can use the business plan or business model canvas methods in relation to start-ups. A business plan is an extensive document that attempts to map all the important elements of the business. The business plan is a crucial component in planning a new enterprise or in evaluating an existing one. It serves as an essential tool when contemplating major strategic changes or introducing new innovations in a business. Initially, a business plan should be written as an internal document that is used as a work tool by the entrepreneurs and management in charge of the business (Galai, Hillel and Wiener, 2016). A business plan does not have a fixed structure, but some common features can be found. When preparing a business plan, account must be taken of the exact description of the future business, its environment, competition, market analysis, marketing plan, operational plan, team description, financial plan, business start up risks, return on capital, etc. A business model canvas is a model developed by the Business Model Foundry and has been used not only in large companies (Ericsson, 3M, Deloitte, Osterwalder, Pigneur and Smith, 2015). It is popular among start-ups, especially for its simplicity and the time required to draw it up. The business model canvas makes it easy to clearly describe important business aspects. Key points include

defining key partners and suppliers, key activities, key resources, customer relationships, distribution channels, customers and cost-benefit sharing (Cyr, 2007).

The business model of a successful start-up is based on innovation, repeatability and scalability. The word 'innovation' was first used in the economic context by Joseph A. Schumpeter (1976).

- Innovation consists of successful production, adaptation and use of progress in the economic and social sectors. The innovative business model is looking for new ways to meet customer needs, and/or creates new needs, thereby opening new markets.
- The repeatability of a business model is the ability to apply the main advantages and strengths of an organisation in new conditions for further growth and expansion. The repeatability of a business model is based on three basic assumptions: simplicity, certainty and adaptability.

Scalability is the ability of a business model to work with an increasing volume of inputs. "Most small business owners have dreams that are bigger than their current reality. The problem is, when the day to day of small business ownership can be so overwhelming, it's tough to know what you should be doing now to ready your business for a successful future." Experts recommend to build a solid foundation, scalable business solutions, strategic planning, core strengths: have an unrepeatable competitive advantage and be patient (LeBlanc, 2018).

1.2 Risk of start-up failure

Start-ups, as one of the engines of innovation and resources for sustainable employment, represent a current issue. For the EU, where SMEs account for 80% of new jobs, start-up success is more than important (European Commission, 2012). However, 30–40% of start-ups end in bankruptcy and 70–80% of start-ups fail to achieve their financial goals in terms of return on investment (Nobel, 2011). Therefore, the question is why the start-up failure rate is so high and what is the potential to increase their success.

Research projects that study the development and growth of start-ups have been few, although start-ups can make a major contribution to the economic development of a region. This is especially true for start-ups in knowledge-oriented sectors of the economy, such as the Information Technology (IT) segment, which shows the greatest start-up dynamics. Statistics show that the risk of start-up failure in this sector is up to 95% (HRforum.cz, 2016). The chance that an innovation will break through and succeed in the market is extremely low. On the other hand, start-ups can evolve into small companies which possess alternative management models affecting company performance positively (Velinov and Denisov, 2017).

External conditions also undoubtedly play a role in start-up success or failure. It depends largely on the structure, size and growth potential of a given market segment, the nature of the competitive environment, the purchasing and consumption behaviour

of customers, etc. For example, Fritsch and Weyh (2006) have pointed out that only 48% of new companies in the German services sector survive the first five years. In the case of manufacture it is about 64% of new businesses. The survival chance of new industries, such as electronics, ICT, life sciences, etc., is twice as small compared with the traditional industries as a result of turbulent and dynamic growth (Gimmon and Levie, 2010). The higher population density of metropolitan regions can provide start-ups with sufficient capital, human resources and knowledge that can significantly stimulate their development and increase their survival chances. However, Stearns et al. (1995) pointed out that, conversely, the competitive environment in these places diminishes the chance of start-up survival.

According to Ries (2011), the reason for start-up failure is the effort made to apply thinking, procedures and methodologies used in traditional established firms. Efforts to create business plans, strategies, forecasts, and market research may have worked in established companies in a stable environment. There is a great temptation to apply these techniques to start-ups, but this is problematic, as start-ups operate in environments with very high uncertainty. Start-ups have no history and do not operate in a predictable, stable environment. Other causes of failure may include the following:

- Ill-conceived distribution of shares in the company. Many ideas are produced in the team when in a pub, café or while travelling. Mostly, one person is the author of the idea and the person willing to invest their future time and energy. Other people involved in the project are important but do not necessarily have to be partners. They can get a share in the profits if they do what they promise in advance. Sooner or later, many companies with multiple partners run into a problem. Not all partners spend the same amount of time on the business, they have different views on profit-sharing and the strategic direction of the company. Disputes, quarrels or just bad feelings can ruin the company.
- An inability to admit that the project is not viable. An unbiased person who divides their investment into more projects is usually able to predict when it is better to terminate (kill) the project – failure is caused by not setting a boundary beyond which the project will no longer be continued (a poorly set amount of investment, unexpected time limit, etc.).
- Dysfunctional marketing, i.e. know-how for selling the product. Although it is a great product or service, its potential customers or clients simply do not know about it.

2 Methodology

The literary research for the article was based on the analysis of secondary sources, compared with the opinions of the authors on the present issue. Because the issue is relatively new in the Czech Republic, the authors also relied on publicly available Internet resources on the subject.

Both primary and secondary data were analysed. Primary data was obtained between 2014-2017 by carrying out both quantitative research through questionnaire surveys

and qualitative research through semi-structured interviews. The start-up database created by the authors of the paper, was chosen as the default data source. This database was supplemented by a secondary data source – the websites of selected start-up and business incubators. The nature of the survey questions corresponded to the purpose of the survey. In connection with the survey questions, the questionnaire survey and interviews concerned the following topics:

1. conditions and possibilities for setting up start-ups in the Czech Republic
2. existing start-up ecosystem support

The Aspen Institute Prague study is based on the responses of 141 start-up operators. The survey was conducted in 2016 in the form of quantitative research – a questionnaire survey with closed scalable questions. In 2015, the Ministry of Industry and Trade carried out a questionnaire survey of 64 small businesses. Again, it was quantitative research – a questionnaire survey with closed scalable questions. The authors comment on the results and suggest possible ways of solving the issues discussed.

3 Empirical results and discussion

3.1 Conditions and possibilities for setting up start-ups in the Czech Republic

It can be said that the Czech start-up ecosystem has seen increasing growth in the last five years. There are new business incubators¹ and accelerators² in which Czech and, in some cases, foreign companies are growing. Start-ups are very important for the Czech economy. They have a quick start and even faster growth, and have the potential to generate profits and create new jobs in the future. They are also a very important motivating element for our students and graduates.

According to a survey by the Aspen Institute Prague (Brejčák, 2016):³

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- 1 *The term **incubator** itself shows that its contact with a start-up is at a very early stage. An incubator is “a business support process that accelerates the successful development of start-up and fledgling companies by providing entrepreneurs with an array of targeted resources and services. These services are usually developed or orchestrated by incubator management and offered both in the business incubator and through its network of contacts” (Mielach, 2013). Incubators aim to improve the functioning of already established businesses through various methods, such as consultations or help with promotion and expansion.*
 - 2 **Accelerators** serve start-ups, i.e. early-stage businesses, and have similar tasks and methods to incubators. Accelerators are usually private institutions that charge start-ups for their services. This can be either in the form of monthly fees or a share in the company. This may also include seed investment for which the accelerator obtains, together with the services provided, a share in the company (3% – 10% according to the scale of the investment and the services provided).
 - 3 *Of the total number of 550 respondents, 141 start-ups answered. The size of the examined file does not justify drawing conclusions about the whole basic set of startups in the Czech Republic. Similar studies are unique in the Czech Republic, so the outputs offer an interesting look at the situation of Czech start-ups.*

- There are 51 business incubators in the Czech Republic. 23 privately owned, 21 public and 7 in public-private ownership. At the same time there are more than 80 coworking centres in the Czech Republic.
- 81% do not have any women among the co-founders.
- 58.8% of them are based in Prague, 1.6% are based in Plzeň, 1.6% in České Budějovice, 4% in Ostrava, and 15.3% in Brno. These figures show that they are prevalent in large university cities.
- The legal forms of start-ups are joint-stock companies (11.3%), unlimited partnerships (2.1%), limited liability companies (73%), self-employment (4.3%), branch of a foreign company (7.1%) and other (2.2%).
- 22% of the companies were registered before 2013, 39% in 2013–2015, and 39% in 2015–2016. This is conformation of the fact that the Czech start-up ecosystem has seen growth primarily in the last five years.
- When asked what sources of financial support the companies used for its start, the respondents could choose from several answers. The sources were own capital (78%), the so-called 3F – friends-family-fools – group (12.8%), local business angels (12.8%), strategic business investors (9.02%), public aid (8.5%), foreign VC funds (6.4%), local VC funds (6.4%), foreign business angels (5%), crowdfunding (4.3%), scientific grants (3.3%), and other funding (3.5%). It can be said that financing of start-ups from external sources has not been reported. As a fund-of-funds manager, the EIF (European Investment Fund) was to select teams for managing accelerators, seed funds and venture capital funds in 2017. These should invest independently in Czech start-ups and emerging businesses. In total, EUR 50 million has been made available, with the larger part being allocated to venture capital. In addition to the above-mentioned 50 million euro, start-ups could eventually get far more. The EIF often acts as the main investor in funds, which is a positive signal and encourages other private investors to invest together. The agreement with the EIF is the first implemented financial instrument in the Czech Republic in the current programming period of European funds and the first ever investment start-up support programme implemented in the country (Brejlová, 2017).
- What is the timeframe for stable, expected and sufficient income? 5.4% of start-ups responded immediately, 20.8% after several months during the first year of business, 11.5% between the first and the second year, 15.4% after two years, and 46.9% were still without profit.
- Non-financial support is also important for start-ups – again, respondents could choose several variants. The respondents mentioned mentoring (29.8%), participation in local competitions (24.8%), participation in fairs (22.7%), local acceleration programmes (14.9%), participation in foreign competitions (14.2%), local incubators (12.1%), university (6%), foreign acceleration programmes (7.8%), local technology parks (4.3%), university incubators (3.5%), foreign incubators (2.1%) and foreign technology parks (1.4%). The low percentage of non-financial support received through universities and university incubators illustrates the unsatisfactory situation / approach of universities.
- The motivation for the use of incubator or accelerator services was mentoring and business consultancy (42.6%), obtaining information on funding opportunities (19.1%), approaching prospective investors and networking (32.6%) and office

space (14.2%). These are incentives for university incubators that could offer or mediate these services.

- 38.6% of respondents are in the local market, 61.4% in the global market.
- 62.1% of the companies deliver new products or services, 22.7% are improving an existing product, 6.1% are copying and adapt an existing product and 9.1% are not sure. Of these, only 34.7% have registered a patent or trademark. This figure indicates that in the Czech Republic there is a very low awareness of the importance of intellectual property protection, and the processes related to the protection of copyright and industrial rights.
- External factors that make it difficult for start-ups to succeed include the steps required to realise exports and enter foreign markets, complicated, non-transparent and ever-changing legislation, administrative complexity and the tax burden, or inadequate computerisation of state administration.
- Factors limiting initial success are the lack of qualified human resources, limited funding opportunities, the need to find investment resources, and acquiring the right contacts, skills and knowledge in management and financial management.

In 2015, the Ministry of Industry and Trade carried out a questionnaire survey of 64 small businesses⁴. It was found that:

- Start-up creation is not easy in the Czech Republic.
- In addition to the initial idea and a quality team, especially demanding innovative solutions require a large initial investment, which is often difficult to obtain for start-up entrepreneurs. It is the very limited opportunity to receive financial capital in the early stages of business that hampers the development of small innovative companies.
- 70% of the business owners had to limit their investments.
- In the first years after establishing the company, their investments ranged up to a maximum of CZK 5 million. The reason for the low volume of investment is, in particular, the very limited access of enterprises in the early stages to external sources of financing.
- In terms of existing business financing, own resources (without the consideration of foreign resources) are dominant (46%). Another 22% of companies have received funds from family and friends. External sources outside friends and relatives primarily include business angels, i.e. individual investors (9%) and banks (7%).
- The venture capital market is very poorly developed in the Czech Republic compared to other EU countries (Ekonomický deník, 2015).

According to the World Bank, the Czech Republic ranks 81st among 190 countries when comparing the difficulty of setting up a new business entity. The Czech Republic has worse conditions for start-ups than Ukraine, Kosovo or Benin. Domestic start-ups therefore

⁴ Most of them operate in Prague and Central Bohemia (37%), the South Moravian Region (31.5%), the Plzeň Region (11%) and the Moravian-Silesian Region (9%). In terms of sectors, respondents were particularly active in ICT (almost 51%), less than 17% are in research and development, followed by the manufacturing sector and trade with 5%.

have a much more complex position than start-ups in other Central European countries. Support is important for Czech start-ups not only because of the greater bureaucracy when setting up the company, as shown by the above-mentioned World Bank ranking, but also due to their worse access to investment (Dostál, 2017).

3.2 The Czech start-up scene

As part of the Start-up Survey, the Aspen Institute⁵ published the *Czech Start-ups Report 2016*. Having created a database of 550 start-ups, the Aspen Institute invited all of them to take part in the survey that ran in the summer of 2016. Moreover, the questionnaire was distributed via Czech incubators, acceleration programmes, CzechInvest, and other popular channels for Czech start-ups, which maintain their own databases.

Based on the replies collected from 140 Czech start-ups an analysis of the Czech start-up ecosystem was prepared. The survey results are as follows:

- Nearly 70% of the surveyed start-ups are in the **early stages of development** (pre-seed and seed stage), whereas only 15% are in the scale-up phase.
- Slightly above 60% of the start-ups claim they offer **new services or products**, and almost 23% of them are working on an **improvement of an existing** service or product.
- 78% of the Czech start-ups have used **finances from their own resources**. Local business angels or the start-up's network (the 3F group) financially supported 13% of the surveyed start-ups.
- Start-ups mainly operate in the following fields: **SaaS** (28%), **web services** (21%) and **mobile software services** (17%). Other often chosen areas are: analytics/business intelligence (16%) and cloud services (12%). Interestingly, around 10% of start-ups mentioned the Internet of Things and education as their fields of activity.
- The vast majority of companies surveyed are micro-enterprises, employing up to 10 people. More than **65%** of them had **increased** their **number of employees** in the past six months by at least one person.
- Among the surveyed start-ups, almost **25% do not export**. Only 22% get more than half of their income from abroad.
- Collaboration with universities and commercial **R&D centres** is not a common trend and only a few of the surveyed start-ups began in academia or research centres. This is also reflected in the areas where the surveyed start-ups operate – most of them bring in **new IT products and services rather than technological solutions**.
- When asked about the most major internal challenges, the surveyed start-ups listed **human resources (53% of responses)** and **finances/investments (43%)** as the top two.

⁵ For more information see <https://www.aspeninstitutece.org/project/czech-startup-report/>

3.3 Existing start-up ecosystem support

There are many ways to support start-ups in the Czech Republic. In this paper we demonstrate two examples: government support (CzechInvest) and alternative support (Crowdfunding).

3.3.1 State support through CzechInvest⁶

CzechStarter is a project supported from the Marketing programme of Priority Axis 2 Development of business and competitiveness of small and medium enterprises of the Operational Programme Enterprise and Innovation for Competitiveness (OP EIC) 2014–2020. CzechInvest is also targeting start-ups using other programmes such as **CzechDemo**, **CzechAccelerator** or **CzechMatch**. The first nine start-ups are currently engaged in its so-called Basic Phase. During this phase, selected mentors will provide valuable experience from the business environment. The most successful start-ups will test their acquired knowledge in Silicon Valley. “They can get up to 150 hours of mentoring and counselling from areas such as finance, management, marketing, or intellectual property protection depending on their individual needs. We will cover 85% of their costs, and up 100% of the costs of travelling and staying in Silicon Valley,” says Markéta Havlová, Director of the CzechInvest Start-up Department. One start-up can thus reach up to CZK 700,000. Among the most exciting start-ups included in the programme are PlasmaAgro, which uses low-temperature plasma for the physical treatment and stimulation of seeds, and New Era Materials, which is producing unique composite materials (Dostál, 2017).

The **CzechAccelerator** project provides rental of office space and an acceleration programme full of mentoring in Silicon Valley, New York, London and Singapore. The selected participants will participate in a three-month acceleration programme in developed destinations where they can expand their horizons and gain invaluable business experience. In addition to arranging office space, mentoring from experienced foreign mentors, counselling services related to the protection of intellectual property, and helping with the preparation of promotional materials corresponding to the local mentality, it will provide two return tickets and within three months will organise workshops on different topics (Lean Canvas, Pitching B2B Sales) or entry to interesting networking events where start-ups can meet potential customers, partners, and investors.

The **CzechMatch** project will prepare start-ups for presentation and negotiation with investors and business partners. They will have a unique opportunity to introduce their innovative idea to foreign investors and get feedback from them. During a week-long seminar abroad, start-ups can expect a programme full of mentoring and networking,

⁶ *CzechInvest, the Investment and Business Development Agency, is a publicly co-funded organisation subordinated to the Ministry of Industry and Trade of the Czech Republic, which strengthens the competitiveness of the Czech economy by supporting small and medium-sized enterprises, business infrastructure, innovation and foreign investment in manufacturing, strategic services and technology centres. CzechInvest's objective is, among other things, to support the Czech start-up community as a young and fast-growing sector, especially in the field of innovation and technology. CzechInvest believes that innovation and technology are the fields of the future.*

with a matchmaking event at the end. They will strengthen their presentation skills, gain new contacts and experience abroad, and increase the chance to internationalise their business project.

CzechDemo is a project allowing start-ups to present themselves at major international events and showcase their innovative products. Young entrepreneurs have the opportunity to exhibit at the most famous fairs, festivals, and conferences.

CzechLink Start is a project designed for start-up innovative Czech companies looking for a strategic or investment partner. Its aim is to not only facilitate Czech start-ups with foreign investors, but also to provide them with capital to start their business and increase the flow of foreign investment into the Czech Republic.

CzechStartups.org is the first official website about the Czech start-up scene. It was launched as CzechInvest's partner project in cooperation with IBM Czech Republic, Czech ICT Alliance, the Association of Small and Medium Enterprises and Tradesmen of the Czech Republic (AMSP ČR) and Rockaway Capital. The portal is a one-stop-shop for all relevant information about the Czech start-up scene. Its aim is to offer a comprehensive overview of the Czech start-up scene, to publish information on current government and private start-up programmes and small and medium-sized businesses, and information on support providers to help start or accelerate business through mentoring, networking, or providing investment. It is the official online centre for start-ups in the Czech Republic. In the Start-up Support Programmes section, it presents incubation and acceleration programmes and programmes directly funded by European funds.

Table 1: Current incubation programmes in the Czech Republic

Incubation programme name	Activity
AI Start-up Incubator	Focuses not only on the business side of things, but especially on the development of innovative and promising business ideas.
Creative Incubator DEPO2015	Development of entrepreneurial skills, mediation of contacts with important people from the given field.
UP Business Catapult	Discount for business premises (for students and employees of Palacký University, use of virtual office and coworking for 6 months completely free of charge). Use of the meeting room free of charge, a significant discount on renting a training room. Five free hours of consulting services per month given by a VTP UP consultant; semi-annual efficiency evaluation of the company. Possibility to raise up to CZK 30,000 for consulting services from external consultants. Possibility to meet with experienced mentors, preferential registration for events organised within the UP Business Club, access to materials from these events.

Incubation programme name	Activity
TITC Science and Technology Park and Business Incubator	Business Incubator in Brno, implemented as one of the main projects of the Regional Chamber of Commerce of South Moravia in cooperation with the Brno Technical University. It is creating an environment for the promotion of innovative entrepreneurship, along with the development of business cooperation with universities and scientific workplaces. It supports the transfer of science, research and innovation results (technology transfer), and has educational and awareness-raising functions.
Steel-it Business Incubator	Operated by the EuroSchola Institute and more than 13 other public and private partners. The aim of the project is to set up a business incubator focusing on the area of information and communication technologies and the so-called 'knowledge and new economy'. Emphasis will be put primarily on innovative and emerging companies from new dynamically developing industries, particularly ICT. The aim is to facilitate the transfer of new ideas and knowledge from the field of ICT into practice and to create adequate conditions for starting a business in this area.
Point One	Coworking centre and also a business incubator of the Czech University of Agriculture in Prague. Incubation of a project lasts 18 months on average. The aim is to help a member quickly recognise whether their business is viable or not. The premises are open to all students and graduates of the CUA who want to start a business.
ESA BIC Prague	Incubation and development of technologically advanced start-ups that use space technologies or systems in their commercial products or services.
CTU Incubator InQbay	Open to students, researchers and graduates of the Czech Technical University but also to all prospective entrepreneurial entities.
ICUK StartUp GO!	A creative coworking space, a professional training programme with experienced lecturers and business professionals, regular reviews with mentors and presentations from potential investors, help with getting grants, establishing contacts and sharing experience with companies in a similar phase of development.
Virtual incubator of the Technological Innovation Centre in Zlín	Intended for newly established companies that need a place for their registered office or delivery addresses, but also for companies that want to use a number of other business incubator services without the need for their own office.

Incubation programme name	Activity
Prague IoT Centre: IoT&SmartCity Incubator	From idea to functional prototype, first customers and international distribution channels in 6–9 months. Putting a specific use-case into practice, from the idea itself to a customer project. The programme is designed for B2B products combining hardware and software with international potential.
Incubation Centre Hradec Králové	An important condition is the focus on advanced products, technologies and services with the potential for further innovation.
Laboratory of the Vodafone Foundation	Approaches non-governmental organisations and socially responsible entrepreneurs who are trying to promote a positive change in society, focusing on pre-seed and spin-off companies, or those that are not happy with their direction and want to restart their business.
Erasmus for Young Entrepreneurs	A cross-border exchange program to help new and emerging entrepreneurs get new experience from experienced entrepreneurs running smaller businesses in other participating countries.

Source: authors, processed according to www.czechstartups.org

Table 2: Current acceleration programmes in the Czech Republic

Acceleration programme name	Activity
Impact Hub Impact First	Social Lean Start-up Business Plan Methodology.
Impact Hub Tieto NERDS	Workshops to help with planning and team leadership, needs analysis, presentation skills, business planning, and other business needs.
Impact Hub 100 Day Challenge	Learning from experienced mentors and more than 15 professional consultants and partners.
Impact Hub Social Impact Award	Educational programme for socially beneficial businesses operating in 15 countries around the world.
JIC MASTER	Analyses, strategic team making.
JIC STARCUBE	Financial support, mentoring, finding business partners.
GreenLight	Motivation and support especially for university students to implement their own business plans. Moravian-Silesian Region.
StartupYard Accelerator	Project management in data, mobile applications, analytics.
aPORT VŠE	Mentoring, start and scaling of business, individual approach.

Source: authors, processed according to www.czechstartups.org

Young people are also encouraged to start businesses by the Association of Small and Medium-Sized Enterprises and Tradesmen of the Czech Republic through the non-subsidy project **Young Business – Your Way** (AMSP ČR, 2018). The project is prepared in cooperation with Komerční banka and Google. Its goal is to create a broad platform for young people and to convince them that having influence means being independent. Its annual culmination is announcing the winner of the Start Up grant programme. The announcement takes place on the Day of Entrepreneurs of the Czech Republic. In 2017, a jury evaluated 59 business plans, choosing the “Boem Audio” project as the winner. This project deals with the development and production of innovative wooden speakers. Its goal is to bring innovative products from fine materials to the market, providing users with exceptional quality and comfort. In order to implement their business plan, the founders of Boem Audio will receive a grant of CZK 300,000 from Commercial Bank.

Mamnapad.cz is an independent magazine about innovation, creativity, and start-ups for all business innovators and enterprising people. In addition to information from the world of creative projects and start-ups, it provides tips and guides to promote creativity and innovation in organisations. Its vision is to help individuals, groups and organisations successfully implement their ideas and innovative projects and promote creative thinking in society. It believes that creative thinking and innovation can create a better world together. On its website, it introduces new business ideas (such as irrigation technology, a taxi for pregnant women, a scarf against the cold, Vissto – a start-up focusing on smart solution for data visualisation, and more), looking for investment capital, or a suitable investment project.

3.3.2 Crowdfunding

Crowdfunding is a method of funding in which a large number of individuals contribute a small amount of investment in order to achieve a target amount which the receiver pre-sets. Generally, if a receiver does not receive the required amount of money in a set period of time, any money already invested is returned to the individual investors. If the receiver achieves the amount of money needed, contributors usually get a special reward. These awards can differ and therefore there are four types of crowdfunding: benefit crowdfunding, reward crowdfunding, loan crowdfunding and share crowdfunding Crowder.cz (2018).

In the Czech Republic, crowdfunding is rising in importance as a form of funding. The most common type is **reward crowdfunding** when people usually receive a material reward. **Hithit.com** and **Startovac.cz** are two most famous reward crowdfunding platforms. After four years of crowdfunding, Hithit has launched more than 1,300 projects and about 2.665k EUR (70 million CZK) has been collected from people to support different projects. Another smaller reward crowdfunding portal is **Penezdroj.cz**, which has so far had 14 successful projects with 54k EUR (1.42 million CZK) collected.

3.4 Qualitative Research – semi-structured interviews with start-up entrepreneurs

The authors had the opportunity to hold interviews with representatives of the business community and participants of the individual competitions (family company of the year, competition for the most creative start-up entrepreneurs and queens of small business), as part of the 2017 Business Day held on 3 October 2017 in Prague at the Ambassador Hotel. For this study, they selected three entrepreneurs who were asked five identical questions in a semi-structured interview. The responses were recorded electronically and transcribed. The aim of the research was to find out what caused the start-up founder to implement their business plan, and what they see as their own contribution.

These answers could be considered as case studies. They summarise the replies of the founders of service start-ups.

Company A: Type of business: Education – consultancy in the field of personnel management; coaching; number of employees in the company: 1; region: Capital City of Prague.

Company B: Type of business: trade, manufacturing; number of employees: 1; region: Capital City of Prague.

Company C: Type of business: consulting services; number of employees: 3 internal, 4 external.

Table 3: Answers of qualitative research respondents

Question	Company A	Company B	Company C
<p><i>What brought you to doing business? How would you describe your company in five sentences?</i></p>	<p>I set up the company as a consulting company focused on personnel management and coaching. Personal development has been my focus for the last 15 years. I work on projects either alone or with external lecturers. Last year, I and my daughter Hanka started a new stage of (now) joint business ventures. We started creating an inspirational combination of a diary and agenda, and at the end of the year we started selling them under the Life Designer brand. We offer the diary together with the Guide on the way to my vision, of which I am the author.</p>	<p>I have already been through several business ideas in my life: we have always implemented them within our family business where I worked with my father and my brother for nearly twenty years. During this time, my desire to implement my own projects, my own strategy and my vision gradually matured until I decided to go my own way.</p>	<p>I wanted to be able to influence my decisions, and I was naive to think at that time that business was the freest option. Later I found that it was not that easy, but I still consider it the best decision. That's why I founded Fundchaser with Martin Vitek. Our focus is the creation and implementation of crowdfunding campaigns and access to Kickstarter, the largest crowdfunding platform, which is not available in many countries. We also help with subsequent entry into the US market if our clients' campaigns are successful. As a company, we have existed for three years and now our team consists of seven people. Our motto is "creativity without borders".</p>

Question	Company A	Company B	Company C
<p><i>What helped you at the beginning of your business and what complicated your life?</i></p>	<p>The hardest thing for me was to do everything on my own. Previously, I was used to working with a team. In addition, when I was focusing on a long-term customer, I neglected the shop and after the contract ended, I experienced a drop in turnover. Now I'm glad I work with my daughter. Firstly, because we understand each other well so I enjoy my work, but also because we use each other's different experiences and opinions.</p>	<p>My friends, people and luck helped me a lot ... and of course also my faith and the desire to change my life and make a change. Of course, this also brings a number of complications, including the persistence of old dogmas and habits.</p>	<p>What helped me most was my desire to constantly learn new things and the belief that failure is not a loss but a new experience that can push me forward. The advice of experienced people around me helped me a lot, too. My impatience and the effort to get everything instantly at the expense of quality was the biggest impediment for me.</p>

Question	Company A	Company B	Company C
<p><i>What do you consider your greatest success?</i></p>	<p>I am especially happy that for the first time in my life, I have begun to produce an intangible product that we see as useful, practical and beautiful. And the reactions of the first users confirm this. It is also of great value to me that I can share my experience with my daughter and also learn from her.</p>	<p>The fact that I decided, despite many complications, to really start my own business!</p>	<p>My greatest success is Fundchaser's constant and dynamic development. I mean, we do not just stand on the spot and we do not just take orders for money, but we try to develop together with the needs of our clients, and we are doing well in this regard. Of course, with regard to less complex issues, our participation in crowdfunding campaigns, such as the Skinners campaign, was successful.</p>

Question	Company A	Company B	Company C
<i>What are your plans for the future?</i>	We have a lot of ideas about how we would like to expand our range to include different bulletin boards and organisers. We want to learn how to sell our products in the Czech Republic and then offer them abroad. We are also considering an electronic version of Life Designer. But that's far away.	I expect that the market establishment of my first product, Carton Cajon, in the Czech Republic will surely take some time. In addition to the design instrument, I see great potential in it as a teaching material for nurseries and schools, and the creation of an educational programme will also be time-consuming. Another logical step will be to expand abroad.	I would like to extend our services to more Central European countries and the Balkans. We are also currently investing in finding new solutions for our clients, because we want to offer them a more comprehensive and effective solution that will be precisely tailored to the start-ups we work with most.
<i>Based on your experience, is there anything you would not do again?</i>	We must be very cautious about investing. Our ideas and enthusiasm are our great asset, but also our great risk. We need to concentrate on what we have and first focus on its appreciation, and fine-tune the process so that it is simple and does not take too much time, and create a financial reserve for further investment.	There is nothing I wouldn't do again: all of this was a valuable experience. If, however, I was standing again on the starting line and had the knowledge I now have, I would prepare the administrative part better and devote more time and attention to it.	I would recommend everyone to assess after each failure the reasons why this failure has happened and to learn a lesson from it. I used to think that it was not my fault and someone else was to blame. And that's exactly the mistake I no longer want to repeat. You have to focus on yourself and not look for mistakes in others.

Source: authors

Evaluation of semi-structured interviews. Although this is a small sample of respondents, the idea of doing business was brought about by the need to realise their own idea. Among the great benefits at the beginning was the willingness to take risks and hard work; conversely, impatience, the effort to quickly realise the idea was a hindrance. The actual start of the business is seen as the greatest success. The respondents plan to expand their initial idea in the future. They advise proceeding systematically and evaluating the reasons for potential failures.

4 Discussion

Figures are one thing, stories and real practice quite another, as evidenced by the outputs of the qualitative research. Although several initiatives leading to the development and support of the start-up ecosystem in the Czech Republic are mentioned above, the authors believe they are rather supportive but isolated tools. The issue should be addressed not only by the government and public administration, but also by educational institutions, firms, financial institutions, and start-ups themselves. It is too late to start talking about promoting entrepreneurial spirit in universities. Entrepreneurial skills should be already being taught in the early stages of the education process. Advocacy groups and lobbying to support start-ups should come from one place, and there should also be a single source of legal, financial and administrative advice to start-up entrepreneurs.

The government administration is expected to simplify administrative barriers to business. According to the Association of Small and Medium-Sized Enterprises and Tradesmen of the Czech Republic, a small entrepreneur who chooses, for example, to open a food business, needs a positive opinion from, or has to report their activity, to 15 to 20 state institutions. In normal operation, they can expect between 20 and 30 types of checks from the state authorities. (idnes.cz, 2018) The management, contractual conditions between shareholders, investors and owners should also be simplified by introducing new legal forms (e.g. a convertible bill of exchange or a simple joint-stock company, etc.). Business start-up visas should be established in line with the European system of initial visas. Other improvements could be tax breaks under predetermined clear conditions for whom and for how long, after creating a favourable business environment and direct support with easier access to sources of finance and labour resources. The aim of entrepreneurship education and entrepreneurial thinking should be to teach children and young people in a way that suits their needs and develops their skills for education, professional, and personal life. Good entrepreneurial education and education should provide students with the opportunity to think and act in an entrepreneurial manner, focus attention on key core competencies that are transferable to different contexts, especially in the world of work, enable students to gain practical experience related to the world of work, promote positive attitudes, and develop soft skills such as problem-solving, decision-making, risk-assessment, and more.

It is also necessary to consider the approach of higher education institutions to supporting and establishing start-ups, business accelerators and incubators. In addition to the

goodwill and expertise of educators, however, the method of financing these activities must be resolved, creating the motivation factors to implement them.

Successful entrepreneurs should be presented on a daily basis in the media. They should point to their 'Pathways to Success'; to opportunities they can use for the threats they face. There are hundreds of top regional entrepreneurs who, for two decades, have been generating good added value, who invest, employ, speak little, and help selflessly. We should also not forget that young people themselves are becoming a bit comfortable. Being a low-level manager of a multinational company in Prague is more attractive than start trying to prove yourself in your own region. All of this leads to the idea of breaking this circle of passivity and mobilising creative individuals to become independent entrepreneurs in areas with potential. Case studies, examples of good practice, but also examples of failure should appear in school curricula, and should have sufficient media coverage. In society at large, it is necessary to promote an atmosphere of a positive relationship to and perception of entrepreneurs as carriers of further development and economic stability. The discussion of the topic can be concluded with a quotation from Steve Jobs.

"Your time is limited, so don't waste it living someone else's life. Don't be trapped by dogma – which is living with the results of other people's thinking. Don't let the noise of others' opinions drown out your own inner voice. And most important, have the courage to follow your heart and intuition. They somehow already know what you truly want. Everything else is secondary."
Steve Jobs (gurteen.com)

Conclusion

The issue of support for the emergence of new, especially student, start-ups is a current one. The authors aim to continue focusing on this subject, to carry out more detailed and broader research aimed at assessing the current state of the start-up ecosystem in the Czech Republic, as well as to propose to the University of Finance and Administration an educational project that would develop entrepreneurial thinking among students and support the entrepreneurial spirit in those members of the young generation who still approach entrepreneurship with reluctance. The authors will look for possibilities of cooperation in internationalisation, and compare the support of the start-up environment in the Czech Republic and the countries of the European Union. In educational practice, they will focus on inspiring students and guiding them towards entrepreneurial activities, creating a suitable climate for entrepreneurship support. One of the steps will be an event called D Day, which will take place at the University of Finance and Administration. In this event, 3rd year students of the Bachelor's degree will present to a professional jury their business plans prepared within the Business Model course. In addition, they will seek examples of good practice and prepare case studies that will be included in teaching materials. The authors firmly believe that this paper will encourage the academia to introduce similar activities at their schools.

Acknowledgements

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News from the Scientific and Pedagogical Life of the University

Results and Perspectives of Doctoral Candidates' Conferences at the University of Finance and Administration

Výsledky a perspektivy konferencí doktorandů na Vysoké škole finanční a správní

MOJMÍR HELÍSEK¹

The highlight of university education, after completing the Bachelor's and Master's degrees, comprises doctoral studies. It also includes research conducted by a doctoral student under the supervision of their supervisor. After that, the doctoral student must present their research results, discuss them, get incentives for further research, and then publish the research results. The obligation to publish the research results focusing on the doctoral dissertation thesis is enshrined in the Higher Education Act: "The dissertation must contain the original and published results or the results received for publication."

In the previous issue (ACTA VŠFS 1/2018), we have reported on a publication that included papers presented at the doctoral students' conference at the University of Finance and Administration in May 2017. Now we would like to introduce a more detailed history of these conferences.

The University of Finance and Administration is accredited to carry out the doctoral study programme Finance. The doctoral students' duties include the obligation to present the research results at the home university, so that the doctoral students' performance can be monitored by their supervisor, a doctoral degree programme guarantor, or a doctoral board of study. This presentation at the doctoral students' conference must take place at least twice for the duration of the study. That is why we have started a one-day doctoral conference every year (except in 2016) since 2013. The last one took place in May 2018. At each conference, there were on average about 20 contributions.

In total, five conferences took place. Although it is not a long-standing tradition, however, the interest in our conferences has also spread among doctoral students from other universities. These "strangers" comprise roughly half of the total number of participants each year. They are doctoral students from the University of Economics in Prague, Technical University of Liberec, Charles University, University of Defence, Czech University of Life

¹ The author is the guarantor of the doctoral programme Finance at the University of Finance and Administration.

Sciences in Prague, Mendel University in Brno, University of Pardubice, University of South Bohemia in České Budějovice, Silesian University in Opava. Every year doctoral students from Slovakia also arrive, especially from two Bratislava universities – Comenius University and the University of Economics in Bratislava.

The thematic focus of the conferences is defined only by the framework of “economic issues”. It is, therefore, very wide. Contributions from the field of public finance, banking and insurance, monetary theory and policies, monetary integration, enterprise economics, accounting and human resources, international economic relations and foreign trade, economic history, economic and social policy, employment, or financial literacy were presented. There were also unconventional contributions, such as the transformation of the Chinese economy, the economic reform of Ota Šik or the context of economic and Muslim migration in the EU.

Doctoral students’ papers are published in conference proceedings. One reviewer reviews each contribution in an anonymous review process. These publications help to meet the doctoral dissertation requirements imposed by each university.

Beneficial discussions took place at all conferences, surprisingly lively and critical for some contributions. This is a part of conference discussions, though. These discussions undoubtedly contributed to the quality of future dissertations. The publication of contributions from this conference will contribute to the fulfilment of the doctoral dissertation requirements.

From the above-mentioned text, the objectives of our doctoral students’ conferences are summarized and supplemented:

- Present research results, listen to critical remarks and get incentive for further research (students can learn to accept even the unfavourable assessment that they still encounter many times).
- Improve the presentation technique (on the title page of the presentation, present its content, concentrate on the essence and refrain from adding many tables and graphs unnecessarily...), improve the discussion on the contribution and the defence of its contribution.
- Obtain further publication output required for successful completion of doctoral studies (of course, knowing that major doctoral publications comprise more demanding outputs, especially articles in review journals).

We want to keep these goals with respect to other doctoral conferences as well. In addition, we expect the winners of the Professor František Vencovský Prize Contest to be present at the doctoral conferences. The contest is announced by the Rector of the University of Finance and Administration at a two-year interval. In 2017, its sixth year took place. The contest is open to young economists under 35 and is also attended by doctoral students from universities in the Czech Republic.

An overview of all previous conferences, including the texts of the contributions, is available at www.vsfs.cz/konferencedoktorandu.

The financial support of the conferences is provided from the resources of the targeted support for specific university research provided by the Ministry of Education, Youth and Sports of the Czech Republic.

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Dear readers,

We would like to remind you that all issues of our reviewed scientific journal ACTA VŠFS – Economic Studies and Analyses are available on the web at:

www.vsfs.cz/acta

INSTRUCTIONS FOR AUTHORS / POKYNY PRO AUTORY:



Instructions for authors:

The length of manuscripts, using the usual structure of research papers, is 15–20 PC pages (single spacing). Please submit the manuscripts in good English in electronic format together with a printed copy. Attached, submit the executive summary – abstract (150 words max.) and keywords (6–8), both also in Czech.

Please number your notes as you go along; attach them using application “Insert footnotes” (in “References”). Add a bibliography in alphabetical order, including page numbers when citing magazines or a journal. Inside the text, please use e.g. Afonso (2001), and when citing include the page number. Use the compatible forms for tables and figures in xls, jpg or tif format. Highlight where pictures, graphs and tables will be placed in the text. Write your contact address: full name and titles, name and address of your work, telephone number and email, including the same for all co-authors.

(Detailed instructions can be found at <http://www.vsfz.cz/acta>)

Pokyny pro autory:

Rozsah rukopisů, dodržujících obvyklou strukturu vědecké práce, činí 15–20 PC stran (jednoduché řádkování). Rukopisy předkládejte v dobré angličtině v elektronické podobě spolu s vytištěným exemplářem. Současně předejte abstrakt (max. 150 slov) a klíčová slova (6–8), obojí rovněž v češtině.

Poznámky číslujte průběžně, vkládejte je pomocí funkce: Vložit (Reference) – Poznámku pod čarou. Dále uveďte seznam literatury v abecedním pořadí, u časopisů a sborníků i stránky. V textu pouze odkazujte, např. Afonso (2001), pokud citujete, uveďte i stranu. Tabulky a obrázky označujte Table a Figure, uveďte je v samostatném souboru (s označením jejich umístění v textu), ve zdrojovém dokumentu xls, jpg nebo tif. Umístění obrázků, grafů a tabulek v textu vyznačte. Enter užívejte jen na konci odstavce, odstavce ani titulky neodsazujte, nezapínejte funkci dělení slov. Uveďte kontaktní adresu: plné jméno s tituly a vědeckými hodnostmi, přesný název a adresu pracoviště, číslo telefonu a e-mail. Stejně údaje uveďte i u spoluautorů.

(Podrobné pokyny najdete na webové stránce www.vsfz.cz/acta)

the \mathbb{R}^n is a \mathbb{R}^n -valued function on \mathbb{R}^n . The function f is called a *vector field* on \mathbb{R}^n . The vector field f is said to be *irrotational* if $\text{curl } f = 0$.

Let f be a vector field on \mathbb{R}^n . The vector field f is said to be *conservative* if there exists a scalar function ϕ on \mathbb{R}^n such that $f = \nabla \phi$.

Let f be a vector field on \mathbb{R}^n . The vector field f is said to be *divergence-free* if $\text{div } f = 0$.

Let f be a vector field on \mathbb{R}^n . The vector field f is said to be *solenoidal* if $\text{div } f = 0$.

Let f be a vector field on \mathbb{R}^n . The vector field f is said to be *irrotational and divergence-free* if $\text{curl } f = 0$ and $\text{div } f = 0$.

Let f be a vector field on \mathbb{R}^n . The vector field f is said to be *conservative and divergence-free* if $f = \nabla \phi$ and $\text{div } f = 0$.

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