

# ICT Tools Developed for Support the Accounting Education

Dana Paľová

## Abstract

*The aim of the paper is to present examples of cooperation of pedagogical staff of the Faculty of Economics, Technical university of Košice, in the field of accountancy on the two different level - cooperation of the Business Academy in Trebišov, which resulted into teaching support application for the thematic unit of asset depreciation developed in MS Excel environment and cooperation with higher education institutions from across Europe via participation on international project concerned on designing the on-line educational platform providing interactive web-based educational applications and case studies on real accounting situations. Both of mentioned results have ambition to be implemented to education process in order to help teachers to involve students to accountancy in more interesting way and at the same time to provide important knowledge base and practical examples for the students to achieve idea about accountancy in practice.*

## Keywords:

*ICT supported education, accounting, platform, cooperation*

## Kľúčové slová:

*vzdelávanie s podporou IKT, účtovníctvo, platforma, spolupráca*

## 1. Introduction

European Union (EU) gets across ambitious transformation from industrial society over information society to declared competitive knowledge society. Governments of EU members' states are investing huge amount of money to achieve economic growth and international competitiveness. The Europe 2020 strategy [8] is a plan for economic renewal. It was adopted in June 2010, replacing the Lisbon strategy (2000-10) [7]. By 2020, the new strategy aims to guide Europe's economy out of the economic recession (which began in 2008) and to enable a high quality of life whilst preserving Europe's Social Model, raising employment, productivity and social cohesion. Even though structural policies are within the competence of individual Member States, a certain degree of their synchronization brings benefits to individual Member States [14]. The sixth chapter contains five crucial areas to be reformed: (1) education, science and innovation; (2) employment and social inclusion; (3) business environment; (4), transparency and rule of law; and (5) health. Based on this document, one of the major challenges of the Slovak economy and government is to increase the funding and quality of education.

The impact of ICT (information communication technology) to all areas of our lives is undisputable. The young generation should be safely marked as "digital natives". Based on the

experience, it can be said that this generation of young people accepts new knowledge via ICT more openly [2]. That is why the provided education is necessary to revive by a wide range of available tools (e.g., interactive multimedia and electronic materials, on-line communication, virtual laboratory, electronic games ...).

Important tool in the education are different software that allow applying the acquired knowledge in an electronic environment, and at the same time they are often used in practice. Using these, educational institutions in addition to provided education could develop the core competencies of their graduates in terms of labor market [16]. During educational process we often have to face a problem that despite the theoretical knowledge of the educated field, specialized software is too difficult to control. Classic examples are the accounting systems which support the process and legal aspects of property records, personnel, accounting and so on. Students beginning to work with this issue may be discouraged by the complexity of systems and many unknown settings, so in some cases it is preferable to use even not fully professional, but enjoyable tool for students to consolidate their knowledge acquired and to support and motivate them in further exploration of the theme. An example would be a simple application specializing in only one thematic unit, but created in the familiar environment e.g. of MS Excel.

Despite widely accessible support of the various instruments, accounting standards in each country differs, complicating the work of the accounting practice, particularly in cases of various international companies and cooperation projects. Universities providing training in accounting are dealing with this problem frequently, but only occasionally we can found the specifics of such accounting practices included in their curricula. Due to globalization of the world, accounting principles are frequently used not just by the accountants, but knowledge of this area is also needed for the people with an education from other areas. Search for information in these cases is often time consuming and the result can be uncertain and unclear. Realizing of this gap in the online world and mutual cooperation of universities in the EU resulted in an international cooperation project, FASTER, that has the ambition to fill in this market gap by useful information for any person interesting in accounting.

## 2. Motivations

Given the continuous changes in human live, it is imperative that the learning process must be continuously adapted to meet the needs of society in way of support the process of transformation to a knowledge society, and also to the needs of companies operating at marketplace. This should help higher education graduates to start their career immediately after joining the practice and to achieve ability to solve problems using their knowledge and the available ICT.

### 2.1 Market place analysis

To increase the quality of education in terms of achieving connection between academia and practice it is important to know the needs of potential future employers and their demands on the graduates of the educational institution.

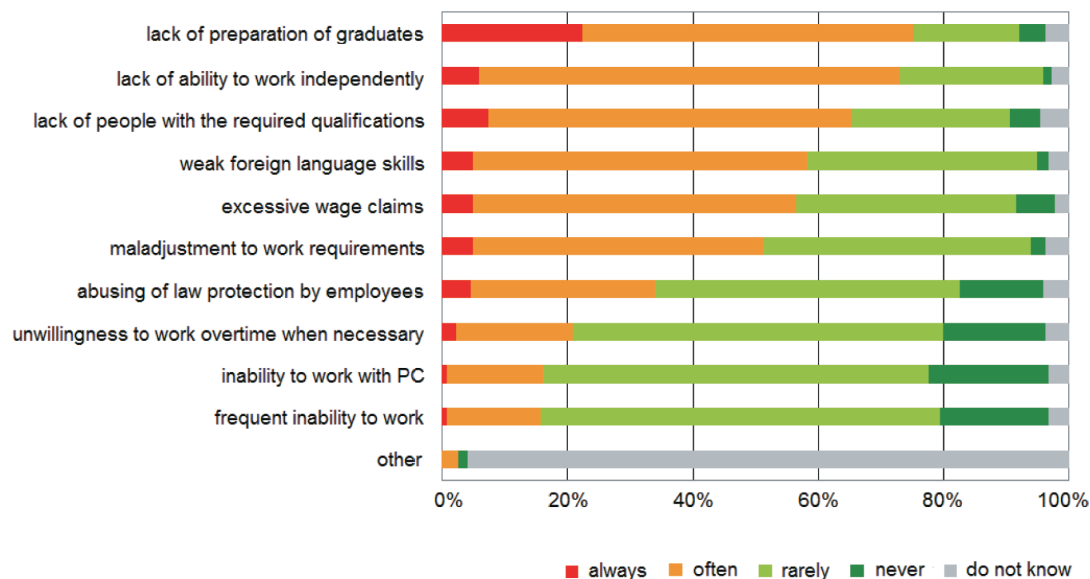
Based on research done within the years of 2009 – 2010 on the profesia.sk portal, the employment percentage reaches about 67.68% (in average) for 1<sup>st</sup> level of university education graduates, 85% for 2<sup>nd</sup> level of university education graduates and 86.25% of 3<sup>rd</sup> level of university education graduates in last 5 years.

The survey realized by website profesia.sk and ARRA (Academic Ranking agency) follows, that currently not only completed studies in the field is an essential requirement for recruitment, but the requirements are often much more complex, for example the most common requirement for graduates with a focus on information technology and computer science is knowledge of

programming languages (Java, SQL, C / C++ / C#, etc.), active knowledge of a foreign language, creativity, logical and analytical thinking, time flexibility, independence, consistency while the graduates of economics (especially the area of finance, banking, insurance, management) are particular requirements not concerning on the area of economy that graduates should have mastered but active knowledge of a foreign language, leadership and organizational skills, strong team spirit, flexibility, the ability to analyze, ambition, desire to learn, to self-developing, advanced level of work with MS Office package, driving license B.

The biggest shortage of graduates, from the perspective of long experience seems to be a lack of practical experience, respectively inability to apply their theoretical knowledge to solve real problems. Based on results of TREND Analyses survey, the employers are complaining about the lack of readiness of secondary and higher education graduates to the labor process and the lack of independence (Figure 1).

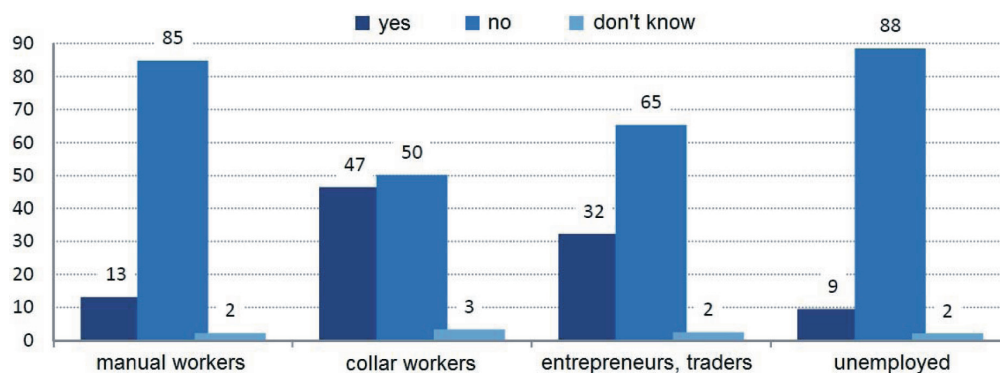
**Figure 1** The most common problem in employing people, source: survey results TREND Analyses, May 2010



Author of article “EU modernizes the labor market” [6] cites the European Commissioner for Employment Laszlo Andor, who predicted that by 2020, more than a third of jobs in the EU will require a higher skill level and a half jobs in the labor market will require moderate skills.

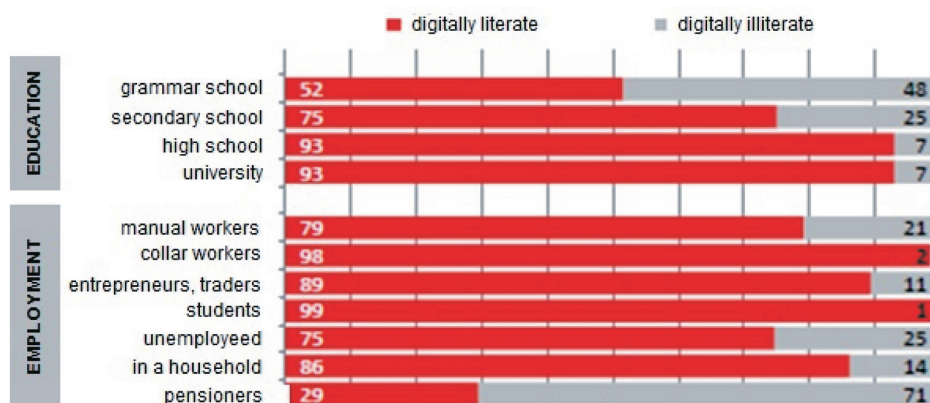
For example a graduate of the Faculty of Economics may be proficient not only in economics, but also needs to be able to apply this knowledge to practical problems by active use of available ICT. A survey carried out in [12] shown that the third of most interesting group for employers (at 37.03%) are graduates of economic faculties. These students often work as “white-collar” workers, i.e. lower administrative staff, officials (secretaries, bookkeepers, septum workers – at the post office, a bank executive, ...), professionals (educators, specialist officers, customs officers, ...), creative professionals (teachers, scientists, analysts,...), and corporate/business, deputies, senior officials, politicians, etc. In case of a white-collar workers, familiarity with computers and the Internet helps get a job to a half of respondents (Figure 2).

**Figure 2** Percentage of respondents who believes that the knowledge of ICT to facilitate their getting work, source: [20]

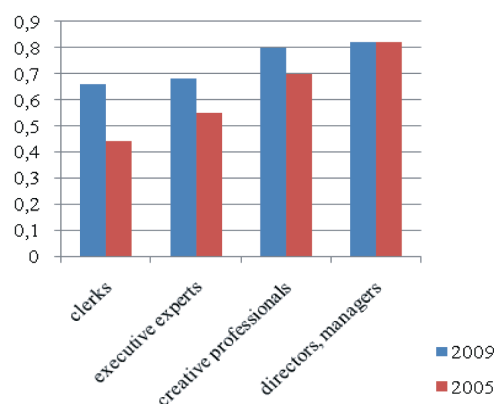


The company IVO (Institute of Public Affairs) annually processing document focused on digital literacy of Slovak republic inhabitants. Latest Publication Digital Literacy 2011 [19] showed that the percentual most numerous groups of digitally literate people are represented by students and “collar” workers and people with secondary, respectively university education (Figure 3).

**Figure 3** Percentage abundance of digitally literate citizens groups according to the type of education and employment, source: [19]



The need of usage the ICT in the work reaches values between 60% – 100%, digital literacy continuously grows from the 2005, but still reaches only 70% measure, as can be seen in Figure 4.



**Figure 4** Index of digital literacy of “white-collar” employees in Slovakia; source: [20]

Given the above, it is necessary to modify and develop provided secondary and higher education, but also with more emphasis on acquiring skills and abilities of students to apply their knowledge to solve practical problems, which they may receive by different assignments and practical use-case using the support of ICT tools.

## 2.2 Survey on ICT in education at the faculty of Economics

In [4] is stated, that *“teaching observation is the oldest and most widely used method for obtaining data on educational reality.”* Very frequent method of data collection is a questionnaire that represents set of carefully thought out pre-selected questions asked in writing [10], and these questions may relate to external or internal events. As the Faculty of Economics, Technical University of Kosice reached by the ARRA Agency [18], the top ranks in economics education, the effort of its management and the teaching staff is concerned on provide education that will allow students reach best starting position in the labour market after graduation at this faculty. Realising changes needed in provided education in view of the changing labour market requirements have resulted in the realisation of the questionnaire survey, in which we were interested in students’ opinions on learning provided within each taught subject, and achieved results are followed by implementation of some changes in education – e.g. creating courses in Moodle, e-lectures, which served as the support of an interpretation not only lectures but also for exercises, the publication of electronic study materials and the others.

The objectives of questionnaire survey should be summarised to following:

- O1: students’ opinion on their future working lives – the use of ICT, preparation for practice during education process;
- O2: determine the current status of ICT usage for teaching various subjects (in lectures or exercises) and student satisfaction rates for the use / non-use of ICT.

Based on these objectives, we have developed a relatively extensive questionnaire, where first 6 questions were concerned on seeking the opinion and experience of ICT of the students and second part was about seeking for opinion about provided education and ICT (5 questions per each subject). We used open and closed answer questions.

The questionnaire survey was realised in academic years 2008/2009, 2010/2011, when we asked all students faculty (i.e. approximately 800 students) of our faculty to complete a questionnaire, which was provided in paper (for the students in Bc. study (all years) and 1st year of Ing. study) or electronically by LMS Moodle (for the students of other study years). Following the objectives of the questionnaire, it was divided into two parts: the use of ICT in practical life and use of ICT in providing education of particular subjects. In this section we have searched following information about the subjects:

- whether the use of ICT covers all, selected, or no exercises / seminars and lectures. And if ICT used, which kind of specialized software is used here.
- whether the use of ICT presents benefit for the education, respectively when it is not in use, its introduction should be considered as benefit.
- whether materials needed to study the subject are published electronically, respectively the amount of published materials.

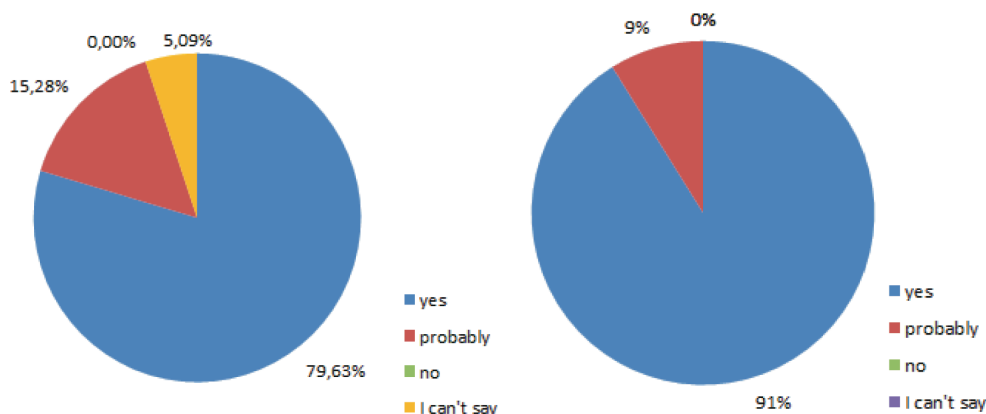
Filling out the questionnaire was voluntary and anonymous. Questionnaire survey was filled by 216 students in the year 2008/2009 and 462 students in the year 2010/2011. Subsequently, questionnaires were collected and processed in MS Excel environment.

Based on the answers of both questionnaires the results may be evaluated by following:

Objective 1 was concerned on achieving general information, for example: whether students think that ICT will they need in their professional life, whether the provided education prepares them for tasks occurring in practice, and whether there are some reserves or lacks in using ICT during education process. On these questions we received the following responses:

- in the year 2010 has been working with ICT every day 99,4% of students, while in 2008/2009 it was only 79,63%,
- in 2008/2009 79,63% of the students thought that the ICT will be needed in their professional careers and in 2010/2011 it was already 91% (Figure 5), based on which it can be concluded that students are conscious with the requirements of current society.

**Figure 5** Graphical representation of the answers chosen by students on the question about ICT need in practice (year 2008/2009 at left, year 2010/2011 at right)



- while in 2008/2009 only 74,07% of the students considered the use of ICT in education to the benefit, two years later, 91% of them agreed with that idea, that completed courses prepared them for their future working life. This change in their opinion should be caused also by several changes implemented in content of provided subjects. Frequently repeating remarks still remains that respondents think that within the subjects they are learned how to use new knowledge and ICT, but not in such a context expected by them and practice.

Based on the unsatisfied students' responses we are interesting in possible presence of reserves the use of ICT in education. Most of respondents (about 77%), as is represented in suppose that at faculty are still reserves (presented in Table 1).

The second objective was concerned on achieving opinion about ICT use during particular subjects' education. From the point of view of this paper the most interesting outcomes should by summarized following:

- Subjects specialized on ICT (Informatics, Informatics II, Presentation software, etc.) and mathematics (Mathematics I, Mathematics II, Probability and Statistics, etc.) use ICT satisfactorily in 99% of the respondents,
- Problematic seem to be mainly specialized subjects (Table 1), where it is usual use ICT just as tool for study material publication (e.g. by using LMS Moodle) or presentation of information (by using MS PowerPoint). Most of the students is missing the use of specialized applications on a given subject area, where they would receive the necessary practical experience to know and use in their future professional lives.

**Table 1** Summary of ICT use in particular subject education.

| Subject                           | 2010/2011 |          |                        |          | 2008/2009 |          |                        |          |
|-----------------------------------|-----------|----------|------------------------|----------|-----------|----------|------------------------|----------|
|                                   | Lecturers |          | Exercises/<br>Seminars |          | Lecturers |          | Exercises/<br>Seminars |          |
|                                   | Usage     | Benefits | Usage                  | Benefits | Usage     | Benefits | Usage                  | Benefits |
| 1 <sup>st</sup> year of Bc. study |           |          |                        |          |           |          |                        |          |
| Microeconomics                    | -         | 66,60    | -                      | 62,00    | -         | 59,72    | -                      | 54,17    |
| Macroeconomics                    | -         | 64,40    | +                      | 65,00    | -         | 63,27    | -                      | 42,86    |
| Business and Entrepreneurship     | -         | 39,50    | -                      | 49,00    | -         | 34,26    | +                      | 85,19    |
| Management                        | -         | 28,50    | +                      | 60,50    | -         | 64,29    | +                      | 87,76    |
| 2 <sup>nd</sup> year of Bc. Study |           |          |                        |          |           |          |                        |          |
| Finance and Currency              | +         | 87,50    | +                      | 68,75    | +         | 62,24    | -                      | 41,84    |
| Banking                           | +         | 88,00    | +                      | 94,00    | -         | 30,61    | +                      | 38,78    |
| Entrepreneurial Taxes             | -         | 51,00    | +                      | 76,50    | -         | 85,71    | +                      | 80,61    |
| Accounting I                      | -         | 42,00    | -                      | 39,00    | -         | 78,57    | -                      | 80,61    |
| Accounting II                     | -         | 43,00    | -                      | 48,50    | -         | 50,25    | -                      | 62,30    |
| Central banking                   | +         | 83,00    | +                      | 91,00    | -         | 60,00    | +                      | 72,50    |

| Subject                            | 2010/2011 |          |                        |          | 2008/2009    |          |                        |          |
|------------------------------------|-----------|----------|------------------------|----------|--------------|----------|------------------------|----------|
|                                    | Lecturers |          | Exercises/<br>Seminars |          | Lecturers    |          | Exercises/<br>Seminars |          |
|                                    | Usage     | Benefits | Usage                  | Benefits | Usage        | Benefits | Usage                  | Benefits |
| 3 <sup>rd</sup> year of Bc. study  |           |          |                        |          |              |          |                        |          |
| Financial Markets                  | -         | 87,70    | -                      | 80,00    | -            | 20,00    | +                      | 55,00    |
| Economic Analysis of the Firm      | -         | 85,50    | +                      | 96,50    | +            | 77,50    | +                      | 92,50    |
| Financial Investments              | +         | 90,00    | +                      | 96,30    | not surveyed |          |                        |          |
| e-Banking services                 | +         | 99,00    | +                      | 99,00    |              |          |                        |          |
| 1 <sup>st</sup> year of Ing. study |           |          |                        |          |              |          |                        |          |
| Quantitative Microeconomics        | -         | 49,00    | -                      | 61,00    | not surveyed |          |                        |          |
| Investment Proposals Evaluation    | +         | 61,00    | +                      | 96,00    |              |          |                        |          |
| Technical analysis                 | -         | 94,00    | +                      | 96,00    |              |          |                        |          |
| Bank operations management         | +         | 61,00    | +                      | 45,00    |              |          |                        |          |
| Monetary macro-analysis            | -         | 27,50    | -                      | 39,00    |              |          |                        |          |
| Econometrics                       | -         | 84,00    | +                      | 94,00    |              |          |                        |          |
| Portfolio Analysis                 | +         | 76,50    | +                      | 90,20    |              |          |                        |          |
| Financial Derivatives              | -         | 21,50    | -                      | 47,00    |              |          |                        |          |
| Insurance                          | -         | 33,30    | -                      | 59,00    |              |          |                        |          |

Note: The text +/- represents usage/non-usage of ICT (use of conventional slides and overhead projector we do not consider as modern ICT), while the percentage in column Benefits indicates how many percent of students consider the introduction or possibly the introduction of ICT as possible benefit in teaching the particular subject.

The above facts show that within education there is not a lack of ICT usage, but lack of tools that allow students to achieve required practice on the specific practical problems. Therefore these facts motivate us to develop applications that could help to students also in this area.

### 3. Increasing the level of provided education by cooperating

#### 3.1 *Cooperation between secondary school and university*

The area of accounting is a wide area and therefore high schools and universities provide teaching of it within a more years of study. The specialised subfield – depreciation of assets – is part of curricula of the subjects:

- Accountancy II, Corporate finance at the Faculty of Economics, Technical University of Košice,
- Corporate finance, Economic exercises, Exercises in economic fictive company and Accountancy at the business academies.

During learning these subjects, students are introduced to the theoretical basis of this theme and unfortunately most of the calculations necessary are carried out by a classic “paper and pen” method, which does not take the students. That is why teachers tried involve different accounting software from different companies offering discounted prices for school licenses:

- KROS a.s. – ALFA, OLYMP, OMEGA [13],
- STORMWARE s. r. o. – POHODA, FILIP [5],
- SOFTIP a.s. – SOFTIP Profit [17],
- CÍGLER SOFTWARE a.s. – Money [1],

which typically contain several specialized modules, allowing for example:

- lead single and double bookkeeping,
- inventory accounting by various methods,
- payroll for an unlimited number of employees
- branch office processing;
- home banking, online business and sell stocks with built-in store or by using an off-line for retail sale.

Environment of accounting applications available on the market is often confusing and difficult to control (Figure 6) for the beginners (student, or any other person trying to start work with accountancy).

Figure 6 Example of Money software environment, source: [1]

After discussion with teachers working at business academy of Trebišov, we concluded that also due to determining the amount of depreciation in paper, students consider this area unattractive and therefore this issue does not address attention among them sufficiently. Achieved knowledge of the area of assets depreciation is practically used more lately – by using of electronic applications in their higher grades. Therefore, we consider the appropriate way to increase attractiveness of study the depreciation theme by creating a simple application, by using which students can directly verify how the depreciation of assets is used in practice.

Based on these facts the simple tool was developed. It helps realize the tax depreciation of assets in an ICT environment without the need to use complex and hardly controlled accounting software. The main objective of this tool is to easier overcome and cope with learning problems and explanations for depreciation of assets for first year students.

### 3.1.1 Methodology of education tool development

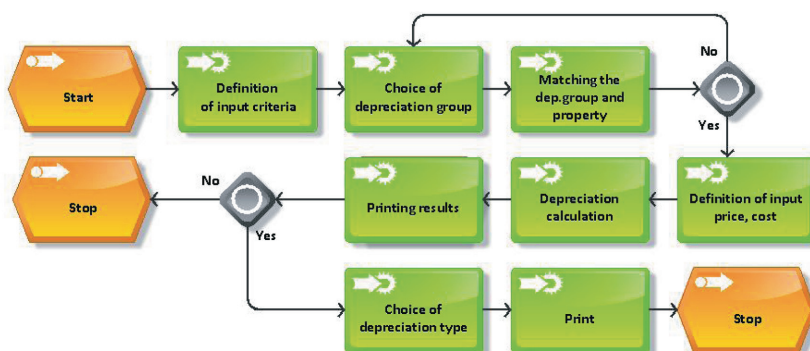
Development of mentioned tool should be described following phases:

*Communication with the end user* - following consultations with the end users were defined outputs based on user requirements. The main output of the software tool should be the “summary asset card” (Figure 7), on which the name of depreciated asset, depreciation group, which was included in depreciable assets, as well as the entry price and depreciation itself, is presented. Because this toolkit was planned to use for education of students in their first year study for getting familiar with topic of depreciation, in described first version application doesn't secure the calculation of tax depreciation, but only the accounting depreciation.

**Figure 7** Expected output of software toolkit designed by user

Design and drawing flowchart of developed software tools – In order to create a software tool, it is important to agree on the algorithms for activities performed during the ongoing depreciation of assets. Based on common discussions was designed flowchart describing the steps of depreciation of assets process (Figure 8).

| SÚHRNNÁ KARTA MAJETKU |  |                 |  |
|-----------------------|--|-----------------|--|
| Názov majetku:        |  |                 |  |
| Vstupná cena:         |  |                 |  |
| Odpisová skupina:     |  |                 |  |
| Rovnomerný odpis      |  | Zrýchlený odpis |  |
| 1. rok                |  | 1. rok          |  |
| 2. rok                |  | 2. rok          |  |
| 3. rok                |  | 3. rok          |  |
| 4. rok                |  | 4. rok          |  |

**Figure 8** Flowchart of the asset depreciation tool

Selecting an appropriate working environment – The most important precondition was easily controlled working environment. At the same time given the experience of students and user rights in the operating systems used at the academy (where they are not allowed to install any new components), we decided to use MS Excel environment, which is already a installed on school computers as a part of MS Office suite. Final tool (Figure 9) can be easily carried by the various storage media; making it the students easily transfer home.

**Figure 9** Examples of the depreciation toolkit environment

**Dlhodobý majetok**

Názov majetku: Škoda Fabia

Odpisová skupina: Osobné automobily

**Pokračovať**

**Súhrnná karta majetku**

Názov majetku: Škoda Fabia

Typ majetku: Osobné automobily

Odpisová skupina: 1

**Vstupná cena**

Obstarávacia cena: 16 500,00 €

**Rovnomerné odpisovanie**

| 1. rok  | 2. rok  | 3. rok  | 4. rok  | 5. rok | 6. rok | 7. rok | 8. rok | 9. rok | 10. rok | 11. rok | 12. rok | 13. rok | 14. rok | 15. rok | 16. rok | 17. rok | 18. rok | 19. rok | 20. rok |
|---------|---------|---------|---------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 4 125 € | 4 125 € | 4 125 € | 4 125 € | - €    | - €    | - €    | - €    | - €    | - €     | - €     | - €     | - €     | - €     | - €     | - €     | - €     | - €     | - €     | - €     |

**Zrýchlené odpisovanie**

| 1. rok  | 2. rok  | 3. rok  | 4. rok  | 5. rok | 6. rok | 7. rok | 8. rok | 9. rok | 10. rok | 11. rok | 12. rok | 13. rok | 14. rok | 15. rok | 16. rok | 17. rok | 18. rok | 19. rok | 20. rok |
|---------|---------|---------|---------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 4 125 € | 6 188 € | 4 125 € | 2 062 € | - €    | - €    | - €    | - €    | - €    | - €     | - €     | - €     | - €     | - €     | - €     | - €     | - €     | - €     | - €     | - €     |

**Tlač**

*Tool development* – During tool development are used following tools and features available directly in MS Excel to achieve the calculation of depreciation:

- Buttons – in connection with macros provide transitions between different pages the application or selection of the depreciation group.
- Form fields – used for selection of items from the depreciation group, for input prices and other costs associated with the depreciation of property.
- Calculation and processing functions – for example ROUNDUP function used for rounding rules in accounting.

*Verification of the functionality of tool and the improvement, implementation of any observations submitted by end users* – during this phase the teachers of business academy, who will use the tool in next academic years, expressed their feedback on the functionality of a developed tool. In this phase of the tool was completed by wizards in order to facilitate user orientation in its environment.

### 3.1.2 Short theoretical background from the field of depreciation

During the development of this application was necessary to take into account the available legislation. Depreciation is the gradual inclusion of depreciation of material and immaterial assets into tax expenses. These assets must be used to achieve income from the business, from other self-employment or rental. [11]

Methods and the principles of depreciation are subject to two laws:

- Law on Income Tax (Zákon č. 595/2003 Z. z. o dani z príjmov ) [22],
- Accounting Law (Zákon č. 431/2002 Z. z. o účtovníctve) [21].

Based on these laws, the application takes into account the fact that depreciation of assets is divided into two types:

- *Accounting depreciation* – express progress of the use of intangible and tangible assets in order to ensure the appropriate load of costs (depreciation cost function), and real appreciation in the asset's net book value,
- *Tax depreciation* – are taken into accountancy determining the income tax, i.e. the amount of tax depreciation reduces the tax base.

The assets are classified into one of four depreciation classes with the specified depreciation period and maximal annual depreciation according to the method of depreciation.

The business entity may for the tax purposes use one of following methods of depreciation:

- *a constant (linear)*, where the asset is depreciated by using aliquots according to the depreciation of the group:

$$O_n = \frac{VCM}{k_{RO}} \quad (1)$$

where  $O_n$  represents annual depreciation in the year  $n$ ,  $VCM$  input value of the asset and  $k_{RO}$  value of coefficient from Table 2.

**Table 2 Coefficients for depreciation groups for linear depreciation method ( $k_{RO}$ )**

| Depreciation group | Depreciation time | Annual depreciation |
|--------------------|-------------------|---------------------|
| 1                  | 4 years           | 1/4                 |
| 2                  | 6 years           | 1/6                 |

| Depreciation group | Depreciation time | Annual depreciation |
|--------------------|-------------------|---------------------|
| 3                  | 12 years          | 1/12                |
| 4                  | 20 years          | 1/20                |

- or *accelerated (degressive)*, where it is necessary to first calculate depreciation using:

$$O_1 = \frac{VCM}{k_{zo}} \quad (2)$$

and for following years:

$$O_n = \frac{2 \cdot ZCM}{k_{zo} - (n-1)} \quad (3)$$

where  $O_n$  represents annual depreciation in the  $n$  year,  $VCM$  input (acquisition) value of asset,  $ZCM$  remaining cost of the asset a  $k_{zo}$  value of coefficient from Table 3.

**Table 3** Coefficients for depreciation groups for accelerated depreciation method ( $k_{zo}$ )

| Depreciation group | Depreciation time | 1 <sup>st</sup> year | 2 <sup>nd</sup> and following years |
|--------------------|-------------------|----------------------|-------------------------------------|
| 1                  | 4 years           | 4                    | 5                                   |
| 2                  | 6 years           | 6                    | 7                                   |
| 3                  | 12 years          | 12                   | 13                                  |
| 4                  | 20 years          | 20                   | 21                                  |

### 3.1.3 Implementation of toolkit to education process

Currently is this toolkit used in test mode on the business academy by students of 1st year, and we are consulting the possible further development – the extension of additional functionality supporting other field of accounting and its transfer to web environment, where the toolkit will be realized using web technologies and available web tools. Implementing this development the tool will be easily achievable not only for this particular education institution, but also to any other persons interested in area of assets depreciation.

## 3.2 International cooperation

Besides above mentioned cooperation with the secondary education sector, staff of the Faculty of Economics also participates on the various international projects dealing problems in field of modern education. Actually we participate on following projects:

- Leonardo da Vinci programme:
  - OpenInn2.0: A Knowledge generating House and e-Assessment (OpenInn),
  - 50+ Citizens' Participation in Creation of their Lives – SAGE+
  - Stress Prevention Activities Training (SPAT),
  - FASTER: Financial and Accounting Seminars Targeting European Regions,
- Erasmus/Socrates/Grundvig programme:
  - Turning the silver Challenge into Golden Opportunity (SIGOLD)
  - Policy and Policy making at the local level,

- ESTIA – EARTH – To Sustain the Women’s Careers as Academics, Researchers and Professionals in Engineering, Computers and Science,

from which one is especially concerned on Accountancy – project FASTER.

### 3.2.1 Project FASTER – General information

Project FASTER (Figure 10) started in January 2012 and should be presented as an answer on EU Priorities on Knowledge Society and Innovation with objectives such as improving the quality and intensity of investments in human capital for the upgrade of the education system, investing in the future, promoting reforms in the education system and improving access and basic skill levels for all [9].

**Figure 10** Official web-page of the FASTER project



#### FASTER in simple words

There are no translations available.

**FASTER** (Financial and Accounting Seminars Targeting European Regions) develops **an innovative on-line educational platform in order to facilitate the flow of existing practical knowledge produced in the daily routine of financial services of enterprises, banks & public sector**. Interactive web-based educational applications and case studies on real accounting situations provide accumulated knowledge in forms suitable to non-formal, practical learning, serving both Erasmus and Leonardo Da Vinci strategic objectives.

From the point of view of improvements in human capital across EU, the outcomes of the project will support as long-term career advancement, international mobility of employees in accountancy branch (by providing people to work in foreign countries not only knowledge of finance and accounting, but training based on particular state conditions (law, terminology even ethics)), as well as graduates with degrees in disciplines other than accounting, or people employed in business, with the foundation studies to become a professional accountant. Special attention is placed on mature and motivated student seeking a career in accounting for which no prior professional experience will be required. This group of people represents the group at risk due to their high unemployment. The FASTER platform will introduce them the modern technological environment of business decisions by making use of hands-on computer applications and case studies on real situations. The multilingual FASTER platform will initiate the trainees in exercises on case studies and real situations with all the necessary tools and skills to cope with the constantly changing European labor market.

Developing and providing such a tool is to improve the quality and attractiveness of vocational education and training through the review of its primary structure and curricula

qualification, setting professional rights and establishing a system of formal accreditation of learning at a Pan-European Qualifications Framework.

The aims of consortium of the FASTER project should be assumed following [9]:

- to produce a e-learning & knowledge-sharing environment on finance and accounting which allows both students and professionals in pursuit of lifelong learning to gain practical knowledge on their discipline, but not restricted to national borders.
- to link studies & working environment and widen transnational pursuit of jobs in finance & accounting.
- to offer new incentives and produce a prototype ICT environment expandable to all languages and to all disciplines.

### 3.2.2 Expected FASTER outcomes in next year

Expected outcomes within the FASTER platform should be in more details described following:

- an online educational toolbox comprising a laboratory of
  - resources,
  - courses with theoretical parts
  - practical problem solving and self-assessment exercises and tests,
- a job seeking tool and work placements for employees and employers respectively operating in European field of finance and accounting,
- e-handbook for supporting the first steps of the platform's users

Learning modules inside FASTER are concerned on *General accounting*, *Accounting plan*, *Accounting for public limited companies - Groups of companies & Code for accounting books*, *Tax Accounting*, *Balance sheet issues*, *Analysis of financial statements - business valuation*, *Accounting ERP*, *International accounting standards*.

All these outcomes will be prepared on the end of the year 2012 and beginning the year 2013 and will be designed in 5 languages (EN, GR, PL, BG, SK), languages of the participants of the project:

- Athens University of Economics & Business from Greece,
- The University of Warsaw from Poland,
- Sofia University St. Kliment Ohridski from Bulgaria,
- City University London from the UK
- And the Technical University of Košice.

and in addition to general information, each country, based on the general structure will develop similar lessons/documents/resources adopting though local conditions and using known local case studies as instructional examples.

## 4. Conclusions

Modern education already cannot exist without the active use of ICT. Also at our faculty (Faculty of Economics) are ICT gradually introduced to all subjects in different ways, for example: by using specialized software products for teaching courses (Financial investment, Financial decision making, Accounting I [11]), creating electronic laboratories (Management information systems [3], electronic banking services), or at least the "electronisation" of study materials via using LMS Moodle [15].

Experiences we have achieved by the implementation of eLearning methods and ICT to education, we also used in collaboration with the Business Academy in Trebišov for which we have developed a simple teaching tool for asset depreciation. This is the first product of this collaboration, but after a successful introduction to teaching, this tool we would like to extend in the future, for example by the technical evaluation of assets and tax depreciation of fixed assets, which are used in practice for the double entry accountancy. The advantage of the developed tool is its easy availability, which could be possible to improve by creating web-applications available from the pages of an educational institution, or its connection with the LMS, which makes the teacher able to monitor students' progress in the area of depreciation.

Another interesting example of cooperation is participation in international projects FASTER, which has pan-European ambitions. The necessity of the FASTER platform was evident even before European economic crisis. Surveys realized across EU made clear that 'importing' employees to work on the domain of accounting/finance is not an option, due to lack of suitable expertise. On the other hand, the need of Bulgarian, Polish, Slovak and Greek people to pursuit jobs in other European countries is rapidly increasing. Therefore, the FASTER platform seems to be a good tool for fulfilling expectation and interest of all mentioned group of people – students, employees (working in the field of accountancy, but also not involved in this field) and at the same time employers.

## ▲ Acknowledgement

This work has been kindly funded by the European Commission through the LLP Project FASTER: Financial and Accounting Seminars Targeting European Regions (No. 518894-LLP-1-2011-1-GR-KA3-KA3MP). I also wish to acknowledge my gratitude and appreciation to all the FASTER project partners for their contribution during the development of research presented in this paper.



## References

- ▶ [1] ACCOUNTING SOFTWARE Money S3 [software], [cit. 8.5.2012], available at: <http://www.money.cz/> (in Czech)
- ▶ [2] ANGELIS Angel A., et al.: *Key Lessons Learned by the ICT Cluster*, [online document], 2010, [cit. 30.9.2011]. Available at: <http://www.kslll.net/Documents/Key%20Lessons%20ICT%20cluster%20final%20version.pdf>.
- ▶ [3] BUCKO, J.: Electronic business in Slovakia and support its development. In: *Systémová integrácia 2005, Zborník prednášok*. Žilina, 2005. p. 191-197, ISBN 80-8070-453-8. (in Slovak)
- ▶ [4] CHRÁSKA, M.: *Methods of Educational Research (Introduction to quantitative research)*, Grada Publishing, a.s., Praha, 2007, ISBN 978-80-247-1369-4, 265 p. (in Czech)
- ▶ [5] ECONOMIC AND ACCOUNTING SOFTWARE POHODA, [software], [cit. 8.5.2012], available at: <http://www.stormware.sk/pohoda/> (in Slovak)
- ▶ [6] EU modernizing the labor market, [web-page], 2012, [cit. 20.09.2012]. Available at: [http://spravy.pravda.sk/eu-modernizuje-pracovny-trh-dgd-/sk\\_svet.asp?c=A110908\\_09484\\_8\\_sk\\_svet\\_p09](http://spravy.pravda.sk/eu-modernizuje-pracovny-trh-dgd-/sk_svet.asp?c=A110908_09484_8_sk_svet_p09) (in Slovak)
- ▶ [7] *EurActiv - Lisbon agenda*, [online document], 2011, [cit. 05.06.2011]. Available at: <http://www.euractiv.com/en/future-eu/lisbon-agenda/article-117510>
- ▶ [8] *Europe 2020 - EU Strategy for smart, sustainable and inclusive growth*, [online document], 2010, [cit. 05.06.2011]. Available at: [http://ec.europa.eu/commission\\_2010-2014/president/news/documents/pdf/20100303\\_1\\_en.pdf](http://ec.europa.eu/commission_2010-2014/president/news/documents/pdf/20100303_1_en.pdf)
- ▶ [9] FASTER project official web-page, [web-page], 2012, [cit. 20.05.2012]. Available at: <http://www.fasterproject.eu>

- ▶ [10] GAVORA, P.: Introduction to Educational Research. Brno, Paido, 2000, ISBN 80-85931-79-6 (in Slovak)
- ▶ [11] HUDÁKOVÁ STAŠOVÁ, L., ANDREJOVSKÁ, A.: *Business Accounting*, 1. edition, Košice, elfa, 2009, 194 p., ISBN 978-80-8086-109-4. (in Slovak)
- ▶ [12] JAKUŠ, D., PÁLENÍKOVÁ, M.: Interest of employers about university graduates, online, available at: <http://fm.tnuni.sk>, last visit: 07.09.2011, (in Slovak)
- ▶ [13] KROS – ECONOMIC AND CONSTRUCTION SOFTWARE [software], [cit. 8.5.2012], available at: <http://www.kros.sk> (in Slovak)
- ▶ [14] *National Reform Programme of the Slovak Republic for 2011-2014*, [online document], 2011, [cit. 05.06.2011]. Available at: [http://ec.europa.eu/europe2020/pdf/nat\\_ref\\_prog\\_2011\\_sk\\_en.pdf](http://ec.europa.eu/europe2020/pdf/nat_ref_prog_2011_sk_en.pdf)
- ▶ [15] PAĽOVÁ, D.: Survey on the use of ICT as supporting tool for Learning at the faculty of Economics, Technical university of Košice, *Transactions of the Universities of Košice*, 2011, No. 3, p. 70-77, ISSN 1335-2334.
- ▶ [16] RÉVÉSZOVÁ, L.: Information competencies of secondary school graduates. *Matematika Informatika Fyzika*. 2007, Vol. 16, No. 31, p. 92-98. ISSN 1335-7794. (in Slovak)
- ▶ [17] SOFTIP Profit, [software], [cit. 8.5.2012], available at: <http://www.softip.sk/sk/produkty/erp-riesenia/softip-profit> (in Slovak)
- ▶ [18] The Academic Ranking and Rating Agency (ARRA), Rating higher education institutions, [cit. 20.09.2012]. Available at: <http://arra.sk/hodnotenie-vysokych-skol>
- ▶ [19] VELŠIC, M.: Digital Literacy 2011, [cit. 20.09.2012]. Available at: [http://www.ivo.sk/buxus/docs/publikacie/subory/Digitalna\\_gramotnost\\_2011.pdf](http://www.ivo.sk/buxus/docs/publikacie/subory/Digitalna_gramotnost_2011.pdf)
- ▶ [20] VELŠIC, M.: Digital Literacy and Labour Market, [cit. 20.09.2012]. Available at: <http://www.ivo.sk/6191/sk/studie/-digitalna-gramotnost-a-trh-prace>, (in Slovak)
- ▶ [21] Zákon 431/2002 Z. z. o účtovníctve – úplné znenie platné k 1.1.2012, [online document], 2012, [cit. 20.11.2012], Available at: <http://www.uctovnictvo.sk/index.php/utovnictvo-sk/zakon-o-utovnictve/553-zakon-4312002-zz-o-utovnictve-uplne-znenie-platne-k-112012> (in Slovak)
- ▶ [22] Zákon č.595/2003 Z. z. o dani z príjmov – Úplné znenie zákona o dani z príjmov 595/2003 Z. z., účinnosť od 30.06.2012 do 31.12.2012., [online document], 2012, [cit. 30.11.2012], Available at: <http://www.porada.sk/t199411-zakon-o-dani-z-prijmov-od-30-06-2012-do-31-12-2012-a.html> (in Slovak)

**Ing. Dana Paľová, PhD.**

Katedra aplikovanej matematiky a hospodárskej informatiky  
 Ekonomická fakulta, Technická univerzita v Košiciach  
 Nemcovej 32, 040 01, Košice, SR  
 Tel: +421 055 602 3268, E-mail: [dana.palova@tuke.sk](mailto:dana.palova@tuke.sk)  
 www pracovisko: [www3.ekf.tuke.sk/kamahi](http://www3.ekf.tuke.sk/kamahi)