

## Critical Success Factors of Research and Education Process at Slovak Universities

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### Abstract

**Purpose** – The paper intends to present and partially resolve the issue of a relatively short-aged higher education institution of regional importance, which is presented in the frame of the Slovak universities wide-ranging environment and the point of their complex accreditation.

**Objectives** – Objective of the paper is to explore the state and tendencies of developing the university environment, and also the influence of both external and internal factors that will impinge upon the University in the foreseeable period. The paper is intended not only for professionals involved in or that are in some other ways interested in improving research and educational processes of universities but also for those ones who are interested in attaining some information about the system of Slovak higher education institutions complex accreditation.

**Methodology/approach** – Used in the paper was a case study, which presented the groundwork method of researching elementary issues of developing the Alexander Dubcek University of Trencin (ADUT), built upon interviews with a selected sample of employees and randomly selected sample of the academic personnel and the student and with officers evaluating the Slovak universities within the European University Association. That was followed by the analysis of social, legal, economic, environmental, ethical, political, and technological aspects (SLEEPT) as a mnemonic tool to facilitate understanding of the Slovak universities' environment "big picture". Benchmarking was used as the method for comparing performance of Slovak universities from the point of the internal setting factors, and the criteria of complex accreditation, respectively. The method of pair comparison has been employed in the importance ranking while selecting critical factors of success.

**Findings** – Intricacy and inconsistency of some factors are due to not only the external environment but also to the university internal conditions. From amongst external factors we have explored social, legal, economical, ethical, political and technological environment. The internal environment has been considered from the point of complex accreditation attributes, and from the point of the EUA (European University Association) evaluating criteria. Based on the testimony of respondents, and in accordance with the university commonly shared values, its vision and new strategy established has been factors critical for successfulness of the young regional university. Considered as critical for success factors are: financing of university from budgetary and non-budgetary resources, ethics and corruption-free behaviour of individuals, quality and quantity of research and educational processes, critical interdisciplinary mass for research and education, and the university structure.

**Research limitation/implication** – Applicability of the model procedure in the form of SLEEPT external environment analysis and of the internal environment analysis based on a case study and of the complex accreditation and EUA evaluation criteria – at real-life strategic managing of universities.

**Originality/value:** The paper presents critical success factor of university using SLEEPT tool for external environment analysis and criteria of complex accreditation and EUA evaluation report.

**Keywords** – critical success factors, research and education process, SLEEPT analysis, university complex accreditation.

**Paper type** – Research paper.

## 1 Introduction

Minister of Education of the Slovak Republic Ján Mikolaj intends to alter the entire manner in which are Universities being financed, and to push through their differentiation based on the quality level they will have attained in the frame of a complex accreditation. Differentiation, reflecting the output attained, will be effected by separation of schools into three categories, each of which will be financed differently:

- University type Higher Education Institutions (financial coefficient = 1.3)
- Higher Education Institutions (financial coefficient = 1.1)
- Specialized colleges (financial coefficient = 1.1)

Following complex accreditation of schools, which are going on during 2008 – 2009, he further intends to reassess the directives and to introduce a new methodology.

Normative financing is also objected by the European Association of Universities (EUA), which in its summary report (Jensen, Kralj, McQuillan, Reichert, 2007) presented results of evaluating of 24 Slovak universities. They blame us especially for they find allocation of finances according to the number of student improper.

EUA offered as to the universities so to the Ministry 28 main recommendations as to what should be modified in the higher education. Henrik Toft-Jensen from the EUA criticized that operating in Slovakia are too many universities (20 public universities, 3 state universities, 10 private universities), and that more than a single university are located in a town. EUA recommends that these should be amalgamated or their cooperation should be extended. As to the number of universities, Slovakia falls amongst European top ten.

Toft-Jensen further pointed out that Slovakia is allocating too little money to science and research. In his opinion the Slovak schools have a lot gaps to close if they wish to catch up with universities of the EU developed countries, and they differ in quality as well. If they want to proceed further ahead they should mutually cooperate more intensely. EUA perceives activities of academic senate negatively as well. *"Installed in the academic senates are often people acting as lecturers, and these are deciding on nominating or not nominating professors,"* remarked Prof. Bales president of Slovak rectors' conference. The EUA report also warns that mobility of students and professors is not functional, and that university teachers speak very poor English.

Quality of schools is reflected also in the Shanghai list of 500 "top" universities globally – Slovak ones failed to qualify amongst them. Nonetheless, Slovakia managed to appear in another comparing list that included majority of schools worldwide. In the (Webometrics, 2008) list the Comenius University (UK) ranks 554<sup>th</sup> globally, and there is another Slovak university made to the first thousand where it holds position 704.

According to a two-years old OECD statistic, 84 percent of university graduates in working age are employed, and university students present 12% of the entire population. The labor market survey indicates that there is a shortage of technical graduates in the practice. (Pravda, 2007).

Universities, the budgets of which are currently "black boxes", need to define the full costs of their activities to justify the use of public and private funds, said Education Commissioner responsible for Education, Training, Culture and Youth Ján Figel, who believes universities should be paid "for what they do" (EuroActive, 2008).

## 2 Methodology

Used in the present paper was a case study, which presented the groundwork method of researching elementary issues of developing the Alexander Dubcek University of Trencin (ADUT), built upon interviews with a selected sample of employees (Chancellor, Vice-Chancellors, Bursar, study programs' guarantors, Chair of the Students' Parliament, and randomly selected sample of the academic personnel and the student) and with officers assessing the Slovak universities within the European University Association (EUA) projects: Institutional Evaluation Programme (Kralj, Emel, Jensen, Riegler, 2007), Institutional Diversity Study for Higher Education Institutions (Vlasceanu, Smith, 2008), Quality Assurance for the Higher Education Change Agenda "ACQUIN" (ZgodavovaLA, 2008).

That was followed by the analysis of social, legal, economic, environmental, ethical, political, and technological aspects (SLEEPT) as a mnemonic tool to facilitate understanding of the Slovak universities' environment "big picture".

Benchmarking was used as the method for comparing performance of Slovak universities from the point of the internal setting factors, and the criteria of complex accreditation, respectively.

The method of pair comparison has been employed in the importance ranking while selecting critical factors of success.

## 3 Alexander Dubcek University of Trencin in the Slovak University environment (A Case Study)

Alexander Dubcek University of Trencin (ADUT) was established on 1 July, 1997 as a national higher education institution and presents one of the "youngest" universities in Slovak republic. Trencin region was the last Slovak region that did not have a higher education institution, and besides the state-wise need to extend possibilities of university studies and of increasing the number of university students was the independent University forming necessitated especially by high concentration of mechanical, electrical and consumer goods industries, of significant "research – development – design" organizations, social, healthcare and cultural institutions. The other stimulus was relatively high potential of the young-ones qualified for university studies. Formed at establishing the University was four principal integral parts:

- Faculty of Special Technologies (FST)
- Faculty of Mechatronics (FM)
- Faculty of Industrial Technologies (FIT)
- Faculty of Socio-Economic Relations (FSER)

Formed later on, in 2002, was the Institute of Natural Sciences and Humanities (INSH) that was meeting selected university-wide educational and research expectations especially due to the existence of the Institution of Glass Research (IGR); still later on, in 2004, established was the Institute of Healthcare and Nursing (IHN).

Whereas in concern was a new university the very first complex accreditation was performed in 2002 in accordance with Act No. 131/2002 *Coll.* on Universities. After five years of operating, and considering the results attained at building of a new university, this was honored by renaming to the Trencin University of Alexander Dubcek in Trencin. In 2008 we are awaiting another complex accreditation any and all Slovakian public higher education

institutions must pursuant to amended Act No. 131/2002 *Coll.* on universities and to the Slovak Government Edict No. 104/2003 *Coll.* on accreditation committees go through by not later than end of 2009.

Within preparations for the complex accreditation, rationalization of ADUT processes in accordance with reviewed vision on new policy and on quality assurance strategy utilized within which were especially the EUA report information commenced in 2008.

IHN attained the statute of Faculty of Healthcare (FH) already by the beginning of the year, and due to cumulative financial losses was INSH divided among other faculties.

From the academic year 2001 – 2002 till today the number of students has doubled.

Academic personnel segmented according to the qualifications (Figure 1).

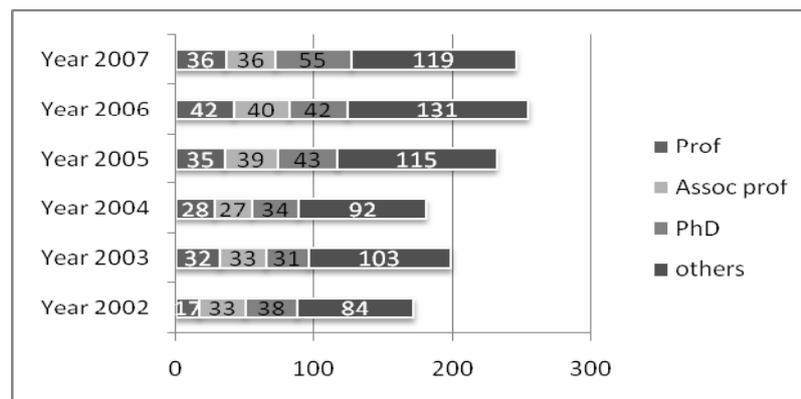


Fig. 1 Academic personnel segmented according to the qualifications

### Outcomes according to criteria of complex accreditation

(according to the Decree of the SR Government No. 104/2003)

*Criterion 1:* Results of assessing the level of the research activities. (Qualitatively ranked number of publication calculated per capita – per the number of academic staff).

ADUT meet the requirements of being ranked to the group of "Higher Education Institutions" as a whole as three of five faculties gain results comparable to the national level. The Faculty of Industrial Technology met the requirements for world-wide level.

*Criterion 2:* The amount of funds allocated to universities for the research in the form of grants, project funds that are calculated per capita – per the number of associate professors, professors and researchers. (University category = 2,000 EUR, Higher Education Institution category – 1,300 EUR, Specialized colleges category = 1,000 EUR per capita – per the number of academic staff).

ADUT is equal to the funds that meet the requirements for the "Higher Education Institutions".

*Criterion 3:* Number of PhD. graduates. (2 PhD graduates per capita – per the number of professors – per six years).

ADUT meet the requirements of being ranked to the "Higher Education Institutions". (This criterion must be met only for ranking to the "University type of Higher Education Institutions". ADUT met the requirements only on one Faculty of Industrial Technology.

*Criterion 4:* Outputs of the research performed by students and by the doctoral study graduates.

Outcomes of students and doctoral study graduates do not meet this criterion. (This criterion must be met only for ranking to the "University type of Higher Education Institutions". ADUT met the requirements only on one Faculty of Industrial Technology.

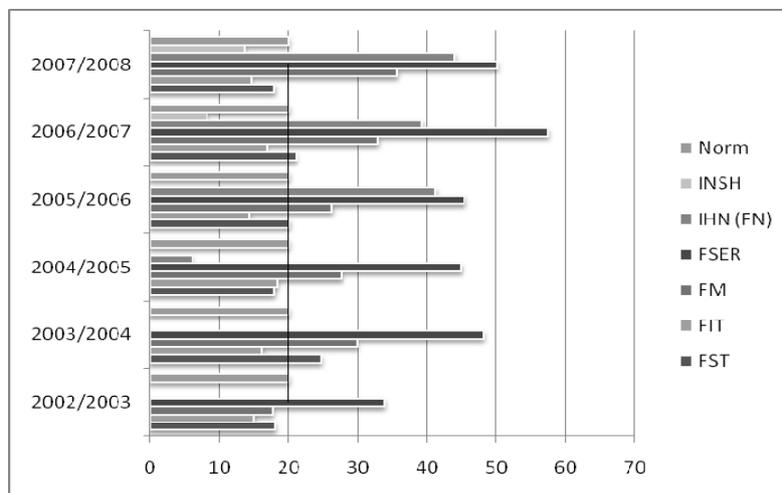
*Criterion 5:* Number of internal doctoral students taking PhD study programs recalculated evidentiary number of professors and associated professors.

ADUT do not meet the criterion needed for the ranking into the "University type of Higher Education Institutions"

*Criterion 6:* Number of students taking study programs of the first and second stage per the recalculated evidentiary number of university teacher. See formula (1) and (2).

ADUT do not meet the criterion needed for the ranking into the "University type of Higher Education Institutions ". The formula for recalculating the students/academic personnel is as follows:

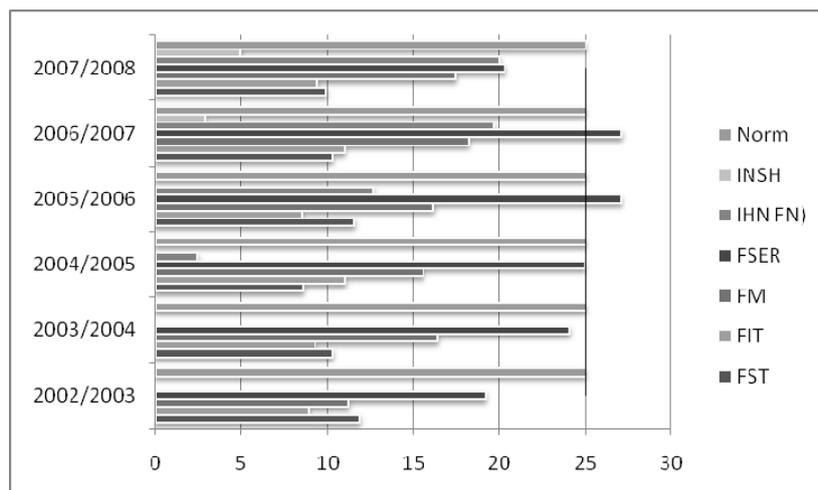
$$\frac{\text{Number of daily study (regular) students} + 0.3 \times \text{number of external students}}{\text{number of academic personnel with Professor, Associate Professor, PhD degrees}} \leq 20 \quad (1)$$



**Fig. 2 Students vs. academic personnel ratio according to criteria of complex accreditation (University type of Higher Education Institutions)**

At including into the "higher education institutions/colleges" category the formula reads:

$$\frac{\text{Number of internal students} + 0.3 \times \text{number of external students}}{\text{number of all teachers (including without PhD.)}} \leq 25 \quad (2)$$



**Fig. 3 Students vs. academic personnel ratio according to criteria of complex accreditation (Higher Education Institutions)**

## Fields of research and study programs

**Table I. Fields of research, study branches and study programs provided by ADUT**

Fields of research <sup>1)</sup>	Study branch <sup>2)</sup>	Number of study programs
06 Social and behavioural sciences	3.1.6 Political science	BC = 1; MA = 1
08 Economy and management	3.3.5 Public administration and regional development	BC = 1
	3.3.14 Human resources and management of personnel	BC = 1
10 Environment and ecology	4.3.2 Environmental engineering	BC = 1
11 Metallurgical and fabrication sciences	5.2.26 Materials	BC = 2; MC = 1; PhD. = 1; I&H = 1
	5.2.57 Quality of production	BC = 1; MC = 1
12 Chemistry, chemical technologies and bio-technologies	5.2.18 Chemical technologies	BC = 2; MC = 1; PhD. = 1
	5.2.19 Inorganic technology and materials	
14 Mechanical engineering	5.2.1 Engineering	BC = 1; MC = 1
	5.2.2 Machine and equipment maintenance	BC = 1
	5.2.7. Engineering technology and materials	PhD = 1
	5.2.50. Production engineering	BC = 1; MC = 1
	5.2.51. Production machinery	BC = 1
16 Information sciences, automation and telecommunications	5.2.16 Mechatronics	BC = 2; MC = 1; PhD. = 1
18 Medical and pharmaceutical sciences	7.4.1 Nursing	BC = 1
	7.4.3 Laboratory examination methods in the healthcare	BC = 1

<sup>1)</sup> List of the fields of research assessed within complex accreditation and of the respective study branches issued by the Slovak republic Ministry of education on FEB 28, 2006

<sup>2)</sup> System of the Slovak republic study branches per the SR Ministry of Education Decree No. 2090/2002-sekr, as of DEC 16, 2002

## 4 Analysis of the ADUT position within the Slovak University environment

### 4.1 SLEEPLT analysis

At creating a vision, policy and strategy of university or when evaluating existing ones it is important to 'scan' the broader external environment. This takes the adapted form of a SLEPT analysis, which we have tailored to SLEEPT (Social, Legal, Economic, Ethical, Political, and Technological) analysis of the influences on universities. In addition, it is also important to be aware of the actions of "competitors". These forces are continually in a state of change.

**Table II. Broader external factors influencing Slovak universities**

Factors	Description	Status and developmental trends
Social	The social factor relates to behaviour of students, employees and other concerned parties, and concerns changes in culture and lifestyles especially in relation to the demographic trend, age structure, health status of the population, educational and social mobility, to relation to work and to the way incomes are being utilized, and also to the free market, freedom of lifestyle, and to socio-cultural changes.	<b>Demographic trend (+)↓</b> Inhabitants by age structure (-)↑ Migration of students (+)↑ Relation to work (+)↑ Free market (+)↑ Freedom of lifestyle (+)↑ Socio-cultural changes (+)↑ Utilization of life-long education (+) slowly ↑ Globalization (+)↑
Legal	The legal factor closely correlates with the social and economical factors, and includes changes in legislature resulting from social transformation and political right—left orientation of Parties in power.	The Labour Code <sup>3)</sup> Act on Universities <sup>4)</sup> Act on Accreditation <sup>5)</sup> Act on ECTS system of credits <sup>6)</sup> Possibility of paid off-campus form of the university study <sup>7)</sup> Organizing the state support of research and development <sup>8)</sup> Proceedings at awarding academic degrees <sup>9)</sup> Process of attaining scientific and pedagogical degrees <sup>10)</sup> Criteria for including a higher education institutions <sup>11),12)13)</sup> among defined category <b>Criteria for habilitation (Assoc. Prof.) and professors nominating proceedings</b> <sup>14)</sup> Proceedings at awarding academic degrees <sup>15)</sup> Act on providing Information <sup>16)</sup>
Economical	The economical factor and resulting changes tightly correlate with the legal and social situation that transpire in changes of the economical growth, interest rates, inflation, price changes, unemployment, costs of labour, globalization, technological changes of impact upon economy, and in changes resulting from change to euro.	Economical growth (+) slowly ↓ Salaries of graduates (+)↑ Interest rates (-)↓ Inflation (-)↓ Unemployment (-)↓ <b>Labour costs (-)↑</b> Technological changes (+)↑

Ethical	The ethical factor profoundly correlates with the social factor and transpire through especially ethical and moral standards, as well as through democracy and corruption indexes.	Ethical code of the University employees <sup>11)</sup> <b>Index of democracy (+) very slowly ↑</b> <b>Index of corruption (-) very slowly ↑</b>
Political	The political factor firmly correlates with the legal one, and is influencing universities especially through actions of the left or right –oriented political structures on the national and regional level and through their strategic decisions about investments into the higher education, especially then into the domain of research and development.	<b>Relative investments into universities (+) very slowly ↑</b> <b>Investments into research (+) ↓</b>
Technological	The technological factor is given by development of technologies, by the Internet, by communication savings, lowering of costs of maintenance, and by the influence of transfer of technologies, as well as by innovations.	Number of IT households (+)↑ Means of communication (+)↑ Transfer of technologies (+)↑ <b>Facilities of the university research labs (+) very slowly ↑</b> Facilities maintenance costs (-) ↓

<sup>3)</sup> Act No. 311/2001 *Coll.* Labour Code – **amended in 2007**

<sup>4)</sup> Act No. 131/2002 *Coll.* on Universities and on revision and extension of some acts per wording of later regulations – **amended in 2007**

<sup>5)</sup> Decree of the SR Government No. 104/2003 *Coll.* on Accreditation committees – **amended in 2007**

<sup>6)</sup> Slovak republic Ministry of Education Regulation No. 614/2002 *Coll.* on the study ‘credit’ system

<sup>7)</sup> Slovak republic Governmental Regulation No. 475/2007 *Coll.* on specification of limit financial sums intended for ensuring study in study programs in their external (off-campus) form

<sup>8)</sup> Act No. 172/2005 *Coll.* on organizing the state support of research and development

<sup>9)</sup> Decree of the Slovak committee for academic degrees No. 65/1977 *Coll.* on proceedings at awarding academic degrees per wording of regulation No. 302/1990 *Coll.*

<sup>10)</sup> Slovak republic Ministry of Education Regulation No. 6/2005 *Coll.* on the process of attaining scientific and pedagogical degrees or artistic and pedagogical degrees of Associate Professor and Professor

<sup>11)</sup> Criteria for including a higher education institutions among “university-type higher education institutions”

<sup>12)</sup> Criteria for including a higher education institutions among “higher education institutions” that are neither university-type nor specialised institutions

<sup>13)</sup> Criteria for including a higher education institutions among “colleges type of higher education institutions”

<sup>14)</sup> Criteria used at assessing fitness of the higher education institute to perform habilitation proceedings and professors nominating proceedings

<sup>15)</sup> Act No. 211/2000 *Coll.* on free access to information

<sup>16)</sup> Ethical code of employees of universities adopted by the Slovak Chancellors Conference Plenum on SEP 28, 2006

Indicators presented in Tab II. and intended to explore the status and tendencies of development of universities were identified whereas, in our opinion, they are in each case of decisive impact upon strategic decision-making of Slovak universities.

**The social environment** is incongruous due to the fact that globalization, free market and free lifestyle offer extensive opportunities to the graduate for "making it" as in the country so abroad, though the demographic development and ageing of the population might significantly influence the future social environment. Fitness of Slovakia to utilize life-long education (Hrabinska, 2000) is significantly lagging behind the EU average (EuroActive, 2006).

**The legal environment** trend is in general positive as introduction of the central registry of the study program guarantors, university teachers, students and of scientific grants, as well as amendment of the Act on Universities and introduction of criteria for accreditation of universities and their study programs are all in support of transparency of research and educational processes in Slovakia.

**The economic environment** shows significantly positive trends despite existence of the US mortgage crisis, threat of the economy recession and anticipated deceleration of the economical growth. Growth of the graduate salaries has slowed down after 2004, though it still exhibits an ascending trend (Hunčík, 2006). Slovakia entering the EURO-zone holds promises of further stable growth of the Slovak economy (Konečná, Ševčovic, 2003) (Tözsér, 2004).

The university environment **ethical environment** presents one of the most delicate issues whereas from among 163 countries reviewed for the "democracy" index we are currently holding the 41<sup>st</sup> position (Kekic, 2007) and are characterized as the country with "democracy flaws"; considering the "corruption" index we are holding the 49<sup>th</sup> position (Transparency International, 2005) (Čaplánová, Szakadát, 2005). The indicator shows slightly positive trend though a significant threat of lobbying and non-transparent behaviour of individual persists.

**The political environment** tightly correlates with the legal frame, and it significantly influences especially the university financing strategies, especially then financing of science and research (The Lisbon Review, 2006). The situation is highly unfavourable in these indicators, whereas within the EU-27 we are rated 24<sup>th</sup>, i.e. 4<sup>th</sup> from the bottom (Eurostat, 2006). According to the key chart from the report (Jensen, Kralj, McQuillan, Reichert, 2007): Research and development intensity, 2005 and annual growth 2000 – 2005 Slovakia is the country with lowest average annual growth and research and development intensity.

**The technological environment** is characterized especially by indicators such as number of households with PC an Internet access, number of mobile phones and utilization of the Internet for phoning, but also equipment of research laboratories of universities. As to the first indicator we show 27% as compared with the 49% EU-27 average; in the second indicator it is 24% as compared with 47% EU-27 average, whilst the third one is also the most favourable for us, whereas here we are holding the 6<sup>th</sup> position within the EU-27 (Special Eurobarometer, 2007). Equipment of universities' laboratories is slightly improving and it is anticipated that it will improve significantly especially when considering the Slovak republic Governmental Regulation No. 766 of the 12th September 2007 on Long-range intent of the state scientific and technical policy till 2015. Nonetheless, whereas persistently missing in the years past were investments into the infrastructure, i.e. for procurement of quality instruments, devices or equipment of the university laboratories, the unfavourable situation is due to survive for many oncoming years.

Mr. Mikolaj, Education Minister, considers lack of finances donated to schools by the private sector for a problem as well. In his opinion, private entrepreneurs subsidize schools in an insufficient extent, whereas they arrive to profits of such investments. Poor facilities of schools are of impact to results of science and research, and hence of their utilization in the practice. According to the Euro Commissioner Jan Figel "universities should be paid" for what

they do". According to (Beri, 2008), for the future it would be important also that harmonized were individual fields of science with those preferred within the EU.

#### 4.2 Benchmarking

Slovak universities should be as from 2010, and based on results of complex accreditation, separated into three differently financed categories.

Complex accreditation is supposed to —based on independent assessing— contribute to streamlining and increasing the quality of education provided by universities. Complex accreditation of the university activities presents a process within the frame of which the Accreditation Committee (AC) succinctly evaluates and assesses the educational, research, development, artistic and other creative activities of the university same as personal, technical, informational and other circumstances under which are these activities performed. Considered at assessing is the preceding 6-year period, and universities are obliged to submit their results attained in above mentioned 6 criterions.

More detailed data directly related to the outcomes of 6 criterions according to the complex accreditation will come available only by the end of 2009, when complexly accredited will have been all universities. However, produced at this point can be a referential benchmarking, based on a variety of statistical resources and according to the (ARRA, 2007).

When considering the number of students, in the 2006 – 2007 academic year ADUT ranked 14<sup>th</sup> from amongst 20 Slovak public universities; considering the academic personnel, it ranked 13<sup>th</sup> (eTrend, 2007).

According to (2), running in Slovakia are 9 super groups of study branches covering 362 study branches that are, according to <sup>1)</sup>, included into 24 fields of research. Studied in the aforesaid 362 study branches can be 7 200 separate study programs. Out of it presently, ADUT asserts itself in 8 fields of research and renders 18 study programs included in 8 study branches.

Scale of universities is in the category of technical faculty rather disgraceful for ADUT, whereas with the exception of FIT that holds 8<sup>th</sup> position, the other two faculties (FST and FM) are taking the last but one, i.e. 21<sup>st</sup> and the last, i.e. 22<sup>nd</sup> positions, respectively. Similarly, FSER ranks amongst the social science faculties the last, taking the 28<sup>th</sup> position, and thus ADUT as a whole holds the last, i.e. 20<sup>th</sup> position among public universities (ARRA, 2008).

Still worse, ADUT is continuously showing financial losses when majority of universities is profitable since 2006.

## 5 Critical success factors

**Factor** – variable (cause) of forming and changing properties and typical functions of the entity in the given environment and time. An entity is considered to be an issue that can be described individually.

**Critical factor** is a factor that conditions the process of necessary changes in properties and typical functions in the given environment and time.

**Success** in its general meaning is achieving something what you want, desire or intend (Encarta, 2008).

Universities are striving and desire for excellence. University excellence is according (Loukas, 2007) presupposes a smooth mantling of traditional academic values with values

derived from the quality philosophy. Harmony, creation of stability (but not stagnation) in a dynamic self improving circle, constant monitoring, teamworking, continuous learning and personal advancement through reflection and conjecture, passion in the acquisition of knowledge and the advancement of science are factors that explain and describe “excellence” but also they constitute the teachings of quality management.

A success for the university ADUT would be achieving the level and the status of "university type higher education institution", achieving the state of students' content and content of other parties involved in the process. A success would be represented by excellent results achieved in the processes of research and education. Regarding the results gained by the ADUT a success would also be forming stable processes in line with the new visions, policy and strategies of the university.

Factors of ADUT success are according to (Kralj, Emel, Jensen, Riegler, 2007) and (Wagner, Zgodavova, Slabeycius, 2007) and (Mecar, et. all., 2008) are described in ten groups comprising 40 recommendations in ten groups.

On the external factors pinpointed by SLEEPT analysis and internal factors ascertained using the complex accreditation and EUA (European University Association) criteria we applied pair comparison, and have determined order of their seriousness. The pair comparison respondents were members of the Rectors' board in the following set-up: rector, vice-rectors, bursar, and director of ITC centre, deans of faculties, representatives of student senate and representatives of academic senate. Based on the commonly shared values and upon the new vision determined were ADUT partial objectives and her critical successfulness factors (Table III.).

- Elimination of financial losses
- Improving the reputation

**Table III.**

Objectives	Factors of external environment	Factors of internal environment		Critical Success Factors
		Accreditation	EUA	
<p>To eliminate financial loss</p> <p>To improve the reputation of ADUT</p> <p>Increase in satisfaction and loyalty of both students and the employees</p>	<p>Social: Demographic trend</p> <p>Legal: Criteria for habilitation (Assoc. Prof.) and professors nominating proceedings</p> <p>Economic: Labour costs</p> <p>Ethic: Democracy, Corruption</p> <p>Political: Investments into universities and into research</p> <p>Technology: Facilities of the university research labs</p>	<p>Results of assessing the level of the research activities</p> <p>Amount of funds allocated to universities for the research</p> <p>Number of PhD students</p> <p>Number of PhD graduates</p> <p>Outputs of the research performed by students and PhD students</p> <p>Number of students taking study doctoral programs per professors and associated professors</p> <p>Number of students taking study programs per academic staff</p>	<p>Vision and mission</p> <p>Governance and Management</p> <p>Funding</p> <p>Human recourses</p> <p>Research</p> <p>Service to society, R&amp;D, knowledge transfer</p> <p>Education</p> <p>Students</p> <p>Internationalisation</p> <p>Quality development and management</p>	<p><b>Funding:</b> To build structures which will secure critical interdisciplinary mass;</p> <p>To change the structure of faculties and the design of study programmes;</p> <p>To select assign the priorities in the field of education and research;</p> <p>To reduce the number of direct contact lessons.</p> <p><b>Ethics:</b> To enhance ethics, visibility, competitiveness and standing, both nationally as well as internationally values.</p> <p><b>Students:</b> To monitor and inform students about the decisions at an early stage to encourage students to be interested in the university life.</p> <p><b>Education:</b> Increasing the number of PhD study programmes and students; decrease number of BC study programmes.</p> <p><b>Quality:</b> Development of an university-wide transparent system of quality management and its implementation;</p> <p>Provide immediate feedback to students on the results of course evaluations and follow-up actions;</p> <p>Integration of good international practices.</p>

## 6 ADUT vision and strategy

The existing strategic management of Slovak universities has been principally oriented to the quantitative side of the higher education institutions' development. In the oncoming period emphasis will be put on quality of the university research and education (Mikolaj, 2008).

Basis of the newly proposed vision has been the study prepared as a supporting document for EUA international evaluation (Wagner, Zgodavová, Slabeycius, 2007), and recommendations of the evaluating team (Kralj, Emel, Jensen, Riegler, 2007).

A new values and vision, being prepared by the new ADUT management, reads (Mecar *et al.*, 2008):

Values: *ethics, creativity, professionalism, teamwork*

Vision: "*...to become a sought-after university type higher education institution in Slovakia at the beginning, and to gradually strive for attaining the level of a renowned and acknowledged university within EU*".

We take long-lasting thematic, theoretical and methodological affinities of scientific and educational processes of the ADUT for the prerequisite that is impinged upon by ethical and non-corrupt behaviour of individuals, stable guaranteeing of study programmes, and to these related fields of research in harmony with priorities of the EU in the field of research.

From the past studies and analyses it results that ADUT should, on the university level, adopt the "deceleration strategy", focused upon resolving the weak links and ineffective processes that bring about decrease of efficiency and deepening of financial losses. In this way she would be able to boost up her resources and capacities and to get prepared for the competitive battle of Slovak universities, and also to make it also in the international framework.

From the view of **change of culture** it is necessary to elaborate a detailed analysis of culture of especially those parts that are to be changed, and also to explain to the entire academia and the rest of employees that survival of the ADUT is jeopardised, to elect new leaders with fresh visions, initiate reorganisation, elaborate new procedures and "rituals" that would incorporate new visions, and to modify selection and socialising processes, the remuneration system, and to focus upon supporting new, specially on the student oriented values.

From the point of **organisational structure** it is necessary to perform analysis of fields of force, which would result in integration of three technical faculties into one, technically oriented faculty, whereas such a solution would be from the perspective of the number of results attained in the field of science and submitted at complex accreditation the most effective one. Attained at implementing such a solution would be also balancing of the number of students taking individual study programmes, and accordingly also gradual reducing of financial losses.

From the point of effectiveness in the **field of science** it is necessary to establish agreed priority areas as a basis for enhancing international visibility, reputation and excellence and to invest in these few priority areas and to motivate academic staff to seek publication of their research results in referenced journals.

From the point of performance in the **study programmes domain** it would be beneficial to redesign study programmes so that these would include contemporary, creative forms and methods of tuition, and also transmissibility of credits in accordance with ECTS, and that the methods were the practice demand oriented.

## 7 Summary

Addressed and partially resolved in the paper, with reference to by the Education Minister declared strategy of Slovak universities quality, are critical processes and critical for success factors, as well as orientation strategy of ADUT developed on the basis of long-term thematic, theoretical and methodological affinity of scientific, educational and entrepreneurial processes.

From the external environment the processes are influenced by decreasing demographic development, observance of criteria for habilitation and professors nominating proceedings, by inadequate democracy index attained, and by relatively pronounced corruption index of Slovakia as a whole, and moreover by minimal investments into universities, science and research.

From the internal environment of concern are especially attainment of positive financial standing, modification of the organizational structure, ethical and non-corrupt behaviour of individuals, stabilized guaranteeing of study programmes a their related fields of research that would be brought in harmony with EU prioritised researches, favourable accreditation conditions as to the required "students — academic staff" ration, research results in group B – internationally acknowledged quality, and change of the university organizational structure.

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