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**CONTRIBUTIONS REGARDING CHANGE
AND DEVELOPMENT IN EUROPEAN
TECHNICAL UNIVERSITIES**

PhD thesis summary

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| SUMMARY |

 CHAPTER 1 INTRODUCTION	1
 CHAPTER 2 STATE OF THE ART	4
 CHAPTER 3 EUROPEAN TECHNICAL HIGHER EDUCATION	8
 CHAPTER 4 LABOR MARKET TENDENCIES – PERSPECTIVE OF EUROPEAN TECHNICAL UNIVERSITY GRADUATES	10
 CHAPTER 5 ORGANIZATIONAL CULTURE OF EUROPEAN TECHNICAL UNIVERSITIES	16
 CHAPTER 6 BEST PRACTICE GUIDE	18
 CHAPTER 7 CONCLUSIONS	27
 BIBLIOGRAPHY 	33

| CHAPTER 1 | INTRODUCTION

The European educational system, but also the Romanian one, went through a series of changes in the past two decades. Part of the whole, the higher education system was itself not spared of these changes. Efforts of the European Union to create the European Higher Education Area, starting in 1999, were visible in the Romanian higher education system even before Romania joined the EU, and they were continued after that.

Also, political regime changes, preparations and then joining the European Union, as well as an ever increasing tendency for global access to information and a global labor market determined a series of significant changes to the Romanian educational system.

If some changes were smaller and easier to implement, others have stirred up lots of polemics and controversy. Here we can mention the recent changes brought by the new National Education Law (Law no.1/2011), which induced radical modifications in the structure of Romanian universities and the way they are organized. The national classification program for universities and study programs was also implemented.

Globalization, the fast evolution of technology and the increasing quantity of generally available information, the evolution and expansion of the European Union and its efforts to unify legislation and to allow for free circulation of its citizen between member states, but also their free access on the labor market anywhere within the EU has brought and will continue to bring changes both to the labor market but also to the higher education system.

A certainty for universities is the creation of the European Higher Education Area, which allows European universities to offer comparable educational services and diplomas that are universally recognized across national borders, thus allowing for a great mobility for students and academic staff alike.

Accent is no longer set on one time learning, at the beginning of one's life, but we notice a transition towards continuous learning, universities thus having to face a demand for educational programs coming from people more advanced in age, which are already professionally active and who need to develop new competencies and knowledge in order to face the requirements of the modern world.

Another tendency at European level is the creation of the European Research Area, where universities will play an important role. Thus, besides creating new educational programs, an increase in research activity is required. Universities need to offer postgraduate programs to attract young researchers, but also to develop partnerships with other universities or research institutes, to encourage researcher mobility and sharing of experiences.

The labor market, where university graduates will become professionally active is itself not spared of change in the future. A recent study done by a team of British researchers from PriceWaterhouseCoopers managed to determine what changes will incur to the labor market in the near future and how will these changes affect the professional paths of young people who are at the beginning of their career, but also

what measures universities have to take in order for their graduates to successfully face their new professional paths.

To analyze these changes and to determine the way in which future changes will be easier to implement and have greater chances of being accepted by all members of university organizations, we need to look at the past, but also at the present of organizational change and development, the legislation framework that regulates university activity, the labor market where future graduates will be active, as well as the organizational culture that exists in European technical universities and its relationship to the national culture of the respective European state.

Thus, this paper sets out to first define the concept of organizational change and development, despite the complexity of this phenomena. A short review of the history of organizational change and development both from an academic point of view as well as the practitioners' point of view who implement these concepts in companies and other organizations will allow for a better understanding of the current state of the art of the research in this field and to analyze the concepts and theories that lie at the foundation of organizational change and development, as well as values and ethics in this field.

The next theme of the paper is an analysis of the European higher education system, from the appearance of the first universities up to the creation of the European Higher Education Area. We will analyze differences and similarities between different European higher education systems, as well as the legal framework that strives for a homogenous higher education area in the entire EU and the way this is implemented in Romania, with a comparative analysis of the evolution of the legal framework regulating Romanian higher education from 1989 until today.

To have an image of the labor market situation and the organizational culture in European universities, two studies were done. One was intended to find out what the vision of today's students on tomorrow's world is and how they believe the labor market will look like and what will their professional path be. Thus, this study was done amongst students from European technical universities.

The second study refers to the organizational culture in European universities and involved questioning academic staff working in technical universities.

After two pilot studies done at the "Lucian Blaga" University in Sibiu, Romania, one focusing on students, the other one on the academic staff of the Faculty of Engineering and after analyzing and interpreting the obtained data, the questionnaires were improved and two other technical universities were chosen, from countries with a preferably diverse cultural background: Germany (with the Technical University in Kaiserslautern) and Poland (with the Academy for Science and Technology AGH in Krakow). The students and academic staff from the two universities were questioned to obtain the data necessary for the research.

Thus, a chapter of this paper is dedicated to analyzing the recent tendencies on the labor market. We determine the way university graduates look at tomorrow's world, the way in which companies will be organized, the role of universities in this future world and the way in which the graduate students' careers will evolve.

With the help of the research done at the Romanian, German and Polish universities we were able to determine the European students' vision on tomorrow's world and the labor market tendencies in the respective countries.

The next step was the definition of Romania's, Germany's and Poland's national culture on the coordinates of the cultural dimensions defined by Dutch researcher Geert Hofstede. Then, the research done among academic staff in the three European technical universities lead to the correlation of the organizational culture of these universities with the dimensions of the national culture and then to the analysis of the implications this organizational culture has on management in implementing organizational changes imposed by educational policy changes at European and national level, as well as the tendencies on the labor market.

After analyzing and interpreting this data, solutions will be offered for creating and implementing organizational change and development policies in European technical universities that will take into account the organizational culture present in these universities and the current and future needs of their clients.

We can say that change is amongst the few constants we can expect in the future in the European Higher Education Area. But change is often difficult and hard to implement because it meets resistance from organizational members.

It is important to know as well as possible the organizational culture and the tight connection it has with organizational change and development. They are two correlated aspects influencing each other. A powerful culture in an organization, if well understood and interpreted, can facilitate organizational change and development. At the same time, if management is not careful about the sensitive aspects of the culture, change can be inhibited or even blocked. Extra attention is required in order not to destroy the organizational culture in the process of organizational change, a fact that could lead to the destabilization and even demise of the organization. All these aspects are treated while using the Faculty of Engineering from the "Lucian Blaga" University in Sibiu as a case study.

We will debate the effects that a strong organizational culture has on initiatives of change and development in an organization and its effects on management, but also on the career development of academic staff in these organizations.

The need for continuous learning makes for an ever increasing percentage of students to come from the adult population, already active on the labor market, whose needs cannot be covered by classic study programs organized at fixed hours in well-defined physical locations. The need to move to a more flexible and individualized teaching-learning system is materialized in the form of distance education and we will analyze the way in which it can be implemented to develop universities, while taking organizational culture into account.

Thus, we will have a complete analysis of the state of the art and the legal framework in which European technical universities exist, as well as the expectancies that students and graduates have for their future careers, and the way in which universities will be able to develop in order to meet these expectations.

I want to kindly thank and express my profound cherishment and gratitude to my scientific PhD coordinator, **Prof. Univ. Dr. Ing. Dan-Maniu Dușe Dr.h.c.** for his

competent guidance and support given to writing this thesis. I carry some feelings of respect and consideration for Professor Duşe for his pedagogic tact and warmth with which he contributed to my professional, scientific and moral development.

I want to kindly thank **Prof. Dr. Ing. Jakub Siemek Dr.h.c.** from the Academy for Science and Technology AGH in Krakow, Poland, and **Prof. Dr. Ing. Detlef Zühlke** and **Hubert Groß**, from the Technical University in Kaiserslautern, Germany for their support in the experimental research done for this thesis in the two aforementioned European universities.

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| CHAPTER 2 | STATE OF THE ART

1. *Organizational development is a planned effort, at organizational level, and coordinated from the top in order to increase the organization's efficiency and health by planned interventions in the organizational processes, using knowledge from behavioral sciences.*
2. *Based on a set of values, mostly humanist; on applying behavioral science; and the theory of open systems, organizational development is a process of planned change at system level, aimed at increasing the efficiency of the entire organization through a consolidated congruency of key organizational dimensions, like the external environment, mission, strategy, leadership, culture, structure, information systems and rewards, as well as work procedures and policies.*
3. *Organizational development is the process of increasing organizational efficiency and of facilitating personal and organizational change by using interventions dictated by knowledge from behavioral and social sciences.*

Analyzing all these definitions, we notice they converge on a common point, namely organizational efficiency, obtained with the help of social and behavioral sciences, like economics, psychology, management etc.

Table 2.1. The history of organizational development

Time		Theme	Influences today
The 40s	First generation	Laboratory trainings and training groups	Small groups research Leadership styles Team-building
The 40s		Action research and questionnaire feedback	Employee questioning Organizational development processes
The 60s		Management practices	Participative management
The 70s		Quality and employee involvement	Quality programs like Six Sigma, TQM Self-lead or employee managed teams

The 80s	Second generation	Organizational culture	The influence of culture, mostly in mergers and acquisitions
The 80s/90s		Change management, strategic change and reengineering	Practiced today, systems theory
The 90s		Organizational learning	Practiced today, questionnaires
2000s		Organizational efficiency and employee engagement	Practiced today

Source: Anderson, D. L. (2010). *Organizational Development: The Process of Leading Organizational Change*. London: Sage Publications.

Natural open systems (where we can also include organizations) have certain common characteristics, namely that they use energy or inputs, they have a transfer or transformation process, they have outputs, feed-back, an equilibrium state etc. Systems are considered open because they are in constant interaction with their environment. An organization seen as a system is represented in figure 2.1.

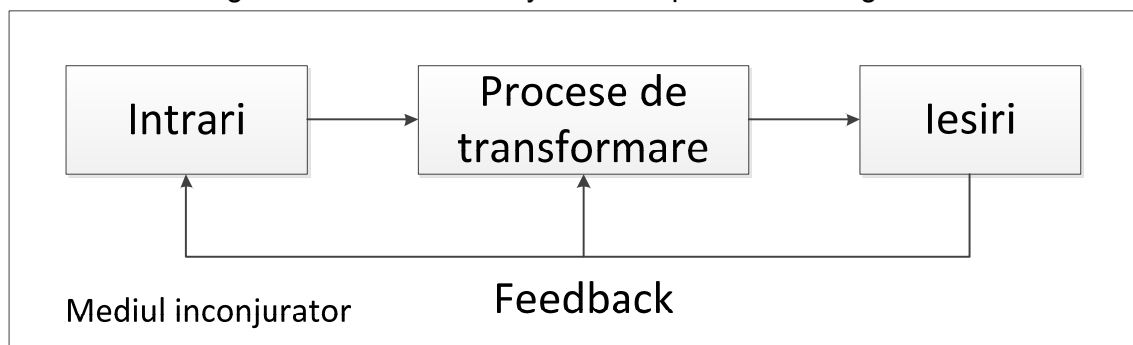
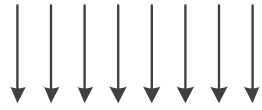


Figure 2.1.: Organization as a system

Next we present the most common models for organizational change and development that take the system theory into account. Each offers a different perspective on organizational analysis, highlighting different approaches of change at organizational level.

Kurt Lewin (1951) offers a model of organizational change in three phases. He describes change as a process of unfreezing, moving and refreezing. Current organizational practices must be set free (unfrozen) in order to be changed. Once change has taken place, it must be frozen as common new practices. According to this theory, there are two forces in the organization that work to maintain balance in the company. There is a force for change and a force that promotes the current state of art. As long as the force of change is weaker or equal to the force that promotes the current state of being, nothing will change within the organization. Change can happen with two conditions: either the force promoting change is increased (great demand from the market, clients' needs, small cost of change), or efforts are undertaken to diminish the force that opposes change (the need for ample trainings, insufficient human resources, long implementation time). Figure 2.2. presents an equilibrium of the two forces.

Forte care promoveaza schimbarea



Forte care promoveaza status-quo-ul
(rezistenta la schimbare)

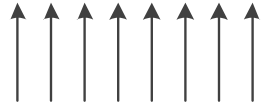


Figure 2.2.: Kurt Lewin's analysis of the force field

Nadler and Tushman (1983) launch the hypothesis that system theory is too abstract to be used in analyzing day to day organizational problems and release an extended version of the system theory containing additional concepts (Figure 2.3.).

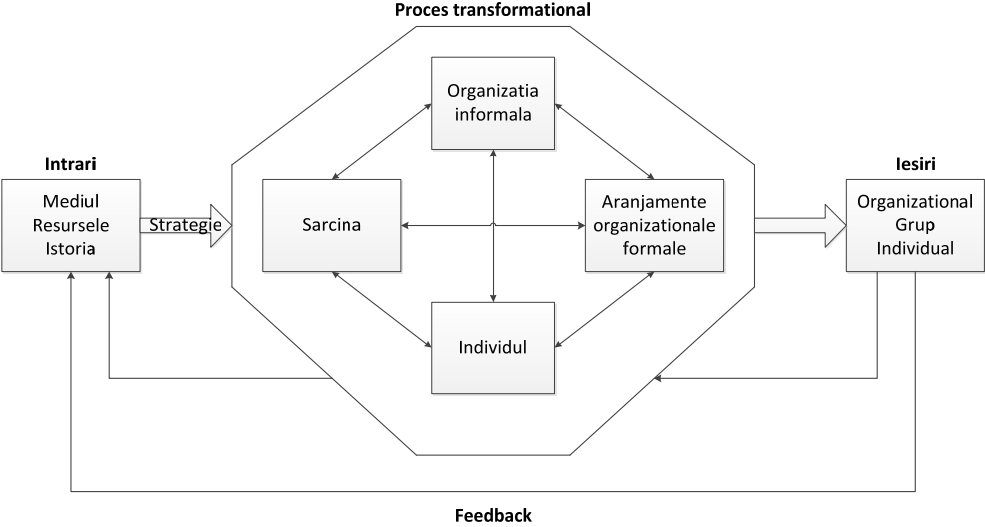


Figure 2.3.: The congruence model of Nadler-Tushman

Source: Nadler, D. A., & Tushman, M. L. (1983) *A General Diagnostic Model for Organizational Behavior. Applying a Congruence Perspective.*

Burke and Litwin (1992) have praised many of the organizational change models, but considered them too simple. Many have proven utility in the real world, others could not predict with certainty the impact of change on the other elements of the organization. The two developed their own model for organizational change and performance as a causal model that could be tested and that could specify the variables that would be affected by certain changes and which would consider both first and second degree changes.

As we notice in Figure 2.4., the model is extremely complex and can create confusion by the sheer number and direction of arrows. Burke and Litwin have declared that change itself is such a complex phenomenon and that the model is still simplified compared to what happens in real life during a change process.

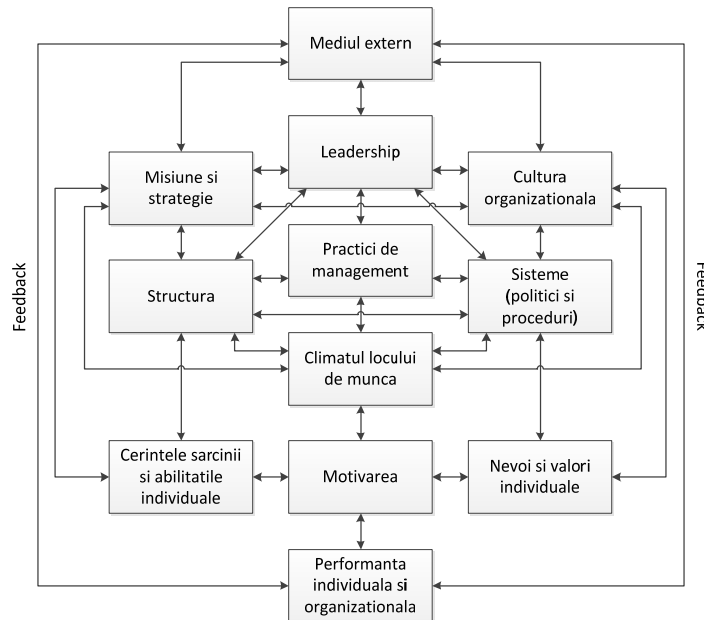


Figure 2.4.: Organizational performance and change model of Burke-Litwin

Source: Burke, W. W. (2002), *Organization Change: Theory and Practice*. Thousand Oaks, CA, Sage.

Weisbord (1976) created the model of the six boxes, which was not explicitly destined as a model for organizational change (Figure 2.5.). Even though, it became a popular model to diagnose elements of a system that are not in sync with other parts of the system, particularly to determine how the formal and informal systems are out of line, or even contradict themselves.

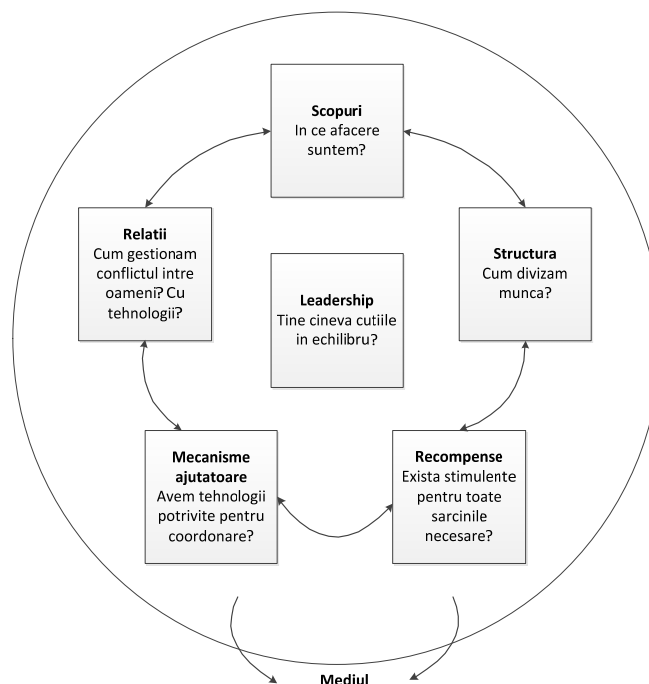


Figure 2.5.: Weisbord's model of the six boxes

Source: Weisbord, M. R. (1976), *Organizational Diagnosis: Six Places to Look for Trouble With or Without a Theory. Group & Organization Studies, I.*

Based on the discoveries of their predecessors, in 1969, Tannenbaum and Davis presented the transition of values on which organizational development was based at that time (Table 2.2.).

Table 2.2. Organizational development values

From...	To...
Seeing people as bad	Seeing people as essentially good
Avoiding negative evaluations of individuals	Confirming them as human beings
Seeing individuals as fixed	Seeing individuals as being in process
Resistance and fear of individual differences	Accepting and using them
Using the individual mainly in accordance with the job description	Seeing them as a complete person
Avoiding expressing feelings	Adequate expression is possible, as well as efficient use
Role playing	Authentic behavior
Using status to maintain power and personal prestige	Using status for organizational relevant purposes
Mistrusting people	Trusting people
Avoiding confronting others with relevant data	Adequate confrontation
Risk avoidance	Willingness to risk
Process work as being unproductive	Process work as being essential to fulfilling tasks
Main focus on competition	Main focus on cooperation

Source: Tannenbaum, R., & Davis, S. A. (1969) *Values, Man and Organizations*. Industrial Management Review, 10(2), pp.67-86

| CHAPTER 3 | EUROPEAN TECHNICAL HIGHER EDUCATION

In 1999, in Bologna, while the film of the Magna Charta ceremony from 1988 was running in the background, ministers of education from 30 European countries sign a Declaration through which they express their intent to create the European Higher Education Area (EHEA) by 2010. This would be an open space, with common references regarding education structures, using credits, quality evaluation, curricular development and mobility of persons and ideas.

Thus, the Bologna Declaration, based on the premises of the Magna Charta, proposes a new method of bringing Europeans together through an inter-governmental initiative: Europe exists and Europeans can show it!

This time, the governments of the signing states adopt common rules for behavior and agree to share the common tools of change (bachelor-master educational structure, diploma supplement, ECTS and quality agencies) to develop convergence strategies. This should lead to an European academic space where professors, stu-

dents, funds and ideas can be called from anywhere to work anywhere in Europe, as if it would be a unique political space, whose interior national borders are placed on a second level (EHEA, 1999).

Today, the process of creating the European Higher Education Area comprises 47 of the 49 states that have signed the European Cultural Convention of the European Council in 1954. In the beginnings, the Bologna Process was only meant to strengthen competitiveness and attractiveness of the European higher education and to encourage mobility and employability of students by introducing an educational system based on graduate and post-graduate studies, with programs and diplomas that are easy to understand and compare. Also, quality assurance played an important role even from the beginning. Periodical (every 2 years) ministerial meetings have developed this agenda and strengthened the developed tools. The graduate/post-graduate system was transformed in a system with three study cycles, which includes qualification frameworks, with accent on learning results. The concept of social dimension of higher education was introduced and qualification recognition is seen as the central key element of European educational policies.

In Romania, after 1989, the legal framework had a laborious evolution and was often subjected to more or less radical changes. The first law that regulates the educational system was the Law 84/24.07.1995. Being the first attempt to regulate the entire educational system in a single law, it suffered numerous changes during time, mostly in order to align the national educational system to the European framework.

The most important change was in 1997, when the Law 128/12.07.1997 defines for the first time the statute of academic staff. Another important piece of legislation is the OUG 75/25.07.2005 which, taking into account the necessity of insuring education quality, by setting the legal framework to allow the development of an institutional culture of education quality and the protection of the education beneficiary, taking into account the need to change the current situation where Romania is amongst the few European countries which do not have a regulated quality assurance mechanism for education, sets out to regulate these aspects.

The current legal framework regarding educational institutions, including higher education, is provided by Law 1/05.01.2011, also known as the National Education Law. When it was adopted, it abolished all other laws regarding the national education system. Even though there is a chapter about education quality in the new law, it doesn't abolish OUG 75/2005 with all its future modifications and additions, this remaining in place to insure the legal framework for quality assurance in education.

Law 1/2011 takes into account all efforts taken at European level to create the European Higher Education Area and sets out to promote an educational system based on values, creativity, cognitive, volitional and action capacities, fundamental knowledge and knowledge, competencies and abilities of direct usefulness in society and at work.

The principles on which the Romanian higher education is based are:

- university autonomy;
- academic freedom;

- public liability;
- quality assurance;
- equality;
- managerial and financial efficiency;
- transparency;
- respecting students' and academic staff's rights and freedom;
- independence of ideologies, religions and political doctrines;
- mobility freedom of students, academic staff and researchers, both national and international;
- consulting stakeholders in making decisions;
- education centered on the student.

| CHAPTER 4 | LABOR MARKET TENDENCIES – PERSPECTIVE OF EUROPEAN TECHNICAL UNIVERSITY GRADUATES

In his paper “Managing Tomorrow’s People”, Michael Rendell (2007), together with a team of researchers from PriceWaterhouseCoopers, have tried to determine, using the scenarios method, how the world will be like in 2020 and what implications this will have in the future on companies, universities, graduates and the human resource management.

Questioning approximately 3000 generation Y representatives from USA, China and the United Kingdom, and, using the scenarios method, the researchers have identified the main influence factors: individualism – collectivism and corporate fragmentation – corporate integration, these forming a coordinates system where the potential future worlds can be placed.

Thus, the study clearly reveals that organizational models will undergo fundamental changes in the future. Technology, globalization, and demographic evolution will indulge organizational structures and cultures. Three possible organizational models seem to prevail:

- major corporations will turn into small states and will take a predominant role in society;
- specialization will lead to the creation of cooperation networks,
- the environmental agenda will impose fundamental change in business strategies.

The three worlds, named Blue, Green and Orange will coexist in the future, in one form or another, maybe distinct by geographical region or industry sector (Figure 4.1.)

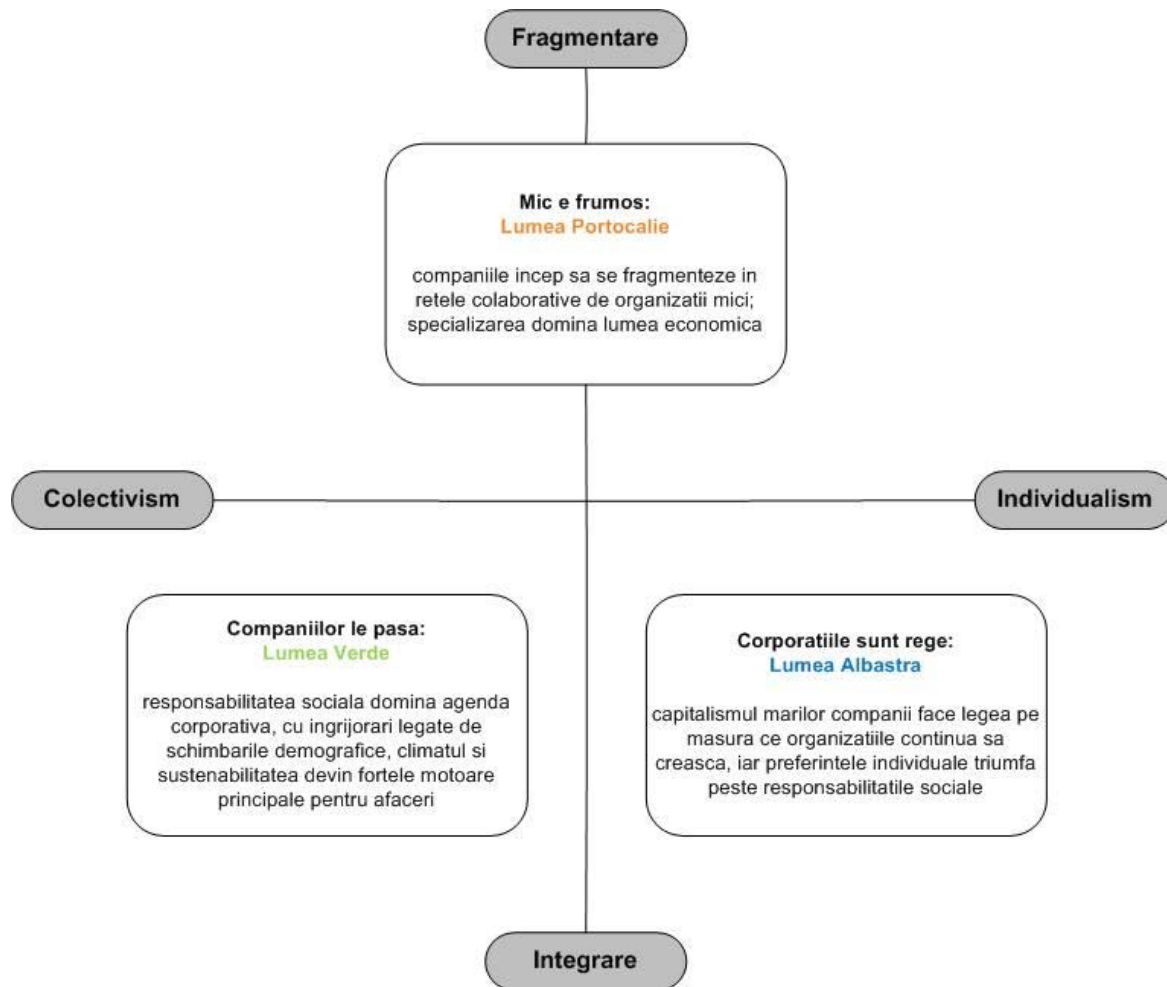


Figure 4.1.: The three future worlds

One of the potential worlds is the **Blue World**. The sheer size and dimension of corporations in 2020 means that a significant number of these operate with turnovers greater than the GBP of many individual countries, especially in developing areas. With echoes of business models promoted by companies like General Motors at the middle of the last century, many companies offer now the equivalent of a welfare state for their employees, to make sure they keep the best talent within the organization. Internally coordinated service centers are sophisticated and very efficient – using processes perfected by the outsourcers of the ‘90s. People metrics will be part of day to day life to keep track of individual performance and productivity.

In the **Green World**, companies care and consumers and employees drive change. The lobby for the environment is so ubiquitous that companies need to react fast to the employees’ concerns regarding any aspect of the business that can be considered as lacking ethics. Clear communication about products and services is essential.

In the **Orange World**, small is beautiful. The barriers of trade fall and there is a truly free market, and countries like China realize quickly that without adopting the forces of a true market economy, they will not be able to resist competition.

Starting from these hypotheses about the future world, we have undertaken a study to see what the opinion of our young specialists, still enrolled as students in the bachelor programs of the “Lucian Blaga” University in Sibiu, Romania is.

The study was done accepting the three worlds anticipated by the British researchers. The research sample was 1,000 students from all 11 faculties that comprised the entire university at the time of research. The research sample consisted of students in the 2nd and 3rd years of study, completely accustomed to university studies. A number of 965 questionnaires were returned and declared valid.

The research objectives were:

- defining the way in which students see tomorrow’s world, in the context of globalization and the current economic status;
- setting the main coordinates for this future world;
- interpreting implications on leadership in relationship with the current situation.

Thus, 65.4% of future engineers declared they will work outside national borders more than their parents. This percentage does not surprise us, because Europe is currently open to young professionals with solid education and good aptitudes. The most skeptical about their future outside Romania were Law students, only 36.5% of them believing in a foreign future.

Regarding the language used at work, most students opted for a language different than their mother tongue (71.7%). Obviously, engineering students have shown a high interest for a foreign language at work (77.7%). The last place is again taken by Law students (54.1%). The interpretation for their opinion is that their future profession provides certain limitations, because being a lawyer means using your mother tongue at work.

The study has shown that women are more sensitive to the corporate social responsibility of their employer, 79% of them affirming that they would intentionally look for a socially responsible employer, compared to only 70.9% of male respondents. Even though 70.5% of engineering students have answered this question positively, they place second to last amongst all faculties.

Asked what location they prefer as their working place, 78.5% expressed their wish to work in a fixed location (a company office), followed by working from multiple locations. Only 18.2% of students declared they wish to work from home. Engineers, with a score of 73.4% see themselves rather working from a fixed location. Also, females see themselves rather working in an office (81.9%). Interesting is the fact that a segment of 18.1% of engineers see themselves working from home. They have, no doubt, a virtual company in mind, whose tasks can be accomplished from anywhere, including home.

A surprising result is that LBUS students prefer to work fixed hours (75.7%) instead of opting for a flexible program. Again females (78%) have shown a greater preference for a fixed schedule than males (72.8%), which is not surprising, considering the values about family and the role of the woman in Romanian families.

Asked how many employers they believe they will have during their entire career, most respondents (86%) answered 2-5 employers.

When questioned about their retirement age, 74.3% of students opted for a retirement age of 50-60 years. 35% of engineers declared they would like to retire between 40 and 45 years of age, amongst the first who see themselves having a fast career and an early retirement.

The last question was about students becoming their own employer. The majority of those interviewed (74.2%) declared themselves in favor of this idea. Amongst them Economic Science students (84.8%) were followed by Medicine students (81.1%) and Law students (79.8%).

Engineers also have a great wish to open their own business (75.4%). But the reality is that the majority of these respondents will continue to work for an employer rather than opening their own business. A possible explanation can be correlated with their educational profile that directs their career towards a world of state institutions, subsidized from the state budget. Most probably, the curricula of these faculties contains little elements tied to entrepreneurship, more theoretical than practical subjects are studied.

We notice that even though at university level, the females (59.6%) outnumber the males (40.4%), at the Faculty of Engineering, only less than a third (29.6%) of future engineers are women.

The age distribution, both at university level (92.5%) and at the level of the Faculty of Engineering (93.7%), the vast majority of students falls within the 20-25 years age interval.

76.4% of the questioned students do not work at all or work only occasionally. If we take a look at the Faculty of Engineering, we notice a slightly less percentage (72.8%) of students that do not work or work occasionally.

After collecting and analyzing the data from the research done at the "Lucian Blaga" University in Sibiu, the questionnaire, with some minor modifications, was then applied to students from the Academy for Science and Technology AGH in Krakow, Poland and from the Technical University in Kaiserslautern, Germany.

The questionnaire was distributed on-line at the TU Kaiserslautern, both in German and English language. A number of 648 questionnaires were declared valid.

At AGH Krakow, the questionnaire was printed out in English and distributed to the students. A number of 162 questionnaires were returned and declared valid.

The objectives and starting hypotheses of the research were the same as for the Romanian students.

Thus, 67.5% of Polish students and 75% of German students agree that they will work outside national borders more than their parents. The disappearance of physical borders within the EU and the right to work freely in any of the member states, as well as multinational companies that have offices in multiple countries are things that make these high percentages no surprise.

With the extended possibilities to work across national borders comes also the need to communicate in a language different than one's mother tongue. Thus, the vast majority of those interviewed, both in Poland (81.48%) and in Germany (86.11%) are convinced they will use a different language than their mother tongue at work.

Even if they will work in their own countries, they are convinced that global spreading of multinational companies will drive them to this.

The idea of accepting as a future employer just those companies whose corporate social responsibility behaviors match the values of the questioned students is only seen as worthwhile by 52.50% of the students in Krakow, while students in Kaiserslautern are a little more inclined towards this idea, 64.79% of them answering yes to this question.

When questioned what their preferred working location is (home, office or multiple locations), Polish students show a great desire for flexibility, 82.72% declaring their wish to work from multiple locations. The majority (54.17%) of German students prefer to work from a fixed location, a company office. It is interesting to notice that none of the German students and very few of the Polish students wish to work from home.

Surprising is the students' view on working hours. Thus, while German students show a slight preference for fixed working hours (57.14%), Polish students express only a marginally higher desire for flexible hours (50.62%).

General opinion regarding the number of employers each student believes they will have until the end of their career is 2-5 employers (64.20% of Polish students and 73.24% of German students). We note an important segment of Polish students (18.52%) who believe they will have 10 or more employers throughout their career.

We recorded noticeable differences between the opinions of students from the two universities with regard to their retirement age. While 65.43% of students from the Polish university want to end their active career before the age of 60, to have time to tend to their passions and hobbies, 84.72% of students from the German university show a desire for a long active life, well beyond the age of 60.

The last item of the questionnaire analyzes the option of young students to become their own employer. Almost half of Polish students declared themselves in favor of this idea, in contrast with the German students who completely reject the idea of managing their own destinies (66.67%).

What demographic data is concerned, we notice a higher proportion of female students in the technical higher education in Germany (37.50%) compared to the Polish university where 23.46% of students are female.

We also notice an important segment of German students with ages over 26 or even over 30 years of age, while the age of all questioned Polish students fall in the 20-25 years interval.

One of the study's hypothesis is confirmed, namely the fact that very few students work. 89.70% of students from AGH Krakow and 60% of students from TU Kaiserslautern do not work at all or work only occasionally.

The hypothesis of the Blue World seems to be confirmed by answers offered by students from the Faculty of Engineering in Sibiu. They show a desire for stability and regularity by opting for fixed working hours, somewhere in a company office, without changing too many employers. Future engineers from Sibiu declare themselves open to work for large corporations, who will also strive, besides offering a job,

to provide them with help in career and personal development, meaning the higher levels of Maslow's pyramid.

If we look at Germany, the national cultural dimensions are individualism and integration, which leads us to the idea of the Blue World. By analyzing the answers of German students, this world is clearly visible. They wish to work for large multinational companies, with tasks that will take them across national borders and determine them to use languages different than their mother tongue. They also show a great desire to work in a fixed location, a company office, with fixed office hours and an active career beyond the age of 60.

Polish students do not totally reject the idea of the Blue World, but there is also no great preference for it. There is a small segment of students who see their destinies managed by a large corporation that will take care of all their needs, both professional and personal.

The Green World is barely visible in answers offered by students from Romania. This does not mean it doesn't exist at all, just that it has no connection to future Romanian engineers. Even though most of them said they would opt for employers whose corporate social responsibility behaviors match their values, the answers to all other questions do not characterize this world. The percentage of those who, even ideally, envision one employer for life is very small.

Future German engineers also say they would like to work for an employer whose corporate social responsibility policies reflect their own values, but other than this, the Green World is not visible in their answers. The same opinion is shared by Polish students.

The idea of fast portfolio careers seems to exist in the minds of young Romanian students, thus revealing us the Orange World. 74.2% of those questioned dream of managing their own destinies and the guilds will be the interface they need to accept the best offers.

In Germany, the Orange World is barely visible. 66.67% of the interviewed students categorically reject the idea of opening their own business, declaring themselves against managing their own destinies. Also, they wish for long careers with retirement well beyond the age of 60. They refuse the idea to work for a great number of employers, thus rejecting portfolio careers that allow them for great and fast earnings. This is understandable, considering the good standard of living their parents have after a long and stable active life.

Polish future engineers believe the most in the existence of the Orange World. Even though only 48.75% declared for sure that they would like to manage their own destinies, the answers to the other questions clearly validate the existence of this world for them. The desire for flexible working hours from multiple locations, to end their career before the age of 60 or even before the age of 50, the belief they will work for 10 or more employers are all clear signs that show us the Orange World as being quite relevant in Poland.

| CHAPTER 5 | ORGANIZATIONAL CULTURE OF EUROPEAN TECHNICAL UNIVERSITIES

A research was undertaken from November 2010 to January 2011 at the “Lucian Blaga” University in Sibiu, Romania to determine the organizational culture of this institution. A number of 648 academic staff members from all faculties that comprised the university at that time were questioned. The questionnaire used for the research was based on the works of Dutch researcher Geert Hofstede (2005).

The objectives of the research were:

- determining the typology of the organizational culture within LBUS;
- highlighting the values of the academic staff;
- creating a base for comparison with other academic organizational cultures in different contexts;
- identifying the areas of action so that managers can increase the quality of education and research;
- obtaining some conclusions necessary for managers to capitalize certain aspects of the organizational culture in order to promote organizational change and development.

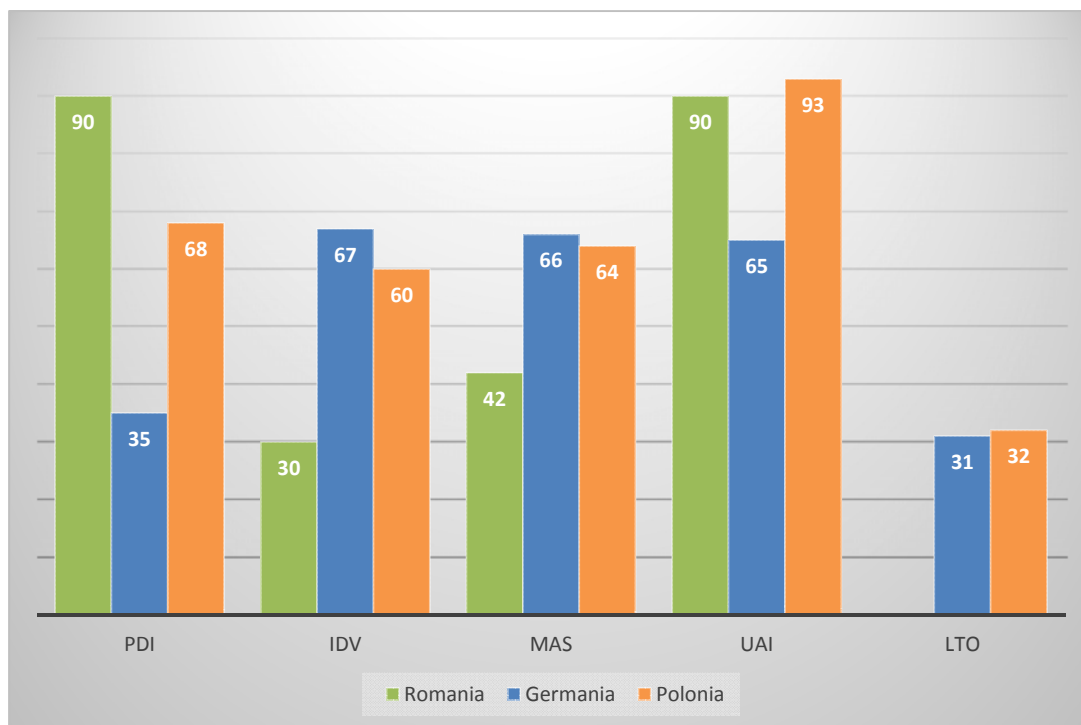


Figure 5.4.: National culture dimensions compared for Romania, Germany and Poland

After processing the data, the following cultural dimensions were determined:
Small power distance. Research revealed a medium power distance (PDI: 52), as opposed to the national dimensions. Faculties with a high power distance are Engineering and Medicine, followed by History, Law and Theology, but we must not

that the registered values are just below 50, so we cannot talk about a really big power distance between faculty management and the academic staff.

Collectivism. At university level there is strong collectivism (IDV: 32), with a close correlation between the organizational and national culture.

Femininity. Without being very strong, the score at university level favors it (MAS: 41). At national level, femininity is also predominant, with a collaborative work environment where all participants are supported, regardless of their contribution. The relatively short period of prosperity for the Romanian society, with a certain well-being, has led to a spring of masculinity poles.

Uncertainty avoidance. At university level (UAI: 77), this is in accord with the national dimension. This is understandable if we look at the current situation of the educational environment.

Short term orientation of the university refers to the care given in keeping certain traditions within the institution in order to be able to fulfill social obligations, as much as the system allows through its norms, regulations and specific laws. Short term oriented cultures accentuate femininity, personal stability, a good reputation and social finesse. By analyzing the questionnaires, there is a short term orientation visible for the academic staff (LTO: 49). Women tip the scale in favor of short term orientation, as well as academic staff that has been in the university for 11-15 years.

The values displayed by the LBUS academic staff are: order, network, survival, learning, personal success, safety, people and power.

Organizational values are ranked as follows:

1. lawfulness – 79,9%;
2. professionalism – 73,3%;
3. respect – 71,7%;
4. quality of work done – 70%;
5. competency, perseverance, security and continuous learning – 70%;
6. responsibility and discipline – 69,3%;
7. performance – 69,1%;
8. engagement/involvement – 68,5%;
9. pleasant working environment – 65,5%;
10. ethics – 65,1%;
11. organizing – 65%;
12. autonomy – 64,7%;
13. efficiency – 64,4%;
14. correctness – 60,3%;
15. client satisfaction, trust and tradition – 59,9%;
16. innovation/creativity – 54.5%.

All these values talk about the seriousness and consciousness of the academic staff.

In 2012 another research was done at the Technical University in Kaiserslautern, Germany and the Academy for Science and Technology AGH in Krakow, Po-

land to determine the organizational culture of these universities, with the purpose of comparing it to the national culture of the respective countries, but also to make a comparative study between the organizational culture of European technical universities coming from different cultural backgrounds.

Thus, at TU Kaiserslautern, the questionnaire was distributed on-line, both in German and English language to the academic staff of the university. A number of 56 questionnaires were returned and declared valid. At AGH Krakow, the same questionnaire was handed out in printed form and English language to the academic staff. A number of 57 questionnaires were returned and declared valid.

The research objectives were the same as with the study at the Romanian university.

The results obtained for all three countries are synthetized in the following chart:

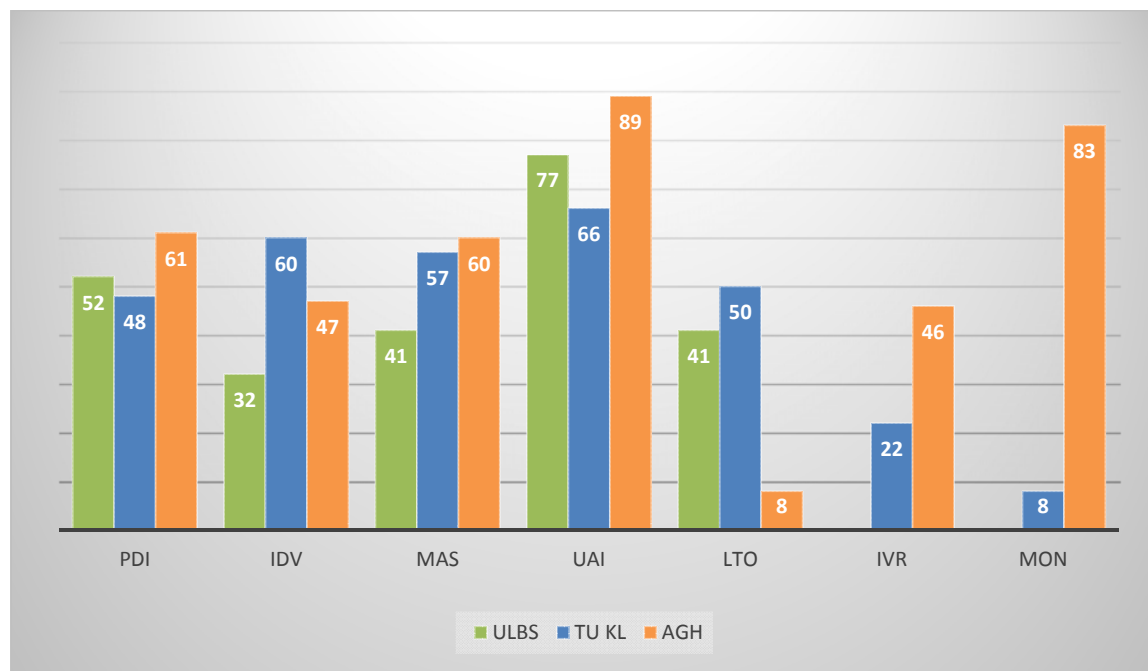


Fig. 5.36. The dimensions of the organizational culture in European universities

| CHAPTER 6 | BEST PRACTICE GUIDE

Starting from the defining of cultural dimensions, one can carry out their analysis, by means of academic staff development:

- professional integration;
- professional training and career development;
- assessment of professional performances.

Based on these dimensions and criteria, the idea matrix presented in Figure 6.1. can be realized:

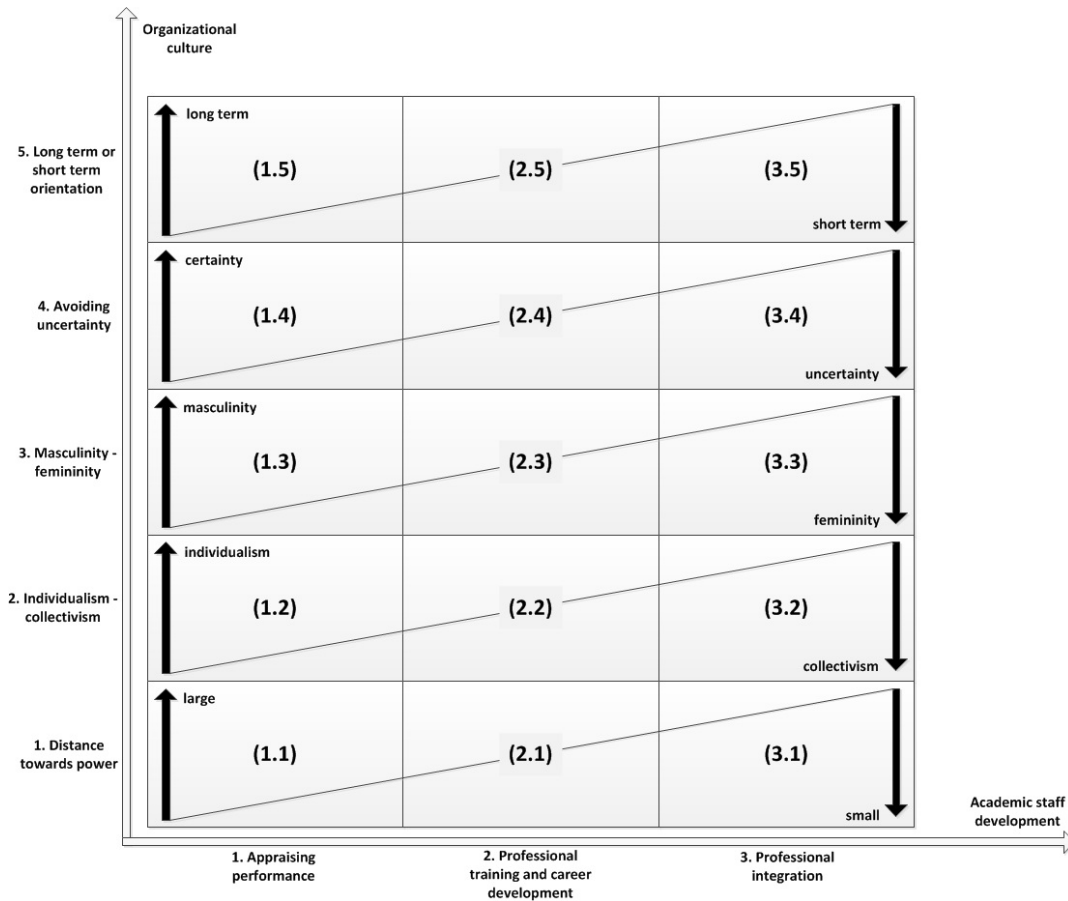


Figure 6.1.: Academic staff development through organizational culture

By analyzing the idea matrix, various interpretations can be made, function of the involved variables. Thus, with regard to professional integration:

(1.1) In the case of a great distance towards power, as is the case in the analyzed organization:

- the managers' decisions are easily accepted;
- the values promoted inside the organization are subordinated to the idea of authority and domination;
- relationships mechanisms are accepted;
- differentiated positions of the managers and the subordinates are accepted;
- within the organization there is docility and submission;
- managers are treated with respect;
- it is expected that all decisions come from the managers.

(1.2) The expression of professional integration by means of the individualistic dimensions, is the case in the analyzed organization, reveals:

- the possibility of appearance of a conflict between the organization's objectives and values and the own objectives and values;
- the professional integration is rather difficult, due to the cultivation of egocentrism by the individuals;
- there exists only a reduced loyalty towards the organization;

- between the group's members only few informal relationships exist;
- self-achievement is what matters, even against the organization's achievements;

(1.3) The analyzed organization has a strong orientation towards masculinity, which influences professional integration in following ways:

- the own pursued values are material success and prosperity. They can often be in conflict with the organization's values and expectations;
- individuals are arrogant, ambitious and tough, and these epithets do not always guarantee a good integration;
- emphasis is placed on competition between colleagues and on performance, to the detriment of the idea of "collegiality", "comradeship" etc.;
- women are slightly disrespected and unappreciated.

(1.4) An intense avoidance of uncertainty, like it appears in the case of the Faculty of Engineering, is derived, with regard to integration, in following manner:

- the workplace security and stability is highly appreciated;
- there exists an emotional need to work, to be occupied;
- there exists a high tendency towards punctuality and precision;
- it is assumed that managers have and must have the answer to any question;
- inflexible work schedules, with standardized professional tasks, are preferred;
- the protest of other members of the organization must be repressed;
- there exists a cold attitude towards younger members, sometimes with hostile accents.

(1.5) For the studied organization, the detected orientation has a median position, expressed, at the level of professional integration, through:

- individuals characterized by perseverance, temperance, seriousness;
- relationships are organized with regard to the professional status;
- (when needed) a shame feeling is manifested;
- mutuality in salutes, favors, gifts etc. is required;
- the group's traditions are observed;
- the group's honor is protected.

The last three elements are characteristics that originate in the short-term orientation that is specific to the Romanian people.

Regarding the professional training and the career development, the idea chart emphasizes aspects such as:

(2.1) From the point of view of distance towards power:

- professional training programs are organized by the managers for subordinates. Managers don't take part in these programs, or take part as professors;
- trainings are used for realizing differentiated remunerations and positioning;
- managers decide what professional needs the employees have and how much the professional development should be expanded;
- managers decide on the professional careers and the subordinates accept the professional routes, considering that "managers know better what is good for them".

(2.2) The organization's masculinity is reflected in the fact that:

- it is considered that if you do a "good job", the desired promotion must follow;
- people are always in search of professional development opportunities, (because they associate it with success and money);
- it is considered that for promotion in the career, no means are immoral;
- each step for the career development is considered to be a challenge and should be tackled front-on, with courage.

(2.4) The high desire to avoid uncertainty is translated through the idea that:

- there must exist rules, regulations and laws which describe the possibility for a person to affirm himself, to develop in the professional sense;
- "professional routes" must have the same algorithm, because their change induces mistrust and suspicion;
- promotion should be realized hierarchically, step by step, "jumping" over stages being unacceptable;
- there is a need for a "periodization" of the promotion to career phases (each 2 years, each 5 years etc.);
- resistance to any attempt at innovation with regard to professional development;
- training programs must be identical for all employees engaged on the same professional routes;
- the young employees must wait for their turn to be promoted;
- competitors for the same position can never be friends.

(2.5) The medium-term orientation, in direct relationship with professional training and career development, strengthens the arguments presented above:

- there exists the conviction that by adopting a behavior that denotes perseverance, the desired position can be achieved;
- the relationships that can play a positive role in professional development are capitalized;
- temperance is the base for decisions related even to professional development.

The last analysis criterion is related to performance assessment. In direct relationship with this criterion, each of the organizational culture's dimensions is represented as follows:

(3.1) The great distance towards power:

- assessment is accepted both as a hierarchy action and as being followed by salaries/rewards differentiated according to the performances;
- the definition of the position's contents and of the distribution of activities is realized through the manager's authority and competence;
- the agreed and accepted assessment systems are hierarchical ones, those where subordinates (students) are assessing their superiors (the professors) being less credible!

(3.2) The organization's individualism:

- favors the assessment of professional performances on an individual base;
- participants express openly their point of view regarding the evaluation's contents and the colleagues' performances (the slogan "talking openly is characteristic for an honest person);

- a negative assessment brings with it the loss of respectability;
- people accept assessment only by means of rules (regulations).

(3.3) The organization's masculinity is reflected in:

- a high stiffness of the assessment operation exists (only according to the proposed algorithm);
- assessment is considered to be a challenge, a test which has to be always passed well, because failures are not accepted;
- a positive assessment brings with it an aura of "hero" of the organization;
- the strong ones must be supported.

(3.4) Avoiding uncertainty is visible in the performance assessment, if one takes into account that:

- the assessment has to be done always according to firm, precise regulations which do not allow interpretations;
- there is opposition to adopting a new assessment system that brings new criteria and standards;
- the assessments' objectives must be always known in advance.

(3.5) The medium-term orientation brings with it arguments like:

- assessments are oriented towards emphasizing a good reputation;
- assessments are rigorous, detailed, closely following the individual's evolution;
- elements related to the continuity of traditions, of customs etc. are capitalized;
- a negative assessment covers the receiver with shame;
- the "protection of honor", if the individuals' interests demand it;
- mutuality in evaluation.

But how can we apply gained knowledge from the European Universities to the development of the Faculty of Engineering from the "Lucian Blaga" University in Sibiu? What is the connection between organizational culture, personal values and organizational change and development? How do they influence management performance within the organization?

It is common knowledge that a strong culture, with deep roots and carefully connected to the organizational strategy, but also with the tendencies of the external environment, will always bring success to the organization, while a weak surface culture is mainly an obstacle in constructing an organizational strategy (Sackmann, 2001). In this context, culture has a double role: it creates internal unity and helps the organization adapt to the external environment.

In order to better understand how the culture of LBU works, we must accept these cultural dimensions as being variable between certain set limits (Fig.6.2.). This means that we can accept that the dimensions can have different numeric values and the management must accept all fluctuations and foresee solutions for each one of them.

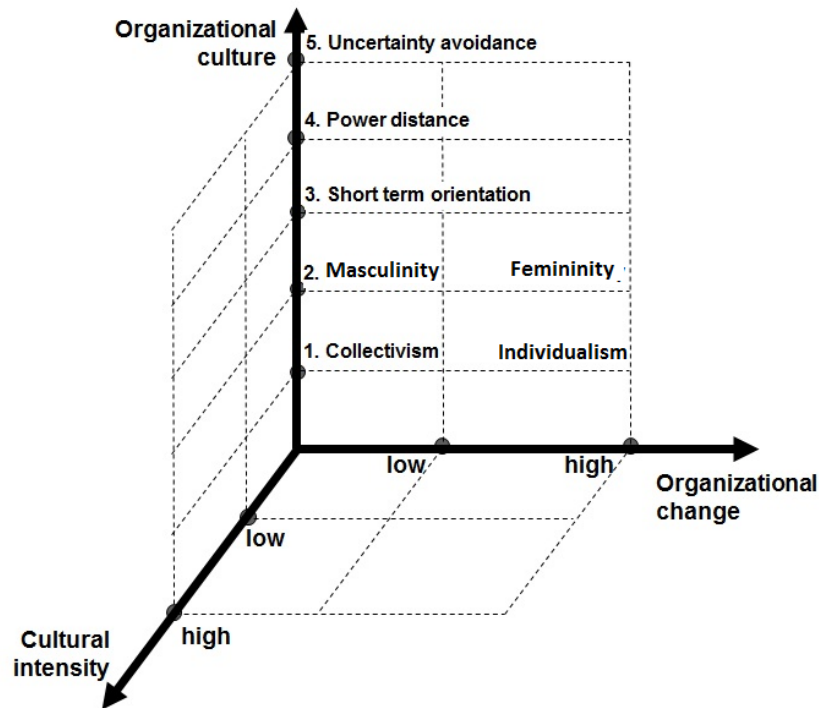


Figure 6.2. Morphological matrix of organizational change

High collectivism, low wish for change:

Inevitably, the climate is highlighted by group unity, with maintaining the current status. There is a high expression of femininity. Correlated with high uncertainty avoidance, change can sometimes be completely blocked. There is a high risk for bureaucratization because of this pronounced conservatism.

What should the management's reaction be in such a situation? Most certainly, a plea for implementing step by step changes, according to the new education law. This must be done by appealing to emotional arguments, by creating *pro-change* waves. Management must also accept the idea that change will be done in small but constant steps.

There is a risk of turning into a bureaucratic organization, with all the subsequent consequences.

Correlation of results obtained with the cultural dimensions, it is clear that LBUS is currently in the situation of **high collectivism, low wish for change**, with all the advantages and disadvantages resulting from it.

The organization's femininity can also be linked to change:

Low femininity, low wish for change:

The characteristics are those of a collective with weak links between participants, with a certain communication, mainly formal. Because of a low wish for change, the members seem more like passing actors in the organization, rather than

its stakeholders, set to build its future. Without the attributes of masculinity, so without the wish to build a strong career path, the participants in the organization act only to conserve a mediocre state of art, concerning both relationships and personal development.

The manager's task in this situation is to create necessary motivation for the members of the organization. We could also consider eliminating some of them who do not bring a certain added value in order to foster the self-accomplishment of the others.

High femininity, low wish for change:

This is the classic case, specific to feminine cultures, where a state of the art considered favorable for group consensus is maintained. Individuals accentuate the stability of the organization, plead for group harmony and sometimes even oppose welcoming new members into the organization in order to prevent any perturbation in the organizational balance. If initially such a situation seems favorable for the organization, in time it will have a negative effect, because of the lack of change. The organization is and must be seen as an open system, with constant interference with signals from the external environment, but in this case signals are blocked, inhibited.

The management of such an organization has the task to build masculinity poles within the organization either by introducing new members who adhere to the masculine culture or by provoking those members within the organization who can be steered towards areas of change acceptance. Attention is required in order not to damage the organizational culture.

Without any doubt the management will have a hard time applying the reforms provided by the Education Law nr.1/2011, because the participants in the organization will not easily accept change. This is much more difficult because, in order to have chances of success, change had to be done slowly, over a long period of time in order to keep the organizational balance. But the current situation does not allow for this, as now, in just a month's time, the classification of universities and the ranking of study programs must be done in Romania, and it has already stirred numerous discussions, controversies and even conflicts.

What could empower management is the fact that the first place in the promoted values is lawfulness, which means respecting the law. This leads us to believe that, even though they do not agree with the way that change is operated and they do not share the vision of the current ministerial leadership, members of LBU will still accept to produce the changes that are imposed. It remains to be seen how these changes will reflect in the femininity of the organization and if they will disrupt the organizational balance. Also, the promotion of those values which could make change viable and accepted throughout the entire organization is critical (Davidson, 2001).

Uncertainty avoidance is another dimension which can easily contradict the change proposed by the new ministerial educational policy. It is accepted for education that applied reforms must first be experimented on small groups of subjects, in order for them not to disrupt the system on a large scale. In our situation, a series of measures are applied, which cannot be found anywhere else in Europe and the ef-

fect of which is, currently, very little foreseen and can under no circumstances be interpreted as favorable.

Small power distance translates to change by a general lack of appetite towards change. Members of the organization have the courage to inform their leaders on the lack of involvement in change and it is supposed that common general opinions exist on this topic. In organizations with low power distance and high uncertainty avoidance, the manager's authority is supreme and all activities are done according to well set rules. Taking risks is not cultivated and thus, unwanted. Without any doubt that just this risk taking brought by the new vision on education is the one that will cast a shadow on change, making it hard to accept if not even to be completely rejected by the analyzed organization.

European higher education has undergone profound changes, triggered by social evolution, where, on one hand, there is an ever-growing number of students in the context of less and less funding from the state budget, and on the other hand, there is an increasing demand for qualification on the labor market.

Therefore the classic university pattern, that offers initial superior qualification, with knowledge-centered curricula, having the professor at its core, and not based on developing competences, is today surpassed and obsolete.

Also, the age of those seeking university studies is constantly increasing. Romanian universities have a strong segment of student population aged over 30. As O. Peters (in Evans, 2000) said: "Universities must develop more flexible and adequate training methods, to diversify their services offers, with immediate impact, allowing access to education to a broader target audience, which is over the usual age for university studies, which is integrated in the professional life and cannot follow university studies in a classical manner of fixed schedules and places, which has more diverse and precise learning needs."

Moreover, futurologists talk about the fact that in the future, universities will have a totally different shape, because the informational society and the virtual and educational communication technologies will allow for more flexibility and freedom of movement.

It is very likely that the classical university, as it is today, will have a narrower educational role with the switch from traditional learning to distance education.

In managing distance learning programs, special attention must be given to the substitution of the absence of the teacher, who should give and receive immediate feedback from those who learn through means and technologies that are individually and situational adequate. In order to be certain of an appropriate implementation of the system, the following check-list can be useful:

- What are the most efficient technologies for preparing and transmitting information?
- Which products, technologies and services are most suitable for the students in my study program?
- What type of course content is adequate for each type of technology?

- How should the faculty/institution members, program designers, participants and system administrators be prepared in order to maximize system efficiency?

The concept of elaborating the courses and structuring the contents for distance education is similar to the model of elaborating materials in programmed education, the concept can go either for organizing in a linear way or in a modular one. The linear elaboration model consists of:

I. The needs analysis

- i. Identifying the target group.
- ii. Identifying and analyzing the education needs of the target group.
- iii. Defining the objectives of the course.

II. Curricular design

- i. Selecting the education content and images.
- ii. Designing the materials in specific supports.
- iii. Setting the learning strategy.
- iv. Pre-testing and evaluating the materials.

III. Elaborating the support strategy for students and the evaluation system.

- i. Choosing interaction methods for student-professor and student-student.
- ii. Identifying bibliographical sources and their accessibility.
- iii. Choosing the tutoring and evaluation methods.

IV. Quality assurance and validation, accreditation and recognition.

V. Managing and marketing the program.

For an efficient communication, enabling the understanding without any difficulties of a written content, the following conditions must be met:

- knowing and appreciating the value of punctuation and other graphic means;
- accurate accomplishment and assessment of contextual values;
- distinguishing between essential and secondary in a written text;
- assimilation of working techniques based on written information – dictionaries, books, graphs, charts etc.;
- mastering question formulating techniques starting from certain information;
- the ability to sum up and formulate conclusions;
- integration into their own experience of the knowledge gained through written information etc.

American researchers at the Syracuse University in New York developed according to the Big Six (Eisenberg & Berkowitz) aptitude set, a competencies model in using the computer for information purposes. The model is not built specifically for distance education, but it can be very easily adapted to it, even more because we

talk about using informational media for distance education. Researchers appreciate that every student needs to present such information and research skills, and, we may add, not only them, but also all those involved in the e-learning process.

An easy way to remember the Big Six is to use the acronym "TILUSE" (Eisenberg, 1990):

- i. Task Definition -- What Do I Need To Do?
 - Define the task
 - Identify the information needed to do the task
- ii. Information Seeking Strategies -- What Can I Use to Find What I Need?
 - Brainstorm all possible sources
 - Select the best sources
- iii. Location and Access -- Where Can I Find What I Need?
 - Locate sources
 - Find information within sources
- iv. Use of Information -- What Information Can I Use?
 - Engage (read, hear, view, or touch)
 - Take out needed information
- v. Synthesis -- How Can I Put My Information Together?
 - Organize information from all sources
 - Create product or performance
- vi. Evaluation -- How Will I Know If I Did Well?
 - Judge the product or performance
 - Judge the process (efficiency)

| CHAPTER 7 | CONCLUSIONS

Organizations, regardless of their nature, are part of our daily life and we spend most of our time working in, connected to or affected by organizations. Some of them work better, while others have smaller or greater problems. These realizations lead to studying the field of organizational change and development starting in the '40s.

Change, another constant in our lives, is necessary at organizational level because of the ever increasing demands of clients, the faster development of technology and the shorter lifecycle of products. This forces the organization to develop new models, strategies, processes and change is driven to the individual, employee level.

Together with the global development of companies, markets and the labor market became more diverse and started presenting particularities that challenged organizations. Thus, the study of national and organizational culture became relevant in the context of organizational change and development.

Organizational change can be of many types and can be done at different organizational levels. At individual level, this can happen through mentoring, coaching, training or education. At group or team level, change takes place when teams learn

new methods of interacting and solving problems. Also, change can happen within multiple teams that learn to work together in solving interdependent problems. At organizational level, changes happen by developing new processes and strategies, visions and major system practices that affect the entire organization.

Organizational change and development does not mean the rigid following of certain procedures. It implies different evaluations, dialogues and decisions. These decisions must be based on a set of values and ethical beliefs about how organizations should be lead, how people should be treated and how organizational change should be managed. Values are significant for organizational development, because they lie at the base of beliefs that are more durable and vast than singular interventions. A series of humanist assumptions lie at the base of organizational development values. By this we understand the fact that individuals deserve respect, are trustworthy and want to achieve personal development and satisfaction. Humanist values also include the belief in peoples' equity and equality, in democratic principles and human value and dignity.

Universities are, by nature, a European type of organization. They appeared in Latin medieval Europe and extended throughout the world, replacing any other institution of this kind, becoming the main form of higher education. Universities developed as a community of professors and students with certain rights, like administrative, curricular and research autonomy and awarding publicly recognized diplomas.

In their beginnings, universities were characterized by the free circulation of students and professors, very few national universities existed. With time, this aspect was lost, so that in the 20th century, there was no more common European culture at university level. The EU is now striving to change this aspect by creating the European Higher Education Area.

The process of creating the European Higher Education Area was painstaking and determined lots of changes at university level around Europe, developing this common space having universities face a continuous change process. Romanian universities were not spared from such changes, on the contrary, there have been and still are some legislative measures in place to change and develop the Romanian higher education system from what it was before 1989 to the common European values assumed with joining the EU.

Besides assuming European values and developing a common academic area, universities must also take into considerations the trends on the labor market, the expectations that companies have from their future employees and also the expectations students and graduates have for their careers and their future.

Thus, according to the millennial generation, three worlds will coexist in the future. The Blue World will be characterized by big corporations turning into small states that will play a dominant role in society, getting involved and taking over control over their employees' private life, but also their higher and continuous education.

The Orange World will be characterized by fragmentation of organizations and the creation of guilds consisting of qualified individuals on each specialization, who will develop portfolio careers, working limited, short term contracts. Guilds will take over most of the employers' tasks including personnel training and development.

In the Green World, companies care and consumers and employees drive change. Environmental lobby is always present and companies must react fast to employees' concerns regarding any business aspect that could be considered to lack ethics. Clear communication on products and services is essential.

The millennial generation expects, according to studies, to have between 2-5 employers during their active life. Their fidelity for a certain employer is relatively low, mostly because, in light of the recent economic crisis, they were forced to compromise in order to find a job. This generation is dedicated to learning and personal development, this being the first benefit they expect from their employer. Millennials are constantly seeking balance between work and personal life, as well as strong communication policies. Technology dominates every aspect of their life, most of them preferring to communicate electronically rather than face to face or even by phone. Career progress is a life priority for Millennials, they are expecting a fast growth within the organization, being attracted by employers whose brands they admire as consumers.

An important factor in creating change and development policies, the evolution of the labor market and management of tomorrow's people was evaluated in three European technical universities ("Lucian Blaga" University in Sibiu, Romania – with accent on the Faculty of Engineering; Technical University in Kaiserslautern, Germany and the Academy for Science and Technology AGH in Krakow, Poland). The obtained results are satisfactory and in line with the scenarios drawn by the British researchers in their first researches on the Millennial generation.

A certain lack of flair was identified in interpreting problems on the labor market that can be connected to the fact that an important segment of questioned students do not work. We also notice a certain conservatism in the way of thinking, especially for Romanian students, fixed on the current state of being, which, paradoxically is neither cheerful nor promising.

Analyzing and interpreting this data, correlating them with the elements of national culture from their respective countries have opened the doors for some change and development strategies for European technical universities with real success chances and which can be easily implemented within organizations.

What conclusions can we draw in relation with university management? Firstly, that the accent must be shifted from the leader to the team. If we talk about and relate to tomorrow's world, this will certainly lead to change. And this change must be the result of collective thinking, not just the thought of the "providential man", in whose existence no one believes anymore.

Then, university leadership cannot be judged in relationship with itself, but must be integrated and involved in an economic, social and political context at national level. It is clear that universities cannot be an island in an ocean, even more while the Romanian and European society registers major mutations with long term effects on the economic, political and social life.

Renowned novelist J.K. Rowling believes that "our decisions show us who we really are, more than our abilities". In this context, the option of the "Lucian Blaga"

University in Sibiu, Romania must concentrate on helping students to discover their own values, as well as motivate them to decide for themselves.

We must not neglect the fact that in tomorrow's world, the leader of the future will not have all the knowledge to tell everyone what and how to do. The world will change at a pace too fast for one single person to be able to keep up with everything. Edgar Schein (2004) affirms in his works that leaders will have to involve others and to obtain their participation for tasks that will be too complex and information that will be too widely spread for leaders to be able to solve problems on their own.

Attention given to cultural aspects in organizational change and development processes is also very important. Thus, we must take into consideration the fact that the dimensions of organizational culture and the organizational change and development efforts influence and support each other and this interaction can sometimes lead to unexpected results. Recognizing this fact can set more realistic premises for implementing change in an organization, because the complexity of this phenomenon is at least taken into consideration, even if the entire process cannot be fully controlled or directly manipulated.

Based on these premises, we started to identify the organizational culture of the three European technical universities, by conducting research on the academic staff. The obtained data was then interpreted and compared to the dimensions of the national culture to develop a best practice guide regarding change and development in European technical universities.

We must accept the fact that no organization has a monolithic culture, but a mix of subcultures consisting of the analyzed dimensions in various proportions. Thus, interventions for change can have different and unexpected results within those subcultures.

The high degree of uncertainty can be exploited by university management, meaning that organization members will see their jobs affected if they do not conform. The problem is if managers themselves see change as being beneficial. Because if they are not convinced by its utility or the way the new laws will shape the educational path, change will certainly be criticized, contested and rejected.

Organizational culture changes because of the organization's need to adapt to changes in its environment, but for this to be possible, it is necessary that cultural values, norms and dimensions allow for flexibility.

The process of intentional and organized change of an organization requires a careful analysis of all elements that will perpetuate change and contribute to it. Attention must be given to the starting point of change: people, structure or organizational procedures.

While individuals become more and more tied to their working place, but at the same time are required to have a very personalized set of competencies, it is clear that people will have to start learning on the go and the educational profile will result as a need expressed by a company and not necessarily an individual option. Because of this, a careful design of an e-learning system is necessary in order to satisfy the needs of tomorrow's world.

We will most certainly speak about a higher personalization of the teaching-learning-doing process, of offering facilities to create learning models for each student according to their specialization, their preferences and the specific objectives of the organization they are working for, and all this by structuring the base knowledge (lectures) by the ontology of the studied field, the learning objects and the metadata (object attributes). All these elements will be in tight connection with determining the student's profile and matching innovative pedagogical methods to this profile.

The main original contributions are presented below:

- ✓ the synthesis of main theoretical aspects regarding the organizational change and development concept;
- ✓ the synthesis of main actions, conferences, treaties or conventions at European and international level that generated declarations, resolutions, regulations or recommendations for policies regarding the development of the higher education system;
- ✓ schematic and synthetic interpretation of main objectives of the EU policies regarding the development directions of European higher education;
- ✓ the synthesis and interpretation of the legal framework that regulates Romanian higher education, including:
 - organization of Romanian higher education;
 - the status of academic staff in Romania;
 - quality assurance in Romanian higher education;
- ✓ analysis and synthesis of research regarding tomorrow's world, done by British researchers in 2007, 2008 and 2011;
- ✓ developing a questionnaire to evaluate the vision of students on tomorrow's world at the "Lucian Blaga" University in Sibiu, Romania, with accent on the Faculty of Engineering;
- ✓ research on students' vision of tomorrow's world at the "Lucian Blaga" University in Sibiu, Romania with the help of the developed questionnaire;
- ✓ improvement of the questionnaire based on results obtained at LBUS;
- ✓ two new researches with the improved questionnaire, at the Technical University in Kaiserslautern, Germany and the Academy for Science and Technology AGH in Krakow, Poland;
- ✓ evaluation, analysis and schematic synthesis and interpretation of results of the research regarding tomorrow's world in the vision of the students from the European technical universities;
- ✓ comparative analysis of results obtained at all three universities;
- ✓ synthesis and schematic interpretation of Romanian, German and Polish national culture;
- ✓ developing a questionnaire to evaluate the organizational culture at LBUS, with accent on the Faculty of Engineering;

- ✓ research on the organizational culture in the Romanian university with the developed questionnaire;
- ✓ evaluation, analysis, schematic synthesis and interpretation of the results of the organizational culture at LBUS;
- ✓ modifying and perfecting the organizational culture questionnaire based on results obtained at LBUS;
- ✓ two new researches based on the improved questionnaire to determine the organizational culture of the Technical University in Kaiserslautern, Germany and the Academy for Science and Technology in Krakow, Poland;
- ✓ evaluation, analysis, schematic synthesis and interpretation of results obtained in the German and Polish university;
- ✓ comparative schematic synthesis of results for the organizational culture research in the three European universities;
- ✓ investigation of the opinion of members of the leadership in the European technical universities on organizational change and development policies in their respective universities;
- ✓ identifying best practices in the field of organizational change and development;
- ✓ analyzing the impact of change and development policies on the development of academic staff in European technical universities, considering the identified aspects of the organizational culture;
- ✓ developing a best practice guide to help managers of European technical universities to easily and successfully implement organizational change and development policies in their universities, taking into account the particularities of the organizational culture identified in each university, as well as the students' vision on tomorrow's world;
- ✓ identifying the directions which change and development policies of European technical universities must take, considering labor market trends.

Results and information obtained during research were disseminated nationally and internationally in journals, magazines, proceedings, at conferences and by publishing a book. The publications are listed below:

➤ **Published books:**

1. Dușe, D. M., Dușe, C. S., **NEMEȘ, C.**, Organizational Change and Faculty Development, Lambert Academic Publishing, 2011, Saarbrücken, Germania, ISBN: 978-3-8454-1865-0.

➤ **Published papers:**

1. Dușe, C. S., Dușe, D. M., **NEMEȘ, C.**, Specific management for Distance Education (E-learning), 9th European Conference on E-learning, 2010, Porto, Portugal, index ISI.
2. Dușe, C. S., Dușe, D. M., **NEMEȘ, C.**, Leadership in Classical Universities: between an entrepreneurial and virtual world, 6th European Conference on Management Leadership and Governance, 2010, Wrocław, Poland, index ISI.

3. Dușe, C. S., Dușe, D. M., **NEMEȘ, C.**, Comparative study on the emotional intelligence in a classical university, Latest trends on Engineering Education – proceedings of the 7th WSEAS International Conference on Engineering Education (EDUCATION '10), 2010, Corfu Island, Greece, ISSN: 1792-426X, ISBN: 978-960-474-202-8.
4. Dușe, C. S., Dușe, D. M., **NEMEȘ, C.**, Influences of the Organizational Culture on Academic Management Change and Development in Classical Universities, 7th European Conference on Management, Leadership and Governance, 2011, Nice, France, index ISI.
5. Dușe, D. M., Dușe, C. S., **NEMEȘ, C.**, Natural Gas Engineering: Part of an Entrepreneurial and Virtual World, 22nd Scientific and Technical Conference Drilling – Oil – Gas, 2011, Krakow, Poland
6. Dușe, D. M., **NEMEȘ, C.**, The Vision of Students Enrolled in European Technical Universities Regarding Tomorrow's World, 1st International Conference for Doctoral Students, 2013, Sibiu, Romania

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- ***** Legea învățământului 84/1995
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