

## A PEST-C MULTIFACTOR ANALYSIS FOR HUMAN RESOURCES DEVELOPMENT PROJECTS' IMPLEMENTATION IN PUBLIC UNIVERSITIES IN ROMANIA

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### Abstract

*For Romania, European Integration generated new challenges for investment project promoters such as public higher education institutions. Although human capital development and education have an important role in a country's economic development, major problems were identified in the implementation process of such projects. Considering the current impact of the external environment's factors upon projects in Romania, we analyzed the Romanian context and developed a conceptual framework. We realized a survey on a sample of three Romanian public universities which implemented human capital development projects by applying a questionnaire to project management personnel in order to identify the key factors that affect a project's implementation. Results show that the most significant factors, with a negative impact, are political and economical ones while technological and cultural factors are perceived as factors with a positive influence. Our conclusions can be useful for policy and institutional capacity makers in terms of human resources development.*

**Keywords:** project management, human resources development project, key success factor, PESTC analysis, implementation process.

## **1. Introduction**

Since 2007, when Romania joined the European Union, the topic of human resources development (HRD) projects has been highly treated in the current literature with the possibility of acceding EU funds for investment in human capital. However, in spite of the large number of such projects being financed, major problems were identified in their implementation process, due to different internal and external factors that acted as obstacles.

Most of the current interest in this area is centered on identifying and analyzing these key factors since their understanding might lead to ensuring an improvement of the implementation process and to a project's success.

In Romania, studies show that the greatest impact is perceived by factors from the macro-economic and institutional environment, along with internal factors related to project monitoring and coordination, as a direct consequence of the macroeconomic, institutional and cultural environment uniqueness for each project, regardless of its domain.

Investments in human capital development and education have an important role in a country's economic development and growth, as pointed out by numerous researchers (Nelson and Phelps, 1966, Romer, 1990, Benhabib and Spiegel, 1994).

Although Romanian universities, especially public ones, should access EU funds for HRD projects, the current low absorption degree and the problems manifested as well as the certainty that the funding will reappear in the next financial programming period (2014 – 2020), underlie the necessity as well as the opportunity to study HRD projects' implementation framework and the factors that determine its success or failure.

In this sense, our study's objective is to provide a set of critical success factors for HRD projects' implementation process by developing a framework for external environment factors' analysis from a public project management perspective.

In order to fulfill the paper's objective, we have started with an extensive literature review, approaching the topics of project management, HRD projects, key factors and their study in the specific literature, followed by an analysis of the Romanian context which allowed us to develop and test a conceptual framework.

It should be noted that even though the originality of our research does not rely on the method applied (questionnaire survey) our results and conclusions have a high informational content and can be useful for those involved in policy making and building institutional capacity in terms of HRD.

## **2. Literature review**

### **2.1. Critical success factors in projects – a general overview**

Project Management has seen in recent years an important growth as a research area, given that the project work environment has become increasingly complex and unstable. In this context, the analysis of factors that determine the success / failure of the projects appeared, precisely because often project results do not meet stakeholders' expectations (Jugdev and Müller, 2005).

Key success factors in projects can be seen as a series of conditions, areas, circumstances that contribute to the fulfillment of projects' results (Ika, 2007) or, in other words, areas where "things must go right" (Rockart, 1978) for the successful implementation of the project and for its successful results.

Although the number of articles that analyzed projects' critical success factors is extensive (Kwak, 2002, Ika, 2007, Ika, 2012, Khang and Moe, 2008, Dvir et al, 1999, Stankovic et al, 2013), there is no general opinion regarding key factors: some factors seem to have a universal character, appearing in several studies, while others are linked to the specific nature of the project. Meanwhile, the increasing diversity of projects highlights some of their characteristics, depending on the type of project analyzed. The idea that projects are

different and that these differences render differences in the "optimal" management path also appears in various studies (Howell et al, 2010).

Thus, for the hard category of projects (construction projects, institutional and technological infrastructure - equipment, software platforms), usually success is determined through quantitative criteria whilst for the soft category of projects (education, health projects), qualitative criteria are used (Crawford and Pollack, 2004, cited by Ika, 2007).

According to Garel (2003) "no organization model projects itself as a "one best way" faced with the variety of types of projects to manage and their evolutionary issues associated". Table 1, which includes a list of success factors identified in the specific literature, underlines different approaches according to the different type of projects.

In terms of international development projects, the literature is relatively limited. Some of the most relevant studies are conducted by Khang and Moe (2008) and Ika et al. (2012), studies based on the analysis of responses obtained by distributing questionnaires.

Meanwhile, Kwak (2002) performed a review of 10 categories of internal and external variables that act as challenges in international development projects (see table 1). It can be seen that, in the case of international development projects, the macro-economic and institutional environment's characteristics of the receiving country play an important role, along with internal factors related to monitoring and coordinating the project.

We consider that their importance is directly linked to the uniqueness of the macroeconomic, institutional and cultural environment of these projects, regardless of their field of activity (education, health and nutrition, water and sanitation sewage, environment, infrastructures, judicial or institutional reforms).

On the other hand, organizational development projects have been the subject of analysis from different perspectives, the most important being related to the information infrastructure (hardware and software) and integrated business systems connected to organizational change efforts and Business Process Reengineering. The critical factors in the implementation process occur mainly from the internal, organizational environment or from stakeholders' relationships, as it can be seen in table 1 (the studies of Chow and Cao, 2008; Stankovic et al, 2013; Ram et al., 2013).

Human resource development projects implemented through structural instruments have both an international dimension, determined by the source of financing funds, approaching thus the typology of other projects funded by international organizations (World Bank, EBRD) and an organizational development dimension which completes projects that aim the organizational infrastructure component.

## **2.2. Critical success factors in structural funds financed projects**

There were three major hypotheses that were behind current EU structural policies and implicitly structural funds (Puigcerver-Penalver, 2004): (i) there are important gaps among EU regions; (ii) structural policies are able to reduce those gaps; (iii) regional growth and convergence leads to cohesion.

Therefore, Structural Funds (SF) represent a set of financial instruments managed by the European Commission set up by the financial contribution of Member States to support the structural transformation of the development gap regions, thereby increasing economic and social cohesion within the EU.

The SF's impact on economic growth and achieving social cohesion is the subject of extensive research since the first detection of effects (starting with 1957).

In spite of the large variation in results, there are some conclusions that have a general character (Burnside, Dollar, 2000; Rodríguez - Pose, Fratesi, 2004; Marzinotto, 2012):

SFs have a major potential to stimulate economic growth but they are not used due to poor management or wrong investments selected;

the SFs' contribution to convergence is enhanced by an appropriate, supportive institutional environment; the effects are more significant if SFs are used in regions that have a basic industrial infrastructure; on a short and medium term, the most significant effects are generated by economic and business infrastructure projects but on the long term, HR and R & D projects generate the most significant impact.

All of these aspects contribute to the argument that the impact of cohesion policies is conditioned by good management practices and institutional and business capacity to absorb both at the recipient region and Member State level, dependent, in turn by environmental and regulatory conditions, implementation structures, quality of monitoring and technical - financial evaluation (Wostner, 2008).

For Romania, an efficient use of SFs and achieving a high degree of absorption are top priority strategic objectives. With a total allocation of over 23 billion euro (19.21 from EU funds, 4.03 from national funds), the seven operational programs established for the 2007-2013 period did not generate the expected impact, at least regarding the quantitative estimates for last year.

Moreover, Romania occupies the last position in terms of structural funds' absorption level (11.47% at December 31, 2012, according to data from the Ministry for EU funds). Compared to all of the other countries of Central and Eastern Europe, this has a negative impact upon the performance indicators of sustainable development and convergence process (Zaman, Cristea, 2011).

There have been numerous studies by both academic researchers and institutions involved in the management of SFs, studies that have sought to identify the causes and the factors that may be catalysts or, conversely, obstacles to the smooth implementation of projects of this type.

Thus, for SOP Environment (SOPE), the main obstacles seem to be the lack of management expertise, insufficient financial resources for co-financing, difficulties in determining the investment location, the procedural bureaucracy (Zaman, Cristea, 2011), for SOP Increasing economic Competitiveness (SOPIEC) or Regional OP (ROP), the critical factors are mainly the lack of attractiveness of the investment environment (domestic or foreign capital), a still immature business consultancy market, weak business infrastructure and in the case of SOP Administrative capacity development (SOPACD), undeveloped infrastructure for public services, both urban and rural (Gherghinescu, Rinderu, 2011) for SOP Transport (SOPT) perhaps the most deficient, critical issues related to lack of accountability, incompetence of the responsible authorities, lengthy land acquisition process, lack of an integrated cadastre – registration system before joining EU, lack of experience in elaborating large scale projects (Szabo, 2011). Beyond all of these obstacles, there is a quasi-general one - corruption, high inhibiting factor of the implementation and effective use of SF in Romania (Cace et. al., 2011, Badea, 2012).

Human capital development is one of the major directions through which a country can remodel. SOP Human Resources Development (SOPHRD) has a range of measures and funding lines, some of which are accessible to universities in general (in particular, to the public ones).

For Romania, the SOP HRD had, for the 2007 – 2013 financial programming period, a financial allocation of 3.476 billion euro (18.1% of the total allocation for Romania), through the Framework Implementing Document being defined seven priority axes, each with several areas of intervention (2 to 5).

Public universities in Romania have been a major recipient of these funds through three priority axes: 1 – Education and training in support for growth and development of knowledge based society (purpose: development of flexible learning paths throughout life and improving access to education and training by providing modern and quality education), 2 – Linking lifelong learning and labour market (purpose: facilitate the transition from school to work by increasing the relevance of education and training for the labor market and improving the skill of employees) and 3 – Increasing adaptability of workers and enterprises (purpose: increase of the adaptability of enterprises and employees to the changing economic environment and the challenges of globalization).

In addition to these axes and areas, universities could access, as training providers, funding from other priority axes, especially the 6<sup>th</sup> Axis - Promoting social inclusion.

The current low absorption stage of this program, the gaps manifested in its progress, and the certainty that the program will reappear in the financial programming period of 2014 - 2020, requires studying the implementation framework and the factors that can determine its success or failure.

Although extremely generous in terms of investment and human capital development possibilities, SOP HRD showed major gaps in implementation.

The national studies in this area aren't numerous, being limited to professional analysis of experts or consultants or policy analysts.

Results may be mentioned that have indicated both economic and political system problems, both at a macro environment and organizational and institutional: the implementation structures, the human resources involved and the systems of monitoring and evaluation (Oprescu et. al., 2007), unknown calendar of the calls for projects, lagging deadlines for project submission, modifications in the documentation for the applications for financing, bureaucratic excess (bureaucratic fanatics), delayed evaluation of the applications (Cace et. al, 2009), lack of analysis regarding ways to complete the target group, unrealistic financial forecasting for the project, overestimated indicators (Braşoveanu et. al, 2011), or unstable political environment, which has undergone many changes in 2007-2012 (Stoina, 2012).

All of the mentioned aspects underline the necessity for studies to highlight critical implementing factors depending on the specifics of beneficiaries.

### **3. Research model and design**

Taking into consideration the current impact of the external environment' factors upon projects in Romania, as underlined above, in this paper we chose to focus our attention only on the critical success factors of the external socio-economic, institutional, technological and cultural environment, that affect the implementation phase of a project.

The stability and quality of the political, institutional and social environment are variables that influence a country's economic performance in the long term. Macro-economic and socio-political stability guarantee the business environment's health and also allow the implementation of development projects.

A social and institutional environment's quality refers to an effective, impartial, transparent and stable legal system which protects the individuals' rights and guarantees private property. On a long run, the implementation of development projects is favored by the existence of stable, reliable and honest public institutions as well as government policies that support market economy.

To describe this group of variables, Globerman and Shapiro (2002) used the term Governance Infrastructure, highlighting their role in economic growth. Thus, differences in growth and productivity between countries are explained as differences in governance infrastructure.

The starting point of this research was the model proposed by Ika et al., 2012, which we adapted and developed by focusing on the external environment variables that may affect a HRD project, as shown in figure 1.

In view of our research objectives, we consider that the most appropriate external environment assessment model is PESTC which, as shown in the specific literature, is often used as a strategic instrument in project management (Belassi and Tukel, 1996). The model contains factors that can be divided into five categories: political, economic, social, technological and cultural. The variables chosen for each category are presented in table 2.

In order to better substantiate our model, we then analyzed each group or category of variable, as follows:

**Political factors** – currently the Romanian political environment is characterized by a high degree of instability, political tensions and a poor quality of regulations.

Although experience has shown that one of the main issues in implementing HDR projects is its regulatory framework, the World Bank 2007 study placed Romania on the 71<sup>st</sup> place (of 212 states) for its quality of regulations, alongside Botswana, Vanuatu Republic and South Africa.

**Economic factors** - The economic environment should be characterized by growth, innovation and mobility, aspects that are a reflection of economic interconnections, the result of globalization, growing grazing due to technological advances. In Romania, we are faced with a general context of economic crisis that accelerates, underfunding and poor access to education with an uncertain nature of economic forecasts.

**Social factors** - such as demographic evolution, unemployment and the need for retraining, education level, unequal access to education by income, inclination towards continuing education such as lifelong learning, cross-border migration between rural and urban areas or from small towns to the cities, determine the need to implement projects aiming target groups of population in various stages of initial training or certain levels of professional development.

On the other hand, the Romanian academic environment constantly tries, without a clear success, to integrate subject areas in initial and continuous training of human resources to meet the real needs of the market.

**Technological factors** are very important in the management of project implementation, logistics infrastructure, office equipment and hardware and software support, multimedia equipment and virtual educational platforms have grown more in the last decade within the Romanian public universities, for the following reasons: (i) the existence of alternative financing sources through projects and the increase the tax education, especially in socio-economic and legal sciences, and (ii) a broad financial autonomy that allows the use of resources according to the university's own institutional development strategy in accordance with the law.

**Cultural factors** are less studied in the literature as success factors of project implementation. We only found brief description of some in Kwak, 2002.

However, their presentation is in terms of cultural differences that arise when projects involve partners from different countries (according to the comparative management study paradigm and not project management), when this paper proposes a different approach, that justifies their inclusion in the model (complement the traditional PEST model): taking into consideration national cultural factors that through their characteristics can support/impede the successful implementation of projects.

On the other hand, we believe that there is a two-way relation between the institutional architecture of a country and its cultural paradigm: the cultural profile of a country consists of its institutions and the institutional framework is set up by the members of a country (culture) through their deepest values (Brancu, 2007). Thus, the cultural factors considered in this paper cover a number of specific aspects related to the Romanian cultural context as well as guidance towards centralization, change, a population's optimism / pessimism, relationships with public institutions quality, corruption, and bureaucracy.

On these grounds, we formulated our first research hypothesis, as follows:

**H1. PESTC factors exert a significant impact on the successful implementation of HRD projects in Romania.**

Corruption, institutional bureaucracy, unpredictable change and poor institutional governance are, in our opinion, the environment variables that define the institutional cultural context. Corruption is a variable that presents strong negative aspects in Romania. According to Transparency International, Romania registered a score of 48, whereas 0 means that a country is perceived as highly corrupt and 100 means it is perceived as very clean. Of the 176 countries surveyed, Romania ranked 66<sup>th</sup>, far from the rankings recorded by other EU countries. These variables are especially important for the issue of this paper since they may be generalized

at an institutional level. In these circumstances, we consider that the political, economical, social and cultural variables indicated in table 2 above have a negative impact on HRD projects' implementation, while technological ones, especially logistics and infrastructure contribute to the project's success, ensuring a proper functioning of the project partnerships, a real-time relationship with the target groups, the application of modern methods for conducting trainings and the possibility of implementing software platforms for practical applications (business simulation).

Thus, we then formulated the 2<sup>nd</sup> research hypothesis:

**H2. Political, economical, social and cultural factors have a negative impact whilst technological factors have a positive impact on HRD projects' implementation.**

Political factors essentially determine the macro context in which any type of project develops, in that it generates the legal and regulatory framework of the entire project cycle, which includes the implementation phase. The relations between national responsible authorities and the European Commission are fundamental in ensuring the coherence of programs and projects.

Given the political instability generated effects in the management of the Managing Authority, the European Commission's audit reports were largely negative, causing interruption and suspension of funding.

The uncertain nature of economic forecasts generated a lack of confidence of both beneficiaries in terms of self-financing ability and target groups in terms of results' sustainability.

As such, we formulated the third hypothesis:

**H3. The negative impact of the political and economical factors is more significant than that of the social and cultural factors upon HRD project's implementation.**

## **4. Methodology and results**

### **4.1. Research methodology**

Hypothesis testing and validation was performed using quantitative methods of gathering information, a questionnaire-based survey, considered appropriate in the context of the research's objective.

The questionnaire was developed with the intention to offer the possibility of appreciating the impact of preselected variables from the external environment, as perceived by the subjects. The questionnaire contains a set of 18 items, grouped according to the five types of factors from the external environment, as mentioned and explained in table 2 and it also includes a section for the collection of socio-cultural information considered relevant for testing the established hypotheses. For each item a five step scale was attributed, from major negative impact (1) to major positive impact (5).

The process of information collection was performed during two months (January and February 2013) by distributing questionnaires to a number of 210 employees of 3 public universities from the Western Region of Romania, representatives in terms of academic and research results, that developed such projects since 2007. The sample selection process involved personnel that was part of a HRD implementation process from a decision-making point of view (management functions) or from an administrative one (administrative functions).

### **4.2. Data analysis and interpretation**

The information collected was processed using SPSS 17. Of the 210 questionnaires distributed, 112 were validated.

Our preliminary analysis of the data revealed that the sample is fairly balanced with regards to the socio-cultural variables considered, as shown in table 3.

The descriptive analysis of the sample shows that the majority of the respondents are male, within the 30 – 45 age group and with a longevity under 5 years. Also, the respondents are predominantly teaching staff (64%) taking into account that the SOP HRD's structure encourages active participation of the teaching staff in project management structures.

As for the respondents' experience in implementing HRD projects, for both of the variables considered (project team function and participation in HRD projects), results show that our targeted group is highly experienced due to their decision-making positions in project teams and their participating in a large number of projects of this kind. Thus, we can state that all of the information provided and analyzed as follows is consistent and reliable from this point of view.

In order to determine the integrity of the success factors' scale, we performed a reliability analysis by computing all of the variables for the five external factors – table 4.

The values calculated for the Cronbach alpha coefficient (as shown in table 4) achieve a level greater than 0.7, except for the Social factors. When analyzing individual items within the scale, we observed similar coefficient values, thus proceeding to the elimination of this factor from our research framework. This poor internal consistency of the Social factors can be explained through our selected sample characteristics – implementation project team members, when the individual items included in this factor category are perceived with a greater intensity by HRD projects' targeted group since they determine the project's social output.

Next, we focused on analyzing the respondents' perceptions regarding the type of impact (negative or positive) on the implementing process of the four external factors, through their attributed items (table 5).

In view of the project management staff's perceptions, the four remaining types of external environment factors have a significant impact on the implementation process, namely a negative one when analyzing political and economical ones and a positive effect in the case of technological and cultural factors, thus partially confirming H1.

A detailed analysis of the perceived items' impact showed that in the case of political factors, 58,9% of the respondents appreciated *The complexity of the projects implementation' legal framework* as a major negative impact item, followed by the *Stability of the projects implementation' legal framework* – 53,6% and *Faulty governmental management of European funding sources* – 51,8%, while *The existence of support from local authorities or other public bodies in the implementing process* is perceived as a minor negative impact factor by the majority of the respondents – 30,4%.

For the economical factors, *Self-financing capacity of projects at the government level* and *Labor market characteristics* are perceived as major negative impact factors (by 44,6% and 32,1% of the respondents) on project implementation while 39,3% consider that *Self-financing capacity of projects at the institutional level* has a major positive impact.

Technological factors, namely *The partners' logistic capacity to support the project* (51,8%) and *Automation of operational procedures* (50%) are perceived as factors with a major positive impact and *The partners' quality of the technological / research infrastructure and informational system* is also a positive impact factor as appreciated by 35,7% of the analyzed population.

As for the cultural factors, three items are categorized as generators of major positive impact (*Stakeholders' attitude towards the possibility of completion of the project* – 37,5%; *The universities' perception within the economic and social environment and the community* – 35,7% and *Relations with the administrative system that manages European projects* – 33,9%) and two as negative ones, *Corruption in the institutions responsible of project implementation* – 44,6% with a major impact and *Stakeholders' attitude towards change* – 23,2% as a minor impact.

These results partially confirm H2 since Cultural factors are perceived by our studied group to have a positive impact on the HRD projects' implementation process and H3 could not be validated by virtue of the factors' obtained type of impact.

## 5. Conclusions and discussions

As stated in the beginning, our research aimed at identifying the main factors from the external environment that affect a HRD project's implementation success.

Throughout the paper, we underlined the necessity and the relevance of PESTC analysis in terms of strategic project management and operational project management, focusing on project's implementation process due to the current problems encountered.

The research's results highlighted that Political and Economical factors have a major negative impact on the project's implementation process, as perceived by the public universities' staff.

Contrary to our arguments, based on other specific studies and observations, Cultural factors, as perceived by our sample, are shown to be of a positive impact upon the implementation process, results that indicate an optimistic approach as consequence of past success in developing and implementing such projects.

An unexpected outcome of our study was the exclusion due to reliability scores of the Social factors from the designed research model, aspect explained via our investigated sample's characteristics.

In terms of implications, our research sheds light on critical factors in HRD public projects and contributes to the current specific literature since it shows that there is a significant impact, albeit often negative, of external environment's factors and project implementation which ultimately should lead to project success. Also, as a practical implication, our study identifies the main factors that should be improved by policy decision making bodies in order to ensure a positive evolution of a HRD project (table 6).

The limitations of our research arise from the relatively modest sample investigated, which might generate a low capacity to generalize the results but also from not taking into account project success measures.

Thus, our study opened opportunities for further research, such as analyzing the correlation between the factors identified and specific project success measures for HRD projects, widening the population investigated by including HRD projects' targeted group and their perception of the factor's impact and even determining the factor's importance according to project lifecycle.

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**Table 1:** Analysis models of critical success factors in projects' implementation

Authors / Critical success factors	Variables
<b>HARD PROJECTS</b>	
Kwak, 2002 - 10 categories	Political Legal Cultural Technical Managerial Economical Environmental Social Corruption Psychological
Khang and Moe, 2008 - 10 categories	Clear understanding of project environment Competencies of designers, planners and team members Effective consultations with stakeholders Adequate resources Continuing support of stakeholders Commitment to goals and objectives Compatible rules and procedures for project management Clear policies by donors and recipients to support sustainability Adequate local capacities Strong local ownership of the project
Ika, 2012 – 5 categories	Monitoring Coordination Design Training

Authors / Critical success factors	Variables
	Institutional environment
<b>SOFT PROJECTS</b>	
Chow and Cao, 2008 - 5 categories of factors divided into 36 variables	Organizational, People Process Technical Project
Stankovic et al, 2013 - There is no mention of factors' categories	Management Commitment Organizational Environment Team Environment Team Capability Customer Involvement Project Management Process Project Definition Process Agile Software Techniques Delivery Strategy Project nature Project type Project schedule
Ram et al., 2013 - 6 categories of factors divided into 25 variables	Project Management Training and Education Business Process Re-engineering System Integration Implementation Organizational Performance

**Table 2:** The framework model's variables

Type of factor	Variables
<b>Political</b>	Stability of the projects implementation' legal framework; The complexity of the projects implementation' legal framework; The existence of support from local authorities or other public bodies in the implementing process; Faulty governmental management of European funding sources.
<b>Economic</b>	Self-financing capacity of projects at the government level; Self-financing capacity of projects at the institutional level; Labor market characteristics.
<b>Social</b>	Partners' experience in implementing EU funded projects; The demographic evolution of groups connected to the academic environment; Potential beneficiaries' reluctance to integrate in the target group.
<b>Technologic</b>	The partners' quality of the technological / research infrastructure and informational system; The partners' logistic capacity to support the project; Automation of operational procedures.
<b>Cultural</b>	Relations with the administrative system that manages European projects; Stakeholders' attitude towards the possibility of completion of the project;

Type of factor	Variables
	Corruption in the institutions responsible of project implementation; Stakeholders' attitude towards change; The universities' perception within the economic and social environment and the community.

**Table 3:** Descriptive characteristics (N=112)

Socio-cultural variables	Categories	Frequency	Percent
Age group	< 30	28	25%
	30 - 45	54	48%
	>45	30	27%
Gender	Male	74	66%
	Female	38	34%
Position held within the institution	Teaching personnel	72	64%
	Administrative personnel	40	36%
Longevity	<5	47	42%
	5 – 15	42	38%
	>15	23	21%
Experience in implementing HRD projects	Managerial functions	83	74%
	Administrative functions	29	26%
	< 3 projects	37	33%
	3-5 projects	59	53%
	>5 projects	16	14%

**Table 4:** Reliability analysis of the critical factors

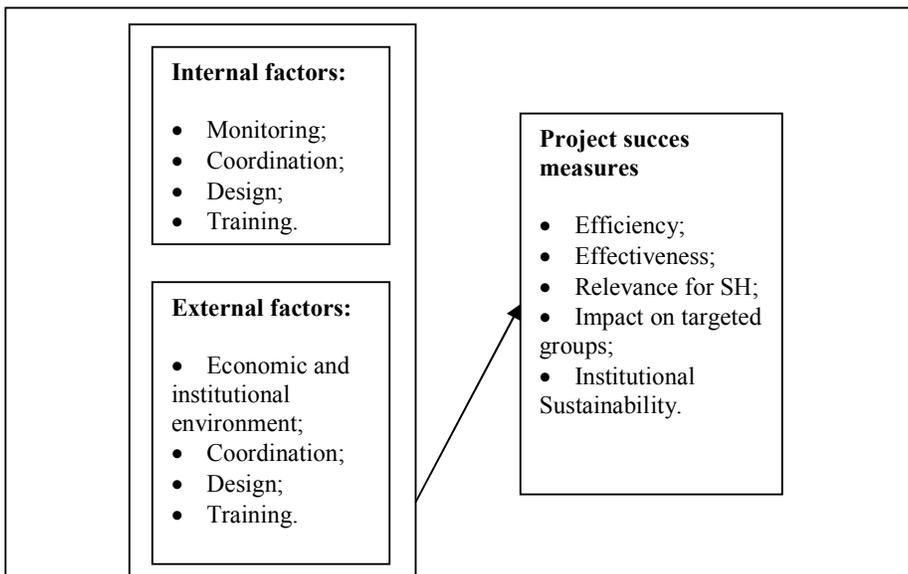
External environment factors	Cronbach alpha coefficient value
Political factors	0,837
Economical factors	0,712
Social factors	0,446
Technological factors	0,746
Cultural factors	0,754

**Table 5:** External environment factors' impact analysis (N=112)

External environment factors	Negative impact	Positive impact
Political factors	82,1%	12,5%
Economical factors	58,9%	39,3%
Technological factors	7,1%	87,5%
Cultural factors	25%	62%

**Table 6:** External environment factors’ impact ranking

<b>Negative impact factors</b>		<b>Positive impact factors</b>	
1	The complexity of the projects implementation’ legal framework	1	The partners’ logistic capacity to support the project
2	Self-financing capacity of projects al the governmental level	2	Stakeholders’ attitude towards the possibility of completion of the project
3	Corruption in the institutions responsible of project implementation	3	The universities’ perception within the economic and social environment and the community



**Figure 1:** The relationship between external critical factors and project success

Source: adapted from L.A. Ika et al. (2012), p. 109