

## Investigation of Value Management Effects on Projects Briefing Process in National Iranian Gas Transmission Company “NIGTC”

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**Abstract:** The present study is aimed at determining and explaining Value Management (VM) role on Project Management (PM) (Projects Briefing Process) in National Iran Gas Transmission Company “NIGTC” includes investigating effects of 13 VM independent variables on PM dependent variable. In this research, populations were all of projects managers of central office include 15 persons, data were collected through structured interviews and complete of questionnaire with reliability coefficient of 0.98. Findings showed that despite of having theoretical background pertaining to affecting all of the 13 VM independent variables on PM dependent variable, multiple regression analyses indicated that 8 item of 13 VM variables have had effects on PM includes Risk Management (1.46), Project Brief (1.42), Stakeholder Management (-0.87), Change Management (-0.85), Post Project Evaluation (-0.76), Client Representation (-0.63), knowledge management (4.298), Critical Success Factors (0.59), and Knowledge Management (0.35), respectively. While Decision Making, Communications, Type of Business, Teams Dynamics, and Culture had not affects on PM. Finally, based on these results, some suggestions were given on how the managers and authorities of NIGTC can improve projects briefing process by attending to these 8 VM variables.

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**Key words:** Value Management, Project Management, Projects Briefing Process- NIGTC

### 1. Introduction

Value management is an analytical and structural process which seeks to obtain value by providing all necessary functions with the maximum cost and on the basis of necessary efficiency and quality levels. Value management allows the organization to compete in national and international fields by creating conditions such as decrease of costs and increase of profit, improving quality, increasing market share, saving time in performance of projects and more effective use of resources. Project management means application of knowledge, skills, tools and techniques for project activities in order to fulfill requirements of the project (PMBOK, 2004), justification of identification process project and determination of the organization customers' needs in the project primary design stage. A good project justification protects the customers against main sources of delay and high costs (Ann et al, 2004). In the past decades, value management was used in many countries as tools for increase of demands for promotion of value level in customers (Barton, 2000). In USA, all branches of executive bodies and Federal offices require creation and maintenance of procedures and processes of value management in costs effectiveness in all plans and projects (Save International, 1997). In Iran, improper status of civil projects and deficit on the one hand, the proved capabilities of value management on the other hand caused State Management and Planning Organization to consider value management in the form

of the third development plan and in paragraph C of Article 61 and emphasize on its execution (Plan and Budget Organization, 1996). When there is a good justification, more rapid design, more effective actions, less rejection and deviation will be done. Lack of a systematic attitude for identification and clarification of customers' needs and communicating them to designers are the main reasons for failure in delivery of the project items (Ann et a, 2004) have done different studies on projects justification process (Barrett &Stanley, 1999, Ann et al, 2004), value management as a projects management style (Kelly &Male, 2006&1993, Green, 1994, Barton, 2000, Lozon, 2008)( Jabalali et al, 2004, Vahedidiz, 2004) but effect of projects justification process on process of application of value management in project management are the subjects which need more work and study. On this basis, goal of the present research is to determine and explain role of 13 variables of value management including project charter, beneficiaries, change management, risk management, assessment after the project, teams dynamicity, introduction of customer, business type, decision making, communication, culture and key factors of success on independent variable of project management in National Iranian Gas Transmission Company. On the basis of the above problem statement, a theoretical and process basis will be studied and introduced in the present article after review of literature and expressing research methodology. In the

project, value management is a service based on project which emphasizes on clear goals which have been gathered for workshops and improvement of the project performance. Value management effectiveness is increased when it is clearly defined with the goals and is applied with commencing and ending date (Ann et al, 2004). Value management can improve communication and understanding of customer, consultants and beneficiaries in nature of the justification process (Green, 1994). Value management has been focused as management style on evolution trend of value system available in the projects or organizational systems through presentation of suitable system of shareholders at proper time (Kelly & Male, 1993). In most texts relating to project management, this subject has been accepted that identification of the beneficiaries can lead to success of a project. Therefore, correct recognition of key beneficiaries and even all beneficiaries should be considered (Marjolein, 2007). Value management has 13 variables including project, beneficiaries, change management, knowledge management, risk and conflict management, assessment after application and after the project, teams and teams dynamicity, introduction of customer, types of businesses and organizational theory, decision making, communication, culture and ethics, key factors of business and performance key indices. A project is an independent and temporary activity of organizational commercial core which creates change. A justification for a project requires the most primary justification i.e. acceptance of changes (Nicholas, 2001). In projects justification process, it is important to create benefit for the beneficiaries at the beginning and in all stages of the project and keep balance between the beneficiaries. They should try to establish a good working relationship between all beneficiaries (Pinto, 1998). Management task includes management on the people's understandings. For many managers, this managerial behavior is complex. With regard to this fact, they have to help the people make changes and managers also face such challenges (Fred, 2007). Project justifying team should understand that the people are at center of change process. Therefore, communication and involvement of the organization with people ensure change management success. Key areas of change management are training, education and exercise, communication, team and leadership development (Kelly & Male, 2004). Knowledge management emphasizes on creation and management of projects record and showing it as a tool for conversion of implied to express knowledge so that the persons can share and publish them all over the organization (Maqsood Tayyab, 2006). Knowledge management reply on teamwork, cooperation, face to face contact, and effective communication structures in justification of the projects. Therefore, fundamental principle in justification is to use cooperation of the

members for organizational project knowledge in order to select project justifying team members (Bender & Fish, 2000). Risk management means process of final decisions documentation and identification and application of criteria which can be used for minimizing risk to acceptable level. Conflict management, recognition and management of conflict are reasonable, fair and efficient. Importance of execution of risk management techniques during the primary project evaluation phase is to keep flexibility against design of variables when there is the highest uncertainty level. In justification process, collaboration and problem solving are preferred over removing conflict (Schermerhorn et al, 2003). Assessment after application and after the project is a diagnostic system and tool for the managers to improve quality and efficiency. These assessments are successes, failures and experiences which show what have been done well and used so that decision making is the best during the project justification process. Assessment after the project is performed in order to ensure successful absorption of commercial core (Preiser, 1995). Dynamicity of teams is invisible forces which work among the persons of different groups. Teams dynamicity can have effective role in reaction of teams (Avi et al, 2008). Value management relies on a project team which discusses with each other in the workshop and adds value to the project in the possible way. Manner of execution of cases depends on dynamicity of team and their ability to share and transfer knowledge (Blyth & Worthington, 2001). Suggested value or the customer receivable means an internal judgment based on personal assessment which trades off the obtained profit against the obtained costs (Walker et al, 2006). Manager should regard him as customer and implement his views and attitudes in his projects. At the end, success of each project is tested with his customer's satisfaction with work (Yang & Peng, 2008). It is important to ensure introduction and identification of customer groups in order to supervise on their needs and prevent from deviations of project justification. A successful justification relies on analysis of needs and assessment of the cases. When we face complex decisions, there are many true answers. When the best answer was found, it should be preferred and applied. Better decision making leads to easier execution and obtains the best result (Mc Namara, 2008). A good justifying team should not limit it to only one decision making method but it should determine possibility of different styles by changing decision making methods in order to find the best conformity of position with problem (Blyth & Worthington, 2001). Communication management determines how managers transfer different information to their personnel including goals or other administrative issues (Van Reil, 1995&1997). Limit of key factors of success in projects justification process starts with clear goals and needs of

the project and continues to ensuring key beneficiaries of the project. Key indices of performance include time, cost, quality, satisfaction of beneficiaries and social and environmental issues (Construction Industry Board, 1997). Project justification process is a kind of communication. Listening to views should be encouraged in justification process to flow information freely and perform effective communication (Pincus, 1991). Culture in the organization relates to the number of beneficiaries. The organizations are responsible to society, for this reason, responsible behaviors lead to personal and social position of the organization (N.Sivakumar, 2008). Key factors of performance are assessment and measurement criteria of an organization success because goals of the organization should be measurable which we call key factors (Mawji, 2008). On the basis of the above review of literature, the following hypothesis is studied and tested in the present research:

**Hypothesis:** project charter : change management, knowledge management, risk management, assessment after project, dynamicity of teams, introduction of customer, type of business, decision making, communication, culture and key factors of success have significant effect on project justification process.

Total statistical population in the present research includes experienced and knowledgeable managers and authorities of the projects of central staff of National Iranian Gas Transmission Company all of whom have been used as statistical sample for gathering data. These persons include 8 project managers and 7 executives who answered the research questionnaires during references and structured interviews. In the said population, 80% were men, 53.3 were between 30 to 40 years, 60% had experiences below 10 years and 80 % had bachelor's degree.

#### **data and measurement scales**

The present research data is measured with use of multiple choice scales relating to review of literature. All structures were measured with use of Likert scale in five levels from very little (1) to very much (5). Most of the data and information required for analysis of hypothesis test were used through field data gathering from the subjects with use of questionnaire tools and structured interview. All scales were taken from the previous researches and were consistent with conceptual aspects. Each one of the project management variables were measured by three items and with use of the following introduced scales: project, beneficiaries (Nicholas, 2001), change management (Pinto, 198), knowledge management (Blyth, 2001), risk and conflict management (Kelly, 1992), assessment after application and after the project (Barret, 1999), teams and teams dynamicity (Bender, 2000), introduction of customer

(Schemerhorn, 2003), types of businesses and organizational theory (Preiser, 1995), decision making (Blyth, 2001), culture and ethics (N.Sivakumar, 2008), key factors of success and key indices of performance (Mawji, 2008) and communication (Ann et al, 2004).

**Validity:** in order to validate research questionnaire, extraction trend of measurable variables from review of literature and localization have been used through specialists' views and primary samples (Sarokhani, 2004, 139) (Bazargan et al, 2002, 171) (Hult & Ferrel, 1997). The measurement tools questions in the present research have validity because measurable variables have been taken from review of literature and agreement of the experts on them has not been made. In addition, the designed questionnaire was given to ten professors and experts and 3 members of statistical population. Then, final questionnaire was designed and used for gathering data after receiving their corrective views.

**Reliability:** in order to determine reliability of the measurement tools, there are different methods of which one is their internal consistency (Conca et al, 2004, 683-697). Internal consistency of measurement tools can be measured with Cronbach alpha factor (Cronbach, 1951, 1994-381-391). Although the minimum acceptable value for this factor should be 0.7, values 0.6 and even 0.55 are acceptable (Van de ven & Ferry, 1979) (Nunnally, 1978). Questionnaire of the present research has reliability because Cronbach alpha factor is 0.98.

**Finding:** in the present research, regression and correlation model has been used in order to determine and explain role of value management on project management. On this basis, it is necessary to study five conditions for using regression analyses (Norosis, 1999). Firstly, measurement scale of all variables is the minimum rank-based. Secondly, distribution of dependent variable values is normal and other data has normal distribution that is errors diagram is not funnel-shaped and this has been done with kolmogoroff-smirnoff test. Thirdly, linear relationship between variables has been confirmed with variance analysis and F statistic calculation. Fourthly, observations have been independent of each other which have been confirmed by Durbin –Watson test. Fifthly, linear regression model has been suitable and this work has been tested and confirmed with use of Correlation coefficient and R Square determination coefficient. In the present research, Ln was taken from all variables in order to establish five conditions above. Data of the following tables shows the above cases.(table1)

Table 1- Analysis of variance (ANOVA)

Dependent Variable-Project management									
Independent variables:									
1-Project charter, 2- beneficiaries, 3-change management, 4- knowledge management, 5-risk management, 6-assessment after application, 7-team dynamics, 8- introduction of customer,9- types of business, 10-decision making, 11- communication, 12- culture and ethics, 13- key factors of success									
Regression					Remaining			Total	
Sum of squares ss	Degree of freedom	Mean square MS	Test statistic F	Significant level Sig	Sum of squares SS	Degree of freedom df	Mean squares ms	Sum of squares SS	Degree of freedom df
14	1.497	0.002	4	0.01	0.001	61.544	0.149	10	1.488

Table 2-regressiobn, correlation equation coefficients, determination coefficient and Durbin –Watson test  
\*-reverse effect

Statistics Independent variables	T=dependent variable =project management									
	B	Beta	t	sig	Rank of effect on dependent variable	R	Sig	R <sup>2</sup>	Durbin –Watson	
Constant a	4/925	-	5/75	0/005		-	-	-	-	
X <sub>1</sub> =project charter	1/550	1/418	3/819	0/019	Second					
X <sub>2</sub> =beneficiary	-0/639	-0/866	-2/855	0/046	First*					
X <sub>3</sub> =change management	-1/338	-0/851	-4/140	0/014	Second*	0/997	0/001	0/994	2/303	
X <sub>4</sub> =knowledge management	0/715	0/345	4/298	0/013	Fourth					
X <sub>5</sub> =management	1/293	1/455	3/603	0/023	First					
X <sub>6</sub> =assessment after application of risk project	-1/852	-0/757	-3/433	0/026	Third*					
X <sub>7</sub> =team dynamics	---	---	---	---						
X <sub>8</sub> =introduction of customer	-1/062	-0/633	-5/084	/007	Fourth*					
X <sub>9</sub> =type of business	---	---	---	---						
X <sub>10</sub> =decision making	---	---	---	---						
X <sub>11</sub> =communication	---	---	---	---						
X <sub>12</sub> =culture and ethics	---	---	---	---						
X <sub>13</sub> =key factors of success	0/891	0/589	7/373	0/002	Third					

Analysis of variance between 13 independent variables of value management and dependent variable of project management shows that there is linear

relationship between the research variables with regard to significance level (less than 0.5). Durbin –Watson test between two variables shows that



observations are independent of each other because statistic of this test is between 1.5 and 2.5. Fitness test of linear regression model has shown with use of correlation coefficient and R Square determination coefficient in order to determine dependent variable variance with independent variable that correlation between 13 independent variables with dependent variable (0.997) is very high and naturally their determination coefficient (0.994) is also high.

With regard to results presented in the above table, this general hypothesis is accepted that there is significant relationship between 13 independent variables and dependent variable of project management. In spite of having the theoretic support relating to effect of all independent Variables on project management dependent variable in final regression equation, variables 7, 9, 11 and 12 have not been confirmed in terms of effect on dependent variable with regard to significance level (more than 5%). It means that only effect of eight variables was confirmed. In one of the columns of table 2, rank of effect of each variable confirmed in the model on dependent variable of the research has been given with regard to standard regression coefficients. Mark \* shows reverse relationship. On this basis, regression equation determines role of 13 variables of value management on dependent variables in terms of nonstandard coefficients (column B) as follows and regression equation determining role of 13 variables of value management on dependent variables is as follows with regard to standard coefficients (column Beta).

#### 4. Conclusions

Time and place limitations in all researches on humanities and social sciences generally and management specially caused different research findings in spite of similarities in variables and the used method. On this basis, it is necessary to localize results of the study so that applications of the said results can be close to authenticity and truth. Although one can compare results of the present research with results of some researches referred in the previous section, it is better to make this comparison with caution because we are at the beginning in Iran and the present research can be regarded as an innovation for continuing work and doing more researches in this field. In any way, one can say that the most important step in improvement of management process and project justification is to see where we are and what the most important factors are effective on improvement of the project management and justification process. As shown in review of literature, many variables relating to value management are effective on management process and project justification. In the present research, 13 cases out of the studied variables were studied and tested in statistical population level. Finding showed that 13 independent

variables relating to value management have had significant effects on dependent variable of projects justification process while some of these variables have had no significant effects on projects justification process. Green (1997) points out that there are many dynamic, turbulent and unidentified social issues for forming stages before performance of project until the hypotheses referred in traditional value engineering are valid for identification of technical issues. Value engineering is regarded as hard systems thinking class and includes reduction of costs but value management has been imagined as soft systems thinking and includes development of a correct understanding of the project beneficiaries. For this reason, the studies are divided into two hard and soft systems thoughts. Studies such as Kelli and Mill (2006), Green(1997), An Yu Va Shen (2004), Aylarz (2007) and James Peter Luzon (2008) can be classified as soft systems thought and almost all studied can be regarded as hard systems thought.

The present research is included in soft systems thought group for this reason and its results are similar to results of the above research. On the other hand, Barrette and Stanly (1999) believe that errors of value management application in project management result from logical and human errors. Their goal is to analyze human errors theory problems and discuss limitations of logical attitudes performance in the projects justification process. Another group such as Barton (2000) and James Peter Luzon (2008) believes in this subject but another group such as Green(1997), Kelli and Mill (2006), An Yu Va Shen (2004) believes that these errors result from failure to recognize beneficiaries and lack of access to enough information about the required specifications and details. While the present research has paid attention to effect of human errors theory and failure to recognize beneficiaries correctly and their effect on application of value management on project management. In this regard, it is different from the above researches. No research like this has been performed in Iran. Therefore, the present research with such specification has been done for the first time in the country and in National Iranian Gas Transmission Company. The researches performed inside the country all focus on hard systems thoughts and neglected study of effects of project management on projects justification process. Results obtained from the present research can be good guide for managers of the country to see what factors should be considered in order to improve application of value management in project management (projects justification process) and what variables and factors are preferred? On the basis of the present research, 5 variables out of 13 variables including team dynamics, business type, decision making, communication, culture and ethics are not effective on projects justification process but other eight variables can be divided into two direct and reverse

classes in terms of their effect on all project management elements. The performed classifications are as follows by order of priority:

Direct variables by order to effectiveness: risk management, project charter, key factors of success and knowledge management and reverse variables include by order of effectiveness: beneficiaries, change management, assessment after application of project, and introduction of customer. Since four variables of value management have reverse relationship with project management, it is suggested that managers keep balance between these four variables and 9 elements of management at time of application of value management. It is also suggested that managers reinforce variables with direct relationship in order to improve value management in projects management (project justification process) that is they should reinforce key factors of success and key indices of performance, knowledge management, project management and risk management. On the basis of finding and conclusions, the following cases can be presented as suggestion in order to perform the future researches relating to the present research subject:

-To explain how to execute models of value management soft systems in order to develop projects justification process

-To study and explain role of other management sciences on project management

-To study and explain role of demographic variables of managers on projects justification process of National Iranian Gas Transmission Company.

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