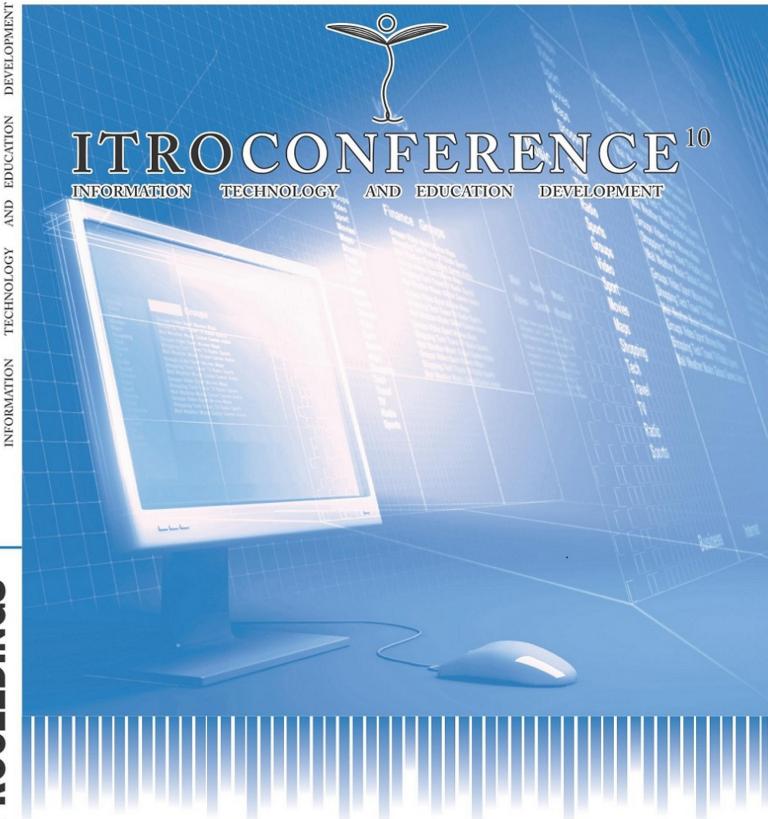


UNIVERSITY OF NOVI SAD TECHNICAL FACULTY "MIHAJLO PUPIN" ZRENJANIN





ZRENJANIN, June 2019



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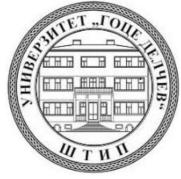
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With this publication, the CD with all papers from the International Conference on Information Technology and Development of Education, ITRO 2019 is also published.

INTRODUCTION

International Conference on Information Technology and Education Development (ITRO 2019), was held the jubilee tenth time. Since the very beginning, the conference has been connecting science, profession and experiences in education. Information technologies influence educational processes and student achievements. Contemporary topics relate to Interactive EBooks and electronic Teachers logbooks. Thematic fields of the conference are alined with general, but olso with national trends in education:

- Theoretic and methodology questions of contemporary pedagogy
- Digital didactics of media
- Modern communication in teaching
- Curriculum of contemporary teaching
- E-learning
- Education management
- Methodic questions of natural and technical sciences subject teaching
- Information and communication technologies
- Dual education.

The conference work was contributed by plenary lectures covering various aspects of ICT in education development:

- Digital transformation of educational system in Higher Education, Branko Perišić, Faculty of Technical Sciences, University of Novi Sad;
- Security issues of e-learning system, Igor Franc, E-security, Belgrade;
- From E to ES teacher logbooks, Žarko Mušicki, primary school "Žarko Zrenjanin", Novi Sad;
- Canvy, The Thrue Story of Mobile App, Marius Marcu, Politechnica University of Timisoara, Romania.

The Proceedings containes 59 articles based on research and scientific work in the field of information technologies in education.

The conference was financially supported by the Provincial Secretariat for Higher Education and Scientific Research, Novi Sad. The Technical Faculty "Mihajlo Pupin" has provided the necessary technical support.

The ITRO Organizing Committee would like to thank to the authors of articles, reviewers and participants in the Conference who have contributed to its tradition and successful realization.

Regards until the next ITRO Conference,

Chairman of the Organizing Committee

Jelena Stojanov

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Effective Teams for Sustainable Projects— Principles, Practice and Presentation

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Abstract - The supply chain consists of all involved parties, directly or indirectly, in fulfilling the customer's request. The supply chain not only includes the manufacturer and suppliers, but also the logistical activities, carriers, warehouses, stores and customers themselves. Within each organization, the supply chain includes all the functions associated with receiving and filling customer requirements. These functions constitute, but are not limited to, the development of a new product, but also marketing, distribution, finance, and customer service. Global supply chains are evolving into dynamic process networks, in which companies are linked in new combinations based on the context and requirements of individual projects. This dynamic environment requires effective communication, team management and continuous cyclical innovation. The human factor and effective teams in these areas are critical to the effective development of global process networks. The importance of human resources has increased significantly as a result of new places and role in all sectors of society. They are rational, human beings, working with all activities and whose results depend on knowledge, abilities, skills, and motivation. The goal of the paper is to draw attention to the importance of human factors and effective teams in the operation of each enterprise and the necessity of creating a structure of enterprises that will take care of the organizational culture in accordance with the available human resources. This paper also provides an overview of the structure of global supply chain networks and human factors and dimensions that affect their success.

I. INTRODUCTION

It becomes impossible to reject, remove or ignore the sources of turbulence and market volatility. Hence, supply chain managers must accept uncertainty or they need to develop a strategy that allows them to match both supply and demand at an affordable price. Global supply chains are evolving into dynamic process networks in which companies are linked or combined based on the context and requirements of individual projects. This dynamic environment requires effective communication, team and effective management and a steady innovation cycle. Human factors in these areas are critical to the effective development of global process networks. Quality human resources are a key factor for success for

any organization, so if the organization wants to reach the top and be a leader, it can no longer depend only on a few outstanding people. Facts and figures are quantitative elements of successful management, but qualitatively, that is, cognitive aspects, are those that can actually make a break or stop at an organization. Assuming that the employees of an organization in some of the supply chains are people with their own mental maps and perceptions, their own goals and personalities and as such they can't be seen as a whole, the HRM believes that the organization should to be able to employ individual and group psychology in order to motivate employees to achieve organizational goals. In a new era of rapid change and a global economy, teamwork dramatically affects the performance of organizations. With the growing need for organization performance, the use of teams becomes one of the most important aspects of the functioning of many companies.

II. EFFECTIVE TEAMS

It is clear that the project manager plays a major role in creating and maintaining an effective team. Maintaining the team is a very important element. because as soon as the team begins to break down or fall behind in the performance of tasks, the manager's job becomes more difficult and he needs to work a lot to get things back to normal. It's much easier to "prevent it than to cure it." If the team is compact and fulfilling, the members will be able to perform the tasks assigned to them and deliver results in a timely manner. The manager has the role to encourage and support the members of the team. As companies restructure, reduce or reduce and / or discover themselves, new roles are created that have aspiration and a tendency to be teamoriented. Organizations become smoother, faster and more agile. The most prominent feature of today's effectiveness is meeting customer needs. Many jobs and projects are becoming more complex, time-less time-bound or burdened, and more global in scope. All these factors collectively allow creation, making and/or increasing efforts

and difficulties for one person to perform one job. Modern jobs use teams as a basic work unit (for example, surgical units, airplanes, research and development teams, production teams, etc.).

Although teams are increasingly prevalent in organizations, most of the employees are with related functions or are individualized (for example, by selecting, training, evaluating or interviewing, rewarding, etc.). If there is an incompatibility between the need for the organization to encourage the creation and operation of effective teams and its natural tendency to focus on the individuality of employees, many problems can arise. In addition, some research shows the main reason why some teams fail or that employees are poorly prepared to make a transition from an individual - independent collaborator to a member of the effective team. One of the key factors for developing a higher and effective team execution is to remember that successful teams are not simply created, formatted, done, or fired - choose. Their choice requires a lot of effort and time. Appropriate guidance and support from the team leader should be taken. They seek an organizational culture that enables and fosters teamwork. In order to achieve a high level of team performance, it is necessary for everyone to be familiar with what factors influence team dynamics and effectiveness.

In an attempt to understand how the teams work, a number of authors have suggested models for determining the team's performance. Each of these models is represented by several variables that the author/authors set the effects of the effectiveness of the teams. Some of the models emphasize the group structure and the personal dynamics, while others tend to focus on the talent and motivation of individual team members. Some models have been proposed more than three decades ago, some have been developed in recent years. In an effort to understand how the teams operate or act and work. Michael Lombardo and Robert Eichinger originally developed the T7 model in 1995, presenting key aspects that influence the effectiveness of team work. Based on their reviews and used research literature, they identified five factors inside the team and two factors outside the team that influence the effectiveness of the team. Each one of the factors was named to begin with the letter "T" hence, the name T7 model.



Figure 1. Model T7 for effective teams

The five internal team factors include the following elements: • Thrust - a common goal to be met or a team goal, • Trust - with each other as collaborators, • Talent - collective skills of team members to work, • Teaming Skill - teaming Skills for Effective Performance and Team Efficiency, • Task Skill - successful execution or getting a job.

The two external team factors include the following elements: • Team Leader Fit - to which the team leader meets the needs of team members, • Team Support from the Organization - the extent to which the organization's management allows the team to perform the set or anticipated tasks. Each of the factors inside the team can be drawn into sub-factors or dimensions. In particular, underlining or penetrating consists of the following three dimensions of behavior: (a) undermining or emphasizing management, (b) undermining or emphasizing clarity, and (c) undermining or emphasizing dedication. By contrast, "confidence" includes the following dimensions: (a) trust in the true communication, (b) confidence in actions, and (c) trust in the team. All five internal factors should be present in teams to have high efficiency and effectiveness. However, teams can't be of high performance, except for the necessary organizational and leadership support, which have also been foreseen. It's not as important as a good team for pulling, trusting, talent, pooling skills and/or skills to effect the task, but must have the support of the organization and leadership to train and support it to be effective.

III. ANALYSIS OF EFFECTIVE TEAMS USING THE PEARSON TEST

The Pearson test, also known as the x2 test, is one of the most non-parametric tests on the basis of contingency. This test is one of the most practical and almost most used tests, and is used in cases where the data obtained from empirical research are expressed in frequencies or can be reduced to frequencies. The test is used when the differences between the group variance of the investigated and theoretical frequencies should be investigated. X2 is sum of quadratic differences of the examined and

expected (theoretically set) frequencies placed in relation to the expected frequencies and is calculated according to the formula:

$$x^2 = \frac{\left(f_i - f_i^t\right)^2}{f_i^t}$$

Where: X2 - realized test value; fi - empirical frequencies; fit - theoretical (expected) frequencies i.e. frequencies that you would expect under a certain hypothesis;

The interpretation of the obtained value for x2se based on the theoretical x2 distribution, created by K. Pearson, who calculated and constructed the tables of the limit values of the x2 test for an appropriate number of degrees of freedom and an appropriate probability, i.e. significance threshold. The permissible error (risk) of p=0.05 and p=0.01 is the most commonly used threshold of significance. For the purposes of this paper, a probability level of 0.05 and 5% will be used. When the frequencies are arranged in rows and columns, the degrees of freedom (n) are calculated as follows:

$$n = (k-1)(r-1)$$

where: n = degrees of freedom; k = number of columns; r = number of rows;

In this empirical research, the frequencies are divided into two columns and three rows, resulting in 2 degrees of freedom. The default value of x2 for 2 degrees of freedom and significance threshold 0.05 is 5,991, or rounded to 6.0. If the calculated value of x2 is greater than the limit value in the table, which in our case is 5,991 then we conclude that the statements of managers and leaders differ. Otherwise, when the calculated value of x2 is smaller than the table, then the statements of the managers and the leaders do not differ, i.e. they have similar statements, i.e., same thoughts. As we can observe, the x2 - test determines the probability of connection between two variables, not the height of the connection. The amount of connection is obtained by using the coefficient of contingency (C):

$$C = \sqrt{\frac{x^2}{N + x^2}}$$

Where: X2 = calculated value for x2, N = total number of frequencies.

The value of the coefficient of contingency ranges from 0 to 1, with how much this coefficient is closer to 1, so the dependent modality of the

examined variables is stronger. If the resulting coefficient is closer to 0, then the dependence is not strong. Furthermore, the results obtained from the survey, the calculated calculations for the x2 test and the interpretation of the calculations obtained will be presented. The survey questionnaire covered 67 workers, but fully answered and valid further processing, there questionnaires. In the case of team members 15 questionnaires were distributed, out of which 10 were fully answered and valid for further processing. A total of 3 statements were formulated in the questionnaire, and after each of these statements, the employee and team members were randomly selected in the organizations where they were distributed. As previously mentioned, the offered alternatives for each statement are equal: agree, neutral, and disagree.

The first statement is formulated in the following way: 1. The managerial-leadership team is fully committed to achieving the vision, mission, goals and priorities of the organization.

Observed				
Categories	Се согласувам	Неутрално	Не се согласува	Row totals
Членови на тим	8	2	0	10
Работник	54	10	2	66
Column totals	62	12	2	76
Expected				
Categories	Се согласувам	Неутрално	Не се согласува	
Членови на тим	8.157894737	1.578947368	0.263157895	
Работник	53.84210526	10.42105263	1.736842105	
Computing Chi-square	ed			
Categories	Се согласувам	Неутрално	Не се согласува	
Членови на тим	0.003056027	0.112280702	0.263157895	
Работник	0.000463034	0.017012228	0.039872408	
Sum:	0.435842294			
df:	2			
P-value	0.804188852			

Figure 2. The results obtained in the answers for the first statement are shown in tabular form



We note that the calculated value for x2 is 0.435 which is less than the x2 table value for 2 degrees of freedom and a probability level of 0.05, which means that the zero hypothesis is accepted and the statements of the employee and team members cannot be concluded they are different.

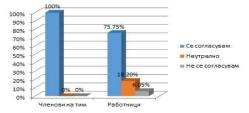
The second statement is formulated in the following way: 2. The members of the management and leadership team possess

knowledge, expertise and experience according to the tasks and responsibilities that they are facing?

We note that the calculated value for x2 is 3.07 which is less than the x2 table value for 2 degrees of freedom and a probability level of 0.05, which means that the zero hypothesis is accepted and the statements of the employee and members of the team does not differ.

Observed				
Categories	Се согласувам	Неутрално	Не се согласува	Row totals
Членови на тим	10	0	0	10
Работник	50	12	4	66
Column totals	60	12	4	76
Expected				
Categories	Се согласувам	Неутрално	Не се согласува	
Членови на тим	7.894736842	1.578947368	0.526315789	
Работник	52.10526316	10.42105263	3.473684211	
Computing Chi-square	ed			
Categories	Се согласувам	Неутрално	Не се согласува	
Членови на тим	0.561403509	1.578947368	0.526315789	
Работник	0.085061138	0.23923445	0.079744817	
Sum:	3.070707071			
df:	2			
P-value	0.215379533			

Figure 3. The results obtained in the answers for the first statement are shown in tabular form

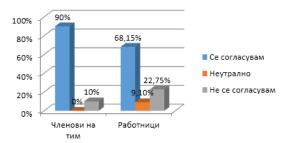


The third statement is formulated in the following way: 3. The communication between the management and leadership team and other employees in the organization is open, sincere, two-way, with a great deal of trust, respect and understanding.

Observed				
Categories	Се согласувам	Неутрално	Не се согласува	Row totals
Членови на тим	9	0	1	10
Работник	45	6	15	66
Column totals	54	6	16	76
Expected				
Categories	Се согласувам	Неутрално	Не се согласува	
Членови на тим	7.105263158	0.789473684	2.105263158	
Работник	46.89473684	5.210526316	13.89473684	
Computing Chi-squar	ed			
Categories	Се согласувам	Неутрално	Не се согласува	
Членови на тим	0.505263158	0.789473684	0.580263158	
Работник	0.076555024	0.119617225	0.08791866	
Sum:	2.159090909			
df:	2			
P-value	0.339749922			

Figure 4. The results obtained in the answers for the first statement are shown in tabular form

We note that the calculated value for x2 is 2.16 which is lower than the x2 table value for 2 degrees of freedom and a probability level of 0.05, which means that the zero hypothesis is accepted and the statements of the employee and members of the team does not differ.



A. Concluding observations from empirical research on effective teams using Pearson

Because of this, it is necessary to pay more attention to raising awareness among managers about the significance of the team work for the success of the organization as a whole. Group productivity is more important than individual achievement of tasks, and therefore managerial and leadership teams in organizations need to be trained on team work because it dramatically affects the organization's performance. Teamwork is a highly valued work skill in the modern business world. Starting from the fact that the team management model is a modern model of organization of the managerial position, we use this opportunity to give our contribution in this direction, by proposing a model of an effective managerial-leasing team.

This model is created on the basis of the obtained knowledge of the theoretical and empirical research carried out and it is presented in detail in this paper. The possibility for this model to be practiced in the day-to-day operations of organizations in Macedonia gives a bright side to the results of the research. It is obvious that the calculated values for x2 are smaller than the values in the x2 table for 2 degrees of freedom and a probability level of 0.05, which means that the zero hypothesis is acceptable and the statements of the workers and team members can't be concluded they are different.

IV. CONCLUSION

The new network of strategic imperatives is the transformation of corporate logistics management. In the focus of logistics, managers need to shift from management tools and direct reports to create a new vision of a coordinated product, flow and implementation by influencing the activities of others. Logistics and professionals must learn to exploit the power of human resource management to effect convincing change programs not only in their own companies, but also in other companies in their supply and distribution channels.

Outstandingly, top managers will achieve tremendous strategic and financial gains from coordinating the flow of the product and will emphasize their logistics for new opportunities and the influence of the executive power commensurate with their decisive responsibility. Perceptual logistics managers will realize that making a company - a broad human resources policy is far more difficult than it might seem and they will focus on acquiring this rule. Ultimately, the vision and sense that logistics and professionals will adapt to human resources policies in a company will determine the effectiveness and long-term success of their companies.

The secret to successful teams is very elaborated and emphasized much earlier. In fact, the truth is for them that successful teams are getting stronger when team members learn to work together. They have clear, acceptable goals. Trust among team members and respect for one another. They communicate often and openly. Members have the talent to create and implement ideas. The leader "fits" the needs of the team. Support from human resources departments from the wider part of the organization and the community is strictly foreseen.

The teams have the potential to be one of the most powerful drivers of success in an organization today. However, the effective and high-quality execution of the teams is simply not always happening. It takes time to develop the team and to mature. Adequate managerial measures are being taken to help create the conditions for development and achievement of teams' effectiveness. The T7 model provides a framework that analyzes team work. There should be a full and accurate assessment that will enable systematic gathering of perceptions about the qualities and capabilities of

team members, as well as getting the views of other relevant stakeholders. You need to understand how teams work, and then improve teamwork, cohesion and productivity of the team. Talent is not enough! In fact, according to a famous American baseball coach Casey Stengel, or known English coach Sir Alex Ferguson who are fond and used to say: "It is very easy to get good players, but to play together, that's the hard part". The same is true in the business world, and especially in effective teams, where teamwork is a priority.

Empirical research is presented in this paper. The possibility for this model to be practiced in the day-to-day operations of organizations in Macedonia gives a bright side to the results of the research. It is obvious that the calculated values for x2 are smaller than the values in the x2 table for 2 degrees of freedom and a probability level of 0.05, which means that the zero hypothesis is acceptable and the statements of the workers and team members can't be concluded they are different.

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