

Proposal to Increase Productivity of Work*



Puchá Nikoleta **, Malega Peter, Technical University of Košice, Faculty of Mechanical Engineering, Department of Management and Economy, Košice, Slovak Republic

ABSTRACT

A team work is a way of the organization work based on common connection, mutual co-operation and a responsibility of the team members' work. As benefits of the team work are considered e.g.: bigger amount of improvement - optimalization processes and decreasing cost, more effective solving problems, bigger motivation and personal growth. In the article it is reviewed the team works according to buy and sell term. We define conflicts and suggest their elimination between members of team with use of mediator. It wills positive influence on efficiency of the company.

KEW WORDS: *knowledge companies, teamwork, cooperation, conflicts, mediation*

Introduction

Nowadays in the time of constant market changes, fast development and spread of technology, multiply competition, and successful companies became those who create new knowledge, spread it out trough the entire company and implement it rapidly in the new technologies and products. "These activities define company as knowledge – creating organization

* *The contribution is part of the solution VEGA1/0679/08 grant project "Integrated System for innovative design, planning, organizing and managing production.*

** Address: Némcovej 32, 042 00 Košice, Slovak Republic, e-mail: nikoleta.pucha@tuke.sk, peter.malega@tuke.sk

which only and principal task is ongoing innovation. Those are the companies that understood that the learning and new knowledge are the key to success, and that the development is crucial for future survival. The notion of education, development and knowledge creating company, or in other words an organization that develops and learns, in the most pragmatic way expresses the attitude of modern, successful companies versus the development and knowledge of employees. Another name for this kind of organization is knowledge – based organization. The most successful companies and national economies are those based on knowledge, or in other words highly educated and trained human resources. High level of inventiveness and innovations, without which a modern market cannot be imagined, can be achieved only in following the path of permanent employee development, which also represents one of the main motivators in accomplishing efficiency and effectiveness of the companies” [1]. The commercial enterprises (productive and unproductive) from the point of their planning and culminating the goal, they spent a big energy for production, arrangement and sale of their product to their customers. Knowledge companies also use benefits of teamwork. A team work is a way of the organization work based on common connection, mutual co-operation and a responsibility of the team members’ work. A team society is an organizing team in which is all activities (productive and unproductive) based on team works and their mutual cooperation to achieve the goal of the enterprise. In the team, generally, it is set up a big potential for coming innovation. The team work usually comes inside of the enterprise between individual departments or certain. Organizing work on a team basis could be a solution to certain complex tasks that require the involvement of team members. The benefits of such teamwork include, for example, process optimization, cost reduction, streamlining of task performance, increasing motivation and personal growth. The other possibility is between the enterprise (the one who buys and the other who sells) and their customers (buyers). In the next part of this article we search the team work in a buy - sell term with a point to a positive synergic effect that comes out of mentioned connection. The team work, as mentioned therein before, does not very fit with all its characteristic marks as the team work, but also as this kind of type we can use profits that come from mentioned contact. This effect helps with the set up of an innovation that in the present time means the main competition advantage for the seller. On a base, their being set up the seller can be competitive on a market as well from a long-time point of view. In a sense of a marked model from the

point of clients view the benefits that we see are in a financial valuation for their idea.

Formation of a Positive Synergic Effect Together with the Team Work

The meaning and term of the team work is described in many specialized publications from home and foreign authors.

Bielíková [2] says, that from a team is expected the effort of certain and must be filled by mutual and that way will show the synergic effect. The results achieved by team work are like that, they could not be achieved even if by one of the most skilful member and they can not be reached even if by mutual work of individual member's team.

Evangelu – Fridrich [3] pay attention that every person can be as a part of the team if they see a common goal, decided to an individual part of goal for persons.

Vokorokosová [4] underlines an electronic competitive rival that describes the team work in virtual times often as well many cultural teams.

Plamínek [5] writes that in case of formation of synergy (phenomenon permanent and considerable) from a group became the team. The synergy is not only the main sign of the function team, but most of the time also a reason and sense to make the team.

Bělohávek [6] points, that people in the team are linked with various bonds that leads to fill up their faults before their priority and also that their ideas of ones stimulate thoughts of the others and that makes - synergy. Synergy is the value that the team work gives the most to work all of certain.

Krausová [7] underlines, that the team work at this period of time gets more of the sense and from various reasons is thought as the one of the most important factor of competition enterprise. Its result should be not only the reduction of the time or financial funds, but also big improvement of quality.

Merkys [8] presented various types of enterprises with focus on the teamwork. High level of the teamwork is for example on fire departments; local department of education, insurance company, less level of the teamwork is for example in trade-production organization or banks.

Kuzlinková [9] prepares the analyze and she defines that teamwork, as an important instrument of new forms of work organisation, is essentially a specific organisational measure that may display many different features both in the national context and in the context of individual enterprises. Working in the team generally means a higher pace of work and working to tight deadlines both in the new and old EU Member States. Teamwork is thus clearly positive and contributes to the learning environment in the organisation.

Buying - Selling Terms in Economy and International Criterion

At present in a high competitive environment the suppliers try to adapt to needs of their clients [15,16]. A buyer - seller term can become in economy and international criterion. On a true based legislation there can be used between the supplier and buyer, buyer and seller, or exporter and importer the follow contracts: e.g.: consumer's contract.

National Commercial Contact

A buyer's agreement is most regulated by Commercial laws nr. 513/1991 rules in edition of latest novels with a latest novel nr. 19/2007 Civil Law nr. 40/1964 in version of novels. The buyer's agreement appears the most on the base which leads to conclude the agreement between the trade subjects. A commercial law describes a buyer's agreement § 409 and follow. The main part of the buyers agreement is to point both of contracts part (supplier, buyer) and that is exactly by their commercial name after the one in trade or commercial register. In contract is listed the identification number - IČO and the buyer's and supplier's seat. The other part of contract is to define the subject of contract and the obligation for the supplier to deliver for the buyer the subject of contract and also with changing the owner of the goods to pay the contract price. Pointing price is the main part of the contract if the both partners do not express in contract the determination to make the one without describing the price after the law. Except the main parts in the contract there could be mentioned also others terms: pay terms, delivery terms, delivery period, and other duties. The buyer's agreement has not been written but in practise there is a standard of its writing model. In a rule of a Civil law is made by § 588 and follow.

A Buyers Agreement - an International Trade

There are some differences for a buyer's agreement in international business comparing the one in domestic. It is necessary to pay attention to international contracts that make Slovak Republic to be bound. We use the statement of our rules only if the international contract is for a Slovak Republic binding and was listed in a brochure of laws and doesn't not contain different message. One of the basic contract documents of international character that are used to adjust for the contracts in a whole international business is Agreement of OSN that says about the contracts of international type of buying the consignment. Slovak Republic is binding by Vienna agreement from 1.1.1993, when it was follow to rules and obligations of last ČSFR. Even the specific Vienna agreement admits for the partners a possibility to avoid it. So, in this kind of contract is allowed to mention the point that the contract is not written after the Vein agreement. According to above mentioned parts not all contracts are going to be considering after a Vienna agreement. So, in case that both partners will avoid the Vienna agreement it will be necessary to point within the ambit of international trade the critical law by which the contract will be valid. This critical law may to be used under the conditions of Slovak Republic to point mainly thought the law about international one private and process nr. 97/1963 in edition of latest novels. On a base of mentioned law it will point a clause about the choice for the right one under which a contract will be conduct. It must be the right law -valid and effective in a time of choice. In case of absence of the law the contract will be under the one that is used for the both reasonable contact partners. Buyers agreement in this case, will be arrange by the low of the suppliers seat in time of making the contract. From the point of view of law security there are used written laws international commercial contracts without verification of both partner's signatures.

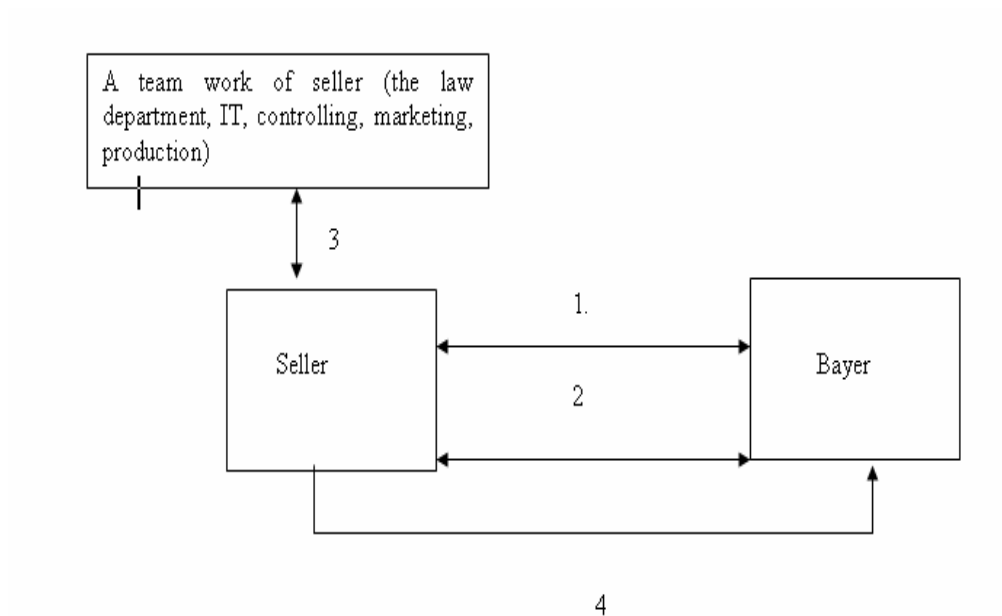
Consumer Contract

The civil novel pointed a new term - consumer's contract. It is a type of civil law and commercial contracts, where the other partner is consumer. A consumer law is described as with precedence of relative norms to increase a protection the partner of contract which is a consumer. For these kind of contracts is used statements of commercial law or a civil law depends on what kind of consumer's contract will be.

A Proposal of a Model Buyer - Supplier Term by Using a Positive Synergie Effect According to a Team Work

A buy - seller is generally based on trade contract that I do describe in an article. A possibility of growing up for team work and its positive benefits in searching terms shows the picture 1.

Picture 1: Teamwork



1. A buyer has an interest about the seller's product and is contacting him. On a base of mutual terms they sign (by had or by electronic signature) a commercial contract. We must think about beginning to create the innovation so that a team work is set up and in a commercial contract it will be mentioned a clausal about possibility of innovation. This clausal says, in case of proposal for innovation from the part of buyer and its confirmation from the part of seller the innovator will get certain financial valuation.
2. A buyer will send an innovation proposal to seller.

3. Continuously, the innovation is passing through the classic team work in a producer enterprise. The innovation is valued from many viewpoints, e.g.: a law department will result an innovation from the law viewpoint, department of IT will check an innovation from the view of program and technical instrument. A production department will announce the result after checking the productive process. A controlling department will calculate the price of product and in final phase a marketing department will check a sale proposal innovation.
4. In case of positive calculation for the innovation it will be paid a financial reward described in contract.

Proposed model is very important in the point Nr.1. Because in case of clausal in contract about innovation, the buyer can start to think according to its further use. In case, that the innovation is suggested, he sells it to the seller, as it is described on picture, or he uses it in some other way. The buyers in 96% of case for unsatisfied conditions with product change the competition. The producers would manage to keep their own consumers with proposal model and at the same time they would manage to be on market from the competitive view.

Conflicts Among Men and Women and Their Solution in the Team Knowledge Company

Conflicts between the team members can contribute to faster team development. Teamwork between men and women presented Stenzel [10]. She analyzed two different incentive schemes, revenue sharing within the team and competition between the teams. She with her team varied the gender composition of the teams. Her results are based on a real experiment and suggest that gender differences in performance depend on the composition of the teams. She found that female and male performance differ significantly in mixed teams with revenue sharing between the team members as well as in team competition when male teams compete against male teams and female teams compete against female teams.

Ibeh [11] define that „entrepreneurship is usually part of the informal sector in both developed and developing countries and the success rate of gender in this arm of business is dependent on a variety of factors. There are similarities in gender performance between different economies but also big differences in their cultural and socioeconomic environment“.

Kuzlinkova [9] say that teamwork is more characteristic for male employees. Gender differences to the disadvantage of women are particularly apparent in Mediterranean countries. By contrast, in Scandinavian countries and in the Netherlands, a balanced proportion of men and women work in teams. According to most experts, teamwork should contribute to the higher quality of working life for employees, as well as improving productivity. Employee autonomy is considered as an important attribute of the work quality.

We think that the comparing between men and women in teamwork are very hard. In our opinion in team must be all Belbin roles and than team has possibilities for good teamwork.

When the team members (women or men) stop manage these conflicts, then the team output will be disturbed.

Consequently it requires offering the new strategy, which doesn't disturb the team productivity¹. In this article it is proposed the strategy to survive, but also on the productivity increase in the team. Conflicts between the team members have to lead to common research of optimal problem solution as well as the achievement of the positive synergic effect.

Utilization of the Six Sigma Methods in the Connection with the Conflict Creation

Six sigma methods are based on the six basis principles, which support by the start of the Six Sigma method implementation initiative in the manufacturing corporations or in the service establishment. The methodology title appears from the Gauss normal distribution. It is researched the medium value and consequently it is evaluated the variability in the activities or in the processes round the medium value.

The goal of this process is the increase of the quality, productivity and efficiency of the activities. The process can be considered in general as the Six Sigma process, when shows maximally 3.4 errors on million opportunities (Defects per million opportunities - DPMO). Process, which

¹ The labour productivity expresses the volume of produced values, which fall on the unit of consumed work for certain period (year, month, day, and hour) according to the fact in what period is this productivity detected. The labour productivity can be separated according to unit jobs. In the connection with team co-operation the worker productivity influence working conditions, organizational conditions and individual conditions.

has normal distribution is Six Sigma then, if it will have 3.4 sections from million behind the point, which is away 4.5 sigma from diameter. Six Sigma drift is named Spare 1.5 sigma, which expresses the fact, that every process (their diameter) is shifted with time at ± 1.5 sigma. This shift was first-time mentioned by Harry Mikel, which it defined following to long-time process research [12,14].

DPMO was at the beginning one of the major Six Sigma target. The measurement of the DPMO is defined as follows:

Total Opportunities - TO

TO = Total number of Product Units x Opportunities	1.1
--	-----

Defects Per Opportunity - DPO

$\text{DPO} = \frac{\text{Total Number of Defects}}{\text{Total Opportunity}}$	1.2
--	-----

Defects Per Million Opportunities - DPMO

DPMO = DPO x 1,000,000	1.3
------------------------	-----

Defects per Million Opportunities or DPMO can be then converted to sigma values using Yield to Sigma Conversion Table²

Example

We assumed that team company has 20 workers. We will test the influence of the output (productivity) in the connection with conflict creation (number of conflicts) in the selected company. Consequently we will suggest the possibilities for productivity increasing³.

We regulated the DPMO calculation following to defined research.

² The results are approximated, we come out from the conversion table available on <http://www.sixsigma.sk/tabdpmo.htm>

³ We assume that the conflict creation directly affects the labour productivity of workers and the conflict between the two people in the team company can be maximally once in following period. Maximum numbers of conflicts at setting parameters are 380 (20*19).

$$DPMO = \frac{\text{number of rising conflicts for following period}}{\text{total man effort} * \text{number of opportunities on the conflict creation}} * 1000000$$

Calculation

Calculations present us the following table.

Table 1:

Conflicts	Sigma level²	Yield	Estimated achievable turnover 1 000 000 EUR	Loss of earnings
1	4,3	99,74%	997 400	2 600
12	3,4	97,1%	971 000	29 000
24	3	93,3%	933 000	67 000
52	2,6	86,4%	864 000	136 000
90	2,2	75,8%	758 000	242 000
135	1,9	65,5%	655 000	345 000
180	1,6	54 %	540 000	460 000
216	1,3	42,1%	421 000	579 000
270	0,9	27,4%	274 000	726 000

The results were consequently tested in the connection with the assumed (possible) turnover 1 000 000 EUR. Table 1 present us the reached income at estimated level of sigma as well as the volume of EUR, which fall on loss.

At level e.g. sigma 3 loss introduces 67 000 EUR and e.g. at level sigma 1,3 loss introduces 579 000 EUR.

Proposal for the Productivity Increasing

We expect, that the company could have the higher sigma level, when in their organizational structure will be the position "mediator"⁴. What is mediation?

⁴ Mediation comes out from law about the mediation No. 420/2004 in the statutory text of latest amending acts.

Mediation is an activity in which a neutral third side, the mediator, guides and regulates structured discussion to facilitate reaching consensus on a disputed issue.

The aspects of mediation commonly are [13]:

- difference of positions between the respective parties;
- desire on the part of the parties to find a positive solution to the dispute and to accept a discussion about respective interests and objectives;
- intention of achieving a positive result through the help of an independent, neutral third-party not connected with any of the involved parties;
- intention of achieving a stable result, preferably a long-lasting agreement between the parties.

The mediated agreement is described as the consensus of the parties on a proposal that has been developed with the help of the mediator. The mediator may or may not set out a formal agreement for the parties to accept; some mediators prefer to help guide the parties towards developing their own agreement. Agreement to mediate does not obligate the parties to accept any proposed agreements. Mediation aims at working with the users in conflict to incorporate the information or viewpoints of both, while ensuring that the result conforms to all applicable policies. At the same time, it endeavours to produce sufficient peace between the parties to allow amicable discussion and prevent the need for future dispute resolution.

Who are mediators?

Each mediator is granted the freedom to develop his or her own method, and to apply it to the specific case at hand. The role of the mediator is unlike the role of an arbitrator; mediators are facilitators of voluntary discussion, while arbitrators hear evidence and issue binding rulings, including the ability to issue sanctions against users. Mediators are permitted and encouraged to use their own best judgement to recommend a solution to the disputants, one that is in the best interests of the project [13].

The mediation process in the company can be designed as follows:

1. Each worker, which has conflict, gets the continual time on explanation its sight of the matter in controversy. But the target is not to seek the reasons of the controversy, but the generation of the sure situation, in which each party person can show their

understanding and living of the controversy. In conclusion of this section the mediator with the indifferent style reformulate the hearing considerations in the way that enables to form the conditions for research the solution.

2. In the next section both sides try to find through communications understanding the position and posture of adverse and look for relative acceptable solution. Mediator helps the participator of mediation meeting openly discuss about the problem and identify the suitable solution, which is acceptable for both sides.
3. Solution has to be specified in the connection with the goal of team company. And after that step is the mediation process completed.

Costs Quantification on Proposed Strategy

Explanatory report to Law about mediation defines, that mediator provides their services in the mediation area for repayment, which is differentiated in dependence from his legal, or contract relation. Slovak chamber of mediators suggest at common pleases charge the price 16, 60 EUR per hour. When we predict, that mediator will be use an hour per day, costs for his activity during the year (270 working days) introduce sum $270 * 16,60 \text{ EUR} = 4482 \text{ EUR}$. When we compare costs on mediator with assumed utility, following to Table 1 we can see, that when we have 12 conflicts, than we have loss 29 000 EUR and the price for mediator services is 4482 EUR. The company would with proposed strategy with exploitation the mediator services at existing level 3, 4 reach 24 518 EUR.

Conclusion

Within the team work it would be solved some operations of complex character, on which many experts from various fields are interested in, operations of creative characters, where the buyers can offer a creative propose which leads to next results. It is creating a space to talk about and look for an optimal way to goal. It is necessary a high realizing and work motivation of the people, so all of them will be the part for making a plan and to accept in intensions of innovator proposal. In the article a reviewed team works according to buy and sell term would bring innovations that would come from acceptable Lisbon strategy. Lisbon

strategy points as the goal to make from EÚ till 2010 - the most dynamic and competitive knowledge oriented economy. The mediation is without question the strong motivational factor on the resolution of controversy, which rise within the company. The important aspect at the mediation process is also the change of style of the solution of conflicting situations, improvement of human relations and aware of the fact, that also by the different sights and postures is possible to reach feasible effect with acceptable as so as that it hasn't got negative effect on the labour productivity of the team. In this article we tried to quantify the side of conflict, even though we know, that human factor is can't be evaluated exactly. The results could serve as the possible recipe on the raising productivity in the team company if it is straight influenced with conflicts between the team members.

References

- [1] Kolakovič, K, Marinkovič, V., Stefanovič, S.: Employee Development and knowledge-based Organization, Economic analysis, 3-4/2009, Institute of economic science, Serbia, ISSN 1821-2573, download http://www.ien.bg.ac.rs/journal_jwe.html
- [2] Bieliková, M.: How to Implement a Project Successfully. Published by Vydavateľstvo STU, Bratislava.
- [3] Evangelu, J. – Fridrich, O.: 111 Games for Motivating and Developing a Team. Published by Grada 2009.
- [4] Vokorokosová, R.: The Minimum Wage and Competitiveness. Published by Vydavateľstvo elfa, Košice.
- [5] Plamínek, J.: Cooperation and Evaluation of People. Published by Grada 2009.
- [6] Bělohávek, F.: How to Lead Your Team. Published by Grada 2008.
- [7] Krauszová, A.: Factors Determining the Efficiency of Teamwork In: Trendy v systémoch riadenia podnikov [Trends in Corporate Management Systems]. 10th International Science Conference, Košice, TU Sjf 2007.
- [8] Merkys, G.: Teamwork disfunkcion at large scale enterprizes, download <http://internet.ktu.lt/lt/mokslas/zurnalai/inzeko/46/1392-2758-2006-1-46-51.pdf>
- [9] Kyzlinková, R.: Time work and high performance work organization, download http://www.eurofound.europa.eu/ewco/reports/TN0507TR01/TN0507TR01_11.htm
- [10] Stenzel, R.: Gender different in team work and team competition, download <http://www.wzb.eu/mp/vam/publications/papers/GenderDifferences.pdf>
- [11] Ibeh, E.: Factors Affecting performance of women entrepreneurs, Journal of womens entrepreneurship and education, 1-2/2009, Serbia, ISSN: 1821-1283

- [12] Kačmár, J.: Six Sigma and their influence productivity of company, download on <http://www.iam.fmph.uniba.sk/studium/efm/diplomovky/2007/kacmar/diplomovka.pdf>
- [13] Wikipedia, Mediation, download <http://en.wikipedia.org/wiki/Wikipedia:Mediation>
- [14] Grzybowski, A.: Real size of risk base on Jamesa – Steinab in econometric modeling In: Modelowanie preferencji a ryzyko'06, T.Trzaskalik (red.), Wydawnictwo AE v Katowiciach, Katowice 2006
- [15] Slusarczik, B., Henzel, T.: Handel elektroniczny szansa rozwoju przedsiębiorstw sektora MSP. Pragmatyzm strategii marketingowych w zarządzaniu MSP, Czestochowa, 2009. ISBN 978-83-61118-72-5. p. 85 – 96.
- [16] Szkutnik J., Benchmarking in the development of enterprises, Energy and environment in knowledge based economy, edited by Tomasz Nitkiewicz & Ralph Lescroart, Haute Ecole "Blaise Pascal", Arlon 2008,, Library number: depot legal: D/2008/9727/6, Edited in Belgium, pp.37-42

Article history: Received: 7 January 2010

Accepted: 21 March 2010