STED JOURNAL

Journal of Social and Technological Development

IZDAVAČ: UNIVERZITET PIM - BANJA LUKA
PUBLISHER: UNIVERSITY PIM – BANJA LUKA

Banja Luka, November 2020.

STED JOURNAL
Journal of Social and Technological Development - Časopis o društvenom i tehnološkom razvoju

Časopis je do 2019. godine izlazio pod naslovom „Anali poslovne ekonomije"

Dr Milica Delibašić, Univerzitet PIM, Ekonomski fakultet, Trebinje;
Dr Dara Cvijetić, Elektroprivreda Republike Srpske, Trebinje;
Dr Branko Latinović, Panevropski univerzitet „APEIRON", Banja Luka;
Dr Saša Salapura, Univerzitet PIM, Fakultet računarskih nauka, Banja Luka;
Dr Enes Sukić, Univerzitet PIM, Fakultet računarskih nauka, Banja Luka;
Dr Predrag Raosavljević, Institucija ombudsmena za ljudska prava, Banja Luka;
Dr Aleksandra Vuković, Univerzitet PIM, Pravni fakultet, Trebinje;
Dr Veljko Vuković, Univerzitet PIM, Tehnički fakultet, Banja Luka;
Prof. dr **Vladan Mićić**, University of East Sarajevo, Faculty of Technology, Zvornik;
Dr Jasna Bogdanović Čurić, Univerzitet u Istočnom Sarajevu, Akademija likovnih umjetnosti, Trebinje;
Dr Snežana Samardžić, JZU Specijalna bolnica za psihijatriju, Sokolac.

Radovi su dostupni u vidu punog teksta na: https://stedj-univerzitetpim.com/en/homepage/

UVODNA RIJEČ UREDNIKA

Poštovane kolege autori, uvaženi čitaoci,

Pred vama je druga sveska časopisa STED Journal u 2020. godini koja obuhvata 10 radova. Svi objavljeni radovi su dobili pozitivnu ocjenu od strane dva nezavisna recenzenta. Recenzije su anonimne, odnosno, recenzentima se ne otkriva identitet autora i autorima se ne otkriva identitet recenzenata. Recenzenti su preporučili i razvrstavanje članaka u naučne, odnosno stručne radove. Recenzenti su svoju saglasnost za objavu rada utemeljili na ocjeni originalnosti rada, njegove aktuelnosti, ocjene primijenjene metodologije i korišćene literature.

Svakom radu je od strane Narodne i univerzitetske biblioteke Republike Srpske dodijeljen COBISS, UDK i DOI broj. Časopis ima analitički obrađene članke koji se objavljuju u tekućoj nacionalnoj bibliografiji i uvršten je u centralni elektronski katalog. Svi članovi uredništva imaju naučna ili nastavna zvanja iz užih naučnih oblasti koje pokriva časopis. Časopis je uvršten u DOAJ, INDEX COPERNICUS, EBSCO, ROAD, OAJI, CEEOL i GOOGLE SCHOLAR citatne baze podataka.

Na zadnjim stranama časopisa je i bibliografija radova objavljenih u prvoj svesci za 2020. godinu.

Zahvaljujemo se recenzentima radova koji su svojom profesionalnošću i kritičkim pristupom u velikoj mjeri doprinjeli kvalitetu objavljenih radova.

S poštovanjem,

Dr Dejan Kojić, docent
Glavni i odgovorni urednik

EDITORS' INTRODUCTION

Dear fellow authors, distinguished readers,

In the front of you is the second issue of the scientific journal of social and technological development - STED Journal in 2020, published by the University of Business Engineering and Management. The second issue in 2020 includes 10 papers. Published papers have got a positive review by two independent reviewers. Reviews are anonymous and reviewers do not know the authors identity. Reviewers have also suggested the sorting of papers into scientific and expert category. Reviewers have given their consent for publishing of paper based on their assessment of originality, novelty, used methodology and literature of paper.

Each paper is assigned COBISS, UDC and DOI number by the National and University Library of the Republic of Srpska. The journal has its analytically revised articles which are published in the current national bibliography, and it is included in the central electronic catalogue. All members of the editorial board have scientific or educational titles from the narrow scientific fields covered by the journal. The journal is included in the DOAJ, INDEX COPERNICUS, EBSCO, ROAD, OAJI, CEEOL i GOOGLE SCHOLAR citation databases.

On the last pages of the journal, there is also the bibliography of papers published in first issue in 2020.

We thank the reviewers of papers whose professionalism and critical approach have greatly contributed to the quality of published papers.

With best wishes,

Dr Dejan Kojić, docent
Editor-in-Chief

SADRŽAJ – TABLE OF CONTENTS

CONDUCTOMETRIC STUDY OF LIGAND STRUCTURE INFLUENCE ON THE Pb(II) COMPLEXATION WITH CROWN ETHERS

Edita Bjelić[1]*, Mersiha Suljkanović[2], Jasmin Suljagić[1], Azra Kovačević[1]

[1]Faculty of Technology, University of Tuzla, Univerzitetska 8, 75 000 Tuzla
Bosnia and Herzegovina, edita.nurkovic@untz.ba
[2]Faculty of Natural Sciences and Mathematics, University of Tuzla, Univerzitetska 4, 75 000 Tuzla, Bosnia and Herzegovina

Corresponding Author:
Edita Bjelić, Faculty of Technology, University of Tuzla, Univerzitetska 8, 75 000 Tuzla, Bosnia and Herzegovina, edita.nurkovic@untz.ba

ABSTRACT

The conductometric study of ligand structure influence on the Pb(II) complexation with crown ethers in different solvents has been investigated. In this paper, the complexation reaction of macrocyclic ligand, 18-crown-6 (18C6), dibenzo-18-crown-6 (DB18C6), and Pb(II) cation was studied in different solvents: dichloromethane (DCM) and 1,2-dichloroethane (1,2-DCE). The effects of surfactant structure (Triton X-100 and Triton X-45) on the conductivity of the Pb(II) complex with 18-crown-6 and dibenzo-18-crown-6 ether have been investigated. The conductance data showed that the stoichiometry of the complexes in most cases is 1:1(ML). It is also demonstrated that the influence of crown ethers is deeply affected by the organic solvent used. In the solvents studied, the stability of the resulting complexes showed higher stability in dichloromethane comparing with 1,2- dichloroethane. Macrocyclic ligand 18-crown-6 showed more suitable for complexation of Pb(II) ions compared to dibenzo-18-crown-6. Adding a surfactant affected the higher absolute values of the conductivity of systems, but not the change in the stoichiometric ratio between a metal ion and macrocyclic ligand.

Keywords: crown ethers, Pb(II), conductometry, 18-crown-6.

INTRODUCTION

Conductometric titrations with crown ethers have proved to be very useful in determining the stability constants, selectivity, and also the thermodynamic parameters of the crown ether complexes with various cations in nonaqueous and aqueous media.

Macrocyclic polyethers (crown ethers), ever since their first discovery by Pedersen first in the 1960s (Pedersen, 1967), constitute an important class of host molecules that have found broad application to studies of molecular recognition (Aragoni, Arca, & Demartin, 2002), and inclusion phenomena (Blasius & Janzen, 1985). Macrocyclic crown compounds have

gained a great deal of attention due to their wide applications in chemistry (Christy & Shrivastav, 2011) such as microanalysis, sensing and separation of metal ions, and extraction of biogenic amines (Saaid, Saad, Rahman, Ali, & Saleh, 2010). Crown ethers have a strong affinity for alkali and alkaline earth metal ions. The main factor governing the binding strength and selectivity is the size compatibility between the cation radius and the ligand cavity. The selectivity and stability of crown ethers are also influenced by their structural flexibility, the number and type of donor atoms on the cavity of the crown, and the solvation energy of the metal ion. Crown ethers have the specific macrocyclic structure of their molecules, consists of the polyether chain-forming "the crown" with hydrophilic cavity and hydrophobic surface.
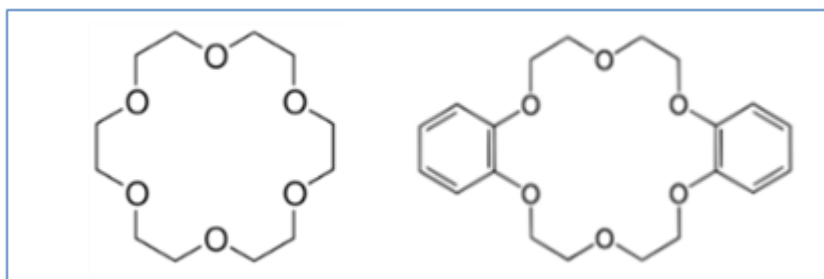
Figure 1. Structures of polyether ligands: macrocyclic "crown ethers" a)18-crown-6; b) dibenzo-18-crown-6;

The metal ion is held in the crown ether cavity by electrostatic attraction between the charged cation and dipoles created by the nonbonding electrons of donor atoms (Atwood & Lehn, 1996). These hosts have three-dimensional structures and therefore, can form a stable complex with various cations. Moreover, due to different hole sizes, they can form various types of complexes with high selectivity. Also, the interaction between crown ether and target ion is non-covalent. The cations that best fit the cavity are located in the center and optimize interactions with heteroatoms (oxygen atoms). Specifically, the highest selectivities are expected in cases where the ratios of cation radius and cavity radius of the ligand are closest to 1. Table 1. gives the ionic radius of alkali, alkaline earth, and some of the heavy metal cations, as well as the radius of the cavities of the crown ethers determined by CPK (Corey-Pauling-Koltun) molecular models (Vögtle, 1995).

Table 1. Overview of ion radius of used metal cation Pb(II) as well as some crown ethers (Vögtle, 1995)

Cations	Ionic radius (A^0)
Pb^{2+}	1.19
Crown ether	**Ionic radius (A^0)**
12C4	0.60-0.75
15C5	0.85-1.1
18C6	1.34-1.43
B18C6	1.34-1.55
DB18C6	2.6-3.20

Some techniques such as potentiometry (Bradshaw, Maas, Lamb, Izatt, & Christensen, 1980) have been used to study the complex formation between macrocyclic compounds with different metal ions in solutions. Among these various methods, the conductometric technique is a sensitive and inexpensive method with a simple experimental

arrangement for such investigations. The study of various macrocyclic compounds in different solvents may indicate new approaches for developing pharmaceutical systems. In this paper, the complexation reaction of macrocyclic ligand, 18-crown-6 (18C6), dibenzo-18-crown-6 (DB18C6), and Pb(II) cation was studied in different solvents: dichloromethane (DCM) and 1,2-dichloroethane (1,2-DCE). The effects of surfactant structure (Triton X-100 and Triton X-45) on the conductivity of the Pb(II) complex with 18-crown-6 and dibenzo-18-crown-6 ether have also been investigated.

MATERIALS AND METHODS OF WORK

Conductometry is an electroanalytical method that measures the electrical conductivity, as a consequence of the existence of free mobile charge carriers (ions) in solution. Ions move freely in solutions under the influence of an electric field and contribute to the overall conductivity of the solution, depending on their concentration and mobility. The electrical conductivity (κ) is directly related to the concentration (C), through the value of molar conductivity (Λ).

Reagents:

The macrocyclic ligand: 18-crown-6, 18C6, dibenzo-18-crown-6, DB18C6 (99%, ACROS ORGANICS).
The nonionic surfactants: Triton X-100; Triton X-45 (p.a. Sigma-Aldrich).
Solvents: dichloromethane,
        1,2-dichloroethan.

All measurements were carried out at 25° C with a GLP31 Crison Instruments digital conductometer, which was calibrated regularly with the Mettler Toledo standard solutions. All molar conductivities were calculated after correcting for the solvent conductivity. The uncertainty in the measurement of conductivities was ±0.1 µS.

Procedure:

The GLP31 Crison Instruments digital conductometer, presented in Figure 2. was used for the measurements. Measurements were performed at room temperature. The change in the electrical conductivity of the solution depending on the change in the ligand concentration was monitored. Namely, the titration of the metal ion solution ($1 \cdot 10^{-3}$ mol/L) with a ligand solution was performed until the molar ratio of ligand: metal = 3: 1 was reached. The results presented by the diagram of the dependence of electrical conductivity on the molar ratio of ligand/metal made it possible to define the complex stoichiometry. The Pb(II) nitrate ($1 \cdot 10^{-3}$ mol/L) dissolved in surfactant TX-100 ($4 \cdot 10^{-3}$ mol/L) was placed in the cell and the conductivity was measured. The crown ether solution (~ 0.02 mol/L) was added to the cell in small increments until the total concentration of the crown ether was approximately 2 to 3 times as large as that of the metal nitrate. The conductivity was measured after each addition as above.

Figure 2. GLP31 Crison Instruments digital conductometer

RESULTS AND DISCUSSION

In order to evaluate ligand structure influence on the Pb(II) complexation with crown ethers in different solvents, the molar conductance was monitored while increasing the crown ether concentration. The measured values of electrical conductivity in different organic solvents (DCM and 1,2-DCE) are represented by the curves, in Figures 3 and 4. Namely, in both organic solvents, the conductivity increases with the increase of the ligand/metal molar ratio. The increase in conductivity by the addition of ligands in organic solvents indicates the fact that the mobility of the formed complex is higher than the metal ions themselves, as indicated by the researchers (Rounaghi & Razavipanah, 2008) examining the complexation of alkaline earth metals with 15C5 in methanol and acetonitrile. The increase in conductivity by the addition of ligands in organic solvents indicates the fact that the mobility of the formed complex is higher than the metal ions themselves. Figures 3.

and 4. represent the results of conductivity measurements for Pb^{2+}-18C6 and Pb^{2+}-DB18C6 complexes in dichloromethane and 1,2-dichloroethane, respectively. From the forms of the dependence curves, it is seen that the stability of the Pb^{2+}-DB18C6 complex is lower, in both solvents. DB18C6 as a ligand gives less pronounced fractures, which indicates the possibility of forming more complexes with different stoichiometric compositions, as well as less stability compared to 18C6 as a ligand. The reason for this behavior of DB18C6 probably is attributed to the existence of two substituents on the ring of this crown ether that make the ligand structure less flexible, so the binding of the metal ion is difficult. The host 18-crown-6 forms complexes for which the reaction enthalpy and entropy are quite high. Host molecules with benzene side groups form complexes of lower reaction enthalpy and entropy and therefore the complexes formed are less stable than that of the analogous crown ethers without aromatic groups.

Figure 3. Influence of crown ether structure on the conductivity of 2-component systems: Pb^{2+} - CE (DCM)
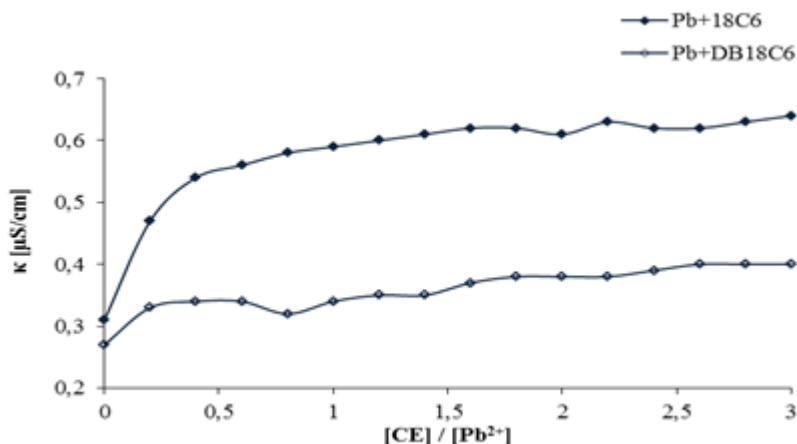
Figure 4. Influence of crown ether structure on the conductivity of 2-component systems:
Pb^{2+} - CE (1,2-DCE)

The same study of the influence of the crown ether structure on the conductivity of 2-component systems Pb^{2+} -18C6 and Pb^{2+}-DB18C6 where a nonionic surfactant Triton X-100 was introduced as the 3rd component was investigated. In Figure 5. And Figure 6., the dependence curves of the electrical conductivities were compared for 3-component systems: Pb^{2+}-18C6-TX-100 and Pb^{2+}-DB18C6-TX-100, in DCM and 1,2-DCE, respectively. Results showed that the presence of reverse micellar structures in dichloromethane increases absolute conductivity values and contributes to better definition of stoichiometry and stability of the formed complex. The influence of TX-100 is evident from the shape of the curves: better-defined stoichiometry of Pb(II) complex in the presence of TX-100 (sharper curve fracture at the same position). A possible explanation could be an aggregation of nonionic surfactant TX-100 in organic solvents and the formation of "reverse"

micellar structures, which allow the dissolution of polar compounds in a non-polar medium. The addition of the surfactant did not affect the stoichiometry. In the case of a 3-component system involving the DB18C6 ligand, it can be observed that the introduction of the surfactant component significantly contributes to the stability of the complex and a better definition of its stoichiometry. In Figure 5. and Figure 6. where the conduction dependence curves of the ligand / metal molar ratio in organic solvents are presented (conductivity decreases with increasing molar content), we observe a different shape of the curve in relation to the same systems without surfactant component Figure 3. and Figure 4. and especially in DCM as a solvent. The same system in 1,2-DCE as a solvent did not lead to similar results, which means that in DCM the interactions are stronger and lead to greater stability of the complex.
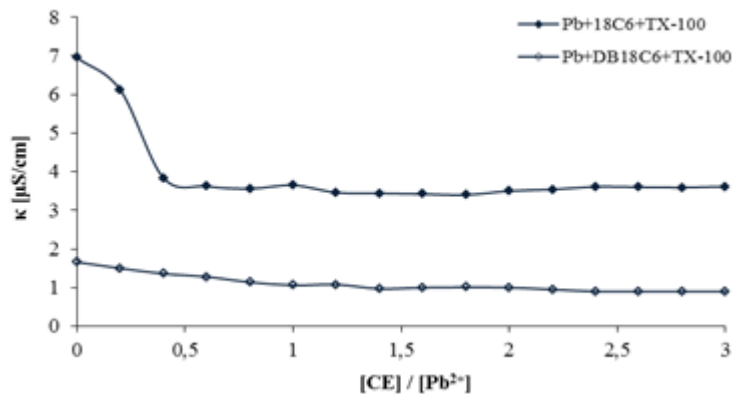
Figure 5. Influence of crown ether structure on the conductivity of 3-component systems:
Pb^{2+} - TX-100- CE (DCM)
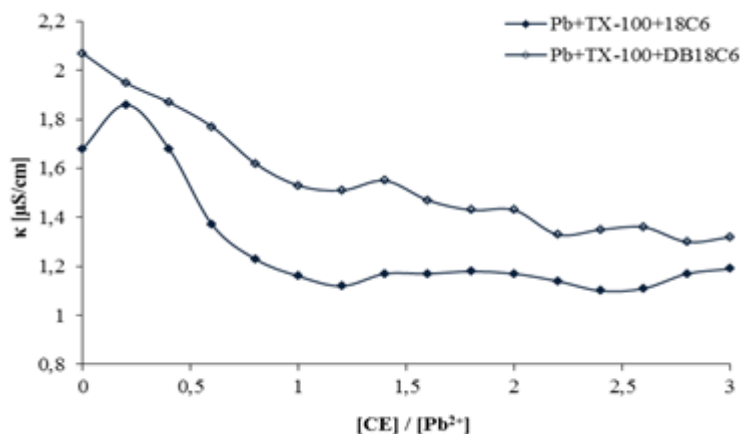
Figure 6. Influence of crown ether structure on the conductivity of 3-component systems:
Pb^{2+}- TX-100- CE (1,2-DCE)

The dependence curves of the electrical conductivities were presented for 3-component systems Pb^{2+}-18C6+TX-45 and compared with the Pb^{2+}-DB18C6-TX-45 system in Figure 7. and Figure 8. The strength of cation surfactant interactions can be observed by comparing the results gained for different surfactants. From the values of conductivity, it can be seen that the stoichiometric composition of the complex (1:1) does not change, but the absolute values of electrical conductivity are lower in the presence of Triton X-45 comparing with the TX-100. A possible explanation is in the structure of used surfactants. The higher number of oxyethylene units in the nonionic surfactant chain TX-100 (9,5) compared to TX-45 (contains 4,5 oxyethylene units) affected the higher absolute values of the conductivity of systems of different complexity and composition but not the change in the stoichiometric ratio between the metal ion and macrocyclic ligand.

Different intensities of conductivity contribute to the earlier assumption of different possibilities of interactions between TX-100 and Pb(II) compared to TX-45, in both solvents. A larger number of oxyethylene units (the number of oxygen atoms as electron-donors) means the higher absolute values of the conductivity for TX-100 compared to TX-45, and probably stronger interactions between metal and macrocyclic ligand.
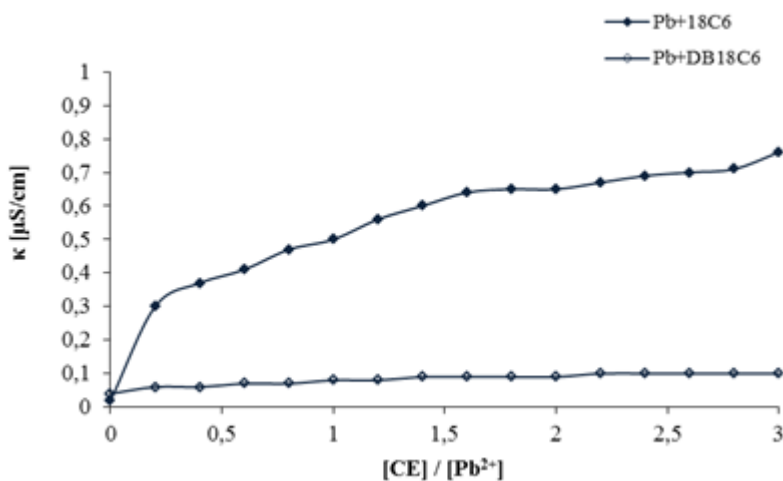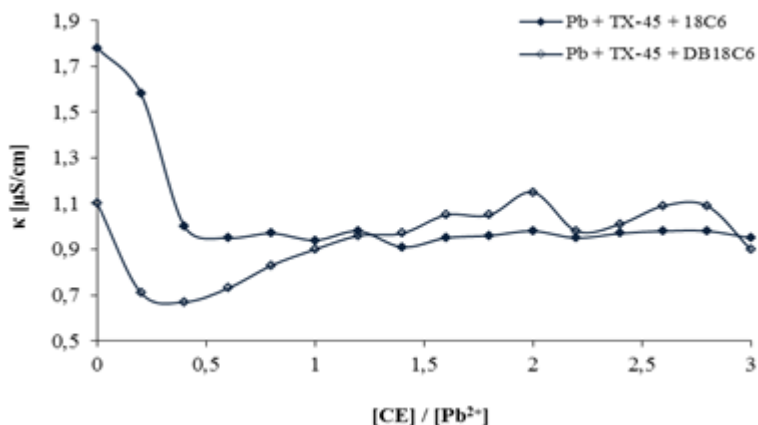

Figure 7. Influence of crown ether structure on the conductivity of 3-component systems:
Pb^{2+} - TX-45- CE (DCM)
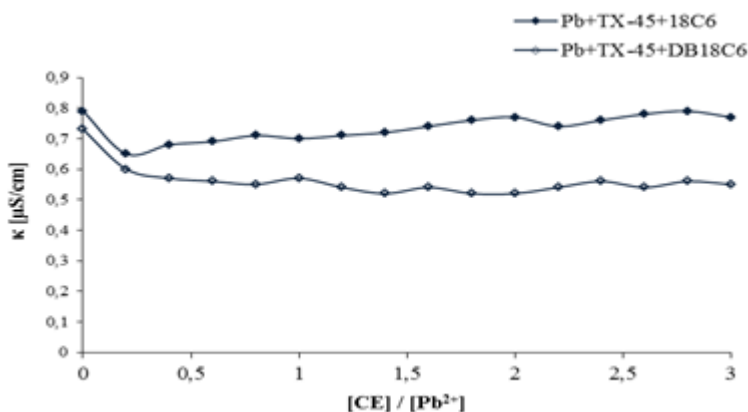
Figure 8. Influence of crown ether structure on the conductivity of 3-component systems:
Pb^{2+} - TX-45- CE (1,2-DCE)

CONCLUSIONS

18-crown-6 ether is more suitable for complexation Pb(II) ions compared to dibenzo-18-crown-6 ether due to its greater flexibility; two benzo substituents in DB18C6 molecule make the structure more rigid and reduces the possibility of access for metal ions. Dibenzo-18-crown-6-ether as a ligand gives more less pronounced fractures, which indicates the possibility of forming more complexes with a different stoichiometric composition, as well as with less stability. The influence of the surfactant structure confirms, that the length of the

polyether chain affects the metal-surfactant interactions. Different intensities of conductivity contribute to the earlier assumption of different possibilities of interactions between TX-100 and Pb(II) compared to TX-45, in both solvents.

LITERATURE

Atwood J.L. & Lehn, J.M. (1996). *Comprehensive supramolecular chemistry in Molecular Recognition: Receptors For Cationic Guests.* New York : Pergamon.

Aragoni, M. C., Arca, M., Demartin, F. (2002). Fluorometric chemosensors. Interaction of toxic heavy metal ions PbII, CdII, and HgII with novel mixed-donor phenanthrolinecontaining macrocycles: spectrofluorometric, conductometric, and crystallographic studies. *Inorganic Chemistry, 41*(25), 6623–6632.

Blasius, E. & Janzen, K. (1985). *Host guest complex chemistry, in Macrocycles: Synthesis, Structures, Applications.* Vögtle, F. and Weber, E. Eds., (pp. 189–216). Berlin: Springer.

Bradshaw, J.S., Maas, G.E., Lamb, J.D., Izatt, R.M., & Christensen, J.J. (1980). Cation complexing properties of synthetic macrocyclic polyether-diester ligands containing the pyridine subcyclic unit. *J. Am. Chem. Soc. 102*, 467–474.

Christy, F.A. & Shrivastav, P.S. (2011). Conductometric studies on cation-crown ether complexes: a review. *Critical Reviews in Analytical* Chemistry, *41*(3), 236–269.

Pedersen, C.J. (1967). Cyclic polyethers and their complexes with metal salts. *Journal of the American Chemical Society, 89*(26), 7017–7036.

Rounaghi, G.H. & Razavipanah, E. (2008). Complexation of 4′-nitrobenzo-15-crown-5 with Li+, Na+, K+, and NH +4 cations in acetonitrile–methanol binary solutions. *Journal of Inclusion Phenomena and Macrocyclic Chemistry, 61,* 313–318.

Saaid, M., Saad, B., Rahman, I..A., Ali, A.S.M., & Saleh, M.I. (2010). Extraction of biogenic amines using sorbent materials containing immobilized crown ethers. *Talanta, 80*(3), 1183–1190.

Vögtle, F. (1995). *Supramolecular Chemistry: Concepts and Perspectives.* Weinheim: VCH.

MECHANICAL ANALYSIS OF THE ROTATING DRAWING MANDREL WITH SELECTED BEARINGS CONFIGURATION

Frantisek Botko[1*], Michal Hatala[1], Dominika Botkova[1,2], Svetlana Radchenko[1]

[1]The Technical University of Kosice, Faculty of Manufacturing Technologies with a seat in Presov, Bayerova 1, 080 01 Presov, Slovak Republic
[2]The Czech Academy of Sciences, Institute of Geonics, Studentska 1768, 708 00 Ostrava – Poruba, Czech Republic

ORIGINAL SCIENTIFIC PAPER

Corresponding Author:
Frantisek Botko, The Technical University of Kosice, Faculty of Manufacturing Technologies with a seat in Presov, Bayerova 1, 080 01 Presov, Slovak Republic, frantisek.botko@tuke.sk

ABSTRACT

Nowadays is important to increase power efficiency in the heat production sector. Tubes with shaped internal surface are one of the possibilities to improve efficiency of heat exchangers. In the fact of this is actual to look on the improvements of the process of forming from the perspective of the tool construction. Presented article is focused on mechanical analysis of the rotating mandrel for cold forming of tubes with shaped internal surface. As a proposed material of the tool was selected heat-treated tool steel. Analyses were performed with selected configuration of the bearings. One bearing was configured as radial and second bearing was configured as radial-axial. A result shows stresses in the mandrel and deformation of the mandrel under a load of forming pressure. Obtained results have potential to enhance knowledge in the area of construction of the forming tools.

Keywords: Forming, tube, mandrel, bearing, stress.

INTRODUCTION

In the process of drawing pipes, the forming drawing process is performed in several steps, in which the dimensions of the semi-finished products are determined by drawing tools - a drawing die and a drawing mandrel (Zajac, Beraxa, Michalík, Botko, & Pollák, 2016). It is precisely these drawing tools that are subject to high requirements in terms of dimensional accuracy, contact surface integrity and surface homogeneity, as any shortcomings of these properties are directly reflected on the final surfaces of the manufactured pipes, which is of course unacceptable in terms of quality and dimensional requirements (Pospiech, 1998). Keeping said traction tools in optimal condition for a long time means not only high demands on the material from which they are made, but also on the effectiveness of the necessary repairs after any damage to ensure further operation of the tool (Hsu, et al., 2016). This work is focused on the design of alternative materials for the production of drawing mandrels from tool steels produced by powder metallurgy, which would mean a

reduction in investment costs in comparison with currently used carbide drawing mandrels. Alternative materials also mean a benefit in the efficiency of repairs of damaged mandrels, which is again reflected in the financial evaluation with a positive effect (Bella, Buček, Ridzoň, Mojžiš, & Parilák, 2016).

The mandrel itself is used for the production of tubes with shaped internal surface. The main principle is to draw the tube through the die and the self-rotating mandrel, while an internal shape is formed in the inner part of the tube. (Beraxa, & Parilák, 2018) The tube is clamped at one end and pulled over the mandrel, where the tube spins the shaped mandrel by its pulling. The mandrel is located in a die which has a conical shape of the passage. The bearings are used for a smoother rotation of the mandrel (Bella, Durcik, Ridzon, & Parilak, 2018).

Tests of mechanical properties were performed with a free-rotating mandrel fitted with one radial and one axially radial bearing. Tool steel tempered to a hardness of 64 HRc was chosen as the tool material (Beraxa, Domovcová, & Parilák, 2014; Botko, Hatala, Beraxa, Duplak, & Zajac, 2018).

MATERIAL AND METHODS OF WORK

As a proposed material of the tool was selected heat-treated tool steel. Mechanical properties of the material are listed in Table 1.

Table 1. Mechanical properties of the tool material

Hardness HRC	Elasticity modulus [GPa]	Poisson's ratio [-]
63	210	0.29

Analysis were performed using software Autodesk Inventor. As can be observed from figure 1 analyzed forming tool (mandrel) was in configuration with one tapered roller bearing and one ball bearing. This means that on the one side with tapered roller bearing was radial axial bond and on the second side with ball bearing was only radial bond. As a load was selected pressure on whole outer surface of the forming tool, which corresponds with the process conditions.
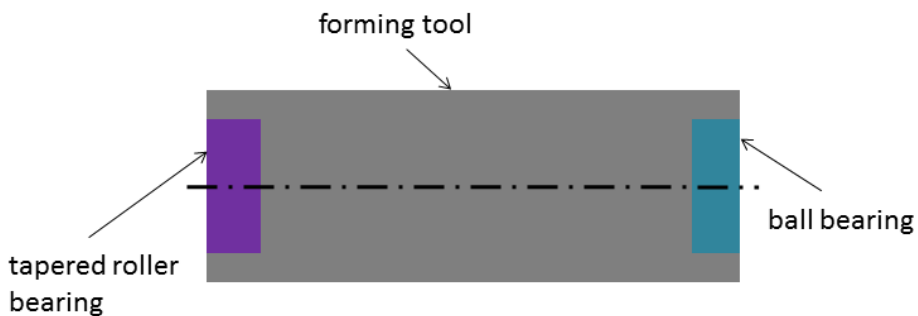
Figure 1. Configuration of analyzed mandrel

RESULTS AND DISCUSSION

From the figure 2. it is possible to define the course of the equivalent stress. As can be seen from von Misses analysis, no extremely stressed area on the forming tool is seen.

First principal stress (figure 3) also shows no extremely stressed area on the tested rotary forming tool. First principal stress represents the maximum compressive stresses that are present in the rotary forming tool under the load of the operating load.
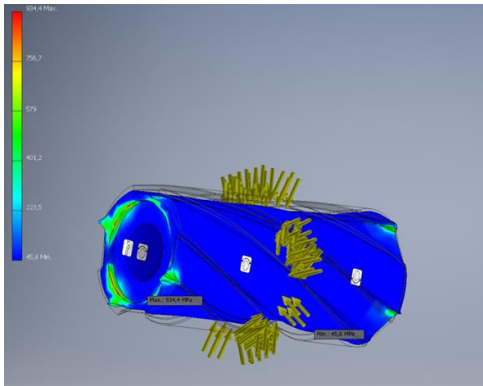
Figure 2. Von Misses stress
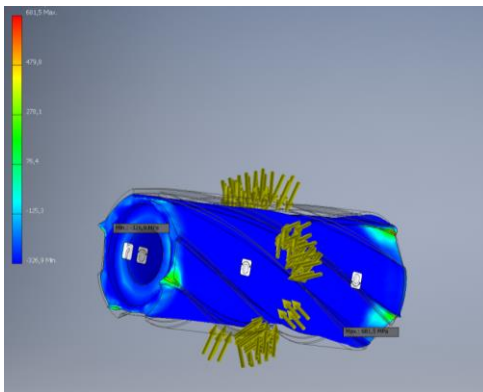
Figure 3. First principal stress

When monitoring third principal stress (figure 4), it can be seen that it reaches a value of 300 MPa. Third principal stress represents compressive stresses that arise in the body due to exposure to load. The default value is lower than the yield strength value for the proposed component material
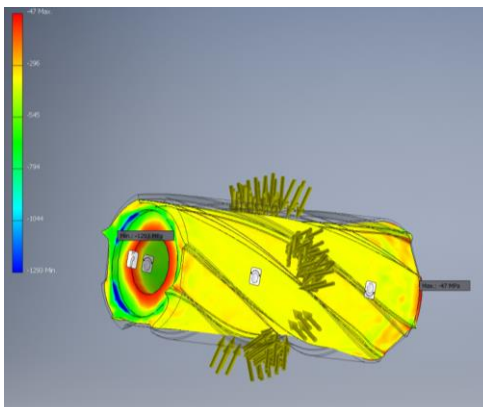
Figure 4. Third principal stress

Displacement x (figure 5) for the analyzed forming tool show no significant values. Thus, can be stated, that from the perspective of displacement x was forming tool designed correctly.
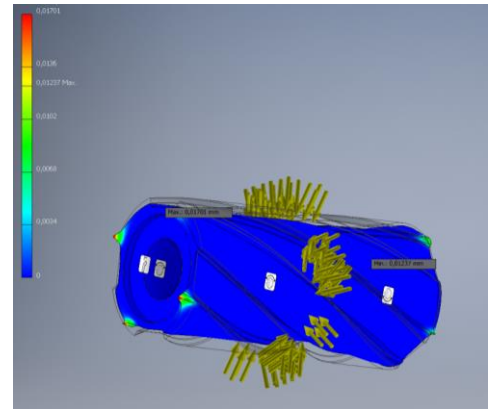
Figure 5. Displacement x

Displacement y (figure 6) and displacement z (figure 7) shows some weak areas in the bottom of the tool groves. For further analysis and real verification, it will be necessary to slightly change the geometry of the rotating tool to eliminate displacements y and z caused by process load.

Figure 6. Displacement y

Botko, F., et al. (2020). Mechanical analysis of the rotating drawing mandrel with selected bearings configuration, *STED Journal, 2*(2), 9-12.
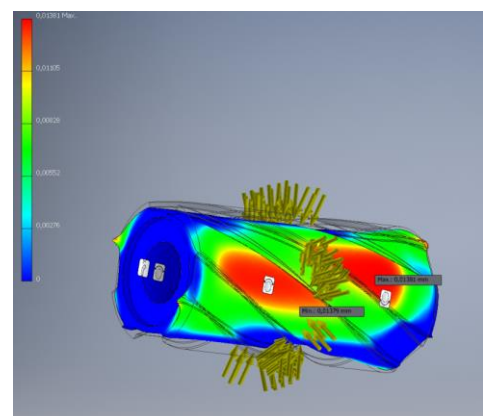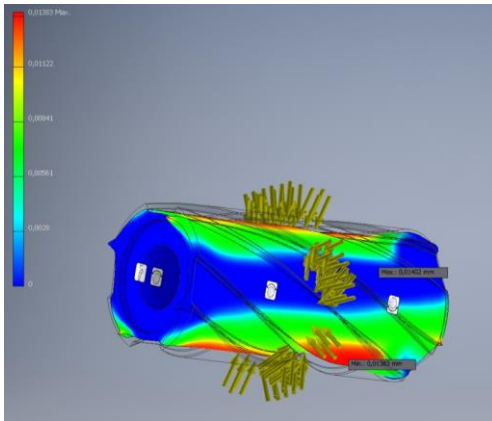
Figure 7. Displacement z

CONCLUSIONS

Simulation was performed on the forming tool during the actual technological process with one tapered roller bearing and one ball bearing. Results of the analysis show promising results for experimental verification of proposed configuration. Application of heat threated steel instead of sintered carbide gives opportunity for simpler production process of such tool. According to the performed analysis is proposed hardened steel of adequate strength and bearing configuration do not significantly affect overall strength of the forming tool. In the future there is a need to make verification of presented results in the production conditions. Development of the more efficient tools is very important for increasing of productivity and sustainable development of industry.

ACKNOWLEDGEMENT

REFERENCES

Bella, P., Buček, P., Ridzoň, M., Mojžiš, M., & Parilák, Ľ. (2016). Influence of die geometry on drawing force in cold drawing of steel tubes using numerical simulation. *In Key Engineering Materials 716*, 708-712. Trans Tech Publications Ltd.

Bella, P., Durcik, R., Ridzon, M., & Parilak, L. (2018). Numerical simulation of cold drawing of steel tubes with straight internal rifling. *Procedia Manufacturing*, *15*, 320-326.

Beraxa, P., Domovcová, L., & Parilák, Ľ. (2014). The application of wear resistant thin layers for cold forming tools. *In Materials Science Forum*, *782*, 619-622. Trans Tech Publications Ltd.

Beraxa, P., & Parilák, Ľ. (2018). Coating of tools used for production of steel seamless reducers. *Procedia Manufacturing*, *15*, 327-334.

Botko, F., Hatala, M., Beraxa, P., Duplak, J., & Zajac, J. (2018). determination of CVD coating thickness for shaped surface tool. *TEM Journal*, *7*(2), 428.

Hsu, P.H., Huang, S.Y., Chiang, C.C., Tsai, L., Wang, S.H., & Liou, N.S. (2016). Dynamic friction properties of stainless steels. *In Dynamic Behavior of Materials, Volume 1*, 49-154. Springer, Cham.

Pospiech, J. (1998). Description of a Mathematical Model of Deformability for the Process of Drawing Tubes on a Fixed mandrel. *Journal of materials engineering and performance, 7*(1), 71-78.

Zajac, J., Beraxa, P., Michalík, P., Botko, F., & Pollák, M. (2016). Simulation of weld elbows hot forming process. *International Journal of Modeling and Optimization, 6*(2), 77.

APPLICATION OF THE CRITERION OF TECHNOLOGICAL DAMAGEABILITY IN MECHANICAL ENGINEERING

Yaroslav Kusyi[1*], Andrij Кук[1], Oleh Onysko[2], Tetiana Lukan[2], Lolita Pituley[2], Iryna Shuliar[2], Yurii Havryliv[2]

[1]Lviv Polytechnic National University, Stepana Bandery St, 12, 79 000 Lviv, UA, jarkym@ukr.net, andrij.kuk@gmail.com
[2]Ivano-Frankivsk National Technical University of Oil and Gas, Vulytsya Karpatsʹka, 15, 76000 Ivano-Frankivsk, UA, onysko.oleg@gmail.com, lutana.ua@gmail.com, lolitapituley@gmail.com, ira.shuliar@gmail.com, meson1959@gmail.com

ORIGINAL SCIENTIFIC PAPER

Corresponding Author:
Yaroslav Kusyi, Lviv Polytechnic National University, Stepana Bandery St, 12, 79 000 Lviv, UA, jarkym@ukr.net.

ABSTRACT

Development and implementation in mechanical engineering practice of integrated information systems for control of technological processes of manufacturing products is the main driver of economic growth of developed countries. The priority of modern engineering technology is to provide the specified operational characteristics of products in accordance with the accuracy parameters, set by designer and quality of surface layers in contrast to achieving the minimum technological cost with maximum performance for traditional approaches. Technological providing of the main operational characteristics of the product (bearing strength, wear resistance, fatigue strength, joint strength etc.) require a systematic approach, which consists in the investigation of real physical processes at submicroscopic, microscopic and macroscopic levels of research, and step-by-step tracking required parameters at all stages of the Product Life Cycle from the position of technological inheritability. It is proposed to use the method of LM-hardness to control the quality of the structure of the material from castings in the design of functionally-oriented processes. The magnitude of the technological damage of the product material serves as a criterion for optimization when choosing a variant of surface treatment of the casting. A method for providing experimental studies of castings of aluminium alloys has been developed. On the basis of the carried-out experimental researches the rational route of processing of surfaces of casting is chosen.

Keywords: surface engineering, technological inheritability, functionally-oriented process.

INTRODUCTION

Technological providing operational characteristics of products when designing the functionally-oriented technologies is a priority task of modern mechanical

engineering production (Kusyi & Kuk, 2020; Stupnytskyy & Hrytsay, 2020).

Functionally-oriented technological process (FOTP) is a technological process that aims to provide the most efficient operational characteristics of the product in compliance with the parameters of accuracy and quality of the product surface layer assigned by the designer. Solution of this problem is possible due to automated control of the process and careful analysis of the entire technological chain of manufacturing parts from the position of technological inheritability, by the system-integrated CAD/SAE/CAPP/CAM software products. During the implementation of FOTP, the design and technological preparation of production is intensified to provide the maximum positive result in the customer-manufacturer chain (Stupnytskyy & Hrytsay, 2020).

However, the lack of effective criteria for assessing quality parameters, operational characteristics and reliability indicators of products, taking into account the technological inheritability of properties when designing FOTP retards the introduction of rational technologies in engineering practice.

The technological process has a direct and decisive influence on the quality parameters of products starting from the blank production to the final product. However, the process of formation of the operational characteristics and reliability indicators of the product at the stage of its creation can lead under adverse conditions to the product fracture at the stage of its operation (Kusyi & Kuk, 2020; Kusyi, Kuzin, & Kuzin, 2017). This is due to the complexity and ambiguity of the relationships between the quality parameters of the product, its operational characteristics and reliability indicators (Figure 1).
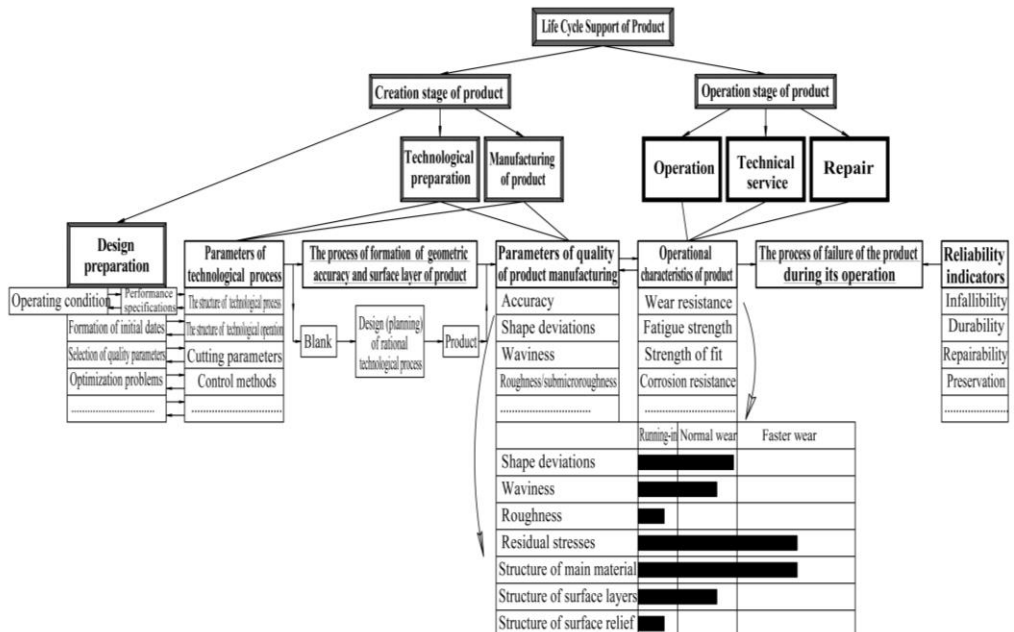
Figure 1. Relationships between parameters of technological process, surface quality parameters, operational characteristics and reliability indicators

The imperfect technological process causes inadmissible failures of the product, which are classified into three groups (Figure 2) (Pronikov, 1978; Kusyi, 2019).

The first group of causes is connected first of all with shortcomings of the designer's work at a stage of production preparation. Such failures are embedded in the products at the stage of technological preparation of production and are implemented during their manufacturing (Figure 2) (Pronikov, 1978; Kusyi, 2019).

The second group of causes that lead to unacceptable failures due to technology is related to the insufficient reliability of the technological environment. The technological environment is a set of technological objects that interact with the studied technological object at a certain stage of manufacturing parts and / or assembly of the machine (Figure 2) (Pronikov, 1978; Kusyi, 2019).

At this stage of mechanical engineering development, the third group of causes of unacceptable failures is the least studied. The third group is related to residual and side effects that are formed during the process (Figure 2) (Pronikov, 1978; Kusyi, 2019). It is worth noting that all subgroups of group III are interconnected. The processes of occurrence and formation of defects at the stage of product creation due to the phenomenon of technological inheritance of properties can have two development options. According to the first option, the processes of occurrence and formation of defects can progress and develop into damage during operation. According to the second option, their impact can be minimized or even completely eliminated due to the rational structure of the technological process.
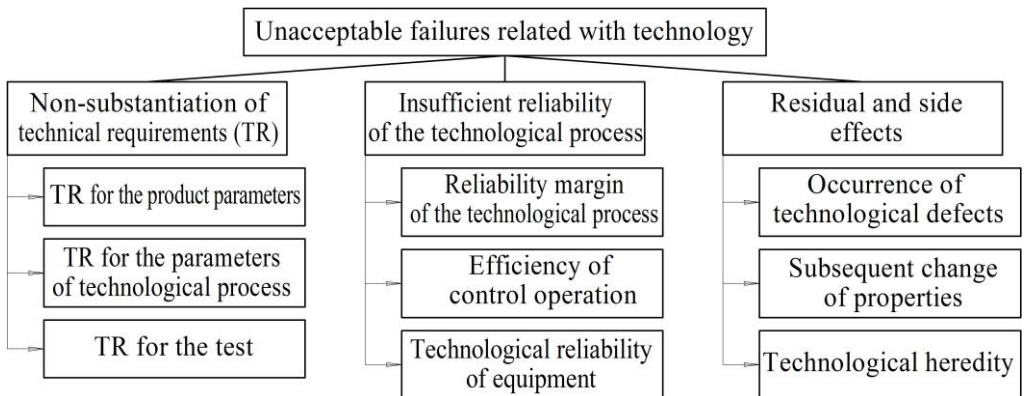
Figure 2. Classification of unacceptable failures associated with technological processes imperfections

Technological providing of the main operational characteristics of modern products requires a systematic approach, which consists not only in the study of real physical processes at all levels: submicroscopic, microscopic and macroscopic, but also in their step-by-step tracking at all stages and stages of the Life Cycle of a Product (Denkena et al., 2014). Technological inheritability is the process of transferring the object properties from previous technological operations to subsequent ones. Preservation of these

properties for the object is called technological heredity. According to this approach the system principle of realization of the Life Cycle of a mechanical engineering product from the position of technological inheritability requires a direct connection of technological preparation of production with the stage of operation with not step-by-step, but parallel, coordinated work of designer and technologist. Therefore, both technological transitions of separate operations and operations of technological processes of machine details

manufacturing need to be considered in interrelations, analyzing all technological chain from the blank production to finished products, when forming their final parameters.

MATERIAL AND METHODS OF WORK

Inheritability of product properties during their manufacture and assembly is most often described using graph theory.

The quality parameter on the p-th technological operation is changed by introducing the coefficients of technological inheritability (Jashcheritcyn, Ryzhov, & Averchenko, 1977):

$$R_1 = a_1 \cdot R_0^{b_1};$$
$$R_2 = a_2 \cdot R_1^{b_2};$$
$$\cdots\cdots\cdots\cdots\cdots \qquad (1)$$
$$R_{p-1} = a_{p-1} \cdot R_{p-2}^{b_{p-1}};$$
$$R_p = a_p \cdot R_{p-1}^{b_p}.$$

where $R_0 \ldots R_p$ – set of quality parameters; $a_1, b_1, \ldots a_{p-1}, b_{p-1}, a_p, b_p$ – coefficients of technological inheritability according to the sequence of operations of the technological process.

According to (1), the technological chain is described by the coefficients of technological inheritability, which connect the main functional relationships between technological modes and product quality parameters. These coefficients are obtained by transforming the regression dependences found by the methods of planning extreme experiments (Jashcheritcyn et al., 1977):

$$R_p = a_p \cdot a_{p-1}^{b_p} \cdot a_{p-2}^{(b_p \cdot b_{p-1})} \cdots\cdots a_1^{(b_p \cdot b_{p-1} \cdots\cdots b_1)} \cdot R_0^{(b_p \cdot b_{p-1} \cdots\cdots b_1)} \quad (2)$$

From formula (2) it follows that the final parameter of product quality is related with the initial parameter of blank quality through a set of coefficients of technological inheritability.

Determining all the coefficients of technological inheritability significantly complicates the work at the stage of technological preparation of production.

Consider in detail the relationship between the parameters of the technological process, the parameters of processing quality, operational characteristics and reliability indicators from the position of technological inheritability of properties (Figure 3). The Life Cycle of a Product includes the development and production stage and the stage of product exploitation. The development and production stage contains the substages of design preparation, technological preparation of production and the stage of product manufacture. The stage of exploitation includes the use, technical service and repair of the product (Figure 3).

In our opinion, the technological inheritability of the properties of products at the substages and stages of their Life Cycle should be analyzed using their technological damageability.

In the general case damage is a process of bright and uneven change of a geometrical condition of friction surfaces, structure and properties of the surface layers. Damage is the result of damageability, which is manifested in changes in macro-geometric characteristics, structure, properties and stress state of the product surface layers. On the other hand, the analysis of the Life Cycle of a Product shows that the damage is the result of its operation due to the «rebirth» of the defects formed at the development and production stage. The properties of the product (machine) are determined by the properties of the blanks and the forming technological environment, which is the carrier of the mechanism of inheritance and transformation of the properties of products in the process of their manufacture (Suslov & Dalskyj, 2002), which is shown in Figure 3.
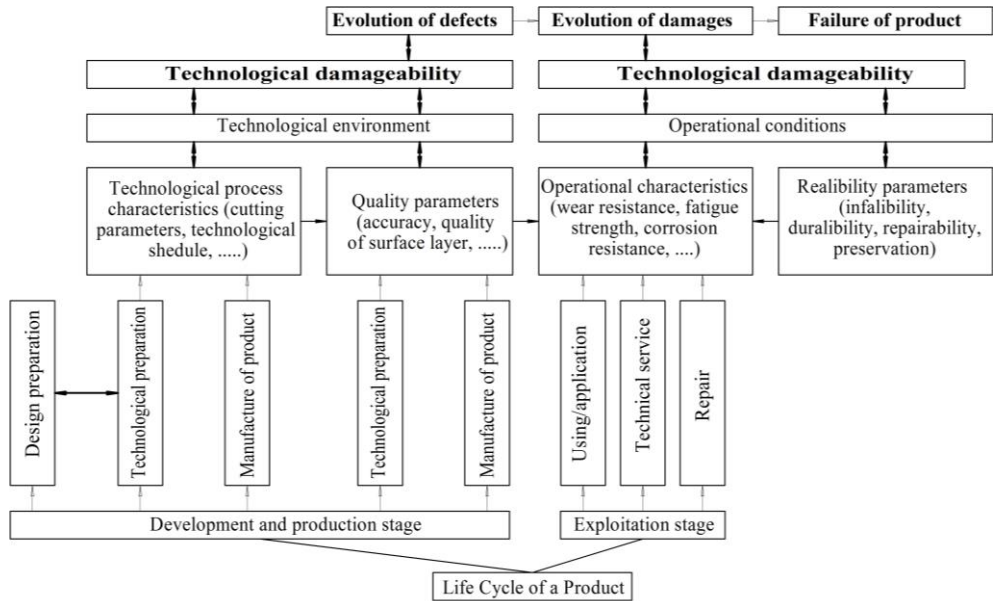
Figure 3. Analise of Life Cycle of a Product by means of its technological damageability

In the product manufacture process, defects occur depending on the processing modes, control methods, the degree of automation etc. For each technological process, as a rule, there are typical types of defects associated with a violation of the technological process or an unfavorable combination of factors (Pronikov, 1978). The origin, occurrence and development of defects are the result of the technological process of product manufacture, and a damage is a consequence of its operation (Pronikov, 1978) (Figure 3).

According to the classical postulate of mechanical engineering technology, machining has a significant impact on the workability of products.

However, currently, operating conditions are a priority for the development of product damage in their Life Cycle.

Analyzing the technological damageability of the product during its Life Cycle, you can predict the probability of its failure for specific operating conditions.

The processes of damage evolution from the development and production stage to the exploitation stage of Life Cycle of a Product are multi-scale and multi-stage.

They develop simultaneously at the submicroscopic, microscopic and macroscopic levels thus meaning the combination of different types of models. Multi-stage processes require new approaches and techniques to solve technological problems depending on the operating conditions of the product.

Therefore, to identify the cause of the product failure due to its damage, the entire technological chain from the blank to the final product for its executive surfaces, taking into account the technological inheritability of the properties, must be analyzed.

According to the provisions of the Continuum Damage Mechanics (Murakami, 2012):

$$\widetilde{M} = \frac{M}{1 - D_M}, \tag{3}$$

where M, $\widetilde{M}$ – the value of the true and effective properties of the material , respectively; D_M – kinetics of damage accumulation (damageability) for a given property of the material.

It is established that the main dominant parameters of material depletion are the processes of damage accumulation associated with loosening of the material, which leads to degradation of its modulus of elasticity and other physical and mechanical properties for two types of fracture: tear – E and shear – G. Material damage under axial load – D_σ and under shear – D_τ are the parameters of material degradation assessment for different operating conditions (Murakami, 2012):

$$D_\sigma = 1 - \sqrt{\frac{\overline{E_i}}{E_0}}, \qquad (4)$$

$$D_\tau = 1 - \sqrt{\frac{\overline{G_i}}{G_0}}. \qquad (5)$$

Application of dependences (4), (5) in engineering practice requires special equipment and qualified personnel to conduct experimental research, so it is difficult to implement them at the mechanical engineering plant.

The calculation of technological damageability depends on the blank type for a given product. In this paper we will consider the method of calculating the technological damageability for a casting block.

In the last decade, in solving applied problems, the method of LM-hardness, developed under the guidance of Academician A.O. Lebedev, was used. The damage parameter for the LM-hardness method is not the absolute value, but the degree of scattering of the characteristics of the material mechanical properties on the destroyed samples after operation at different stress levels. This method is easiest to implement, using hardness as a mechanical characteristic, the value of which is used to indirectly assess the properties of materials (Lebedev, 2003; Lebedev et al., 2012).

Homogeneity is the parameter that integrally characterizes the state of the material during processing of the hardness measurements results, which is estimated by the Weibull coefficient (m) (Lebedev, 2003; Lebedev et al., 2012):

$$m = \frac{d(n)}{2{,}30259 \cdot S(\ell g(H))}, \qquad (6)$$

where $d(n)$ is a parameter that depends on the number of measurements n;

$$S(\ell g(H)) = \sqrt{\frac{1}{n-1} \cdot \sum_{i=1}^{n} \left(\ell g(H_i) - \overline{\ell g(H)}\right)^2}, \qquad (7)$$

$$\overline{\ell g(H)} = \frac{1}{n} \cdot \sum_{i=1}^{n} \ell g(H_i). \qquad (8)$$

With a known distribution of the coefficient of homogeneity of Weibull (m) it is advisable to assess the degradation of the material structure by its technological damageability D:

$$D = 1 - \frac{m_i}{m_{matr.}}, \qquad (9)$$

where m_i is the value of the Weibull coefficient for the i-th cross section of the measurements; $m_{matr.}$ is the value of the Weibull coefficient for a main material.

RESULTS AND DISCUSSION

We used the LM-hardness method to select a rational route of casting processing. For experimental research, the blanks were cast in a metal mold. The blank was made of material AK21M2.5H2.5 State standard-GOST 1853-93 and its dimensions were 145x60x15 mm. The casting was machined by an end-cutter on the universal milling machine of model 676. For each machining we planned two series of experimental researches. There were two variants of the technological route of blank manufacturing and following machining. The first variant included casting in a cold and warmed-over metal mold, rough milling and finishing. The second variant included casting in a cold and warmed-over metal mold, semi-rough milling and finishing. At the end the

surface of the experimental sample was controlled by the measurement device (Kusyi & Stupnytskyy, 2020).

The cutting parameters were: for rough machining: cutting depth t = 1.0 mm, feed rate $S_{min} = 100\text{-}120$ mm/min, rotary speed n = 700 min^{-1}, cutting speed V = 26.39 m/min; for semi-rough machining: t = 0.3 mm, $S_{min} = 13$ mm/min, n = 1050 min^{-1}, V = 52.78 m/min; for finishing: t = 0.3 mm, $S_{min} = 13$ mm/min, n = 1050 min^{-1}, V = 52.78 m/min. Hardness was measured on the device TP-5006 by

means of a ball $\varnothing$ 3.175 mm subjected to loading with 588.4 N. 30-35 measurements were performed in each experiment (Kusyi & Stupnytskyy, 2020).

The Weibull homogeneity coefficient (m), the technological damageability (D) was calculated by equation (6), (9) in Mathcad 15 medium using the research results. The diagrams m=f(n) and W=f(n) is presented in Fig. 4, 5 (Kusyi & Stupnytskyy, 2020).
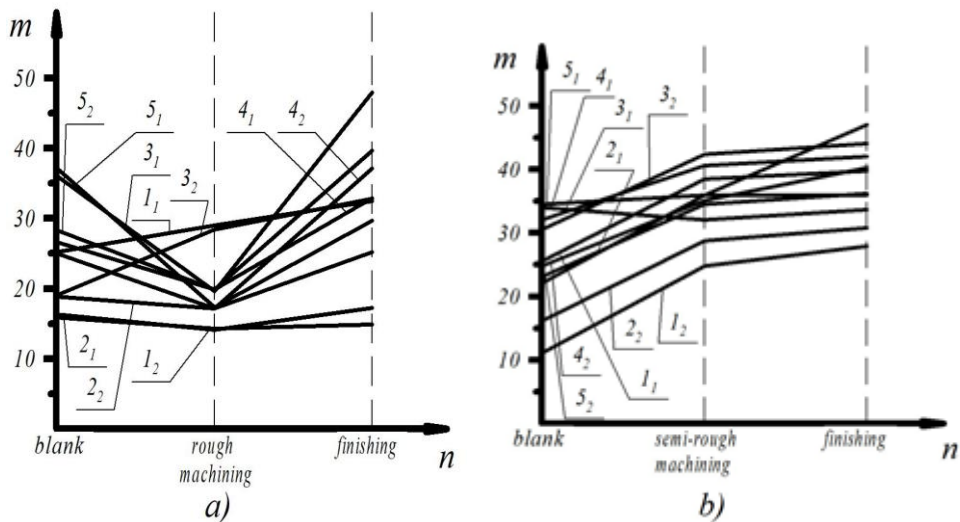
Figure 4. Change of Weibull homogeneity coefficient *(m)* in the surface layer of the casting for the first (a) and second (b) variants of the technological route (1, 2 are the castings spilled in cold metal mold, 3, 4, 5 are the castings spilled into heated metal mold; indexes 1, 2 are indicate the number of the melting blank)

The researches results demonstrate a general tendency in the formation of the surface layer of casting after pouring metal into different metal molds (see Figure 4, Figure 5). A heated metal mold has the lower level of heterogeneity development during crystallization in the conditions of decrease in the temperature field between the crystallized metal and the form to compare with a cold one. Therefore, the value of the Weibull coefficient (*m*) on the blank surface is less, and the tendency to technological damageability (*D*) is higher

when pouring liquid melt into a cold mold than into a heated one.

The choice of a rational technological way of product production plays an important role for its further operation.

After rough milling for the first variant of the technological route (blank - rough machining - finishing) to a depth of 1 mm a decrease in the value of the Weibull homogeneity coefficient (*m*) and an increase in the values of technological damageability (*D*), compared to similar measurements on the surface, are found. This is explained by the growing tendency

to damageability of the material in the deformation zone of the processed layer and the presence of significant residual tension after preprocessing by milling. Finish milling after preprocessing to a depth of 0.3 mm contributed to the increase in the Weibull homogeneity coefficient (*m*) and decrease in the values of technological damageability (*D*), caused by removal of the metal layer with a developed damageability during machining (see Figure 4,a; Figure 5,a).

After semi-rough machining and finish milling to a depth $h_1 = 0.3$ mm; $h_2 = 0.6$ mm for the second variant of the

technological route (blank – semi-rough machining - finishing) a general trend toward increasing the value of the Weibull homogeneity coefficient (*m*) and decreasing the value of the technological damageability (*D*) compared to similar measurements on the surface is observed. In this case the dynamics of the change in the values of the Weibull homogeneity coefficient (*m*) and technological damageability (*D*) is more intensive for semi-rough milling. This is due to the removal of the defective surface layer and adjacent layers of oxides and dirt of the blank (see Figure 4, b; Figure 5, b).
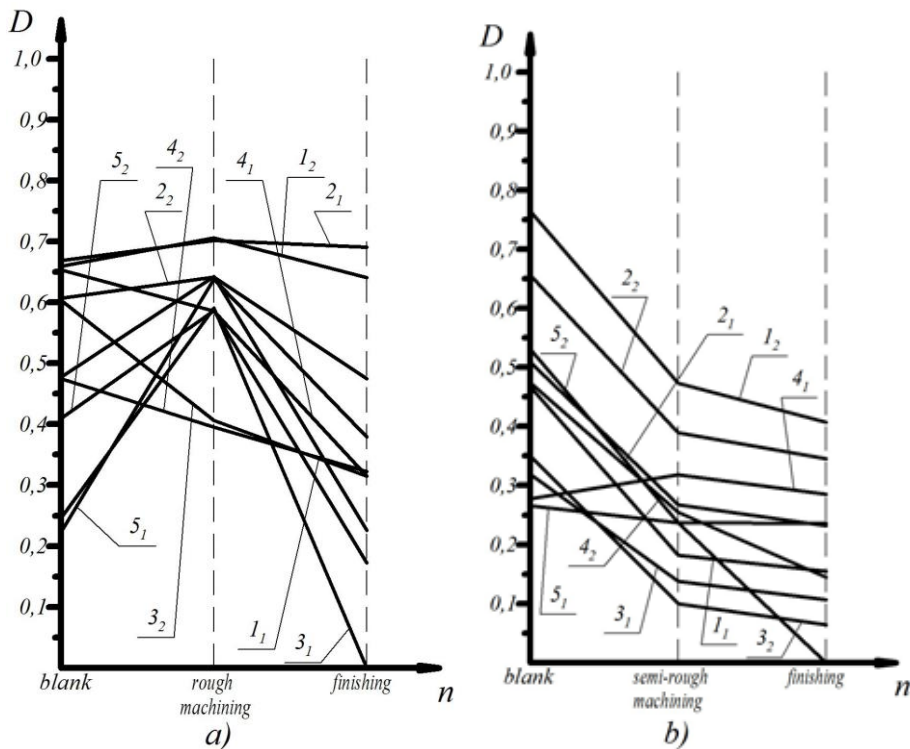
Figure 5. Change of technological damageability *(D)* in the surface layer of the casting for the first (a) and second (b) variants of the technological route (1, 2 - castings spilled in cold metal mold, 3, 4, 5 - castings spilled into heated metal mold; indexes 1, 2 indicate the number of the blank melting)

CONCLUSIONS

The main conclusions have been drawn basing on the researches results.

The technological damageability (*D*) is proposed for choosing the rational technological route of product manufacture.

The technological damageability (*D*) for castings is analyzed by the value of the Weibull homogeneity coefficient (*m*) in terms of the degree of scattering of the characteristics of the mechanical properties of material.

Increase in the force loads during preprocessing machining, in particular milling, contributes to the increase of the damageability of the surface layers through the production of a gradient structure in the blanks. Reducing the energy characteristics of the cutting process in the modes of semi-finished and finished processing reduces the number of stress concentrators in the material. This provides a positive effect on the formation of the surface layer parameters and predicts the behavior of the parts during their exploitation.

Further research should be carried out for a more wide nomenclature of materials of machine products to introduce the proposed technique into the mechanical engineering practice.

LITERATURE

Denkena, B., Mörke, T., Krüger, M., Schmidt, J., Boujnah, H., Meyer, J., Gottwald, P., Spitschan, B. & Winkens, M. (2014). Development and first Applications of Gentelligent Components over their Life-Cycle. *CIRP Journal of Manufacturing Science and Technology*, *7*(2), 139-150.

Jashcheritcyn, P.I., Ryzhov, E.V., Averchenko V.I. (1977). *Technological heredity in the mechanical engineering*. Minsk (In Ru.).

Kusyi, Y. (2019). Technological inheritability of properties for providing of quality parameters of part during it manufacturing. *System Technologies*, *5*(124), 171-184.

Kusyi, Y. & Kuk, A. (2020). Investigation of the technological damageability of castings at the stage of design and technological preparation of the machine Life Cycle. *IOP Conf. Ser.: Journal of Physics 1426012034.*

Kusyj, Y., Kuzin, O. & Kuzin, N. (2017). Analysis of technological damageability of castings manufactured in sand molds. *Technology audit and production reserves*, *3*(1), 17-23.

Kusyi, Y, Stupnytskyy V. (2020). Optimization of the Technological Process Based on Analysis of Technological Damageability of Casting. *Advances in Design, Simulation and Manufacturing III. Proceedings of the 3rd International Conference on Design, Simulation, Manufacturing: The Innovation Exchange, DSMIE-2020,* Volume 1: Manufacturing and Materials Engineering.

Lebedev, A. (2003). A new method of assesment of material degradation during its operating time. *Zaliznchnyi Transport Ukrainy*, *5*, 30-33.

Lebedev, A.A., Golubovskii, E.R., Lokoshchenko, A.M., Muzyka, N.R., Lamashevskii, V.P., Shvets, V.P., & Efimenkoa, E.V. (2012). Assessment of the limiting levels of dispersed damage in materials under steady-state conditions of static and cyclic loading. *Strength of Materials*, *44*(6), 579-584.

Murakami, S. (2012). *Continuum Damage Mechanics – A Continuum Mechanics Approach to the Analysis of Damage and Fractur*e. Dordrecht, Heidelberg, London, New York: Springer.

Pronikov, A. (1978). *Realibility of machines*. Moscow: Mechanical Engineering.

Stupnytskyy, V. & Hrytsay, I. (2020). Comprehensive analysis of the product's operational properties formation considering machining technology. *Archive of mechanical engineering*, *67*(2), 1-19.

Suslov, A.G. & Dalskyj, A.M. (2002). *Scientific bases of mechanical engineering*. Moscow: Mechanical Engineering (In Ru.).

BASICS OF AUTOMATION OF PROFILING OF HIGH-EFFICIENT INSERTS OF THE TOOL FOR THREAD MACHINING

Oleh Onysko[*], Tetiana Lukan, Lolita Pituley, Iryna Shuliar , Yurii Havryliv

[1]Ivano-Frankivsk National Technical University of Oil and Gas, Vulytsya Karpats′ka, 15, 76000 Ivano-Frankivsk, UA, onysko.oleg@gmail.com, lutana.ua@gmail.com, lolitapituley@gmail.com, ira.shuliar@gmail.com, meson1959@gmail.com

ORIGINAL SCIENTIFIC PAPER

Corresponding Author:
Oleh Onysko, Ivano-Frankivsk National Technical University of Oil and Gas, Vulytsya Karpats′ka, 15, 76000 Ivano-Frankivsk, UA, onysko.oleg@gmail.com.

ABSTRACT

Many modern threaded joints, especially in the oil and gas industry, must satisfy high requirements for steel mechanical properties of which they are made. To ensure efficient threading of such hard-to-machine materials (ultimate strength is more than 1250 MPa), it is necessary to use carbide cutting inserts with the negative rake angle at its corner. However, modern manufacturers of such inserts make them only with a zero value of the rake angle. This is due to the difficulty of profiling of the insert cutting edge. This article proposes the basics of such inserts automatic profiling which is based on the algorithm developed by the authors. It includes two corrective calculations of the insert cutting edge profile, namely: the radial displacement of the corner and the tangential displacement of the area forming the crest of the thread. As a result, the computer application with the input parameter of the rake angle and output parameter of the upgraded profile of the insert cutting edge is received.

Keywords: profile of the cutting edge, negative rake angle, machining of thread

INTRODUCTION

The problem of lathe threading tool profiling at present time due to the application of a non-zero value of the back-rake angle at the tool nose of the cutter tool first of all refers to thread with significant requirements for the accuracy of their profile. Those types of thread are widely used in oil and gas drilling industry. For those tapered threads, the accuracy of the half profile angle is 0.5° (figure 1a).

Nowadays, there are not any tools with nonzero of the back rake at the tool nose, used for machining of the thread. It can be explained in that way: it is very difficult to calculate the profile of the cutting edge of the lathe machining tool. It means that thread profile (figure 1a) is equal to the common cutting tool profile (figure 1b). To be more successful drill string pipes must be manufactured from hard material with (ultimate strength is more than 1250 MPa. So, it needs to use for machining of their pipe thread the new tools–with modern high efficiency turning inserts. The other way of receiving of more successful drilling operation is to use the tools with nonzero back-rake angle on their nose. But this one needs the using of the modernized turning insert profile to ensure

the true accuracy of the thread profile. It is very important for this to have the negative back-rake value (Kopei, Onysko, & Panchuk, 2019).

So, the urgent task is calculating of the tool cutting edge profile for cutters with a non-zero value of the back-rake angle and true designed other parameters.
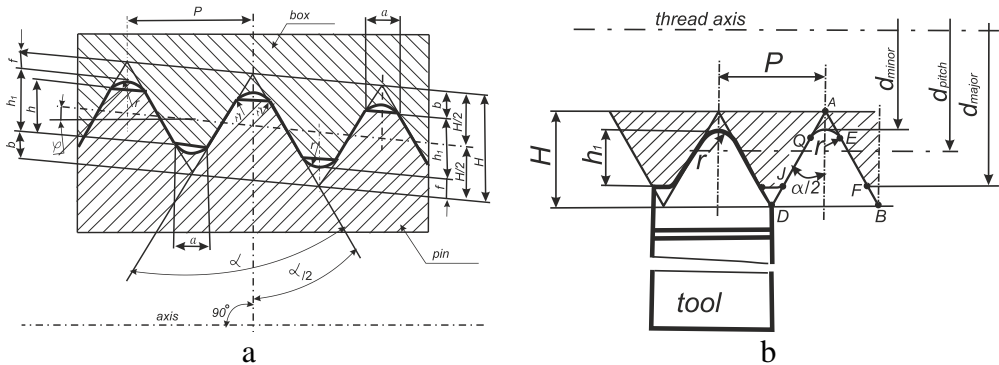
Figure 1. Sketch of Tool-Joint tapered thread according to standard API 7. Parameters of the tool joint tapered thread according to standard API 7: P – pitch, H - theoretical thread height, h_1- work height, φ - work height, b - crest truncation, f - root truncation, h - thread height truncated, a - crest flat width, r - root flat corner radius , α - profile angle

MATERIAL AND METHODS OF WORK

For success solving of the tusk of the cutting-edge automatic profiling we must should consider the model of the manufacturing of thread using lathe machine tool. As the lathe threading tool has simple common design: with zero value of the back rake that cone surface will be obtained. That model is demonstrated on fig. 2a. Other model is shown on figure 2b where the tool has nonzero back rake value that is the reason of receiving surface of hyperboloid of revolution (Medvid et al. (Eds)., 2019)
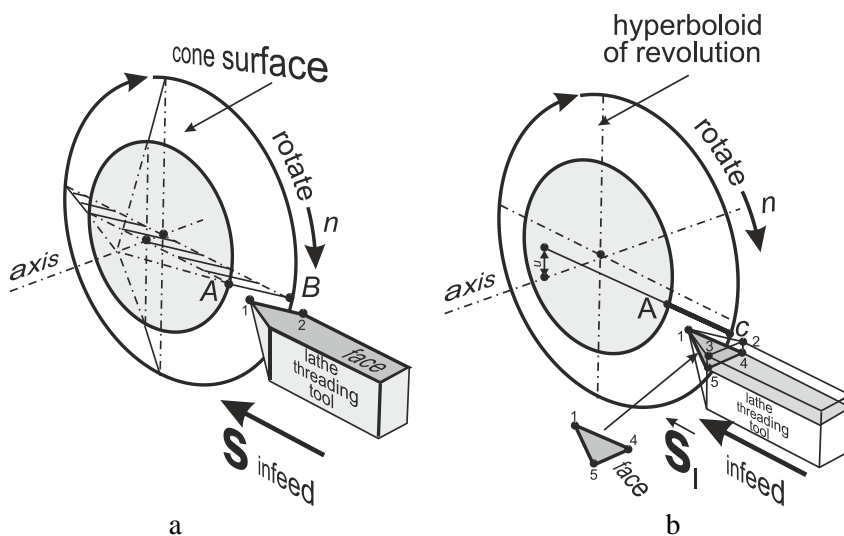
Figure 2. Schemas of threading by lathe tool with zero (a) and nozero back rake angle (b)

So, the improving of the model *a* leads to obtain the no standard thread screw surface - the convolute helicoid (figure 3b). We must take into account that increasing of cutting ability depends on not only the material of the turning insert but on its accurate profile (figure 3a) appointed to provide the accuracy of the thread profile. As a result, the tusk of the cutting-edge profiling has such input parameters: the accuracy of standard thread surface, and the value of the rake angle but there is once more needed tool geometric parameter for efficient machining of the thread – cutting edge inclination.

This parameter is nessesery for providing the eqolity of wear resistence two sides of cutting edge: left (between points 6 and 1) and right (between points 4 ana 1).
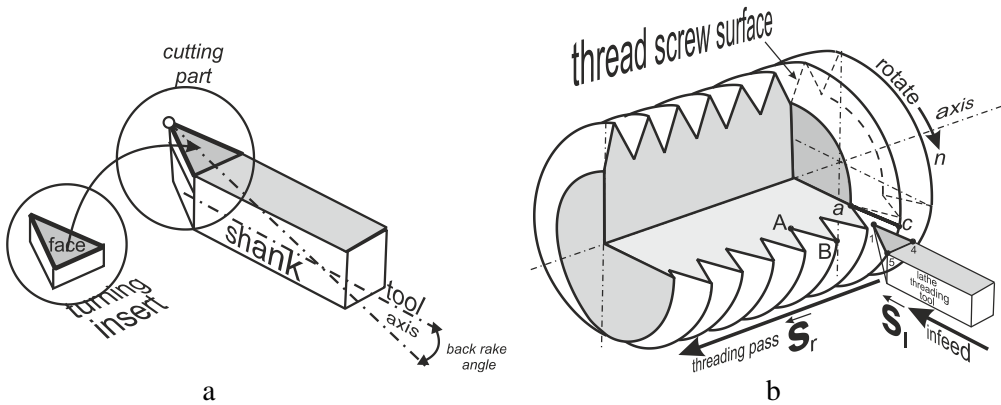
Figure 3. Schema of lathe tool with turning unsert (a) and threading using it (b)
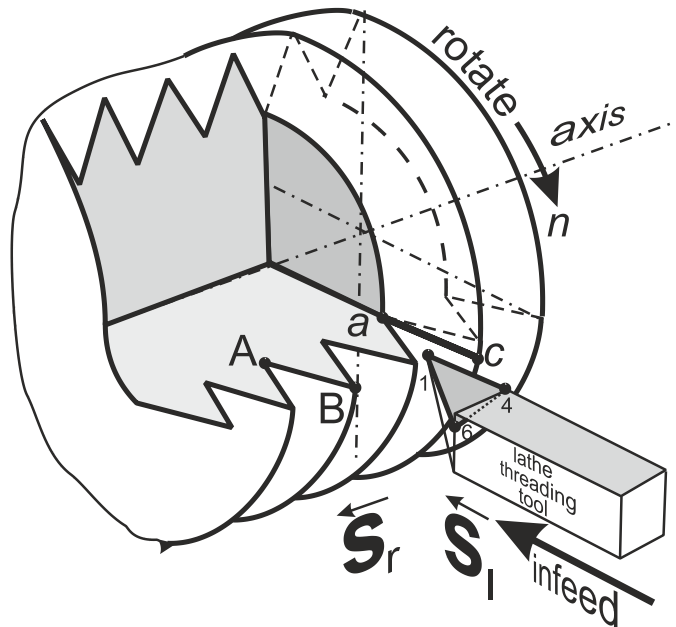
Figure 4. Schema of threading by lathe tool with nonzero cutting edge inclination.

For true complete of input parameters, it is necessary to take into account the value of the hread diameter. It is important for defining of the radial and axis deviations of tool profile relatively to thread profile. Methods of that ones are demonstrated on figure 5 (Medvid, Onysko, Pituley, Shuliar, & Havryliv, 2019).

So, the manufacturing precision of the thread profile angle depend on the two geometric parameters: back rake angle and cutting-edge inclination. But only one of them influence on the axial deviation – back rake angle. (Medvid et al., 2019). The radial deviations depend on both of them (Panchuk, Onysko, & Medvid, 2018).

a

b
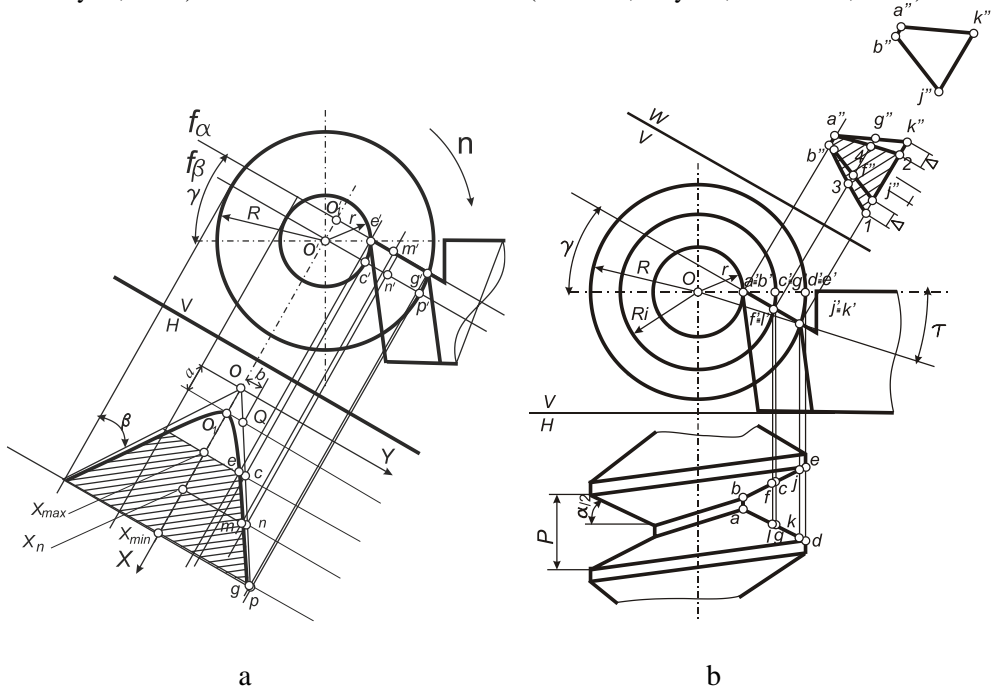
Figure 5. Schema of the defining of the radial (a) and axial (b) deviations of the tool cutting edge profile
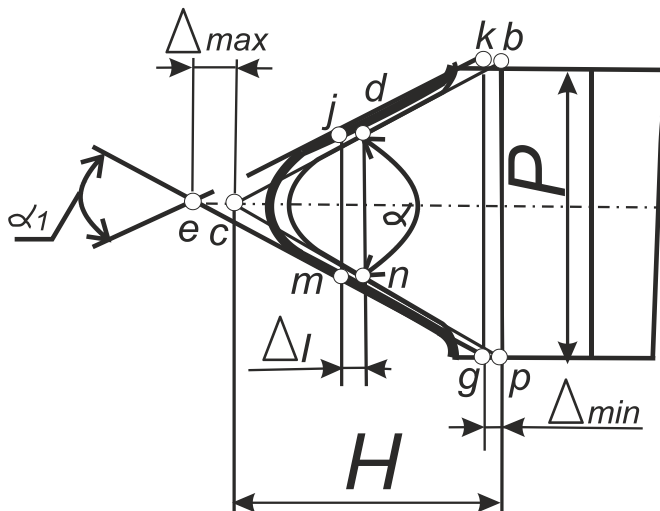
Figure 6. Schema of maximum and minimum radial deviation of the cutting edge profile

Onysko, O., et al. (2020). Basics of automation of profiling of high-efficient inserts the tool for thread machining. *STED Journal, 2*(2), 22-28.

Nowadays there are tool profile research works that take to considerate only one of deviations types. A few of them deal with the radial one only (Kopei, Onysko, & Panchuk, 2018), (Kopei, et al., 2019). Axis deviation is taken ad the input parameter in one paper (Medvid, et al., 2019).

RESULTS AND DISCUSSION

The union two those programs of the cutting-edge profile calculate is the own task of modern lathe threading tool design. In the result of using of this one the program gives us the nonsymmetrical profile, because the axial deviation influence $\Delta_{max\ axis}$ is in it (figure 7a, 7b).

a   b   c
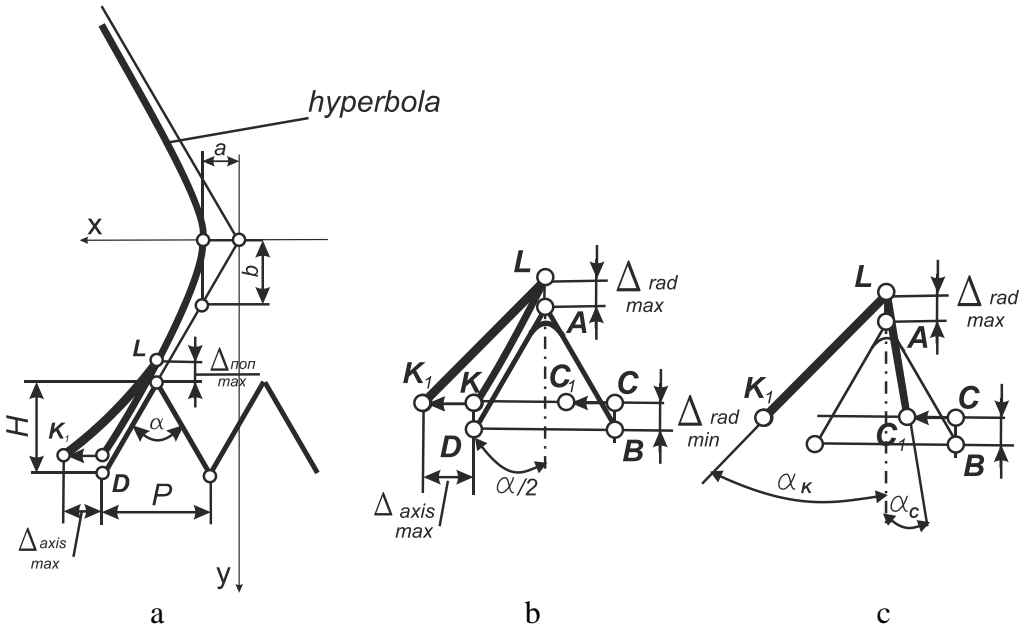
Figure 7. Schema of the obtaining of the nonsimmetrical cutting edge profile

The tool profile includes:
- maximum radial deviation (fig. 7 a,b,c);
- minimum radial deviation (fig. 7 b,c) ;
- right flank angle α_k (fig. 7,c);
- left flank angle α_c (fig. 7,c).

Last two parameters are the functionally depend on the axial and radial deviations. So, we have to build the base of input parameter and we already know about complete output ones. Besides it, there is necessary to consider in the deviation of the tool installation. It includes:
- tangential deviation;
- radial deviation;
- axial deviation (fig.8).

So, all necessary parameters and elements are including to bases of automate profiling of the lathe threading tool (fig.8).
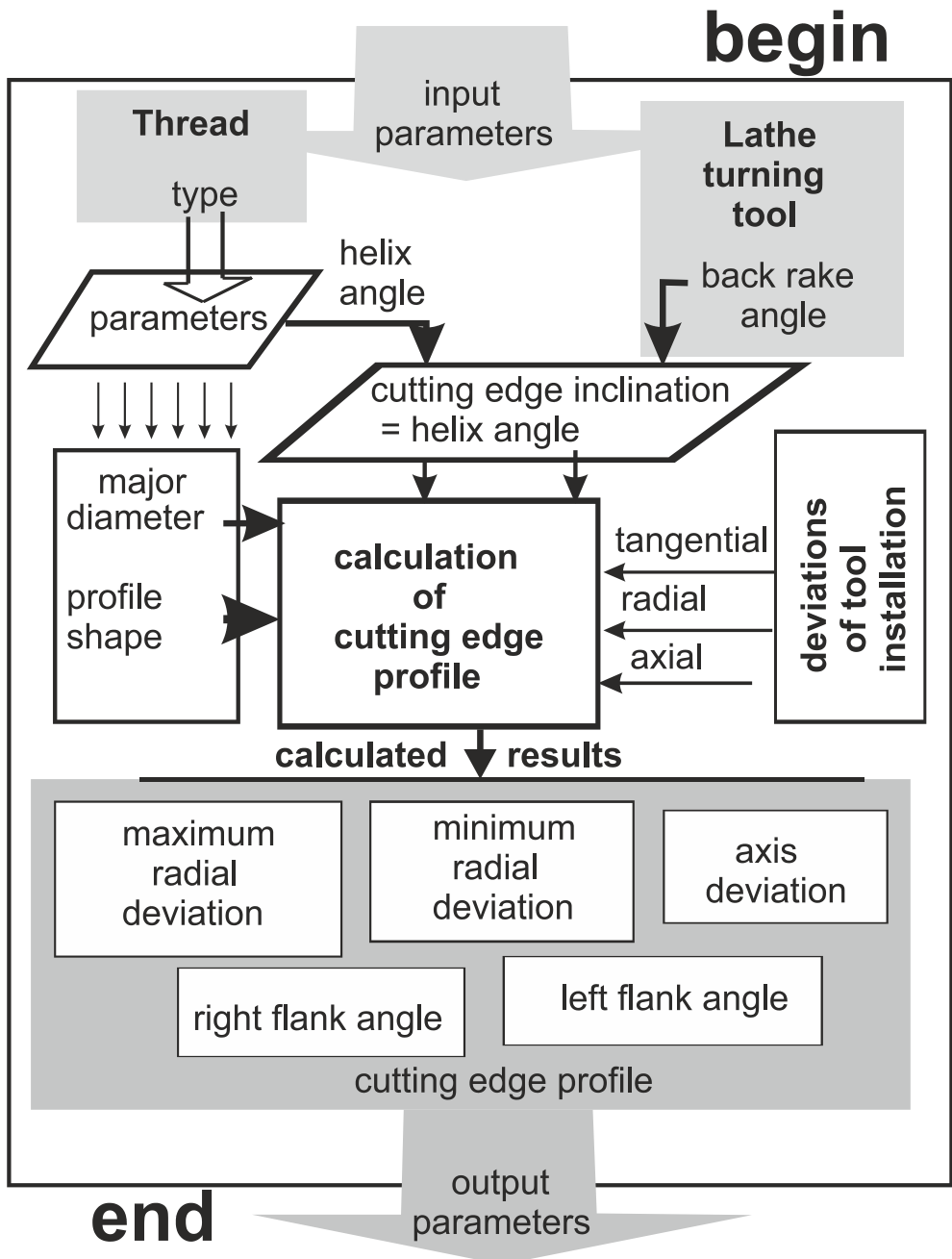
Figure 8. Schema of the own necessary elements for atomation of the cutting edge profiling of the lathe threading tool

CONCLUSIONS

In the article the basics of automation of profiling of high-efficient inserts of the tool for thread machining are considered. Input automation program parameters include main thread parameters and lathe turning tool parameters. The deviations of the tool installation are included to the program too.

Onysko, O., et al. (2020). Basics of automation of profiling of high-efficient inserts the tool for thread machining. *STED Journal, 2*(2), 22-28.

LITERATURE

Kopei V., Onysko O., Panchuk, V. (2018). Computerized system based on FreeCAD for geometric simulation of thread turning of oil and gas pipes. *Book of Abstracts, 6-th International Conference of Applied Science* (pp.108). Banja Luka, B&H: University of Banja Luka.

Kopei, V., Onysko, O., & Panchuk, V. (2019, June). The application of the uncorrected tool with a negative rake angle for tapered thread turning. In *Design, Simulation, Manufacturing: The Innovation Exchange* (pp. 149-158). Springer, Cham.

Medvid, I., Onysko, O., Pituley, L., Shuliar, I., Havryliv, Y. (2019). Problems of Accuracy of Tapered Thread for Small Diameter Drill Pipe Connections. *SimTerm 2019. 19-th international conference on Thermal Science and Engineering of Serbia*. (p.216-221). Faculty of Mechanical Engineering of Niz: Proceedings.

Panchuk, V., Onysko, O., & Medvid, I. (2018). Technology of the oil and gas drill pipe connector with low-permeability level of the drilling mud in its screw part. *Acta Technica Corviniensis-Bulletin of Engineering*, *11*(4), 47-54.

CYBER CRIME IN PAKISTAN; DETECTION AND PUNISHMENT MECHANISM

Ubair Anjum

Pakistan Institute of Development Economics, Quaid-i-Azam University Campus‹ Islamabad, Islamabad Capital Territory 44000, Pakistan, mubairanjum@gmail.com

ORIGINAL SCIENTIFIC PAPER

Corresponding Author:
Ubair Anjum, Pakistan Institute of Development Economics, Quaid-i-Azam University Campus☐ Islamabad, Islamabad Capital Territory 44000, Pakistan, mubairanjum@gmail.com

ABSTRACT

"Cyber Crime in Pakistan; Detection and Punishment Mechanism" addresses improvement of public health and safety policies by focusing on enhancing knowledge about cybercrime, women victimization, the pattern of time spent on the internet, sexual harassment and cyber-bullying and the effect of socio-demographic factors on cybercrime. A quantitative, self-selected research study designed by the researcher and utilizing a voluntary, anonymous internet survey consisting of open and closed-ended questions targeted students attending large universities in Pakistan (N=400), based on Routine Activity Theory (RAT). The results were analyzed through SPSS via directing descriptive statistics, Cronbach's alpha, and regression analysis to confirm the validity and internal consistency of data and verification of the hypotheses. Results depicted women represent the largest group impacted by cyber abuse. Single women, young adults, and employed students demonstrate increased rates of victimization. Frequent usage of social media may account for increased victimization for women. Time spent online and deficient knowledge of cyber protection measures are positively correlated with digital victimization. Respondents report on inadequate effective and affordable cyber protection and ineffective responses by agencies to cybercrime. Based on the results garnered, and supported by Public Policy Theory, Cybersecurity policies have been proposed to Pakistan's government.

Key Words: Cybercrime; Cyber victimization; Cyber Violence; Cyber Laws; Routine Activity Theory; Public Policy Theory.

INTRODUCTION:

The overall domain of technology has been changed entirely after the www (World Wide Web) and online computer connectivity, which is considered mandatory for all aspects of business and corporate world. Before the internet revolution, both private and public organizations kept their highly confidential information in the form of physical documents (Waldo, Lin, & Millett, 2010). The physically stored information makes sure that the information is not easily available to anybody to take benefit from it,

but their security was not much ensured. However, the new paradigms have generated huge data banks with all kinds of information rather than physical record keeping. Although the data banks are safer way to keep information as compare to physical record keeping, but all of the information which is available online even under strict security measures has the high risk of being attacked. The reason of this risk is day by day advancement in technology and increased ratio of web users (Anderson, & Rainie, 2018). Cybercrimes have diverse ranges and categories; thus, the victims of the cybercrimes reveal to be free of the age limits and the social backgrounds. Moreover, these crimes do not require expertise to commit; rather with the technological advancements the world has become global village and thus, the different ways to access the people easily across the globe and hacking their information have also been generated. In recent era everyone has an easy access to the internet but unfortunately this easiness has been used destructively as well, as more use of technology is leading to more cyber victimization. The people have 10 times higher threat of being victim of cyber-crimes as compared to the physical crimes (Nurse, 2018).

Cyber space or commonly known as internet is the most used medium these days, in all aspects of human lives. It is involved in all domains whether it is business, entertainment, banking, education, logistics, military services or research. Virtually no human activity is possible without the usage of internet technologies (Crowther, 2017).

The development of society based on the internet technologies has introduced great advantage in all aspects of human lives. Flow of information across the globe and knowledge accessibility for common man has completely changed the face of modern society. Online shopping, online banking, voice over internet protocols for telephony services is a few examples of modern internet advancements. All these technical developments in the daily lives of common man have provided unhindered access to the information especially to the people from third world countries. With this level of information, the growth and advancement in society is facing a new and serious threat related to this zone. The information is now freely available on the internet. Most of the infrastructure like traffic control, water supply, air conditioning is completely dependent on the internet connectivity and computer networks. So, attack against these services and informational infrastructure may leads to disastrous and critical ways of harming (Gluschke, Hakki, Macori, & Leszczyna, 2018). Other than this, states that as a result of technological advancement the transition from paper money to the credit card devolution and seamless expansion of instantaneous and immediate global markets have completely transformed the domains of crimes, and changes it beyond the perspective of place people and identity (Smith, Cheung, & Lau, 2015). According to the survey, Kemp, S. indicated that in 2011 one third of world's population near 2.3 billion people have accesses to the internet which have become 4 billion in 2018 (Kemp, 2018). Moreover, among 60% of these internet users belong to the developing countries and 45% of them have ages under 25. According to him, in 2017 the mobile broadband subscriptions reached up to 70% of the total's world population. He further estimated that, after the year 2020 the ratio of network devices with humans will be six to one.

With passage of time it has been detected that more cybercrimes left more victims as well. According to Waghole, S.N., every single person using internet is now having 20% more chances of being robbed through its computer as compare to the street robbing, out of ten one adult is a victim of cybercrime and hacking attacks and online frauds are just few examples related to the cybercrimes (Waghole, 2019). According to him, all these crimes are committed on large scales and group of people with different technological backgrounds are involved in it who are normally experts of internet. Online fraud is the most prevalent form of crime as these

days as compare to the normal theft. As compared to conventional crimes, victims of cybercrimes are drawn from all ages, all backgrounds and all parts of world (Broadhurst, Grabosky, Alazab, Bouhours, & Chon, 2014). As far as the gender is concerned it is also evident that women are more likely to be the victims of cybercrime as compare to the men. A news article by Jurgita Peciuriene, EIGE's program coordinator for gender-based violence reported that effect of this violence has far more traumatic impacts on the lives of women (Peciuriene, 2017).

Despite of the fact that cybercrime is the term used frequently these days; it is hard to explain the term precisely because of its occurrence in multiple consequences. Like conventional crimes, cybercrimes can occur in numerous scenarios and have different facets. For example the council of Europe's Cybercrime treaty uses the term that refers to the criminal activity perform against the data content and copyright violation. Zeviar-Geese, stated that cyber-crime is a broader term and includes all the activities like child pornography, fraud, unauthorized access to the data and cyber-stalking Gordon & Ford, presents that cybercrime has two types; type 1 and type 2 (Zeviar-Geese, 2005; Gordon & Ford, 2006). Type 1 crimes are more technical in nature like bots Trojans or phishing scams. On the other hand, Type 2 crimes include; sexual harassment, black mailing, planning terrorist activities online. These types of crimes are facilitated using different chat software (*Table 1*).

Table 1. Types of Cyber Crime (*Gordon and Ford, 2006)*

Type No	Example	Software Used
1	Phishing scams	Email
1	Identity Theft	Trojan, key loggers
1	DDOS	Bots
2	Cyber terrorism	Chat software, Encryption
2	Cyber stalking	Messengers, Emails

Crime prevention strategies comprised of the measures minimizing the occurrence of crime and also mitigate the potential destructive impacts on people and society. Almost 40% of the countries have the policies and national laws designed for the prevention of cybercrimes. Rests of 20% countries across the globe are on their way to design the effective policies for prevention of cybercrimes. There are multiple dimensions of these policies based on different factors included educational level of people in country, law enforcement capacity of government, leadership qualities and strong knowledge base of cooperation among private and government sectors. In many countries the cybercrime strategies are integrated with cyber security. It is clearly seen in last decade that the ratio of cybercrimes is more and more immense and this is one issue that should not be ignored in terms of its prevention. Table 2 presents the top 20 countries having high ratio of online frauds.

Cyber-crime has been studied out generally in most of the studies without categorizing the victimizations in terms of the gender or age groups (Arfi, & Agarwal, 2014). This inclusive research study has been carried out in order to clarify the category of genders in cyber-crime victimization specifically in the perspective of Pakistan. Though, there are so many studies in perspective of the developed states; Europe, United Kingdom and the United States of America concerning the cyber-crime but the changing trends and the living mechanism of states diversify the effects of cyber-crime victimization for each of the geography inclusively. The ratio that how many women victims have been target of cybercrime is not exact. Moreover, there are discrepancies in measures and initiatives by the Pakistan to deal with the issue of cyber-crime and to overcome of it, so it is a central problematic hallmark for the world as well.

Rationale

The need of the cyber capability's infrastructure development is mandatory in domains of Pakistan because of ineffective

operationalization of the existing measures, as Pakistan had faced the loss of the "US $ 6 million" in 2018 due to cyber-attacks (Khalil, 2020). This study is about to present a comprehensive analysis of the unfortunate victimizations in cybercrime and the distinctive preventive estimates that

have effectively taken for ceasing the cybercrimes as well, by focusing the geographical region, "Pakistan", as the under-study state is revealed to have increased issues of cyber-crime and insufficient approaches to overcome of this problem.

Table 2. Cyber Attack Rates for the Top 20 Countries (Adopted from Morgan, 2017).

Sr.	Countries	Total Attacks	Sr.	Countries	Total Attacks
01	Canada	3164	11	France	368
02	India	2819	12	China	366
03	United Kingdom	1383	13	South Africa	349
04	Australia	989	14	Italy	291
05	Mexico	632	15	Pakistan	276
06	Russian Federation	594	16	Netherlands	266
07	Brazil	558	17	Malaysia	265
08	Germany	466	18	United Arab Emirates	259
09	Philippines	453	19	Spain	248
10	Japan	413	20	Argentina	238

Theoretical Background

This current study is based upon Public Policy Theory, which is generally understood as a contextually-based course of action undertaken by a government in response to a particular public problem or issue. In this study, the policy refers to governmental cybercrime deterrents. I utilized Routine Activity Theory (RAT) as the basis of my research. According to RAT, three components must be present for a crime to occur: Availability of an appropriate target, a motivated criminal offender, and non-availability of a proficient "guardian" to prevent the crime occurrence. This theory includes the routine activities of both the victim and the perpetrator, attending to areas where the activities overlap, which provides the

opportunity for crime to occur. Understanding where the intersections occur allows for a preventative course of action to reduce the likelihood of crime occurring (Figure 1 Analytical Framework).

Hypotheses

H_1: Respondents with increased knowledge about risks and safeguards of internet use experienced lower rates of cybercrime victimization as compared to those without reported internet safety education.

H_2: The rate of cybercrime victimization of women is higher than that of men, across age groupings.

H_3: Time spent online is positively correlated with cybercrime victimization.

H₄: The rate of sexual harassment and cyber bullying is positively correlated with frequent use of social media and associated internet communication.

H₅: Specific socio-demographic factors, such as age and gender, have significant relationships with both the types and the frequency of cybercrime victimization.
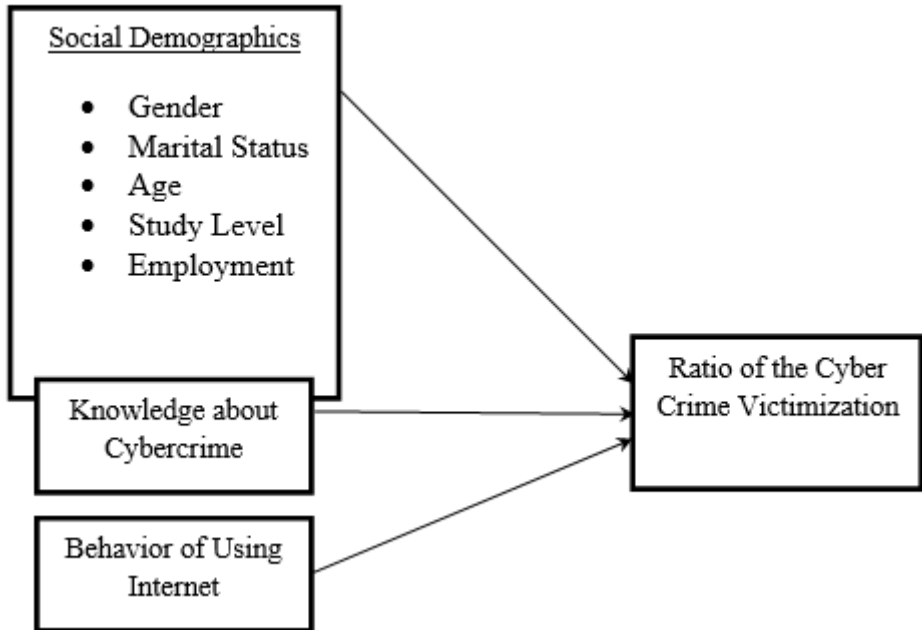
Figure 1: Analytical Framework

LITERATURE REVIEW

The term 'Cybercrime' first entered public usage after author Will Gibson used it in his 1985 popular science fiction novel, "Neuromancer" (Lavigne, 2008). This term has entered the common lexicon due to its recurrent usage in a wide range of contexts (Jamil, 2006). Thus, Navneet K., argued that while any illegal and punishable acts by governments or industries establishments are known as crime, of all of the multitudinous forms that crime can take, the most prevalent are cybercrimes, those conducted on the internet (Navneet, 2018). Virtual crimes are spreading at an exponential rate, due to fast emerging technology and applications that are not yet accounted for in the existing safeguards protecting internet users. Existing frameworks and technology used by law enforcement are often inadequate for novel forms of cybercrime, complicating investigations.

Classification of Cybercrimes

A variety of classification methods have been formulated to quantify specific types of cybercrime. Gordon & Ford presented two particular terminologies for categorizing cybercrime; "cyber-dependent crime" and "cyber-enabled crime" (Gordon, & Ford, 2002). Cyber-dependent crime is conducted with and through the engagement of the computers or other forms of ICT; including crimes encompassing hacking, DDOS (Denial of Service) attacks or insertion of malicious and mischievous software. Cyber-enabled crimes are pre-existing types of crime that are enhanced in scope and intensity thorough the internet. Economic and social networking fraud falls under this category (McGuire, & Dowling,

2013). Navneet, K., further classifies cybercrimes into three broader typologies of cybercrimes: Cybercrimes against individuals (e-mail harassment, phishing, spamming, cyber-defamation, cyber stalking, salami attacks, computer sabotage, and malware), cybercrimes against property (intellectual property crime**,** cybersquatting**,** cyber-vandalism**,** hacking into systems**,** altering way of unauthorized**,** logic bomb**,** trojan horse) and cybercrimes against organizations (hacking, password, denial attack, virus attack, mail bomb) (Navneet, 2018). Smith, classify cybercrimes as semantic, syntactic and blended (Smith, 2010). Semantic crimes refer to social networking, syntactic crimes are purely technical and often involve self-replicating viruses that the victim unwittingly opens, as often seen in ransomware attacks, and blended crimes combine elements of both. The strategy often employed in blended crimes involves the perpetrator contacting the victim and offering the solution to a plausible problem persuasively enough that the victim willingly provides access to personal and financial information to the criminal. In this case, the personal information stolen from victims is sold and used to commit further frauds.

Economic Impact

Cyber offenders are perpetually creating novel methods of obtaining data from citizens, businesses and governments through illegitimate means, in order to formulate new methods of attack and evasion. Morgan presented a list of the top 20 countries (Table 2) with the highest cybercrime victimization rates (Morgan, 2017). According to Huff et al. cybercrime has become a requisite cost of some virtual economies (Huff, Desilets, & Kane, 2010). The most established and competent hackers in these illegal economies are also enriching the cybercrime ecosystem, which includes illegal activity through a hidden "darknet" form of the internet, using widespread cyber-attack methods such as malware, and funded through virtual crypto-currency, such as Bitcoin, which can function as digital money laundering platforms. Some of these hackers have micro-enterprises while others exist much like legitimate business conglomerates. The scale of these operations allows them to recruit highly skilled IT workers (Bryan-Low 2012). The two economies with highest cybercrime victimization rates are South Africa and China. As the sophistication and rapidity of cybercrime attacks increases, numerous countries have designed and implemented methods of cyber warfare against them (Lewis, 2018). It has been mentioned by Porche 2019, that a survey conducted with the world's top internet experts concluded that China has the highest capability for combating cyber warfare. Russia and the USA are tied for second place, while Israel comes in third for the most efficient technologies for neutralizing cybercrimes. Despite their apparent success in fighting cybercrime, Poulsen 2018, stated that 66% of adult consumers are more concerned about the risk of cybercrimes than the risk of any physical crimes in the US.

Social Media and Cybercrime

Cybercrime victimization has received intensive study in the past decade, particularly with regards to online harassment (Jones, Mitchell, & Finkelhor, 2013). According to the Federal Bureau of Investigation (FBI) almost 288,012 cases of cybercrimes were reported in the USA in 2015; of these, 49% were reported by women (Federal Bureau of Investigation [FBI], 2016). Morgan and Kena 2017, also found that 60% of the harassment in online groups specifically targets women. New forms of social interaction, originated by Facebook, have given criminals, hiding behind a false persona, ready access to people innocently engaging in social interactions, oblivious of the other users' true identities and motives. Predators often groom their victims through false sympathy, and encourage the victim to become emotionally dependent on them in order to gain access to their personal and financial information. Facebook was launched in 2004, and now it claims 2.19 billion active users (Statista, 2018). In the

wake of Facebook's success, other social networking sites have proliferated, often catering to specific demographic groups. Dating and match-making sites have also proved fertile ground for fraud and scams. It is estimated that one in five relationships now start online. According to the study of Mendes, Ringrose, & Keller 2019, women of all countries face more intensive and persistent forms of harassment than men. Females are often harassed and humiliated over personal attributes, and they are stalked by sexual predators at a far greater rate than men (Duggan, 2014). Many studies have examined cyber bullying and other cybercrime victimization of young women in particular (Oksanen & Keipi 2013). Results of most of these previous studies demonstrated that the young women between the ages of 18 and 25 years are most prone to suffering abuse and victimization, usually in the form of sexual harassment and unwanted attention, at rates far greater than any male cohort (Helweg-Larsen, Schütt & Larsen, 2012).

Cybercrime in Pakistan

Cybercrime operations in Pakistan are markedly different from the prevalent forms in many countries. In contrast with lucrative cybercrimes such as hacking, infections, viruses and worms, the most widely documented cybercrime in Pakistan is online harassment and defamation, especially for women. Young women in Pakistan typically share pictures and videos online with their friends and romantic interests. Friendship with members of the opposite sex is culturally frowned upon, and purported male "friends" may harrass the women who view them as friends in order to push them into more intimate relationships. According to the report of Telecommunication 2017, there is an astonishing difference between the ratios of men and women owning the cell phones and ICT in Pakistan and ratios of their reported victimization. An estimated 84% of the men and 64% of women own personal cell phones in Pakistan, and 75% of internet users are male. Despite this disparity, female victims account for the

bulk of online harassment, stalking, and other forms of virtual viciousness (Sheikh, 2013). The Federal Investigation Agency of Pakistan (FIA) indicated that out of 3025 recorded cases in 2015, 45% of personal, social app cyber-attacks were made against women.

Women and Cybercrime in Pakistan

Digital Rights Foundation (DRF) surveyed cyber victimization using a sample of 1400 females for their investigation, focusing primarily on those reporting frequent use of social media (Digital Rights Foundation [DRF], 2017). Study results indicated that 70% of women expressed fear that photos they had posted on social media within the past two years would be exploited for harassment. 40% of the women in the survey described personal discomfort and harassment through message apps. This study, in the context of Pakistan, revealed the high rates of female cyber victimization. Moreover, according to DRF 2017, in an analysis of calls made to the country's cyber harassment helpline, the most significant kinds of provocation identified by Pakistani females fell into multiple categories, including intimidation (20%), blackmail (21%), unwanted messages (12%), and absence of information comprehension (19%).

Culture and Cybercrime

The two primary personal risk factors for female victimization by cyber criminals are ignorance about cyber safety, especially when compared to women working employed in the fields of science and engineering, and cultural and familial restrictions imposed on women. The predominant culture in Pakistan revolves around family. Both the family, in particular the father and society treat women as children in need of guidance and protection. They are sheltered to the extent of carefully monitoring women activities, and by doing so, they the opportunities for real life socializing that would normally cause a woman to develop a healthy level of skepticism and caution regarding how and with whom they communicate on the

internet. Unfortunately, the virtual open society and freedom of the internet may prove to be a powerful attraction for these young women, leading them to divulge more highly personal responses and activities than are allowed in Pakistani society. Their lack of knowledge about internet safety is frequently compounded by fathers restricting approved employment, and higher education opportunities in technical fields, which would enable them to make wiser decisions on the internet. According to FIA's National Response Center for Cyber Crimes, during 2015, 3,000 cases of online harassment against women were reported. 45% of these cases were in the form of online harassment through social media (Al-Jazeera, 2016).

Government Responses to Cybercrime in Pakistan

Cybercrime legislation in Pakistan is currently managed through the "Prevention of Electronic Crime Act", 2016. Although this framework is more comprehensive than previous legislation, it does not cover all of the domains of cybercrime currently deployed in Pakistan, and often it appears to exist more on paper than in practice (Usman 2016). According to DAWN newspaper's October 23, 2018 report by Qarar 2018, regarding the statistics of FIA, cybercrime was at a record high in 2018, with harassment and blackmailing cases involving women sharply increasing over the past three years. According to FIA's cyber-crime call center records, 2,295 requests for assistance were made, resulting in 255 active cases and 209 captures in 2018 (Qarar, 2018). Their statistics for 2017 showed 1,290 calls, 207 cases enrolled, and 160 captures made. Moreover, according to these reporting figures for 2016 revealed only 514 calls, 47 cases and 49 arrests. Additionally, Malik 2018, has presented multiple reasons for cybercrimes in Pakistan, including lack of risk awareness, insufficient preventive measures, absence of effective policies, lack of an educated workforce in police and enforcement agencies, slow government responses through legislation, and lower

standards for protective programs such as ant-virus and malware for ICT. Additional system-wide issues include the lack of a realistic economic budget devoted to cybercrime, insufficient cyber-designated resources, and poorly coordinated research and development.

METHODOLOGY

Research methodology is the overall plan stipulating the rationality of the theory development process, and an applied framework to conduct the research (Remenyi, Williams, Money, & Swartz, 1998). Therefore, according to Mohajan 2017, research methodology provides the criterions to organizing, arranging, structuring, and leading the research, and the methodological choices based on the research paradigm utilized by the researcher. The focus of this study is the investigation of victimization in the domain of cybercrime within the context of Pakistan, through use of quantitative measures, and following the 'positivism' paradigm. Positivists follow an operational approach to research, which includes having a clear topic of research, hypotheses, and the appropriate methodology to test those hypotheses (Churchill, Brown, & Suter, 1996). This study follows the quantitative deductive approach. Utilizing this approach will permit the testing of hypotheses based on cause and effect relationships among the variables of the study, due to its highly structured nature (Saunders, Lewis, & Thornhill, 2009).

Population and Sampling

The segment of the population considered for this current research includes students from the large universities rated in the top 30, as ranked for academic excellence in Pakistan. Higher Education Commission of Pakistan. A total of 400 self-selected students were surveyed for this purpose. These students were considered the target population due to the amount of time they spend online participating in social websites, which gave them the greatest probability of having experienced

cybercrime victimization. It was considered most expedient to focus the survey on this predominantly young, educated, and relatively affluent population, due to their increased likelihood of representing the variables associated with the study. My rationale for these assumptions lies in the fact that these students are already users of ICT for university courses, and are more likely to actively pursue information about the global online society. Teens and young adults are more active on social sites, and confidence stemming from studying at a top university may result in overestimating their own understanding of associated risks. Additionally, some of these students may be living away from home for the first time, without parental oversight, or adequate prior knowledge regarding cyber safety and coping with cybercrime if it occurs. These identifiable risk factors indicate that university students as a group run a higher risk for cyber victimization as compared to the general population.

This research study utilized a non-probability sampling technique. The reason for selecting non- probability sampling was due to the fact that the population is quite large, and the precise size of population was unknown (Alvi, 2016). The volunteer, or self-selection, sampling technique was further utilized here because of its appropriateness for the focus of the study. Respondents were targeted for this sampling technique based on their own willingness and interest in becoming part of the study, as a way to obtain precise information regarding the demographics of cybercrime in Pakistan (Abrams, 2010). Recruitment was conducted online through a variety of apps, which included social websites, e-mails, direct messaging, etc., where students were likely to be actively engaged. Therefore, due to the self-selection of respondents, it was not possible to utilize the equal probability of selection technique, commonly used for probability sampling.

Sample Size

For the purpose of this study, 30 universities were targeted, and 400 students responded to the survey. The sample size of 400 students also satisfied the requirement of sample size for an online survey (Krejcie, & Morgan, 1970). According to their formula, 285 responses are sufficient for a quantitative study, and for an unknown population, when the hypotheses are tested on the basis of the proportion of the population, which is expressed as 0.5 (50%) with 95% internal confidence, and a margin of error of 5% (0.05).

Sample Selection Formula

$$"n = \frac{N}{1 + Ne^2}"$$

Where:
    n - *Sample Size*
    N - Population
    e = a = 0.05 (5%)

Thus, 400 is an adequate and sufficient sample size for quantitative research study.

Data Collection and Analysis

This study is based upon the voluntary survey method, in order to collect the data from students attending top ranked universities with high enrollment rates in Pakistan. This survey approach accumulates important explorative and vital information from this target population. A questionnaire, developed by the researcher, was used for data collection regarding cybercrime and cyber victimization to authenticate the study results. Online surveying methodology was utilized to capture data from the targeted population, and anonymity helped to insure both an adequate population of respondents and honesty answering the survey items. Additionally, online data collection increased the timeliness of the results by overcoming issues related to respondent convenience and geographical constraints (Andrews, Nonnecke, & Preece, 2003). This questionnaire comprises both open and close ended questions. A prior sample test of 20 questionnaires was conducted through

a pilot study, to confirm the reliability and validity of the research instrument, and to remedy any deficiencies at an early stage. Accurate understanding of the questions by respondents was ensured by obtaining responses on the test questionnaires, then adding and calculating the responses in dummy tables. The internal consistency of the survey items was ensured at this stage, with a Cronbatch's coefficient greater than 0.7 for each item investigated. After pilot testing, a trial run was completed with the actual data.

Data analysis was accomplished through SPSS, and findings were interpreted using Descriptive Statistics, Frequency Distribution and Reliability Analysis. In the data analysis, graph charts and bivariate tables are used to visualize the results for each construct of the study with collected data. For the purpose of this study, descriptive analysis involves the representation and interpretation of the results in the form of bar graphs presenting the statistical outcome of the responses given below.

RESULTS

Multiple socio-economic factors were tested for correlation with cybercrime victimization, including gender, level of higher education, employment status, marital status, geographical location, including type of housing, reporting cybercrime to authorities, and security software usage.

Descriptive Analysis
Age and Cybercrime Victimization

The data collected regarding cybercrime awareness among the university students, and the results are presented in Figure 2. In terms of cybercrime awareness, just 23.75% of the respondents reported awareness of cyber-enabled crime, while 31.75% indicated awareness of cyber-dependent crime. Only 8.75% said that they are aware of both kinds of cyber-crimes, but 75% indicated ignorance of both cyber-enabled crimes and cyber-dependent crimes (Figure 2). These ratios demonstrate extremely low levels of awareness regarding the terminology for cybercrimes among university students.

Multiple socio-demographic factors were tested for correlation with cybercrime victimization, including gender, level of higher education, employment status, marital status, location (geographical location), reporting to law enforcement agencies and security software usage.
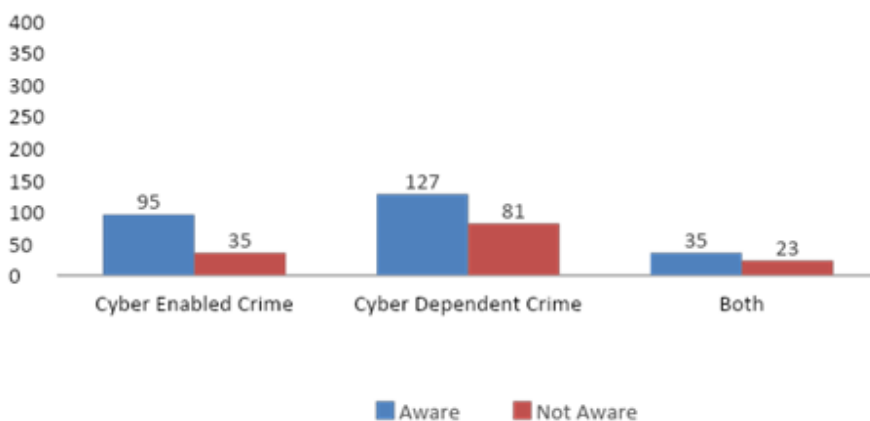
Figure 2: Awareness about Cybercrime

Gender and Cyber Crime Victimization

The results for correlation between gender and cybercrime victimization have been presented in a bar chart (Figure 3).

Anjum, U. (2020). Cyber Crime in Pakistan; Detection and Punishment Mechanism. *STED Journal, 2(2), 29-55.*
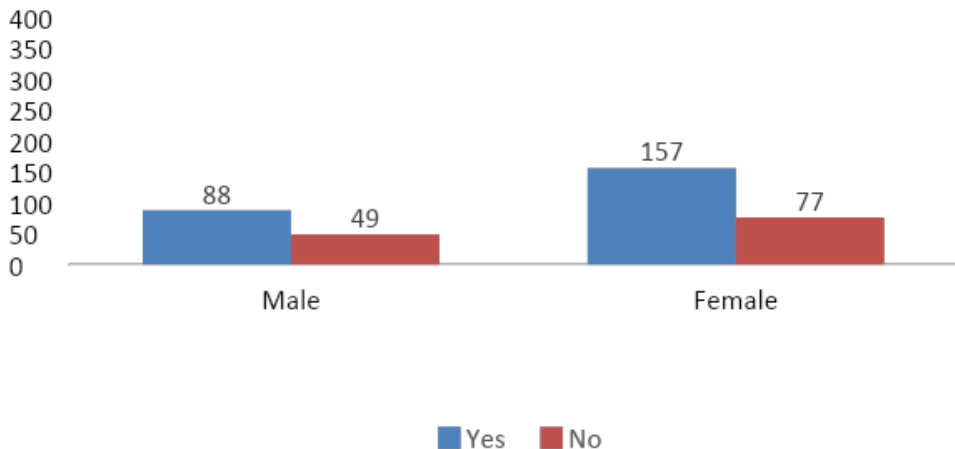
Figure 3: Gender and Cybercrime Victimization

This portion of the study revealed that among 400 respondents, 22% of males reported cybercrime victimization. In contrast, 39.25% of female respondents indicated that they have been victims of cybercrimes. On the basis of all collected data, 61.25% of respondents reported incidents of cybercrime victimization, with the number disproportionately represented by female respondents (Figure 3).

Age and Cybercrime Victimization

For the purpose of understanding the relationship between the variables of respondent's age and cybercrime victimization, four age subgroups have been established, based on the average age of students ranging from Bachelor's Degree class levels to Doctoral Degree programs. The age categories are as follows: Less than 20 years, 20 to 30 years, 31 to 40 years and above 40 years of age (Figure 4).
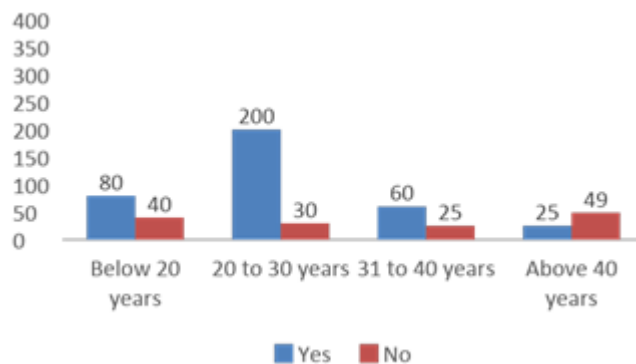
Figure 4: Age and Cybercrime Victimization

For students below 20 years old, 20% have been victims of cybercrime. 50% of victims were students between 20 to 30 years of age, 15% of victims were between 31 and 40 years old, and 6.25% of victims were above 40 years old (Figure 4.3). These results reveal that the most highly victimized age group for cybercrimes were respondents between 20 and 30 years of age.

Anjum, U. (2020). Cyber Crime in Pakistan; Detection and Punishment Mechanism. *STED Journal, 2(2), 29-55.*

Course level, Employment Status and Cybercrime Victimization

The university course level of the respondents was also separated into full time or part time students, and examined for the influence of these variables on cyber victimization (Figure 5). Results (see figure 5), show that 19.25% of the students who are engaged in full time study believe that they are exposed to cyber-attacks. On the other hand, of the part time students, 36.25% stated that they have already experienced cybercrime. The rate of cybercrime victimization by part time students is far greater than that of full-time students.
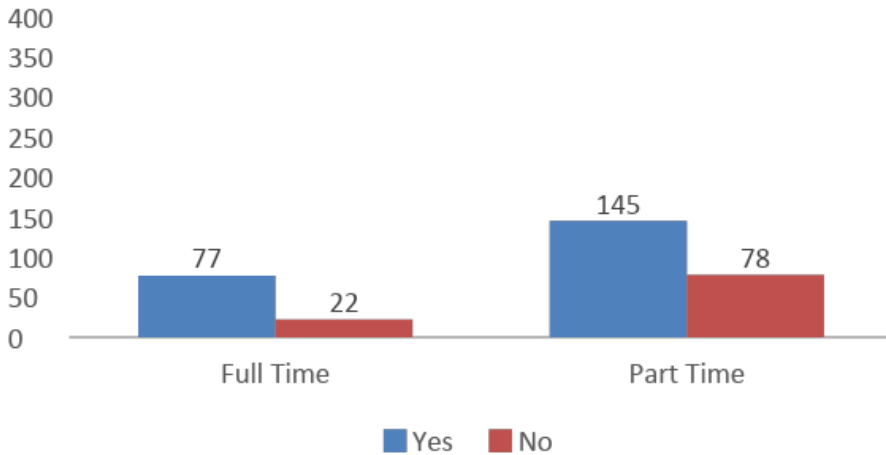
Figure 5: Study Level and Cybercrime Victimization

Employment and Cybercrime Victimization

The results (Figure 6), demonstrate that students who are not working (8.5%) or working part time (5.75%) has faced few cybercrimes as comparison to those working full time. For students who work full time, 29.5% said that they believe that they have been targets of cybercrimes. According to these respondents, the double demands of simultaneous work and study result in frequent engagement with multiple activities via web or internet.
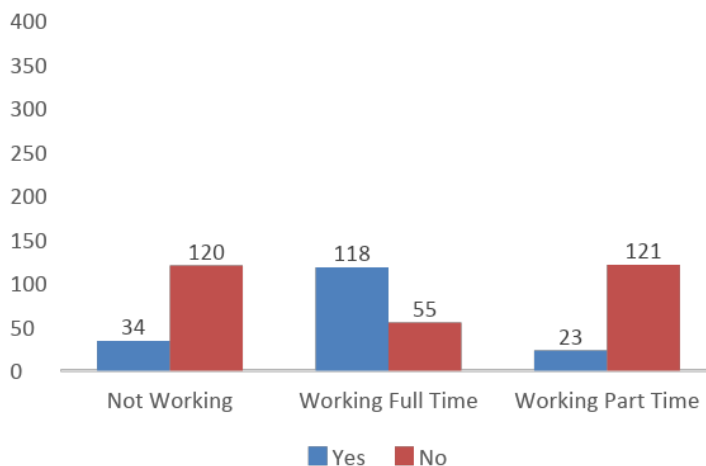
Figure 6: Employment and Cybercrime Victimization

Anjum, U. (2020). Cyber Crime in Pakistan; Detection and Punishment Mechanism. *STED Journal, 2(2), 29-55.*

Marital Status and Cybercrime Victimization

Marital status has been categorized as single, married, divorced or widowed, in order to determine the categories most frequently targeted for cybercrime. For this study, students of all levels, including Bachelor's, Master's and Doctoral degree programs, are the potential respondents of the study. Considering this point, the categories of divorced and widow were also generated, to take into account the greater age of Doctoral students. The results have been presented in the form of a bar chart (see Figure 7).
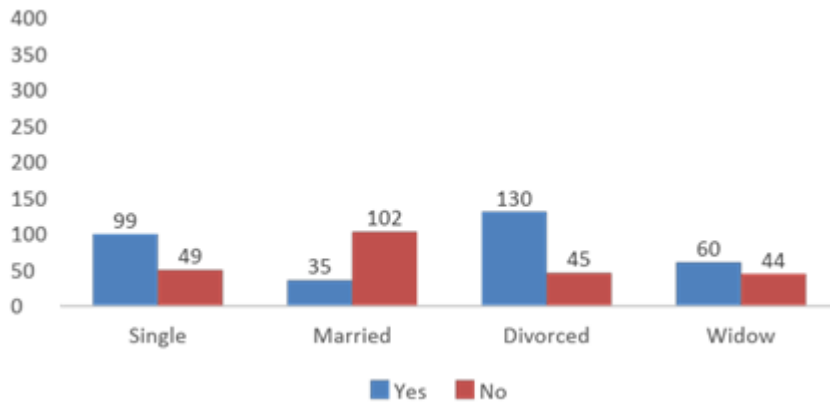
Figure 7: Marital Status and Cybercrime Victimization

The results show the following percentages: 24.75% of single people responded positively regarding whether they have encountered cybercrime in different forms, 8.75% married respondents have experienced cybercrime, and 32.5% of divorced respondents reported victimization through online harassment or bullying from their ex-spouse. An additional 15% of widows indicated that they had dealt with varying types of cybercrime.

Location and Cybercrime Victimization

The residence locations of the ***respondents*** were also tested in association with cybercrime victimization. The domicile categories included on campus residences, off the campus and within the same city as their university, and off the campus in rural areas (Figure 8).

According to the results, 13.75% of victims resided on campus. In case of off-campus residences located in the city, 16.5% said that they have been victimized by cybercrime, and finally, in case of off-campus commuters in rural areas, 5.75% reported that they have been victims of cybercrime. The rate of those not experiencing cybercrime is significantly higher than the rate of victimization in all three of the above variables under investigation. Thus, the negative correlation between location of residence and cybercrime victimization has also been evaluated.

Anjum, U. (2020). Cyber Crime in Pakistan; Detection and Punishment Mechanism. *STED Journal, 2(2), 29-55.*
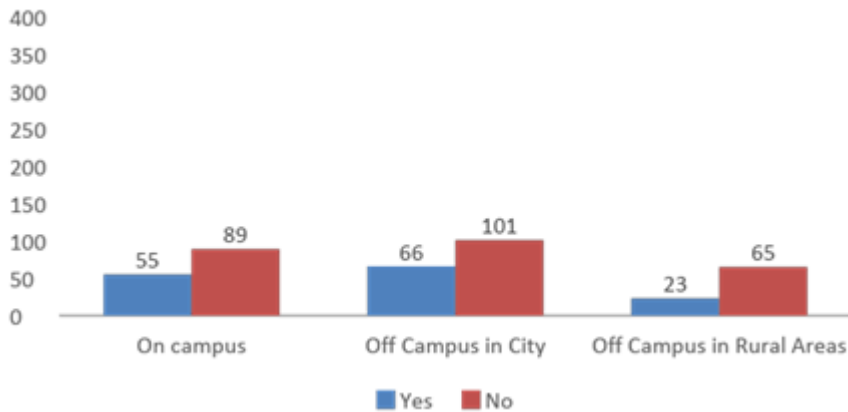
Figure 8: Location and Cybercrime Victimization

Reporting to Law Enforcement Agencies

Cybercrime victimization demands timely reporting to law enforcement agencies in order to respond effectively to the problem case by case, and within society as a whole, in order to monitor trends and patterns, and evaluate the efficacy of established responses.

According to the results (Figure 9), almost 77% of respondents stated that they have never reported their experience of cybercrime to a law enforcement agency. The remaining 23% attempted to report cybercrime to law enforcement agencies, but were dissatisfied with the efficiency and responses of those agencies.
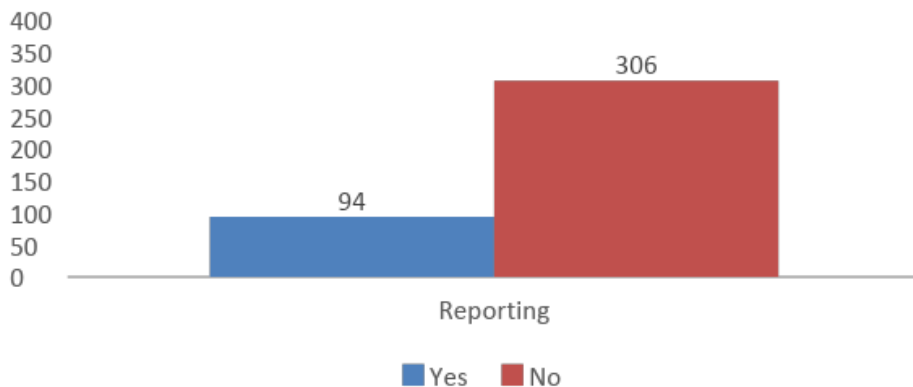
Figure 9: Reporting to Law Enforcement Agencies if Victimized

Usage of Security Software

The presence of ***effective cyber security*** software installed on a person's ICT is one of the strongest deterrents to cybercrime victimization. For the students surveyed in this study, the following results were obtained regarding whether or not some form security software was ***utilized*** to

prevent cybercrime issues (Figure 10). Almost 66% of the total respondents do not use any type of security software. The remaining 33% used some kind of software, including anti-virus programs. This lack of installed cyber security programs presents a substantial risk for future cyber victimization.

Anjum, U. (2020). Cyber Crime in Pakistan; Detection and Punishment Mechanism. *STED Journal, 2(2), 29-55.*
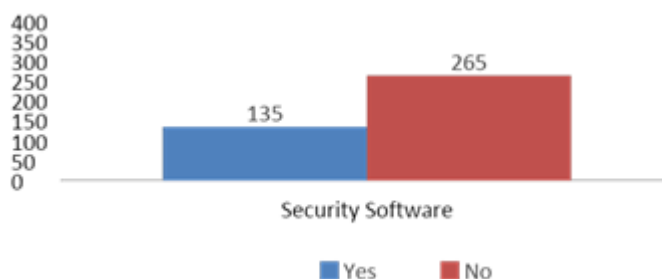
Figure 10: Usage of Security Software in Preventing Cybercrime Victimization

Types of Cybercrimes Faced by Respondents

The frequencies and percentages of different types of cybercrime have been presented in Table 3. Cybercrimes reported most often by victims involved receiving threats centered on their personal photos posted on social media (32%). Almost 26% of the respondents received anonymous phone calls and text messaging (SMS), and 59% of the respondents faced the issue of fake profile**s and misuse of their profiles.** All of these crimes represent some form of social media-related incident, pointing to the substantial risks involved with unwary use of these sites.

Table 3. Rates of Types of Cybercrimes

Types	Frequency	Percentage
Phishing emails	7	3.52
Hacking of accounts	12	7.34
Threatening calls for photos uploading	43	22.01
Credit card-based frauds	12	6.92
Stalking	21	15.71
Online harassment	35	18.01
Spam emails	26	14.01
Anonymous calls and SMS	53	26.34
Fake profile creation	59	28.72
Photo Circulation	33	16.09
Threatening about the Photo circulation	67	32.01

Anjum, U. (2020). Cyber Crime in Pakistan; Detection and Punishment Mechanism. *STED Journal, 2(2), 29-55.*

Statistical Descriptions Using Statistical Calculations

Activities performed by respondents using Various ICT

The data under consideration examined the types of activities performed on the internet by the respondents using different forms of ICT, in order to understand the habits of students regarding internet access. Results have been presented in Table 4.

Almost 87% of respondents prefer to use their phones to access social networking sites, while 34% use tablets, 23% use laptops, and 18% use desktops. This is significant, because phones are the most portable and accessible form of ICT, making quick interactions relatively easy, without requiring forethought.

Table 4. Activities Performed Internet Users by type of by type of ICT

	Phone %	Tablet %	Laptop %	Desktop%
Social networking sites	87.01	34.2	23.21	18.09
Shopping	3.01	11.90	10.98	4.89
Sharing files	2.09	45.09	64.09	63.12
Game Playing	78.01	67.09	53.23	43.01
Online Banking	46.01	32.01	67.19	64.22
Music Downloads	45.45	57.98	78.91	76.09
Chatting	76.98	45.90	43.01	34.01
Emailing	3.09	34.94	65.90	14.90

Purpose of Internet Usage By respondents

Data has been collected to determine the purposes for using the internet by the respondents, in order to evaluate their reasons and patterns of use, and to thereby gain knowledge about commonly accessed internet sites where they could be exposed to cybercrime. The results have been presented in Table 5. According to the calculations, 24.63% respondents use the internet for social networking, 10.87% use for study, 3.23% use for online banking, 35.2 % use for official work, and highest percentage, 79.8%, of respondents use the internet to keep in touch with family and friends. According to these rates, it appears that social apps are where most of the cyber victimization cases are likely to arise.

Table 5. Reason of Internet Usage by Respondents

Reasons	Frequency	Percentage
Social networking	65	24.63
Study	18	10.87
Online Billings	10	3.23
Official work	140	35.2
Staying in touch with family and friends	139	79.8

Anjum, U. (2020). Cyber Crime in Pakistan; Detection and Punishment Mechanism. *STED Journal, 2(2), 29-55.*

Use of Social networking sites by respondents

For sake of the results evaluation, data has been collected regarding the pattern of use within social sites by the respondents, and the results have been presented in Table 6. Statistical values show that 70% of the respondents have one social media account, 22% of them have two accounts and only 3% of the respondents have three accounts. 89% of the respondents have been using Social Networking Services (SNS) for less than 5 years, while 6% of the respondents have been using these websites for less than 10 years. Only 1.3% of the respondents have accounts that are older than 10 years. 45% respondents have less than 100 online friends, 5% have a number of online friends ranging from 100 to 200, and only 0.91% respondents have more than 200 online friends.

Table 6. Use of Social networking sites by respondents

Social Network Sites (SNS)	Number	Frequency	Percentage
Number of accounts	One	101	70.92
	Two	29	22.01
	Three	9	3.09
Number of Years	Below 5	91	89.1
	5-10	12	6.20
	Above 10	4	1.3
Online Friends	Below 100	43	45
	100-200	9	5
	Above 200	2	0.91

Hypothesis Testing

Hypothesis 1: Knowledge about specific terminologies for types of cybercrime is sub-divided into two hypotheses.

Hypothesis$_{1A}$: Knowledge about specific terminology is important (table 7).

The null hypothesis is not rejected according to value p=0.072 (Table 7). This demonstrates that it does not make any difference whether or not the respondent has knowledge about specific terminologies.

Table 7. Hypothesis$_{1A}$

Knowledge About Cybercrime terminology	Mean (M)	Standard Deviation (S.D)	t-value	p-value
cyber enabled	14.12	4.043	17.88	0.072
cyber dependent crimes	18.87	9.324		

Anjum, U. (2020). Cyber Crime in Pakistan; Detection and Punishment Mechanism. *STED Journal, 2(2), 29-55.*

Hypothesis_{1B}: Students without knowledge about cybercrime methods have reduced rates of cybercrime victimization (table 8). Table 8 shows the p-value is less than 0.05 which clearly rejects our null hypothesis and demonstrates that there is a significant relationship between a lack of knowledge about cyber risks and becoming a cybercrime victim. Respondents lacking any knowledge about cybercrime have an increased risk of becoming a cybercrime victim.

Table 8. Hypothesis_{1B}

Knowledge About Cybercrime	Mean (M)	Standard Deviation (S.D)	t-value	p-value
Well Aware	2.34	2.765	17.88	0.001
Not Aware	6.65	7.83		

Hypothesis 2: Women and men have an equal chance of becoming the victim of cybercrime (table 9). According to data in Table 9, the resultant p-value is 0.000, which is less than 0.05, and clearly rejects our null hypothesis. Data show that there is a significant relationship between gender and a cybercrime victim. Therefore, the mean value for the female respondents is significant as well (M=48.05, SD=25.97).

Table 9. Hypothesis 2

Gender	Mean (M)	Standard Deviation (SD)	t-value	p-value
Male	33.14	17.29	13.989	0.000
Female	48.05	25.97		

Hypothesis 3: Students who spend more time on the internet have lower risk for becoming a victim (table 10). According to data represented in Table 10, the resultant p-value is 0.0034, which is less than 0.05, and clearly rejects my null hypothesis, showing instead that there is a significant relationship between time spent on the internet, and likelihood of becoming a cybercrime victim. The mean value for respondents who spent more than 8 hours online is the most significant (M=53.01, SD=31.90).

Table 10. Hypothesis 3

No of Hours On internet	Mean (M)	Standard Deviation (SD)	t-value	p-value
2-4	17.21	8.29		
5-8	22.09	11.97	21.0998	0.0034
More than 8	53.01	31.90		

Anjum, U. (2020). Cyber Crime in Pakistan; Detection and Punishment Mechanism. *STED Journal, 2(2), 29-55.*

Hypothesis 4: Chances of sexual harassment and other forms of bullying is not increased by using social media and other online resources (table 11). According to Table 11, the resultant p-value is 0.000, which, being less than 0.05, clearly rejects our null hypothesis. Data shows that there is a significant relationship between harassment and social networking site, with a mean value T (M=61.65, SD=29.09).

Table 11. Hypothesis 4

Chances of Sexual Harassment and Cyber bullying because of using social media and online resources	Mean (M)	Standard Deviation (SD)	t-value	p-value
High	61.65	29.09		
			42.0654	0.000
Low	29.01	8.05		

Hypothesis 5: Null hypothesis

This hypothesis is further subdivided into seven hypotheses, in order to present the results for each of the socio-economic relationships separately. There is no significant relationship between socio-demographic features and cybercrime victimization. The demographics considered here are marital status, income level, study level and location of residence.

Hypothesis 5A: There is no significant relationship between marital status and cybercrime victimization (table 12). According to Table 12, the p-value is 0.061, which is greater than 0.05. Hence, the null hypothesis is not rejected, and instead data shows that there is no significant relationship between marital status and becoming a cybercrime victim.

Table 12. Hypothesis 5A

Marital Status	Mean	Standard Deviation (SD)	p-value
Single	56.07	21.39	
Married	48.91	19.81	0.061
N=400			

Hypothesis 5B: There is no significant relationship between income level and cybercrime victimization (table 13). According to Table 13, the p-value is 0.0721, which is greater than 0.05. Hence, my null hypothesis is not rejected, and shows that there is no significant relationship between income level and cybercrime victimization. Respondents from many types of work and income levels experienced cybercrime.

Table 13. Hypothesis 5B: Income level

Income Level	Mean	Standard Deviation (SD)	p-value
Government Job	67.89	11.32	0.0721
Business	54.29	9.09	
N=400			

Hypothesis5C: There is no significant relationship between study level and cybercrime victimization (table 14). According to Table 14, the p-value is 0.0508, which is greater than 0.05. Therefore, the null hypothesis is not rejected, and data shows that there is no significant relationship between the class levels. Both fulltime and part time students are facing cybercrime victimization. This variable is not important in answering the research question.

Table 14: Hypothesis 5C Study Level

Study Level	Mean	Standard Deviation (SD	p-value
Full Time	12.001	3.10	0.0508
Part Time	19.09	6.002	
N=400			

Hypotesis5D: There is no significant relationship between employment status and cybercrime victimization (table 15). According to Table 15, the p-value is 0.0009, which is less than 0.05. The null hypothesis is rejected. Instead, data shows that there is a significant relationship between employment status and becoming a cybercrime victim.

Table 15. Hypothesis 5D Employment Status

Employment Status	Mean	Standard Deviation (SD)	p-value
Not working	4.19	3.10	0.0009
Working Full time	21.09	11.002	
Working part time	16.003	7.92	

Hypothesis5E: There is no significant relationship between residence location and cybercrime victimization (table 16). According to data in Table 16, the p-value is 0.0621, which is greater than 0.05. My null hypothesis cannot be rejected, and data shows that there is no significant relationship between the respondent's location of residence and cybercrime victimization.

Anjum, U. (2020). Cyber Crime in Pakistan; Detection and Punishment Mechanism. *STED Journal, 2(2), 29-55.*

Table 16. Hypothesis 5E Residence Location

Residence Location	Mean	Standard Deviation (SD)	p-value
On campus	6.99	3.10	
Off campus city	11.34	6.002	0.0621
Off campus rural areas	14.09	6.98	
N=400			

Hipothesis5F: There is no significant relationship between age and cybercrime victimization (table 16). According to Table 17, the p-value is 0.00012, which is less than 0.05. Therefore, my null hypothesis is rejected, and data instead shows that there is a significant relationship between the respondent's age and the risk of becoming a cybercrime victim. Results in table 17 shows that students between 20 and 30 years of age face more cybercrimes in daily life.

Table 17. Hypothesis 5F Age

Age	Mean	Standard Deviation (SD)	p-value
Under 20 years	7.087	3.10	
20-30	23.091	11.002	0.00012
31-40	14.981	5.98	
Above 40			
N=400			

Hipotesis5G: There is no significant relationship between gender and cybercrime victimization (table 18). According to Table 18, the p-value is 0.0007, which is less than 0.05. The null hypothesis is rejected, and instead data shows that there is a significant relationship between gender and becoming a cybercrime victim. Results in the table show that the students who are female have a greater risk of becoming cybercrime victims as compared to men.

Table 18. Hypothesis 5G: Gender

Gender	Mean	Standard Deviation (SD	p-value
Male	9.233	5.012	
Female	32.09	17.90	0.0007
N=400			

Anjum, U. (2020). Cyber Crime in Pakistan; Detection and Punishment Mechanism. *STED Journal, 2(2), 29-55.*

DISCUSION

Hypothesis 1

The results of the first hypothesis indicated that respondents who are more knowledgeable have less chance of being cybercrime victims. This finding is supported by previous research studies (Van de Weijer & Leukfeldt, 2017).

According to my study results, respondents who have lower awareness about the types of cybercrimes and how these crimes are committed have a greater chance of becoming a cybercrime victim. According to the data analysis presented in Tables 7 and 8, there is a significant relationship between a lack of cyber awareness and becoming a cybercrime victim. Results show that the respondents who deny any knowledge about cybercrimes have a greater chance of becoming a cybercrime victim.

Hypothesis 2

My second hypothesis is designed to discover which gender is more affected by cybercrime. The proposed hypothesis was based on a previous research study exploring "whether the ratio of women is equal to men in case of cybercrime victimization" (Donner, 2016). According to Table 9, the resultant p-value is 0.000, which is less than 0.05, clearly rejecting the null hypothesis. Instead, my study showed that there is a significant relationship between gender and chances of being a cybercrime victim. The results show that female respondents have a higher risk, as compared to men, of becoming a victim of cybercrime. Moreover, the accuracy of these results is supported by descriptive analysis, (Figure 2), explaining that females are more often victimized by cybercrime, as compared to males.

Hypothesis 3

The third hypothesis was based on "The relationship between time spent online and chances of being a cybercrime victim". The proposed null hypothesis was that students who are spending more time on the internet have less risk of becoming a victim of cybercrime (Chao, & Yu, 2017).

According to the analysis in Table 10, the resultant p-value is 0.0034, which is less than 0.05, and clearly rejects our null hypothesis; showing instead that there is a significant relationship between the amount of time spent on the internet and becoming a cybercrime victim. These results show that respondents who spent more time on the internet had greater chances of becoming a cybercrime victim.

Hypothesis 4

The proposed null hypothesis, "Chances of sexual harassment and cyber bullying are not increased by only using social media or other online resources" was also analyzed. According to Table 11, the resultant p-value is 0.000, which is less than 0.05, clearly rejects my null hypothesis, and shows instead that there is a significant relationship between harassment and the use of social networking sites. For respondents who report more activity on social networking sites, they have a higher chance of becoming a cybercrime victim. Results show that spending more time using social networking sites increases the likelihood of becoming a cybercrime victim.

Hypothesis 5

The primary hypothesis: "There is a relationship between socio-demographic features of respondents and cybercrime victimization". The proposed null hypothesis shows that there is no significant relationship between socio-demographic factors and cybercrime victimization. The demographics considered here are marital status (Table 12), income level (Table 13), study level (Table 14), employment status (Table 15), location of residence (Table 16), age (Table 17) and gender (Table 18). The results in this context show that certain socio-demographic features, including income level, residential location and study level, do not have any direct relationship with cybercrime victimization. On the other hand, marital status, employment status, age and gender all have significant correlations with cybercrime victimization.

Types of Cybercrimes Experienced by Respondents

Table 3 shows that the highest percentage of victims, almost 32%, faced threats about their photos circulating on social media. 3% of the respondents received phishing emails on a daily basis, and almost 7% of the respondents faced hacking of their accounts, and then having their accounts used by criminals for a variety of criminal activities. 22% of the respondents received threats about their personal photos, and most often the threats were coming from ex-husbands and other relatives seeing vengeance on the respondent. Generally, this kind of cybercrime activity is committed against women (99% of cases.) Almost 26% of the respondents reported receiving anonymous phone calls and SMS. 59% of the respondents dealt with the issue of fake profiles created with their name, which were then used to anger or embarrass them. Women responded higher regarding this issue, and of all the types of cybercrimes studied, these two types showed the greatest frequency.

Reporting Cybercrime to Law Enforcement Agencies

According to the results (see Figure 9), almost 77% of respondents stated that they have never reported cybercrime to a law enforcement agency. While the other 23% have tried to complain to agencies, they were not satisfied with the efficiency of these agencies. Non-reporting by the victims is the major factor driving the increase of cybercrimes, and thus, frauds, hacking and harassment is increasing on a daily basis (Van de Weijer, Leukfeldt, & Bernasco, 2018). Cybercrimes demand timely reporting in order to eradicate this problem.

Usage of Security Software

Figure 10 show that almost 66% of total respondents do not use any type of security software. The remaining 33% used some kind of software, including antivirus. Although the use of security software is highly recommended as a precautionary measure against hacking and fraud, many of the respondents claim that the free available software is of no value to protect them, and that most commercial software is based internationally, and not readily accessed or affordable for many web users in Pakistan.

Key Findings

The following key findings are significant in the context of this research.

● Most of the cybercrime victims are females between the ages of 20 and 30.

● Divorced women face more cybercrimes, especially sexual harassment

● The major causes of becoming a cybercrime victim are lack of internet knowledge and less use of internet security measures.

● There are other reasons for cybercrime victimization, which includes a lack of well-defined laws and regulations against cyber criminals.

● Fewer security measures are utilized by females using social apps such as Facebook and Twitter accounts, due to a lack of awareness about the potential risks.

● More time spent on social networking sites increases the chance of cyber victimization, such as cyber bullying and online harassment.

● Students are not using updated antivirus and security software because they do not know the importance of this software.

● Most of the women who are victims of cybercrimes do not report it to relevant agencies because they feel ashamed. They also lack confidence in the efficiency and procedures of these agencies.

● Women active in cyberspace confront different types of cybercrime exploitation than men. For example, they must cope with unsanctioned photograph circulation, anonymous phone calls of a profane nature, web-based hacking and abuse, counterfeit profiles, maligning, undermining calls, pantomime by hacking, provocation, transforming, phishing emails, stalking, online harassments, and more.

● As compared to married women, single women spent more time on the internet, and reported more friends on social

media websites. These factors are associated with increased risk of becoming victims of cybercrime.

● Regardless of their class standing, respondents are spending the same amount of time on the internet.

● Most of the time, the internet is accessed by phones, which are not a safe method of accessing private information such as bank accounts, and therefore increase the chances that information may be hacked.

Proposed Policy Updates

It is clear from the contextual evidence in this study that the current cybercrime prevention measures being practiced in Pakistan under the "Prevention of Electronic Crime Act of 2016" need updating and expanding. This act was quite comprehensive as laid out on paper, and covered all known domains of cybercrimes. But this law has also been called controversial, and criticized for ambiguity in many blogs and research articles (Arshad Khan, 2018; Khan, 2016). The reasons for this may be due to the lack of confidentiality for women reporting victimization, and also the impracticality of the penalties presented in the law. Thus, after detailed study on this serious issue, it became clear to me that there is a need to devise a policy which is easy to implement and uses strict confidentiality for those reporting, in order to seek justice for victims. Devising a public policy requires the support of public policy theory, as policy making never happens in a vacuum (Kitschelt, 1986). As per the concern of this study, discussion of the findings has its roots in system theory, because system theory includes the laws, rules and regulations, judicial decisions and the creation of pertinent legislation.

The issue of cybercrime victimization is a societal problem, affecting the public in a negative way. Thus, it is suggested that there should be a cybercrime unit in each police station, for collecting reports of cybercrimes and examining cybercrimes at the point of contact, as well as through home visits to respondents. Most of the

women victimized strongly recommended that more female officers should be part of cybercrime units, because they believed that the presence of female officers may encourage more women to come forward and air their grievances without fear of additional exploitation. The FIA and police cyber units must collaborate with each other in order to increase the education and awareness of police cyber units on this topic. Most importantly, the confidentiality of the victim must be given the highest priority to protect their sense of self-worth. The penalties for harassers and cyber terrorists must be practical to enforce, and prison time must be ensured without bail.

Recommendations

The recommendations of this study are based upon the proposed policy and key findings already presented in this study.

● Cybercrime information must be a part of the curriculum in high school and in all college levels.

● A variety of classes and seminars must be arranged in order to create the awareness about cybercrime

● There should be a mandatory cybercrime unit in each police station, weighted with more female staff, in order to create a safe environment doe reporting and analyzing cyber crimes

● Law enforcement agencies should empower all police officers to respond sensitively to cybercrime complaints by offering essential education, public education can be accomplished through public service announcements via the web and the media transmission administrations, with the goal that all citizens will have essential knowledge of the types and impacts of cybercrimes. Officers who are managing cybercrimes need periodic classes and field training to maintain and update responses to cybercrime. Additional and on-going research is also important in order to stay abreast of changes in the types and relative frequency of cybercrimes, as well as the efficacy of education and the reporting process.

Anjum, U. (2020). Cyber Crime in Pakistan; Detection and Punishment Mechanism. *STED Journal, 2(2), 29-55.*

LITERATURE

Abrams, L.S. (2010). Sampling 'Hard to Reach'Populations in Qualitative Research: The Case of Incarcerated Youth. *Qualitative Social Work*, *9*(4), 536-550.

Al-Jazeera. (2016). *Cyber Harassment in Pakistan. How women are fighting back.* The Stream. Digital Rights Foundation

Alvi, M. H. (2016). *A Manual for Selecting sampling techniques in research*. Munich: Munich Personal RePEc Archive.

Anderson, J. & Rainie, L. (2018). The future of well-being in a tech-saturated world. *Pew Research Center*.

Andrews, D., Nonnecke, B., Preece, J. (2003). Electronic survey methodology: A case study in reaching hard to involve Internet Users. *International Journal of Human-Computer Interaction. 16*(2), 185-210.

Arfi, N., & Agarwal, S. (2014). Knowledge of cyber-crime among elderly across gender. *International Journal for Advance Research in Engineering and Technology*, *2*(2), 7-9.

Broadhurst, R., Grabosky, P., Alazab, M., Bouhours, B., & Chon, S. (2014). An analysis of the nature of groups engaged in cyber-crime. *An Analysis of the Nature of Groups engaged in Cyber Crime, International Journal of Cyber Criminology*, *8*(1), 1-20.

Bryan-Low, C. (2012). Hackers-for-hire are easy to find. *Wall Street J. 2012*.

Chao, C.M., & Yu, T.K. (2017). Associations among different internet access time, gender and cyberbullying behaviors in Taiwan's adolescents. *Frontiers in psychology*, *8*, 1104.

Churchill, G.A., Brown, T.J., & Suter, T.A. (1996). *Basic marketing research*. Orlando, FL: Dryden Press.

Crowther, G.A. (2017). National Defense and the Cyber Domain. *The Heritage Foundation*, 83-97.

Digital Rights Foundation. (2017). Cyber Harassment Helpline One-year Report December 2016 to November 2017. Retrieved September 29, 2020 from https://digitalrightsfoundation.pk/wp-content/uploads/2017/12/Helpline-Annual-Report.pdf

Donner, C.M. (2016). The gender gap and cybercrime: An examination of college students' online offending. *Victims & Offenders*, *11*(4), 556-577.

Duggan, M. (2014). Online Harassment. Pew Research Center: Internet. *Science and Tech. Available online: http://assets. pewresearch. org/wp-content/uploads/sites/14/2014/10/PI_OnlineHarassment_, 72815.*

Gluschke, G., Hakki, M.C., Macori, M. & Leszczyna, R. (2018). Cyber security policies and critical infrastructure protection.

Federal Bureau of Investigation, Internet Crime Complaint Center. (2016). *Internet Crime Report 2016. Retrieved September 25, 2020 from:* fbi.org.

Gordon, S., & Ford, R. (2002). Cyber-terrorism?. *Computers & Security*, *21*(7), 636-647.

Gordon, S., & Ford, R. (2006). On the definition and classification of cybercrime. *Journal in Computer Virology*, *2*(1), 13-20.

Sheikh, H. (2013). Pakistan internet use survey 2013. *Express Tribune*.

Helweg-Larsen, K., Schütt, N., & Larsen, H.B. (2012). Predictors and protective factors for adolescent Internet victimization: Results from a 2008 nationwide Danish youth survey. *Acta Paediatrica*, *101*(5), 533-539.

Huff, R., Desilets, C., & Kane, J. (2010). *National public survey on white-collar crime.* Rockville: National White-Collar Crime Ctr.

Jamil, Z. (2006, August). Cyber Law. In *50th anniversary celebrations of the Supreme Court of Pakistan International Judicial Conference on* (pp. 11-14).

Jones, L.M., Mitchell, K.J., & Finkelhor, D. (2013). Online harassment in context: Trends from three youth internet safety surveys (2000, 2005,

Anjum, U. (2020). Cyber Crime in Pakistan; Detection and Punishment Mechanism. *STED Journal, 2(2), 29-55.*

2010). *Psychology of violence*, *3*(1), 53.

Peciuriene, J. (2017). Cyber violence is growing threat, especially for women and girls. News Article on topics Digital Agenda, Youth and Violence. Published on June 19, 2017. Retrieved September 25, 2020 from: https://eige.europa.eu/news/cyber-violence-growing-threat-especially-women-and-girls

Kemp, S. (2018). Digital in 2018: World's Internet Users Pass the 4 Billion Mark. January 30, 2018. Retrieved August 25, 2020 from: https://wearesocial.com/blog/2018/01/global-digital-report-2018

Khalil, B. (2020). Cybercrime effecting banking sector/ economy of Pakistan. Modern Diplomacy. Published in March 22, 2020. Retrieved September 26, 2020, from: https://moderndiplomacy.eu/2020/03/22/cybercrime-effecting-banking-sector-economy-of-pakistan/

Arshad Khan, E. (2018). The Prevention of Electronic Crimes Act 2016: An Analysis. *LUMS LJ*, *5*, 117.

Kitschelt, H. (1986). Four theories of public policy making and fast breeder reactor development. *International Organization*, *40*(1), 65-104.

Krejcie, R.V., & Morgan, D.W. (1970). Determining sample size for research activities. *Educational and psychological measurement*, *30*(3), 607-610.

Lavigne, C. (2008). *Mirrorshade Women: Feminism and Cyberpunk at the Turn of the Twenty-first Century*. Doctoral dissertation, McGill University, Montreal, Canada.

Lewis, J. (2018). *Economic Impact of Cybercrime, No Slowing Down*. McAfee.

Malik, M.A. (2018). *Preventing Cybercrime: A Criminological Perspective*. Islamabad: Center for Global & Strategic Studies.

McGuire, M., & Dowling, S. (2013). Cyber-crime: A review of the evidence. Summary of key findings and implications. *Home Office Research report*, *75*.

Mendes, K., Ringrose, J., & Keller, J. (2019). *Digital feminist activism: Girls and women fight back against rape culture*. Oxford: Oxford University Press.

Mohajan, H.K. (2017). Two criteria for good measurements in research: Validity and reliability. *Annals of Spiru Haret University. Economic Series*, *17*(4), 59-82.

Morgan, R.E., & Kena, G. (2017). Criminal victimization, 2016. *Bureau of Justice Statistics. NCJ, 251150.*

Morgan, S. (2017). Cybercrime Report, 2017. Retrieved September 30, 2020 from: https://cybersecurityventures.com/2015-wp/wp-content/uploads/2017/10/2017-Cybercrime-Report.pdf

Navneet, K. (2018). INTRODUCTION OF CYBER CRIME AND ITS TYPE. *IRJCS:: International Research Journal of Computer Science, 5*(8), 435-439.

Nurse, J.R. (2018). Cybercrime and you: How criminals attack and the human factors that they seek to exploit. *arXiv preprint arXiv:1811.06624*.

Oksanen, A., & Keipi, T. (2013). "Young people as victims of crime on the internet: A population-based study in Finland." *Vulnerable children and youth studies*, *8*(4), 298-309.

Porche, I.R. (2019). *Fighting and Winning the Undeclared Cyberwar*. The Rand Blog. June 24. 2019. https://www.rand.org/blog/2019/06/fighting-and-winning-the-undeclared-cyber-war.html

Poulsen, K.P. (2018). The Decades' 10 most dastardly cybercrimes. Retrieved August 25, 2020 from: https://www.wired.com/2009/12/ye-cybercrimes/

Qarar, S. (2018). *Cybercrime reports hit a record high in 2018: FIA*. Dawn news report 23rd Oct, 2018. https://www.dawn.com/news/1440854

Anjum, U. (2020). Cyber Crime in Pakistan; Detection and Punishment Mechanism. *STED Journal, 2(2), 29-55.*

Khan, R. (2016). *Controversial cyber-crime bill approved by NA*. Dawn.

Remenyi, D., Williams, B., Money, A., & Swartz, E. (1998). *Doing research in business and management: an introduction to process and method*. London: Sage Publications.

Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students*. London: Pearson education.

Smith, R.G. (2010). Identity theft and fraud. *Handbook of internet crime*, 273-301.London: Routledge.

Smith, R.G., Cheung, R.C.C., & Lau, L.Y.C. (2015). *Introduction: Cyber-crime Risks and Responses—Eastern and Western Perspectives.* In Cyber-crime Risks and Responses (pp. 1-9). London: Palgrave Macmillan.

Statista, A. (2018). Number of monthly active Facebook users worldwide as of 1st quarter 2018 (in millions). *www. statista. com*.

Usman, M. (2016). *Cyber Crimes: A case study of legislation in Pakistan in the light of jurisdiction.* A dissertation to fulfill the corporate law degree.

International Islamic University Islamabad, Pakistan.

Van de Weijer, S.G., & Leukfeldt, E.R. (2017). Big five personality traits of cybercrime victims. *Cyberpsychology, Behavior, and Social Networking*, *20*(7), 407-412.

Van de Weijer, S.G., Leukfeldt, R., & Bernasco, W. (2019). Determinants of reporting cybercrime: A comparison between identity theft, consumer fraud, and hacking. *European Journal of Criminology*, *16*(4), 486-508.

Waghole, S.N. (2019). Cyber Crime Statistics. *Journal of the Gujarat Research Society*, *21*(14s), 518-523.

Waldo, J., Lin, H.S. & privacy and information technology in a digital age: Executive summary. *Journal of Privacy and Confidentiality*, *2*(1). 5-18.

Zeviar-Geese, G. (2005). The state of the law on cyber jurisdiction and cybercrime on the internet. *In: California Pacific School of Law. Gonzaga Journal of International Law, 1,* 1997-1998.

SISTEM UPRAVLJANJA ZA BORBU PROTIV KORUPCIJE U PREDUZEĆU

Zdravko Todorović[1*], Darko Tomaš[1], Boris Todorović[2]

[1]Univerzitet u Banjoj Luci, Ekonomski fakultet, Majke Jugovića 4, 78 000 Banja Luka, Bosna i Hercegovina, zdravko.todorovic@ef.unibl.org,
[2]Axelyos – Solutions, Milana Karanovića 55b 78 000 Banja Luka, Bosna i Hercegovina, boris.todorovic@gmail.com

ORIGINALAN NAUČNI RAD

Zdravko Todorović, Univerzitet u Banjoj Luci, Ekonomski fakultet, Majke Jugovića 4, 78 000 Banja Luka, Bosna i Hercego-vina, zdravko.todorovic@ef.unibl.org

APSTRAKT

Marketing in tourism is a systematic Korupcija je jedan od najdestruktivnijih i najkompleksijih problema današnjice, a njene posljedice negativno utiču na poslovanje preduzeća, političku stabilnost zemlje i standard stanovništva. Na globalnom nivou korupcija predstavlja značajnu barijeru u međunarodnoj trgovini. Ukupni troškovi prevara teško da će se objektivno sagledati, a posebno će biti teško izračunati indirektne štete koje prouzrokuju prevare. Neke prevare neće biti nikada otkrivene. Procjenjuje se da prosječno organizacije u svijetu gube 5% godišnjih prihoda radi prevara. Mala smanjivanja troškova zbog prevara mogu značajno da povećaju profit organizacije. Vlade mnogih država donijele su nacionalne programe borbe protiv korupcije. Implementiranje antikorupcionih programa u mnogome zavisi od razvijene svijesti i etičke kulture u preduzećima. Međunarodna organizacija za standardizaciju razvila je standard ISO 37001- Sistem menadžmenta za borbu protiv korupcije. Međunarodni standard omogućava organizacijama svih vrsta sprečavanje, otkrivanje i rješavanje korupcije usvajanjem politike protiv podmićivanja, imenovanjem osobe koja će nadgledati poštivanje mjera za podmićivanje, obukom, procjenom rizika i dubinskom analizom projekata i poslovnih saradnika, provođenjem financijskih i komercijalne kontrole, te uspostavljanje postupaka izvještavanja i istrage. Pružajući globalno priznat način za rješavanje destruktivnih kriminalnih radnji koje pretvaraju bilijon dolara prljavog novca svake godine, ISO 37001 direktno se bavi jednim od najrazornijih i najizazovnijih svjetskih problema i pokazuje predan pristup suzbijanju korupcije. U radu je predstavljeno istraživanje nivo korupcije u Bosni i Hercegovini, koje je poređeno sa nivom korupcije u drugim zemljama, kao i korelacija sa globalnim indeksom konurentnosti. Na kraju rada predstavljena je metodologija za projektovanje i uvođenje sistema menadžmenta za borbu protiv korupcije u preduzeću. Rezultati istraživanja donose nove naučne činjenice i saznanja u borbi protiv korupcije i metodološki postupak za implementiranje sistema menadžmenta za borbu protiv korupcije u preduzeću.

Ključne riječi: ISO 37001, korupcija, poslovna etika, konkurentnost.

UVOD

Iako se države u svijetu razlikuju po stepenu razvijenosti, životnom standardu, obrazovnom nivou, kulturi i slično, ipak je jedna ljudska osobina univerzalna, a to je lični interes (Hafiza Aishah Hashim, 2020). Ako se lični interes ostvari na nedozvoljen način, odnosno zloupotrebom ovlaštenja radi lične ili grupne koristi govorimo o korupciji (Wanting Lu, 2020). Problem istraživanja je borba protiv korupcije, odnosno pronalaženje najefikasnih metoda i načina borbe protiv korupcije.

Ciljevi istraživanja su usmjereni na opisavanje pojma korupcije, ekonomskih posljedica korupcije, uzroka korupcije, načina mjerenja korupcije i uspostavljanja sistema upravljanja za borbu protiv korupcije.

U istraživanju se krenulo od tvrdnje da se projektovanjem i implementiranjem sistema upravljanja u preduzeću za borbu protiv korupcije, koji je zasnovan na međunarodnim standardima ISO 37001, može preventivno djelovati na pojavu korupcije, otkriti korupcija, istražiti uzroci i posljedice korupcije.

TEORIJSKI ASPEKTI ISTRAŽIVANJA

Uticaj korupcije na državu, preduzeće i građane je isti: podrivanje vladavine prava, povreda prava, netransparentnost, gubljenje resursa i slabljenje integriteta (Sikka, 2009) (O'Connell, 2009). Korupcija i njihove posljedice postale su globalni problem (Anuar Nawawi, 2018).

Korupcija je stara koliko i preduzeća (Obalola, 2014), pa stoga od kad postoje preduzeća vodi se borba protiv korupcije (Tenoyo, 2015). Preduzeće je pogođeno korupcijom čak i kada su pravni i korporativni standardi na izuzetno visokom nivou (Papastergiou, 2016). Na scenu stupa korupcija onog trenutka kada država i njene institucije počinju da slabe, zakoni se ne primjenjuju, a vlast pojedinca počinje da raste (Torres, 2020).

Procjenjuje se da prosječno organizacije u svijetu gube 5% godišnjih prihoda radi prevara. Rizici od prevara su znatno veći u malim nego u velikim

preduzećima (The 2020 Report to the Nations—the ACFE). Svjetska banka je korupciju definisala kao zloupotreba ovlaštenja za privatnu korist Korupcija obuhvaća sljedeće pojmove: (1) podmićivanje, (2) sukobi interesa, (3) ekonomska iznuda i (4) ilegalne naknade. Tri faktora utiču na počinjenje korupcije, a oni su: prilika, motiv i opravdanje (Picard, 2020).

Slika 1. Trokut korupcije (Wells, 2001)

Brojna domaća i strana istraživanja već godinama svrstavaju BiH u red evropskih zemalja sa najvećim stepenom korupcije, ujedno konstatujući da su u BiH prisutni društveno najopasniji oblici korupcije, koji imaju ogromne posljedice za ukupan društveno-ekonomski razvoj zemlje. Transpareny International rangira zemlje širom svijeta u odnosu na percipirani nivo korupcije (CPI - Corruption Perceptions Index). Bosna i Hercegovina je 2019. godine dobila ocjenu 36 (na skali od 0 do 100, gdje 0 predstavlja najviši nivo percipirane korupcije, dok 100 predstavlja najniži nivo korupcije) i nalazi se na 101. mjestu, od ukupno 180 zemalja uključenih u istraživanje. To je najlošija ocjena koju je Bosna i Hercegovina dobila od 2012. Godine i svrstan je u red zemalja koje najviše zaostaju u bborbbi protiv korupcije.

Nepostojanje političke volje, jasnih strateških okvira i mehanizama za implementaciju antikorupcionih politika, karakteristika je cijelog postkonfliktnog perioda u BiH.

Prema istraživanju Centra za istraživačko novinarstvo o procjeni stanja korupcije u Bosni i Hercegovini iz 2019. godine navedeno je da je korupcija u Bosni i Hercegovini raširena u javnom i privatnom sektoru. Sprega između

političkih elita i sa njima povezanih poslovnih oligarhija, čiji interesi su iznad interesa javnosti, dovela je BiH do toga da bude rangirana među zemlje koje karakteriše stanje „zarobljene države".

Međunarodna organizacija za standardizaciju donijela ISO 37001:2016 - Sistem upravljanja za borbu protiv korupcije. Ovim standardom se želi uspostaviti najbolja svjetska praksa u oblasti borbe protiv korupcije. Zahtjevi standarda traže da se uvede nutna tolerancija na korupciju. Sistem je kreiran na način da ga mogu primjeniti mala, srednja i velika preduzeća u javnom i privatnom sektoru. Osmišljen je kao fleksibilan model koji se može prilagoditi različitim preduzećima i organizacijama i različitom nivou rizika od korupcije.

Sistem upravljanja za borbu protiv korupcije ISO 37001 se može koristiti u bilo kojoj zemlji bez obzira na ekonomski razvoj, političko uređenje i nivo poslovne kulture. Osmišljen je za uspostavljanje usaglašenosti poslovanja preduzeća sa dobrom međunarodnom praksom i odgovarajućim pravnim zahtjevima u borbi protiv korupcije u svim zemljama u kojima preduzeće posluje.

METODOLOGIJA ISTRAŽIVANJA

U radu je primjenjena kombinovana metodologija istraživanja, odnosno kombinacija kvantitativne i kvalitativne metodologije naučnog istraživanja. Kvantitativnom metodologijom prikupili smo brojčane podatke, u cilju objašnjenja, istraživanja veza između varijabli i uspostavljanja uzročno posljedičnih veza između posmatranih pojava. Kvalitativnim istraživanjem prikupili smo nebrojčane podatke dobijene u prirodnom okruženju intervjuisanjem, razgovorom, čiji je primarni zadatak da se objasni značenje posmatrane pojave. Ocjena nivoa korupcije vršena je na osnovu publikovane standardne metodologije i indeksa percepcije korupcije.

Podatke o poznavanju ISO 37001 od strane menadžera u BiH preduzećima, podatke o primjeni programa za borbu protiv korupcije u preduzećima u BiH za 2019. i 2020. godinu, te podatke o osnovim uzrocima problema povezanim sa koruptivnim ponašanjem pojedinaca dobili smo na osnovu ankete koja je provedena u 100 proizvodnih preduzeća u Bosni i Hercegovini. Anketa nije ciljano rađena za snimanje stanja korupcije, tako da su podaci o stanju korupcije dosta oskudni.

REZULTATI ISTRAŽIVANJA
Procjena rizika od korupcije u preduzećima

U istraživanju o procjeni rizika od korupciji u anketiranim preduzećima u Bosni i Hercegovini menadžerima su postavljna pitanja na osnovu kojih smo ocjenili nivo rizaka od korupcije.

Tabela 1. Upitnik za procjeni nivoa rizika od korupcije u preduzeću 2020. god.

| Rb	Pitanje	DA	NE
1.	Da li ste prilikom obavljanja svog posla čuli za slučajeve korupcije u vašem preduzeću?	43%	57%
2.	Da li postoje propisi u vašem preduzeću koji se odnose na borbu protiv korupcije?	5%	95%
3.	Da li vaši saradnici daju prednost vlastitim interesima u odnosu na profesionalni rad?	25%	75%
4.	Da se u vašem preduzeću tolerišu ozbiljne greške koje su počinili zaposleni?	33%	67%

Odgovori na pitanja analizirani su preko tri faktora koji utiču na rizik od počinjenja korupcije, a oni su: prilika, motiv i opravdanje. Na osnovu odgovora 43% anketiranih menadžera su čula da poste neki oblici korupcije u njihovom preduzeću kao i na osnovu ostalih odgovora možemo zaključiti da je u anketiranim preduzećima izražen *visok nivou rizika od korupcije*. Na osnovu odgovora na ostala

pitanja možemo zaključiti da postoje sva tri uslova za pojavu korupcije. Prema odgovoru 95% anketiranih da ne postoje propisi za borbu protiv korupcije možemo konstatovati da postoje *prilike* za počinjenje korupcije. Odgovori 25% aketiranih da pojedini saradnici daju prednost ličnim interesima u odnosu na profesionalni rad govori o *motivaciji* pojedinaca da se počini korupcija. Te, na osnovu odgovora 33% anketiranih da se ozbiljne greške tolerišu služiće kao moguće *opravdanje* za potencijalne počinioce korupciju.

Primjena međunarodnih standarda ISO 37001 u preduzećima u BiH

U istraživanju su postavljena pitanja menažerima iz preduzeća u Bosne i Hercegovine o postojanju formalnih sistema upravljanja za borbu protiv korupcije. U 2019. godini i 2020. godini akanketirani menadžeri, njih 95%, su odgovorili da ne postoje formalni sistem upravljanja za borbu protiv korupcije, a njih 5% da postoji formalni sistem borbe protiv korupcije. Pod formalnim sistemom borbe protiv korupcije podrazumjevali su odgovornosti interne kontrole i interne revizije u otkrivanje korupcije u preduzeću.
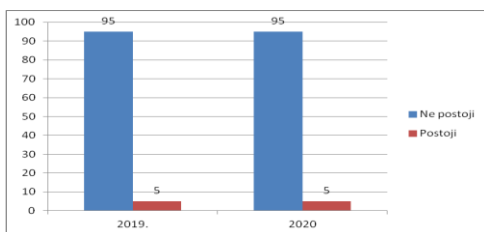
Slika 3. Postojanje sistema upravljanja za borbe protiv korupcije BiH preduzećima

Menadžerima je postavljeno i pitanje o poznavanju zahtjeva draft verzije standarda ISO 37001, koji se odnosi na zahteve za uspostavljanjem sistema upravljanja za borbu protiv korupcije. Na slici 4. su predstavljeni rezultati anketiranih menadžera.
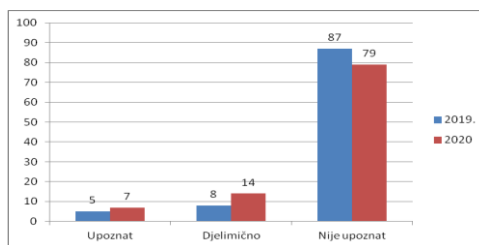
Slika 4. Poznavanje ISO 37001 od strane menadžera u BiH preduzećima

U 2019. godini 87% anketiranih menadžera se izjasnilo da nije upoznato sa zahtjevima standarda ISO 37001 koji se odnosi na sistem upravljanja za borbu protiv korupcije. Njih 8% se izjasnilo da je djelimično upoznato sa zahtjevima standarda, a 5% ispitivanih menadžera se izjasnilo da je upoznato sa standardima i zahtjevima standarda. Situacija je nešto bolja kada smo anketirali menadžere iz BiH preduzeća u 2020. godini. Njih 79% se izjasnilo da nije upoznato sa zahtjevima standarda ISO 37001 koji se odnosi na sistem upravljanja za borbu protiv korupcije, 14% se izjasnilo da su djelimično upoznati zahtjevima standarda, a 7% ispitivanih menadžera se izjasnilo da je upoznato sa standardima i zahtjevima standarda. Rezultati za obe godine su izrazito loši i traže hitne mjere.

U razgovoru sa menadžerima postavljeno je pitanje o uzrocima neefikasne borbe protiv korupcije, a njihovi odgovori su sljedeći:

- borba protiv korupcije nije ničija odgovornost,
- ne postoji stav rukovodstva o potrebi borbe protiv korupcije,
- svijest zaposlenih o posljedicama i potrebama za borbu protiv korupcije je na niskom nivou,
- prevenciji korupcije ne posvećuje se dovoljno pažnje,
- nema procedura i odgovornosti za otkrivanje korupcije,
- ne postoji efikasan nadzor uprave u borbi protiv korupcije,
- neznanje i površnost u procjeni rizika od korupcije,
- najznačajni rizici od korupcije se uglavnom ignorišu,

- ne uviđa se da je smanjenje korupcije povezano sa značajnim smanjenjem troškova poslovanja,
- rad interne kontrole i interne revizije nije usaglašen sa procjenama rizika od korupcije,
- ne uviđa se značaj softvera za kontrolu transakcija,
- nema uspostavljenih efikasnih kanala dojavljivanja korupcije i slično.

Prijedlog modela sistema upravljanja za borbu protiv korupcije

Svi upravljački standardi iz serije ISO zasnovani na upravljačkoj logici Plan-Do-Check-Act (PDCA). Ovu upravljačku logiku razvio je 1939. godine matematičar Walter Shewhart, a dopunio je 1950. godine W. Edwards Deming. Opšti upravljački oblik (PDCA) se može dijagramski predstaviti kao na slici 5.
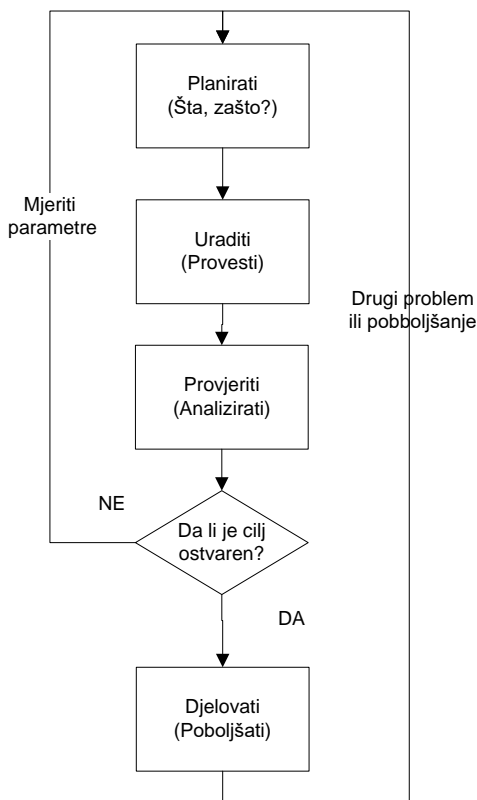
Slika 5. Dijagram toka opšteg modela PDCA

Sistem upravljanja za borbu protiv korupcije - ISO 37001 može se predstaviti upravljačkim modelom PDCA. Ulazni elementi modela su zahtjevi zainteresovanih strana (vlasnici, rukovodioci, zaposleni, društvo i drugi) za eliminisanje korupcije i zahtjevi standarda ISO 37001. U upravljačkom modelu se predlažu aktivnosti koje se odnose na planiranje provođenje zahtjeva standarda ISO 37001, uspostavljanje upravljačkog sistema za borbu protiv korupcije, kontrola provedenih aktivnosti i poboljšanje upravljačkog sistema za borbu protiv korupcije. Izlazi iz sistema upravljanja treba da zadovolje zahtjeve zainteresovanih strana i da predstave informacije o borbi protiv korupcije (slika 6).

Zahtjeva standarda ISO 37001 samo su navedeni i teško ih je na efikasno prilagoditi i povesti u preduzeću. Zato smo projektovali model sistema upravljanja za borbu protiv korupcije koji treba da ima slijedeće aktivnosti, kao što je prikazano na slici 7.

U sistemu upravljanja za borbu protiv korupcije ugrađena je logika kontinualnog unapređenja, neprekidnog mjerenja performansi i stalna otklanjanja neusaglašenosti, te poboljšanja sposobnosti procesa na bazi rezultata i podataka merenja. Sistem upravljanja je podržan PDCA ciklusom, jer daje odgovore na dva pitanja: kako se do sada radilo? i šta treba uraditi da se unapredila borba protiv korupcije?

Sistem upravljanja za borbu protiv korupcije osmišljen je za integrisanje u postojeći upravljački sistem preduzeća i mnoge mjere i kontrole koje se provode u internoj kontroli, internoj reviziji, računovodstu i dalje će se provoditi, ali tamo gdje zahtjevi nisu ispunjeni dopuniće se postojeće procedure ili će se uspostaviti nove procedure.

Sistem upravljanja za borbu protiv korupcije ne zahtjeva novu službu i novo zapošljavanje radnika, već dodjeljuje obaveze i odgovornosti u pogledu borbe protiv korupcije postojećim službama i radnicima.

Uspostavljanjem sistema borbe protiv korupcije ne rješavaju se sve vrste korupcije u preduzeću, već se uspostavlja upravljački i kontrolni sistem za borbu protiv korupcije. Sistem upravljanja za borbu protiv korupcije usmjeren je na sprečavanje korupcije prema preduzeću, zaposlenima ili poslovnim saradnicima koji rade u ime preduzeća ili u njegovu korist, te na sprečavanje korupcije od strane preduzeća, zaposlenih ili poslovnih partnera koji rade u ime ili korist preduzeća.
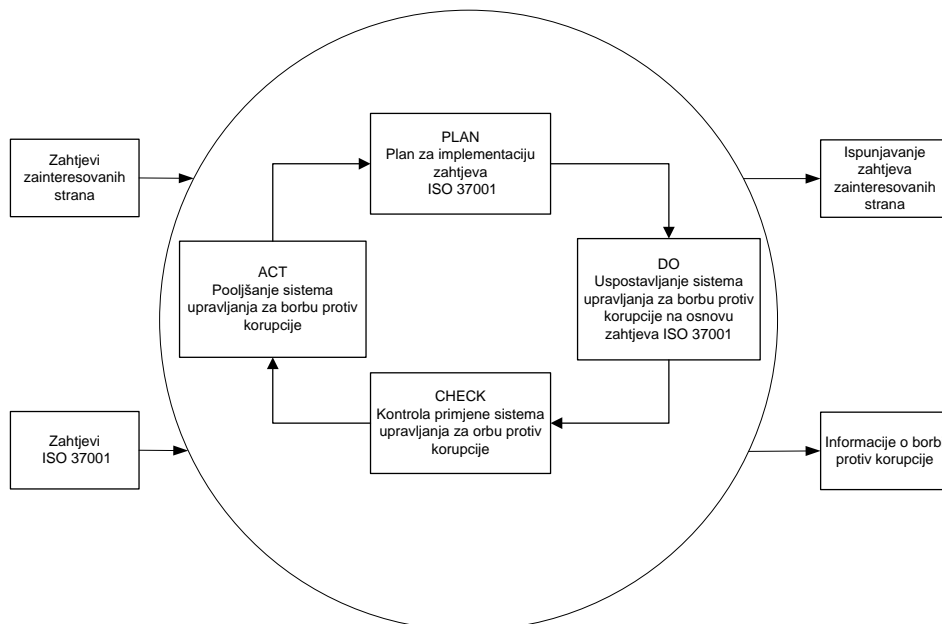
Slika 6. PDCA krug primjenjen na sistem za borbu protiv korupcije zasnovan na zahtjevima ISO 37001

DISKUSIJA

Budući da je ISO 37001 objavljen u oktobru 2016. godine, prerano je reći koliko će se široko koristiti. Mnogi vjeruju da će ISO 37001 postati najčešće korišten i prepoznatljiv program za borbu protiv korupcije (Teichmann, 2019). To je prvi međunarodno priznati program borbe protiv korupcije na svijetu koji se može samostalno sertifikovati. Može se integrisati sa drugim standardima upravljanja.

Imamo određena istraživanja koja potvrđuju primjenu ovog standarda u borbi protiv korupcije (Teichmann, Bribery – an obstacle to international development, 2019). Prema istraživanju konsultatskih kompanija Steele iz San Franciska i Spark Compliance Consulting iz Londana koje je obavljeno 2017. godine navodi se da su preduzeća iz Perua i Singapura, koja su prihvatila preporuku svojih vlada da uspostave sistem borbe protiv korupcije prihvatila 90% zahtjeva standarda ISO 37001 za mjerenje usaglašenostim, da je njih 34% u potpunosti prihvatile sve definisanje zahtjeve standarda, da je njih 48% prilagodilo zahtjeve standarda svom preduzeću, a njih 56% pokrenulo postupak certifakcije sistema upravljanja za borbu protiv korupcije u skladu sa standardom ISO 37001.

Koristi koje će preduzeće ima od uspostavljenog sistema upravljanja za borbu protiv korupcije su brojne. Uspostavljanjem dokumentacije u skladu sa zahtjevima međunarodnog standarda ISO 37001 za borbu protiv korupcije uspostavlja se efikasan sistem kontrole, smanjuje se nivo korupcije i štetne posljedice koje izaziva korupcija.
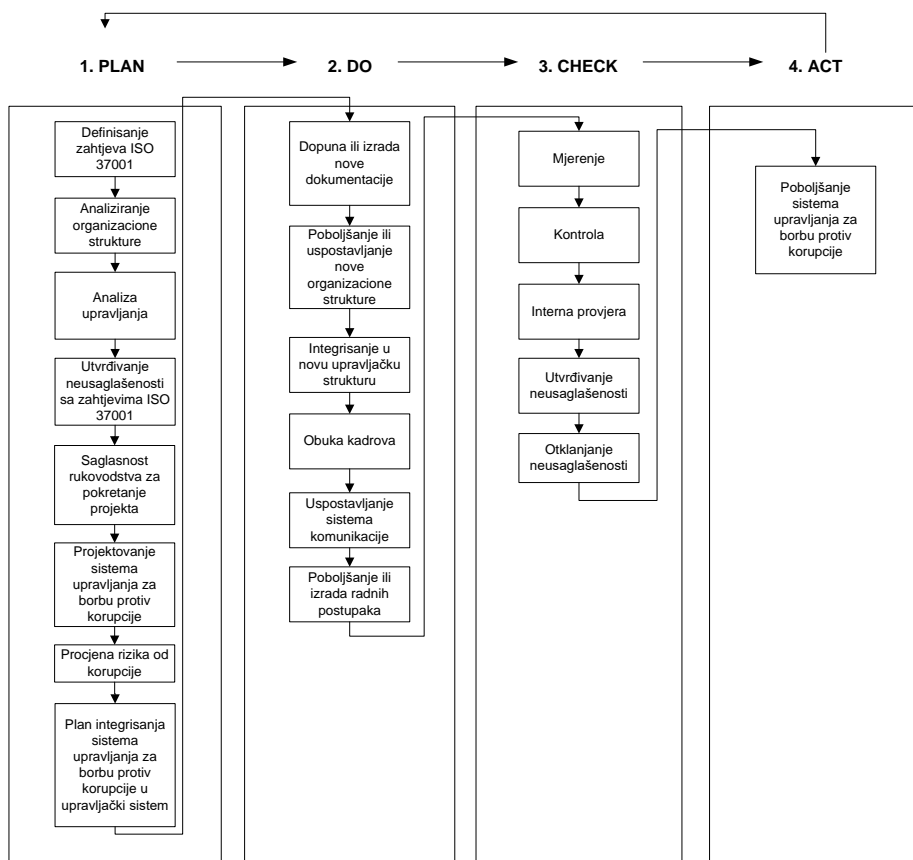
Slika 8. Model projektovanja i uvođenja sistema upravljanja za borbu protiv korupcije

Procedure i uputstva koja su kreirana u skladu sa standardom ISO 37001 pomažu vlasnicima i menadžerima u upravljanju preduzećem i borbi protiv korupcije. Preduzeća koja imaju implementiran sistem upravljanja za borbu protiv korupcije pružaju dokaze kupcima, poslovnim partnerima i zaposlenima da primjenjuju dobre poslovne prakse i pomažu preduzeću u privlačenju investitora, proširenju poslovne saradnje, zapošljavanju kvalitetnih ljudskih resursa i povećanju ugleda preduzeća. U slučaju istraživanja korupcije u preduzeću, sudovima ili forenzičkim revizorima se mogu obezbjediti dokazi da je preduzeće preduzelo sve neohodne radnje za sprečavanje korupcije u preduzeću.

Vjerojatno će biti troškova za preduzeće tokom implementacije ISO 37001 - sistema upravljanja za borbu protiv korupcije. Preduzeće mora obezbijediti dovoljno materijalnih, finansijskih i ljudskih resursa da bi uveli program za borbu protiv korupcije. Neka preduzeća koja od ranije imaju dobre kontrole moći će provesti program za borbu protiv korupcije, koji je u skladu sa međunarodnom dobrom praksom, bez dodatnih troškova ili uz minimalne troškove. S druge strane, preduzeća koja nemaju razvijene kontrole, moraju potrošiti vrijeme i novac da bi uspostavile efikasan sistem borbe protiv korupcije. Ukupni troškovi uvođenja programa borbe protiv korupcije zavise od brojnih faktora kao što su veličina preduzeća, složenost njegove strukture, vrsta poslovanja i slično. Ako se preduzeće odluči da sertifikuje sistem upravljanja za borbu protiv korupcije izlaže se i troškovima sertifikacije. Ti troškovi nisu ništa viši od troškova sertifikacije sistema kvaliteta prema standardima ISO 9001.

Implementiran i sertifikovan sistem za borbu protiv korupcije ne pruža garanciju preduzeću da će se u potpunosti otkloniti rizici od korupcije. Ovaj sistem garantuje da preduzeće provodi mjere i programe za prevenciju, otkrivanje, istraživanje i rješavanje korupcije, čime se smanjuje rizik od korupcije i njenih posljedica.

Za efiksano funkcionisanje sistema upravljanja prema ISO 37001 mora biti istinsko opredjeljenje uprave preduzeća. Ovaj sistem mora biti projektovan, implementiran u cilju sprečavanja korupcije, te kontinuirano praćen i poboljšavan.

ZAKLJUČAK

Korupcija i njene posljedice su globalni problem. Mnoge organizacije u svijetu pokušavaju da razviju sisteme upravljanja za borbu protiv korupcije koji najbolje odgovaraju njihovim poslovnim subjektima, zakonodavnom sistemu i poslovnom moralu. Međunarodna organizacija za standardizaciju izradila je standard ISO 37001 - Sistem upravljanja za borbu protiv korupcije, gdje je sumirana najbolja svjetska iskustva i preporuke za kreiranje modela upravljanja za borbu protiv korupcije. Pošto je nemoguće kopirati pojedine sisteme i uspješno ih implementirati u poslovni, pravni i etički sistem pojedinih preduzeća u radu smo predstavili model za kreiranje sistema upravljanja za borbu protiv korupcije. Model se jednostavno može implementirati u postojeći upravljački sistem preduzeća i treba da predstavlja dio integrisanog upravljačkog sistema. Usaglašavanje sa standardima ISO 37001 provodi se na način (PDCA) da se aktivnosti planiraju, provedu, kontrolišu, po potrebi koriguju i kontinuirano poboljšava proces u cilju borbe protiv korupcije u preduzeću.

Postoje brojni razlozi zašto treba implemntirati sistem upravljanja za borbu protiv korupcije u skladu sa standardima ISO 37001 u preduzeća, a neki od njih su: promocija povjeranja, poboljšanje ugleda preduzeća, otklanjanje barijara za saradnju sa drugim preduzećima, sprečavanje, otkrivanje, istraživanje i rješavanje korupcije u preduzeću, te izbjegavanje rizika i troškova povezanih sa korupcijom.

Vlade malih zemalja u uslovima globalizacije moraju da sarađuju i predlažu najbolje strategije za razvoj ekonomije. Radi toga, vlade malih zemalja treba, kao Peru i Singapur, da preporuče svojim preduzećima da prihvate standarde ISO 37001 i da uspostave efikasne sisteme borbe protiv korupcije. Te preporuke treba ugraditi u nacionalnu strategiju borbe protiv korupcije, a za provođenje preporuka potrebno je obezbijediti posticajna sredstva preduzećima za uvođenje sistema borbe protiv korupcije.

LITERATURA

Anuar Nawawi, A. S. (2018). Internal control and employees' occupational fraud on expenditure claims. *Journal of Financial Crime*, 1-16. doi:https://doi.org/10.1108/JFC-07-2017-0067

Hafiza Aishah Hashim, Z. S. (2020). The risk of financial fraud: a management perspective. *Journal of Financial Crime*, 1-17. doi:10.1108/JFC-04-2020-0062

Holtzblatt, M. N. (2015). The Importance of the Foreign Corrupt Practices Act (FCPA) Accounting Education. *In Advances in Accounting Education: Teaching and Curriculum*, 65-87. doi:https://doi.org/10.1108/S1085-462220150000016004

Latimer, P. (2017). Anti-bribery laws – compliance issues in Australia. *Journal of Financial Crime, 24*(1), 4-16. doi:https://doi.org/10.1108/JFC-03-2016-0015

Obalola, K. O. (2014). The Role of Auditing in the Management of Corporate Fraud. *In Ethics, Governance and Corporate Crime: Challenges and Consequences*, 129-151. doi:https://doi.org/10.1108/S2043-052320140000006006

O'Connell, R. L. (2009). The changing face of regulators' investigations into

Todorović, Z., et al. (2020). Sistem upravljanja za borbu protiv korupcije u preduzeću. *STED Journal, 2*(2), 56-65.

financial. *Accounting Research Journal, 22*(2), 118 - 143. doi:https://doi.org/10.1108/103096109 10987484

Papastergiou, M. K. (2016). Fraud victimization in Greece: room for improvement in prevention and detection. *Journal of Financial Crime, 23*(2), 481-500. doi:https://doi.org/10.1108/JFC-02-2015-0010

Teichmann, F. M. (2019). Bribery – an obstacle to international development. *Journal of Financial Crime, 266*(3), 746-752. doi:10.1108/JFC-08-2018-0080

Teichmann, F. M. (2019). Incentive systems in anti-bribery whistleblowing. *Journal of Financial Crime*, 1-11. doi: https://doi.org/10.1108/JFC-04-2018-0041

Tenoyo, S. V. (2015). "Fraud awareness survey of private sector in Indonesia. *Journal of Financial Crime, 22*(3), 329 - 346. doi:https://doi.org/10.1108/JFC-03-2014-0016

Torres, G. P. (2020). The effectiveness of the international anti-corruption legal framework in the context and practice of Colombia. *Journal of Financial Crime, 27*(2), 437-476. doi:10.1108/JFC-09-2019-0126

Wanting Lu, X. Z. (2020). Research and improvement of fraud identification model of Chinese A-share listed companies based on M-score. *Journal of Financial Crime*, 1-14. doi:10.1108/JFC-12-2019-0164

Wells, J. T. (2001). Why Employees Commit Fraud. Association of Certified Fraud Examiners

COMPANY ANTI-BRIBERY MANAGEMENT SYSTEM

Zdravko Todorović[1*], Darko Tomaš[1], Boris Todorović[2]

[1]University of Banja Luka, Faculty of Economics, Majke Jugovića 4, 78 000 Banja Luka, Bosnia and Herzegovina, zdravko.todorovic@ef.unibl.org
[2]Axelyos – Solutions, Milana Karanovića 55b 78 000 Banja Luka, Bosnia and Herzegovina, boris.todorovic@gmail.com

ORIGINAL SCIENTIFIC PAPER

Corresponding Author:
Zdravko Todorović, University of Banja Luka, Faculty of Economics, Majke Jugovića 4, 78 000 Banja Luka, Bosnia and Herzegovina
zdravko.todorovic@ef.unibl.org

ABSTRACT

   Corruption is one of most destructive and complex problems nowadays. Its results negatively influence business environment, political stability and level of standard. On global level corruption presents major barrier in international trade. Governments of many countries have passed national program for battling corruption. The total cost of fraud will be difficult to objectively assess, in particular, will be difficult to calculate the indirect damage caused by fraud. Some frauds will never be discovered. It is estimated that organisations around the world on average lose 5% of annual revenues to fraud. Small reduction in costs due to fraud can significantly increase profit of organisation. The International Organization for Standardization has developed standard ISO 37001 - Anti-bribery management systems. It's the International Standard that allows organizations of all types to prevent, detect and address bribery by adopting an anti-bribery policy, appointing a person to oversee anti-bribery compliance, training, risk assessments and due diligence on projects and business associates, implementing financial and commercial controls, and instituting reporting and investigation procedures. Providing a globally recognized way to address a destructive criminal activity that turns over a trillion dollars of dirty money each year, ISO 37001 addresses one of the world's most destructive and challenging issues head-on, and demonstrates a committed approach to stamping out corruption. Paper presents research on level of corruption in Bosnia and Herzegovina, comparison with level of corruption in other courtiers, as well as correlation with the global competitiveness index. Moreover, paper presents methodology for development and implementation of system for battel against corruption in companies. Research results bring new scientific facts and findings in battle against corruption and methodological process of implementation of system for battel against corruption in companies.

   Key words: ISO 37001, Corruption, Business ethics, Competitiveness.

THE ANALYSIS OF BUREAUCRACY REFORM ON A PUBLIC SERVICE IN THE FIELD OF INDONESIAN COMMUNITY HEALTH

Linda Puspitasari, Hardi Warsono, Sundarso Sundarso

Diponegoro University, Faculty of Social and Political Sciences, Jl. Prof. H. Soedarto, S.H. – Tembalang Semarang, 50 275 Indonesia, jenewa.alexandra@gmail.com

REVIEW SCIENTIFIC PAPER

Linda Puspitasari, Diponegoro University, Faculty of Social and Political Sciences, Semarang, Indonesia, jenewa.alexandra@gmail.com

ABSTRACT

This research aims to analyze and describe issues of bureaucracy reform of health services in Indonesia. By using the literary study, method is through the results of basic health research and the expected results in public service contained in the Grand Design of Bureaucracy Reform. The results of the research have been conducted indicating that the current bureaucracy reform in the field of health services conducted by Indonesia's Government is not optimal. Because there are still many very difficult provinces get easy access to hospitals. From 34 provinces in Indonesia based on the results of basic health, research on 24 provinces are still very difficult to get easy access to hospitals, and the percentage is still above the national average. Where this condition widely perceived by communities who live or reside in rural areas. These Recombination given in this study are as follows: development of access services of equitable hospital, bureaucracy of Modern health, professionalism and work ethic as well as honest behavior in the management of health bureaucracy system. The application of information technology as a supporting good performance, health bureaucracy organization that has to be started from Low to Middle Community Health Centre *(Puskesmas)*, Health Office and Health Department. Modern Health management should be encouraged towards the professionalism strengthening of good attitude-based work, and the presence of control of each system perpetrators so that misuse of authority can be avoided in order the acceleration of health vision objectives can be realized.

Keywords: Bureaucracy Reform, Health Service, Bureaucracy Implementation, Modern Health, and Community Health Centre.

INTRODUCTION

Public services are essentially concerned with the vast aspects of life. In the life of the nation and state, the Government has the function of providing various public services required by the community, ranging from service in the form of arrangements or other services in order to fulfill communities necessity in the field of education, health, utilities, and others. Public services are thus all activities in order to fulfill necessity in accordance with the basic rights of every citizen and resident of any goods, services as well as

administrative services provided by service providers related to the public interest.

The fact that public service in Indonesia has not shown effective performance is often a discussion, both in terms of writing and research. These ineffective public service issues are triggered by some complex things, ranging from the organization culture that is still a paternalistic, working environment that is not conducive to the change of time, the low reward system around the Indonesian bureaucracy, low mechanism of punishment. For bureaucracy officials, lack the ability of bureaucracy apparatus to take actions of disagreements, and scarcity of local leadership commitments to create public services that are responsive, accountable, and transparent. In the period of regional autonomy that gives the freedom for each District/City to run the government based on the necessity and interests of the region itself was also not able to realize effective public service. The Result in the assessment of the effectiveness of the Indonesian Government's entry are into low category in Asia Pacific, as shown in the figure 1.

Based on the figure 1, it is known that the effectiveness of Indonesia's governance index is still lagging far away with some countries in the Asia-Pacific areas. In 2016, Singapore had the highest value of effective government indices with a value of 100, then Hong Kong with an effective government index value of 98.08, Japan with an effective government index value of 95.67. The next country that has effective government index value is better than Indonesia is Australia with an index value of 92.31, Malaysia with effective Government index value of 75.96, Thailand with effective Government index value of 66.35, and while the value of Government effectiveness index for Indonesia is only 53.37.
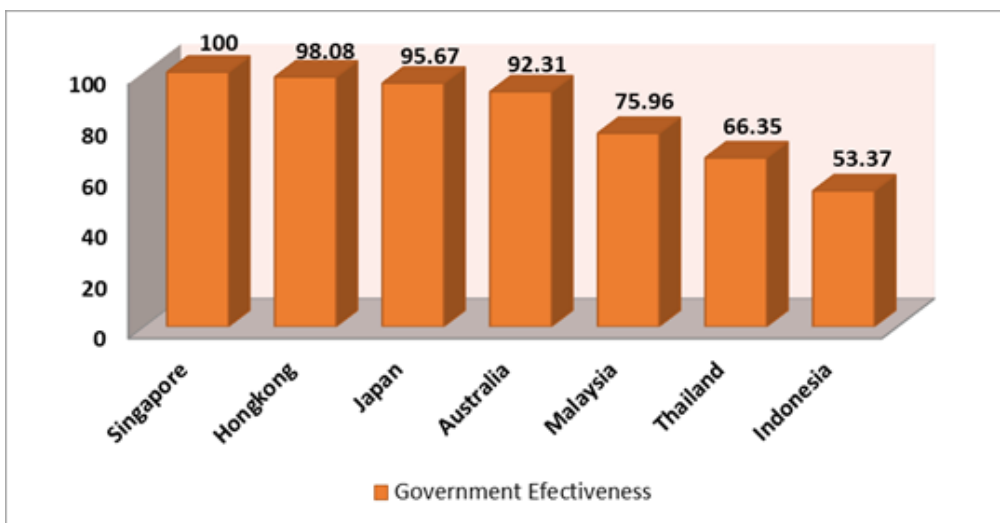
Figure 1. Government Effectiveness Index in Area of Asia Pacific Country (*The Worldwide Governance Indicators* [WGI], 2016)

The failure of government bureaucracy in organizing public service that respects the rights and dignity of citizens as a service user not only weakens the legitimacy of the government in its public eyes. However, it also affects the wider, the disbelief of private parties and foreigners to invest in an area because of uncertainty in the provision of public services. The Ombudsman noted in recent years reporting on the public service issues in Indonesia is still high. That can be seen in the figure 2.
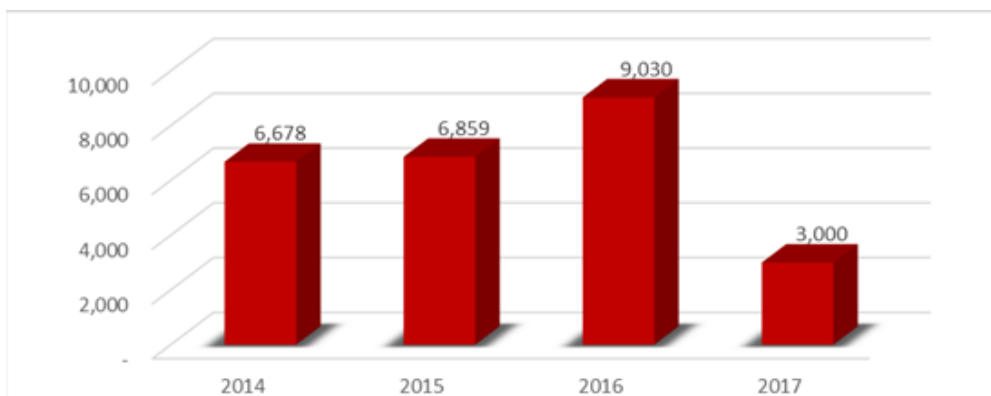
Figure 3. Accepted Report Gotten by Ombudsman Relate to Public Service Issue in Indonesia
(Ombudsman, 2018)

Based on the figure 2, it can be known that the record of Indonesia Republic's Ombudsman acceptance of the report on the pubic ministry was 2014 received 6,678 reports, 2015 received 6,859 reports, and 2016 received 9,030 reports. Whereas in March 2017, the Ombudsman said that during the first three months of the year 2017 there were recorded 3,000 reports related to public service. The most widely reported fields are land, regional governance (education and health) and in the third and fourth sequences are police and judicial. In the previous year (2016), the Ombudsman stated that the three most widely reported in public service areas were police, national Land agency, and personnel.

Based on the condition and answering the challenges of the Times that move toward globalization, it is necessary to take an action that can break the system that has been implemented in Indonesia, the need for reform efforts in public service. It aims to change and improve the bureaucratic order of service that feels sluggish, convoluted and discriminatory, heading towards *good governance*.

Bureaucratic reform is a consequence of the rapid political, economic and social change. The organizational representation is sluggish, rigid, convoluted and centralized, and the command hierarchy chain has become a hallmark of bureaucracy in Indonesia. Therefore, the bureaucracies become swollen, wasteful, and ineffective. For that reason, it takes an awareness to improve the bureaucracy as a public organization, Health service problems according to the deputy field of Public Service Ministry of Administrative and Bureaucratic Reform of the Republic of Indonesia named Diah Natalisa (2018) as a speaker in the *United Nations Public Service* (UNPS) Forum and Awards in Marrakesh, Morocco. She states that the main challenge of public health services in Indonesia is the issue of distribution, could be on medical personnel and health facilities, and again with the geographical condition of Indonesia, which an archipelago country is.

LITERATURE REVIEW
Reformation Understanding

Reform is changing or creating things better than existing ones. This reform was directed at the change of society, which included the bureaucracy of society, in the sense of change towards progress. In this sense, the community changes directed at development (Susanto, 2017). Mannheim, 2009, as referred by Susanto, 2017, explained that the change of society was related to the norm. Development is a development that is focused on the progress of the situation and life of the community, where the community finally also enjoys the progress of life. Thus, the change of

society is used as an increase in human dignity, so that the essence of change is closely related to the progress of society. Judging from the aspect of the development of the community, there is a balance between economic, political, social and legal demands, balance between rights and obligations, and consensus between the Principles in society (Susanto, 2017).

Bureaucracy Understanding

The bureaucracy comes from the word "bureau" meaning desk or office; and the word "Kratia" (Cratein) which means government. Initially, this term was used to refer to a system of work activities organized or ruled by an office through administrative activities (Nawawi, 2016). In the general English concept, bureaucracy is called "civil service". It is also commonly referred to as public sector, public service or public administration. Bureaucracy based on definitions expressed by some experts is a control system in organizations designed based on rational and systematic rules, and aims to coordinate and direct individual work activities in order to resolve large-scale administrative tasks (adopted from (Saueressig, 1973; Turner & Mouzelis, 1968; Wolff, Coser, & Rosenberg, 1958) in Adnan, 2014.

Bureaucracy Reform

Essentially bureaucracy reform is a significant change in bureaucratic elements such as institutional, human resources apparatus, governance, accountability, apparatus, supervision and public services, which are done consciously to the position themselves (bureaucracy) back, in order to conform to dynamic environment. Bureaucracy reform is one way to build people's beliefs. The scope of bureaucracy reform is not only limited to the processes and procedures, but also associates changes in structure and attitudes as well as behavior. This relates to the problems that intersect with authority and power. Bureaucracy reform is a community's expectation for the government to be able to fight Corruption, Collusion and Nepotism as well as form a clean government and the desire of the community to enjoy an efficient, responsive so do accountably public service.

Therefore, the community needs to know the government also in position as the judge and the party serves the bureaucracy reform that is done today so that the life of the state goes well, around the community. Bureaucratic reform aims to 1. Improve bureaucratic performance to be more effective and efficient. 2. The creation of a professional, neutral, open, democratic, independent bureaucracy, integrity, and competence in carrying out its duties and responsibilities as a public servant and state servant; 3. Clean government; 4. Improving the quality of service to the community; 5. Free from Corruption, Collusion and Nepotism.

Public Service

According to Kotler, & Keller, 2011 services are any actions or activities that a Party may offer to another party, which is essentially intangible and did not result in any ownership. While (Grönroos, 2000; Tjiptono, 2007) stated that service was a process consisting of a series of intangible activities that are common (but not necessarily) to occur in interactions between customers and employees, services and resources, physical or goods, and service provider systems, which are provided as solutions to customer problems.

Public service according to (Indonesia, 2009) was about public service is an activity or series of activities in order to fulfill these services necessity in accordance with the legislation for every citizen and resident of goods, services, and or administrative services provided by public service providers. According to the Department of Home Affairs (one door Integrated services institutional development) that public service is a process of assistance to others in certain ways that require an agreement and an interpersonal to create satisfaction and success, every service produces products either in the form of goods or services.

From some sense of public service that has been outlined above can be

concluded that public services as a service delivery or serve communities necessity as well as other organizations that have an interest in the organization, in accordance with the basic rules and procedures prescribed and intended to provide satisfaction to the recipient of service.

Public Service Reformation

According to (Kurniawan, 2007; Pollit & Bouckaert, 2000) defining public service reform was a systematic, thorough and ongoing change in order to better the public sector performance. Public sector reforms include not only organizational and management elements, but also human resources. Changes are not only focused on the quantity change, but also the quality. According to Ali, Islamy, Supriyono, & Muluk, 2013; Sinambela, 2011, explained some basic principles that can be used as guidelines in optimizing the bureaucracy performance at the local level, closely related to the improvement of internal state of the organization. These principles include as follows:

a. Accessibility principle: This means that all services must be easily accessible by every user of the service; this is related to the problem of place, distance and service procedure.
b. Continuity principle: means that efforts to promote the type of service must be continuously available to the community, with certain certainty and clarity that apply to the service process.
c. Technical principles: This principle relates to the process of service that should be handled by the apparatus that really understand technically the service is based on the clarity, determination, and stability of the system, procedures as well as services.
d. Principle of profitability: services as much as possible can be performed effectively and efficiently, provide economic and social benefits for both the government and the wider community.

e. Accountability principle: meaning the process of product and service quality that has been given must be accountable to the community because the government officials in essence have the task of giving the service as good as possible.

RESEARCH METHOD

Analysis of the study conducted through a review of the literature related to health care problems in Indonesia studied from various literature and results of previous studies compiled from various surveys. Literature Review is conducted from various points of view; Theories and journals to learn the determinants and factors of health care provided by Indonesia's Government. The study of data analysis results from (Kementerian Kesehatan RI Badan Penelitian dan Pengembangan, 2018) is one of the community-based information used in analyzing determinants related to health service events in every province in Indonesia. Information regarding policies and programs is obtained from related sectors, such as Ministry of National Development Planning of the Republic of Indonesia (Bappenas) and Ministry of Health. The global policy on nutrition is obtained by downloading from the world's websites (WHO, UNICEF, World Governance Index, etc.) through Internet technology.

RESULT AND DISCUSSION

In an effort to increase the degree of public health in addition to the promote and preventive efforts, it is also necessary to curative and rehabilitative efforts. Curative and rehabilitative health efforts can be obtained through hospitals that also serve as referral healthcare providers. Based on Depkes 2014, on hospital classification and licensing, the grouping of hospitals based on the implementation, namely government hospitals, local government hospitals, and private hospitals. Government hospitals are technical implementing units of

Government agencies (Ministry of Health, Police, Indonesian National Army Forces, and other State-Owned Enterprise/Ministries). The regional hospital is the technical executor of the area (provincial government, district government and municipal government). While the private hospital as a legal entity whose business activity is not only engaged in the field of self-government but also the exception of public hospitals organized by legal entities that are nonprofit.

Bureaucracy reform in the field of healthcare services that focus on the construction of hospitals during the period 2015-2018 in the provincial government, regencies and cities the percentage increased annually (Figure 3).
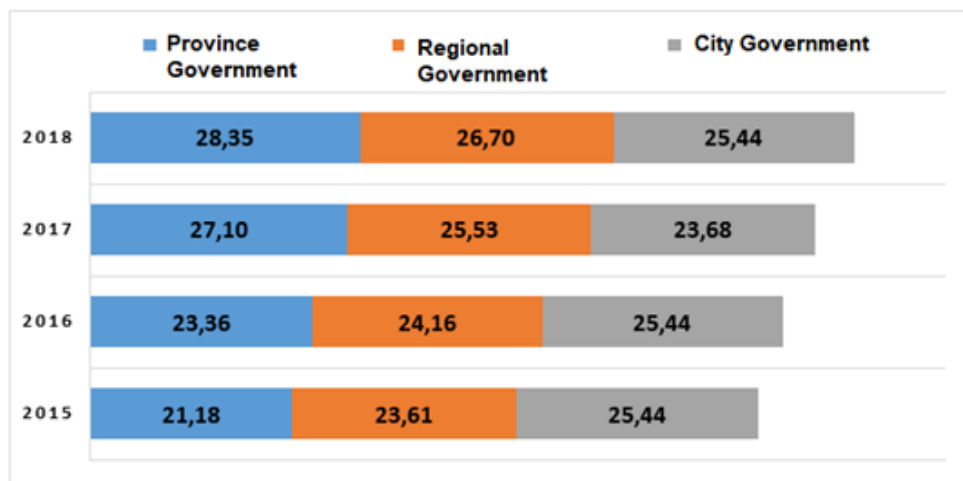
Figure 3. The Percentage of Regional Hospital Development in Indonesia (Directorate of Ministry of Health of Indonesia Republic, 2019)

Based on the graphic on figure 3, it can be noted that the percentage of the provincial hospital development in 2015-2018 has increased with the largest sump in 2016-2017. The percentage increase in this year was informed by 3.74% from the previous year. While the District/City level in Indonesia for 2015-2018 percentage of hospital development showed a relatively stable increase annually. However, the process of building the hospital in fulfilling the implementation of bureaucracy reform program during the year 2015-2018 felt not optimal. It can be found from the diagram on figure 4.

Based on the diagram (Figure 4), it is known that nowadays in Indonesia there are still many households in every province who have difficulties when they need medical service to the hospital in their region. The highest percentage of the province that has difficulty in conducting health services to hospitals is in Papua Province with a percentage of 59.3%. After that the highest percentage of the province that has difficulty in doing health services to the next hospital is East Nusa Tenggara with a percentage of 54.6% and the Sulawesi Province is the third highest province above the national average that has difficulty to get health services hospital in this area of 50.6%. While the least percentage of the province has, the difficulty level of access to the hospital is in Yogyakarta (7.6%).
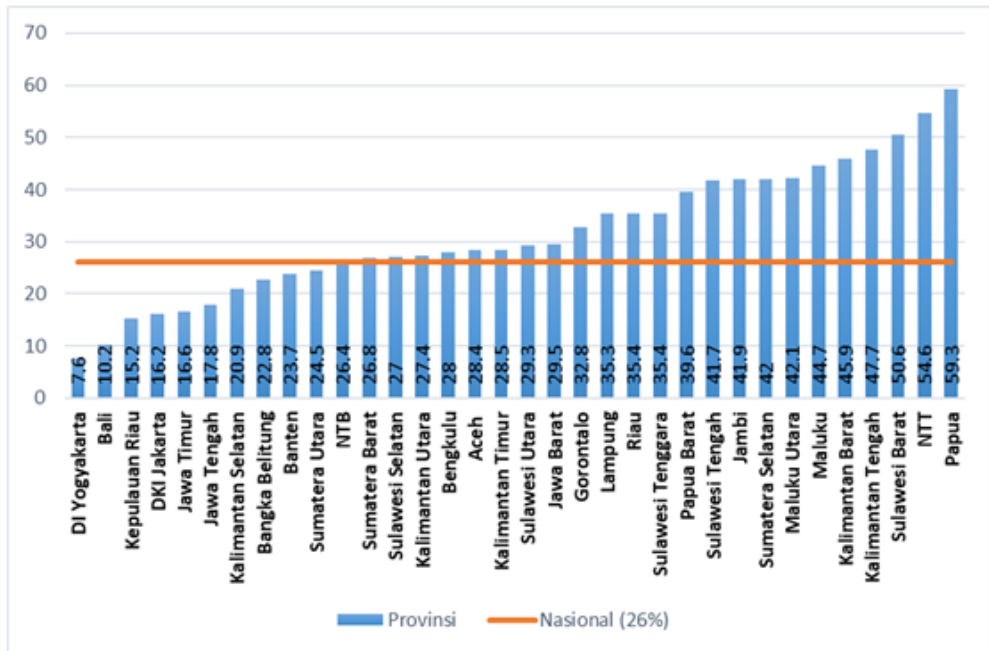
Figure 5. The Percentage of Facilitation Access of Household Activity Complicated to the Hospital
(Kementerian Kesehatan RI Badan Penelitian dan Pengembangan, 2018)
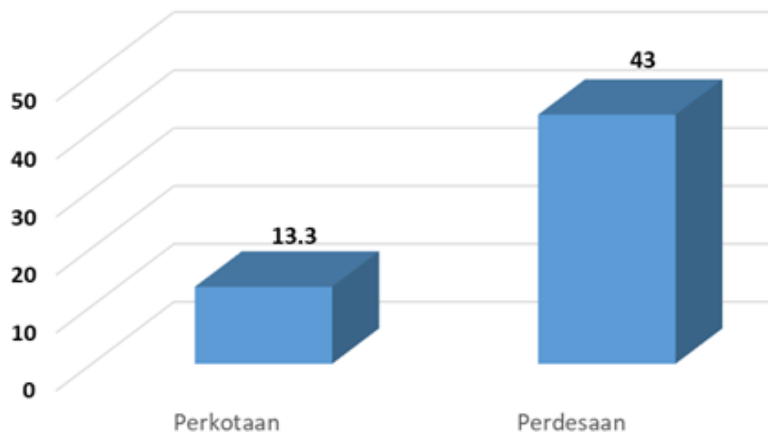
Figure 6. The Percentage of Household Complicated Group Access on Hospital Bases on Living Area
(Kementerian Kesehatan RI Badan Penelitian dan Pengembangan, 2018)

Based on the diagram on figure 6, it can be noted that based on the Residence/Region in Indonesia. There are many have difficulty to gain access to health services to the hospital in rural areas (43%), and in the urban area the percentage is smaller compared to rural areas with a joint of 13.3% of people easily get access to health services to the hospital than those in the rural area today. It can access and when viewed from the level of education the household group that is difficult to gain access to hospitals in Indonesia can be seen as the following graphic.
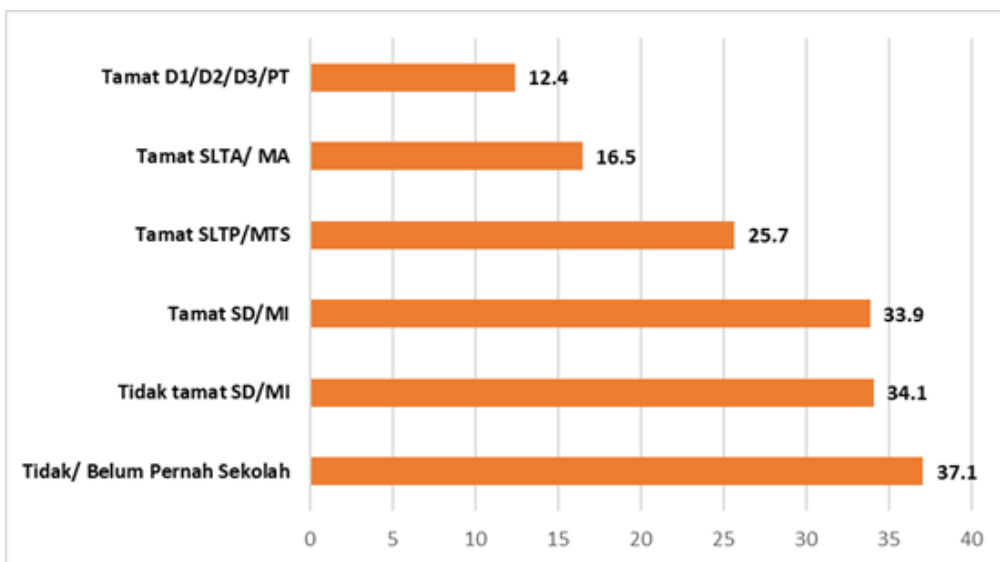
Fi8gure 7. The Percentage of Household Complicated Access to the Hospital Bases on Educational Level (Kementerian Kesehatan RI Badan Penelitian dan Pengembangan, 2018)

Based on the diagram on figure 7, it is known that the community that is very difficult to get access to health care service to the hospital is a group of people who have not/have been school with a percentage of 37.1%. Then the community that does not graduated from Elementary School (34.1%), and society group that graduated from Elementary School (33.9%). While the easy to get access to health services to the hospital by the level of education that has graduated from Bachelor Degree or University with a percentage of 12.4%.
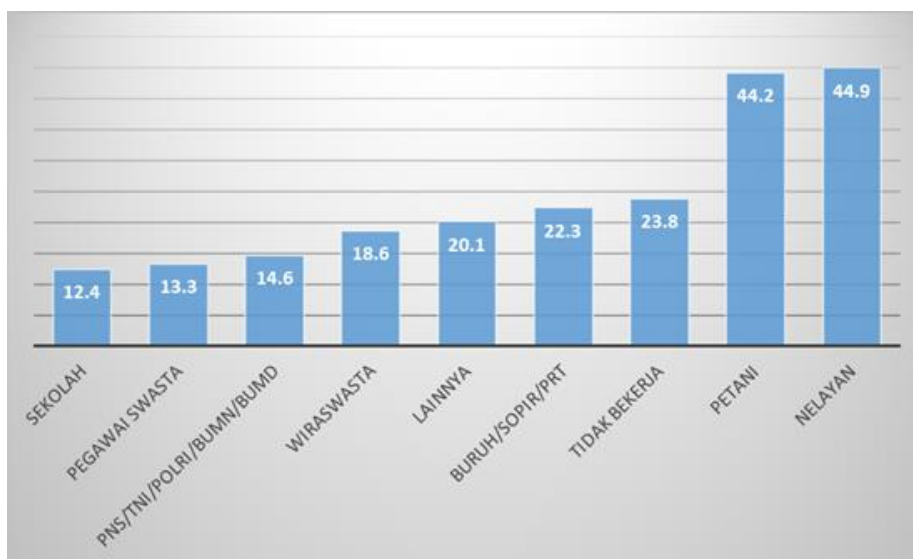

Figure 8. Percentage of Household Groups with Access Difficulties (Kementerian Kesehatan RI Badan Penelitian dan Pengembangan, 2018)

From the graphic on figure 8, it can be seen that the difficult community to get access to health services based on its job level is the highest percentage is a person who worked as an angler for 44.9%. The farmers with a percentage of 44.2% and a community that does not work very difficult to get access to the hospital service today.

CONCLUSION AND SUGGESTION

The results obtained from the use of the data presented by the researchers above become a real illustration that the bureaucracy reform conducted by the Government in the field of health services in Indonesia is not optimal. Because in accordance with the agenda of the Grand Design bureaucracy reform currently in the field of public service Area, which is, expected the change is about excellent service according to the necessity and expectations of society. Still many provinces that have not gained access to hospitals especially in rural areas proved that the bureaucracy reform of the health service sector has not been in accordance with the necessity and expectations of the society today. Because of the total number of 34 provinces in Indonesia that easily conduct health service access to hospitals only amounting to 10 provinces, while 24 other provinces are still very difficult to get access to the hospital and the condition is much enjoyed by the inhabitants in urban areas than in the rural area today.

The recommendations that researchers can provide for the Government are as follows:

The development of access to hospital disposal services that are evenly spread throughout the country, especially in the county area so that there is no inequality with hospitals built in the current urban area.

Organizing the bureaucracy of Modern health professionalism and work ethic and honest behavior in the management of health bureaucracy system is the necessity today. In addition, there must be collective awareness for all healthy human beings as well as other stakeholders.

Application of information technology as supporting good performance need to be empowered such as the reporting of health programs in Community Health Centre (*Puskesmas*). It is reporting recap districts, provinces to the center already have to have the technology of health information system that access quickly, easily in terms of monitoring and input the data of health programs that are actually done, so the validity of data and its validity can be held accountable.

Management system of health bureaucracy organization ranging from low to middle Community Health Centre (*Puskesmas*), Health Office and Health Department to be sought to have an autoclaved organizational system, in the sense of having a standard management implementation procedure, should also have a transparent accountability process both internally and externally organization.

Modern health management should be driven towards strengthening the professionalism of good attitude-based work, work ethic and good monitoring system so that every institution has a balancing power in its own institutional.

There is control on each of the system actors so that misuse of authority can be avoided so that the acceleration Goal of health vision can materialize

REFERENCES

Adnan, M.F. (2013). *Reformasi Birokrasi Pemerintahan Daerah Dalam Upaya Peningkatan Pelayanan Publik. Humanus, 12(2), 196-203.*

Ali, D.M., Islamy, M.I., Supriyono, B., & Muluk, M.R.K. (2013). *Bringing Local Wisdom-Based Local Government into Practice: A Quadrant Strategy Analysis. Public Policy and Administration Research IISTE, 3(5), 21-34.*

Grönroos, C. (2000). *Service Management and Marketing: A Customer Relationship Management Approach, 2nd Edition. Chichester (UK), New York: J. Wiley.*

Puspitasari, L., et al. (2020). The analysis of bureaucracy reform on a public service in the field of Indonesian community health. *STED Journal, 2(2), 66-75*

Indonesia, P.R. (2009). UU Nomor 25 Tahun 2009 Tentang" Pelayanan Publik". UU Nomor, 25.

Kementerian Kesehatan RI Badan Penelitian dan Pengembangan. (2018). RISKESDAS 2018. Kementrian Kesehatan Republik Indonesia. https://doi.org/1 Desember 2013

Kotler, P., & Keller, K.L. (2011). Manajemen Pemasaran Edisi 13, Jilid 1, Terjemahan. Jakarta: PT. Indeks..

Kurniawan, T. (2007). Pergeseran Paradigma Administrasi Publik: Dari Perilaku Model Klasik dan NPM ke Good Governance. Jurnal Ilmu Administrasi Negara, 7(1), 16-17.

Mannheim, K. (2009). The Sociological Problem. Essays on the Sociology of Knowledge, 5, 163-195.

Nawawi, J. (2009). Membangun Kepercayaan dalam Mewujudkan Good Governance. Jurnal Administrasi dan Kebijakan Kesehatan Indonesia, 2(1), 19-30.

Pollit, C., & Bouckaert, G. (2000). The nature of public management reform. Public Management Reform: A Comparative Analysis. New York: Oxford University Press, 6-23.

Depkes, R.I. (2014). Peraturan Menteri Kesehatan Republik Indonesia Nomor 56 Tahun 2014 tentang Klasifikasi dan Perijinan Rumah Sakit. *Jakarta: Departemen Kesehatan RI.*

Saueressig, R. (1973). *Industrial and Labor Relations Review, 26*(4), 1183-1184. doi:10.2307/2521436

Sinambela, L. (2011). *Reformasi Pelayanan Publik: Teori, Kebijakan dan Implementasi(CetakanKeenam).* Jakarta: BumiAksara.

Susanto, E.H. (2017). Kelambanan Reformasi Birokrasi dan Pola Komunikasi Lembaga Pemerintah. *Jurnal Aspikom*, *1*(1), 109-123.

Tjiptono, F. (2007). Strategi Pemasaran, edisi kedua. *Yogyakarta: Andi.*

Turner, C., & Mouzelis, N.P. (1968). Organization and Bureaucracy: An Analysis of Modern Theories. *The British Journal of Sociology*, *19*(3), 345-346 https://doi.org/10.2307/588841

Wolff, K.H., Coser, L.A., & Rosenberg, B. (1958). Sociological Theory: A Book of Readings. *American Sociological Review*, *23*(2), 228-229. https://doi.org/10.2307/2089025

ПОЛИТИЧКИ КАРАКТЕР НАЦИОНАЛИЗМА

Данијела Лакић

Слобомир П Универзитет, Правни факултет, Павловић пут 76, 76300 Бијељина, Босна и Херцеговина, danilalakic@yahoo.com

НАУЧНА КРИТИКА

Данијела Лакић, Слобомир П Универзитет, Правни факултет, Павловић пут 76, 76300 Бијељина, Босна и Херцеговина, danilalakic@yahoo.com

АПСТРАКТ

Крах комунизма деведесетих година прошлог века резултирао је ескалацијом национализма у Европи. Национализам је до данас остао једина политичка идеја о којој се суди на основу њених злоупотреба и појава као што су шовинизам или нацизам. Неправда је утолико већа што национализам, према свом изворном значењу, те негативне облике у које може прерасти, осуђује. Рат у бившој Југославији, сукоби у земљама некадашњег Совјетског Савеза, пораст тежњи за независношћу и унутар саме Европске уније и њених чланица (Велика Британија, Велс, Шкотска, Каталонија и др.) су примери какав може бити политички карактер национализма, и у ком смеру се може развијати у зависности од интереса политичке власти која га креира и њиме руководи.

Кључне речи: национализам, национална држава, идеологија.

УВОД

Без обзира на степен економско-технолошке развијености, карактер политичких поредака и државно-политичку конфигурацију, савремено друштво карактерише потрага за коренима и идентитетом. Етницитет се, као синоним људске потребе за коренима и припадношћу, у последњој деценији XX века вратио на велика врата. Негде је то, углавном у неразвијеним и вишенационалним друштвима (попут бивше СФРЈ), попримило екстремне димензије и узроковало ратове и разне облике тероризма.

Уместо да се повуче, национализам је експлодирао. „Уместо да јача универзализам, глобализација је изазвала реакцију, односно, снажење партикуларизма и секташтва на свим странама света. Национализам и националистички сукоби букнули су у Африци, Азији, затим на разочарање западних држава и у источној Европи (где је Балкан само најдраматичнији случај, вероватно не и последњи), и коначно регионалне, етничке и друге партикуларистичке тензије почеле су да јачају и у западној Европи (Северна Ирска, Баскија, Каталонија, Шкотска, Велс и други). Грађани Европске уније спремни су да своју унију прихвате у оној мери у којој им неће угрожавати локалне и националне идентитете“ (Ђурковић, 2002, стр. 9).

ШТА ЈЕ НАЦИОНАЛИЗАМ?

Национализам је: политика и идеологија која истиче нацију као целину, као апстрактну категорију, и њене интересе насупрот другим нацијама, у форми националних идеологија и политика намеће интересе реакционарних класа и снага; доктрина која приповеда националну искључивост и одвајање од других народа; покрет или тежња за националном независношћу (Политичка енциклопедија, 1975).

Узроци, природа и основна обележја национализма различито се доживљавају, вреднују и објашњавају. Е. Гелнер сматра да национализам није буђење самосвести једне нације, он измишља нације тамо где оне не постоје. Национализам је, пре свега, политички принцип према којем се политичка и национална целина морају подударати (Ериксен, 2004, стр. 272). Попер тврди да је национализам сродан побуни против разума и отвореног друштва јер се позива на наше племенске инстинкте, на страст и предрасуде, и на нашу носталгичну жељу да се ослободимо притиска индивидуалне одговорности коју он покушава да замени колективном или групном одговорношћу (Тамир, 2002, стр. 149). Национализам, према Гринфелду, покрива три врсте појава: национални идентитет и националну свест, артикулисану идеологију и ксенофобичне појаве националног патриотизма. Може се, даље, разликовати „бенигни" национализам, као покрет за национално ослобођење; национализам као политичка идеологија за утемељење државе на бази нације; и екстремни, ултранационализам који је агресиван према националним разликама (Голубовић, 1999).

Кедури подсећа да је национализам учење изумљено у Европи XIX века. Оно је било усмерено на то да утврди критеријум за одређење популационе јединице која има право на власт која је искључиво њена, за легитимно вршење власти у држави и за исправну организацију друштва држава. По овом учењу, човечанство је по природи подељено на нације, које се препознају по извесним обележјима која се могу установити, а једини легитимни тип владавине је национална самовлада. Ове идеје су се дубоко укорениле у политичку реторику Запада, а касније их је почео користити читав свет (Кедури, 2000, стр. 33).

Национализам је систем идеја, доктрина, слика света која служи стварању, мобилизацији и интеграцији веће солидарне заједнице (зване нација), али пре свега легитимацији нововремене политичке владавине. Стога национална држава са, по могућству, хомогеном нацијом постаје кардинални проблем национализма (Велер, 2002, стр. 15). Национализам не треба мешати са патриотизмом. Обично се ови термини користе на тако неодређен начин да је свака дефиниција подложна сумњи, али се између њих мора истаћи разлика, јер је реч о две различите, чак и супротне идеје. Под „патриотизмом" се подразумева приврженост одређеном месту и одређеном начину живота за које неко верује да су најбољи на свету, али не жели да их силом натура другима. Патриотизам је по природи одбрамбеног карактера, и у војничком и у културном смислу. С друге стране, национализам се не може одвојити од жеље за владањем. Трајни циљ сваког националисте јесте да обезбеди већу власт и углед не за себе, већ за нацију или другу целину у којој је одлучио да утопи своју индивидуалност (Орвел, 2002).

Национализам настаје као идеологија интеграције грађанске класе у борби против касног феудалног политичког, економског и културног патикуларизма. Међутим, идеје националности и национализма развијале су се као саставни део успона свих оних идеја које су након политичке августинизације и победе томизма од IX-XIII века потицале из свакодневног искуственог живота људи, које су их уверавале да разјашњење тајни живота лежи у спознаји закона природе а не само божанских прописа.

Нововремени национализам, како истиче Ханс-Улрих Велер у делу „Национализам“, могао је као јединствена појава да настане само на Западу, јер су једино тамо постојали јединствени услови који су омогућили генезу и потом победоносни поход национализма све до установљења националних држава (неке од тих претпоставки су: само је тамо у унутрашњем процесу стварања државе било довољно консолидованих држава и традицијама утврђених етнија, где су ови, у егзистенцијалним кризама изазваним процесима модернизације, ослонац потражили у новој слици света коју је доносио национализам; само је тамо за време криза модернизације једна утопија као што је национализам у својој тежњи за „замишљеним поретком“ могао да се ослони на елементе политичке теорије као што је суверенитет народа и право на самоопредељење; само је тамо постојало друштво у покрету са све израженијом социјалном структуром зависном од тржишта, са високом мобилношћу, са све школованијом интелигенцијом, од којих су се могли формирати национални покрети итд.). Повремено је ореол успеха национализма деловао и зрачио тако снажно да је тај национализам постао тражена извозна роба у свету. Али, тиме је истовремено отворио Пандорину кутију и за друштва са сасвим другачијим социокултурним и политичким склопом (Велер, 2002, стр. 69).

Жан-Жак Русо, који се сматра и оцем „модерног национализма“ иако се није посебно бавио нацијом, нити разматрао појаву национализма, нагласак је стављао на народни суверенитет изражен у идеји „опште воље“ (у ствари, опште добро друштва), а то је било семе из ког су током Француске буржоаске револуције 1789. године исклијале националистичке доктрине. Изневши гледиште да владавина треба да се заснива на општој вољи, он је развио снажну критику монархијске власти и аристократских привилегија. За време револуције ово начело радикалне демократије добило је израз у тврдњи да

француски народ представљају „грађани“ који поседују неотуђива права и слободе, а не више само поданици круне. Дакле, суверена власт припада француској нацији. Облик национализма који је произашао из Француске буржоаске револуције донео је виђење народа односно нације која сама влада и нераскидиво је повезана са начелима слободе, вредности и права. Појам национализам први пут је употребљен управо 1789. године у једном тексту француског свештеника и противника јакобинске револуције, Аугустина Баруела.

Национализам представља веровање да је нација основно начело политичке организације. Данас је уобичајено говорити и тзв. „добром“ и „лошем“ национализму. Под добрим национализмом се подразумева горљива и неагресивна лојалност нацији и отаџбини која се не само у колоквијалном вокабулару, изједначава са патриотизмом, па треба имати у виду да је патриотизам и испољавање оданости према државној заједници, што не мора увек значити и према нацији; под лошим национализмом или шовинизмом се подразумева агресивно, ничим изазвано опхођење према припадницима других нација, политичка ксенофобичност и нетолеранција које се најчешће испољавају у праву на мржњу и туђу територију. Мада између ове две позиције има безброј нијанси, узрок црно-белом оцењивању национализма, као час врло пожељног, час као врло непожељног политичког понашања, лежи у чињеници да је од свих идеологија националистичка идеологија најмање ситуирана на компромису. Њен носећи принцип је искључивост због чега су и ретки њени неутрални оцењивачи (Симеуновић, 2002, стр. 223).

Национализам је данас, ваљда, једина политичка идеја о којој се суди на основу њених злоупотреба: империјализма, шовинизма и нацизма. Неправда је, утолико већа, што национализам те злоупотребе, у ствари те појаве, осуђује. Политичка теорија не цени карактер неке

идеје по томе колико и како она може бити злоупотребљена, већ да ли она може превладати своје злоупотребе, да ли их може надјачати, да ли је вредносно изнад својих злоупотреба и онога што она осуђује. Осим тога, у теорији се политички карактер једне идеје оцењује још и по томе, колико она доприноси слободи човека, друштва и друштвених група. У том погледу, теорија сваку политичку идеју пропитује са два становишта: прво, колико она појединца подређује моћи његових заједница, то јест, колику му слободу у том погледу пружа и друго, колико она моћи појединца и његових заједница подређује моћ политике, то јест колико појединца и његове заједнице ставља изнад политичке власти.

Моћ национализма произилази и из чињенице да је он и етнички/културни и политички феномен. Са једне стране, као етнички и културни феномен, омогућава појединцу идентификацију са широм етничком групом прелазећи, при томе, временске и просторне границе, и на тај начин припадници нације задовољавају неке од својих основних људских потреба, нпр. ону за сигурношћу и припадношћу. Као политички феномен, тј. идеологија са јаком емоционалном компонентом, он има велики мобилизаторски потенцијал, што је нарочито важно у кризним периодима, било да су они политичке, економске или безбедносне природе (Вукоичић, 2015, стр. 177). У таквим периодима посебно се интензивира значај разлика између етничких групација односно „онда када је потребан други као непријатељ, како би се у атмосфери угрожености лакше придобила подршка припадника заједнице. С тим циљем активира се етнички/национални идентитет који одређује симболичку конструкцију културне разлике и дихотомизацију других - као странаца“ (Пешић, 2012, стр. 184).

ОБЕЛЕЖЈА НАЦИОНАЛИЗМА

Захтеви за националном слободом, независношћу, демократијом, пацифизам и мирољубивост у односима међу народима и нацијама су основни, суштински, политички садржаји идеје национализма. Са овим својим садржајима национализам је, на политичком плану, саставни део теорија слободе и демократије, тачније, на политичком плану он се прелива у те теорије и чак их надраста. Међутим, морамо нагласити да је по својој социјалној природи национализам етички принцип, да је он и као демократско и као слободарско начело увек принцип љубави према својој нацији. Ово својство национализма, ову његову социјалну природу, многи не схватају, превиђају је и занемарују, а многи јој махинално, траже антипод па национализам априори, одређују још и као принцип мржње. Највећа несрећа национализма баш и лежи у томе што му људи прилазе са оваквим предрасудама, не питајући се да ли нешто може бити истовремено и љубав и мржња. Национализам може бити истовремено и принцип љубави и мржње, али само под условом да се једно од то двоје не види или прећуткује. Шовинизам, нацизам, расизам и слично су појаве другог квалитета, осећаји мржње која завршава у етничком чишћењу, геноциду и другим насилничким понашањима и на супротном су полу од слободарства и демократије. Као етички принцип национализам је, пре свега, принцип љубави према својој нацији и он не дозвољава порицање ничије нације, па је у том смислу, и принцип љубави а не мржње, према свакој другој, то јест, туђој нацији. Ако би национализам значио порицање туђе националности, онда би он био највећи противник самом себи, значио би своје порицање, био би највећи противник своје националности.

Најважније обележје национализма је то што он националну државу сматра непревазиђеним обликом организовања, кључним фактором у међународним односима и најбољим гарантом политичке стабилности, па тако и демократије и грађанских права. Ово мишљење преовладавало је у XIX и XX

веку, у доба национализма, у многим деловима Европе, а не само на њеном југоистоку, и било је посебно актуелно у време распада дотрајалих империјалних структура: Отоманског царства, Аустро-угарске и Совјетског Савеза. Таква царства су се, с правом или не, сматрала анационалнима, а њихова се наводна незаинтересованост за етничка питања често схватала као маска за доминацију једне нације. Када су се ове „империје" распадале, етнонационалисти су им задали коначан ударац, залажући се пре за њихово распарчавање него за демократизацију или реорганизовање.

Национализам чини нацију мером државе, он одређује границе њене одговорности према нацији и до којих граница држава може ићи у својим правима према појединцу и према друштву. Тек са појавом национализма, систем демократске владавине и једнакости прешао је, у том смислу, своје последње границе. Нема слободе и демократије без националне слободе. Нема ни демократије без слободе за све националности, за све националне мањине. Без тога свако поимање демократије остаје, у крајњем, дискриминаторско, тачније, водило би дискриминацији, националном и политичком угњетавању мањина.

Када говоримо о демократији као обележју национализма, не заборавимо да је национализам у политици значио њену демократизацију. Секуларизација европског друштва била је неопходна претпоставка за настанак европског национализма. У одсуству цркве одлучујућу улогу је одиграла држава, подржана интелигенцијом и грађан-ством. Рађање идеје нације значило је крај епохе у којој је политика била ствар династија, цркве и феудалног племства, док је сам народ сматран објектом без икакве политичке воље. Сваки члан нације постао је судеоником националне политичке воље, а то је значило демократизацију политике, увођење општег права гласа и парламентаризма. Данас када се често истиче да грађанска свест и стварање грађанског друштва

захтевају својеврсну денационализацију, изнова треба наглашавати: грађанска свест и национална свест иду заједно, као што и нација и демократија иду заједно (Бодрожић, 2012, стр. 92, 93).

Демократија је обележје првенствено тзв. грађанског или политичког национализма, који се разликује од етничког јер у начелу не искључује никога ко има право на држављанство рођењем или натурализацијом. Он има за циљ да уједини припаднике одређене заједнице, без обзира на њихове друге припадности, истицањем заједничких припадности, симбола и институција. Попут демократије, политички (грађански) национализам подразумева оданост колективном "самоодређењу" целокупног становништва, без обзира на етничку, верску или расну припадност или било коју другу културну разлику, као што су језик или наречје. „И политички национализам и демокрација укоријењени су у поставци да они који настањују одређену територијалну државу или теже заједничкој држави дијеле становити осјећај политичког идентитета. Национализам у овом политичком или грађанском значењу тога појма подударан је с демокрацијом" (Lakoff, 2000, стр. 81).

3. Голубовић сматра да постоје значајне разлике између националног осећања и национализма као дегенерисаног облика националног идентитета. Оне се састоје у следећем:

- Национално осећање изражава природну потребу за припадањем, за укорењеношћу, али је то приватна ствар појединца и он може да врши избор; док је национализам искључива идеологија која супротставља супериорност своје нације другим народима и обележава принудну припадност прокламујући гесло једна нација – једна држава.

- Национално осећање не искључује разлике и не супротставља се нужно другом као непријатељском, јер идентификацију са својом нацијом не доживљава искључиво; национализам је, напротив, ксенофобичан јер се етничка солидарност сукобљава са туђим

елементима, те се гаји неповерење према другом.

- Национално осећање омогућује појединцу да конкретније перципира свој друштвени миље и да започне процес културне идентификације ради стицања елементарне сигурности у одређеној друштвено-политичкој заједници; национализам, пак, у афектној везаности и оданости појединца искључиво својој нацији надјачава и редукује све остале врсте припадности на сопствену етничку групу. Стога националистичко осећање пружа сигурност појединцу само под условом приклањања ауторитету нације, која му се намеће као судбина (Голубовић, 1999).

Према Н. Кецмановићу, национализам надјачава национално осећање онда када доминира: тенденција да се поседује територија; схватање да је свака нација независна држава; веровање у заједничку историју и порекло; осећање поноса због достигнућа своје нације; анимозитет према другим етничким групама; догма да појединци живе искључиво за нацију; доктрина о супериорности сопствене нације и вера у посебну националну мисију; уверење да је судбина нације и судбина сваког појединца; мистична оданост организму познатом као Volk (Голубовић, 1999).

Кад је последица друштвених и демографских промена, национализам често има изолован и затворен карактер, те носи са собом расизам и ксенофобију (ксенофобија - патолошки етноцентризам; страх од странаца или мржња према њима). У анализи улоге национализма у периодима промена, каква је нпр. транзиција, иако то није често случај у стручној литератури, вредносно неутралан приступ овој веома запаљивој теми политичког дискурса био би пожељно решење у односу на становишта која полазе од његове позитивне или негативне перцепције. У примени оваквог методолошког приступа, национализам не представља нити добро нити зло по себи, а о оцени његовог дејства у појединим друштвима тада се мора узети низ фактора, на практичном плану тако постају могућа различита објашњења успеха/неуспеха одређених реформских политика. Али, несумњиво је да национализам може имати позитивну улогу у мобилизацији становништа ка прихватању неопходности структуралних промена у друштву (Новаковић, 2009, стр. 131).

НАЦИОНАЛИСТИЧКА ИДЕОЛОГИЈА

Као идеологија, национализам је релативно нов, модеран феномен. Савремени теоретичари, попут А. Смита, истичу да је национализам модерни покрет и идеологија која се појавила у другој половини XVIII века у Западној Еуропи и Америци, те да након врхунца у два светска рата, сада почиње слабити и узмицати пред глобалним силама које прелазе границе националних држава (Smith, 2003, стр. 1). Међутим, збивања на Балкану крајем XX века показала су супротно. У настанку нових националних држава (посебно оних на тлу бивше Југославије) национална идеологија одиграла је велику улогу, она је била покретач маса и надахнуће да се верује у идеју државности, да се у име те идеје појединац бори и жртвује, али и да наноси зло. Да бисмо схватили какве све улоге може имати националистичка идеологија, неопходно је, пре свега, објаснити сам појам идеологија и основне карактеристике националистичке идеологије.

Према Д. Симеуновићу, различита значења која се придају термину идеологија могу се свести на два основна. По једноме је идеологија укупност друштвене свести ових или оних облика социјалних обједињења (класа, нација, држава, друштвених група, организација итд.), по другоме идеологија је специфична појава у друштвеној свести мање или више нетачна, илузорна, ограничена свест, која настаје услед дејства друштвених чинилаца (структуре, социјалног положаја и одговарајућих интереса) на

сазнање, чега међутим, субјекти идеолошког мишљења нису свесни. У првом случају темин иделогија има неодређено значење или је синоним других термина (класна свест, национална свест, идејна надградња итд.). У другом случају идеологија је назив појма чија се садржина односи на специфичну друштвену појаву. Ово друго значење термина идеологија има знатно ширу распрострањеност. Сам израз идеологија потиче од француског филозофа Destutt de Tracy (1754-1836), који га је употребио за означавање опште „науке о идејама" (science des ideas), која би требало да буде основа свих наука (Симеуновић, 2002, стр. 201).

„Оно што зовемо национализмом делује у многим равнима и може се сматрати колико неком врстом политичке идеологије и друштвеног покрета, толико и обликом културе" истиче Смит, а националистичку идеологију дефинише као „идеолошки покрет за постизање и одржавање аутономије, јединства и идентитета у име популације за коју неки њени припадници сматрају да представља стварну или потенцијалну 'нацију'" (Smith, 1998, стр. 116, 119). По њему, у средишту национализма као политичке идеологије је културна доктрина, а она се у зависности од друштвено-политичког контекста и захваљујући својим „камелеонским својствима", ослања и повезује са другим врстама колективних идентитета (нпр. класним, верским) и с другим идеологијама – либерализмом, комунизмом, фашизмом и др.

У савременој теорији нема сагласности о идеолошком статусу национализма – „да ли је он посебна политичка идеологија или политички феномен који се калеми на различите идеолошке садржаје" (Цветковић, 2017, стр. 27). Историја нам показује да је национализам присутан и активан у свим идеолошким садржајима и формама: од либерализма и социјализма/комунизма до фашизма/нацизма. Према В. Цветковићу, очигледно је да нема

засебан статус у односу на носеће идеологије Модерне, али је и евидентно да је управо национализам можда њен најважнији политички феномен, који је настао из формирања модерних држава нација, при чему је свест о припадности одређеном колективитету од првог дана била изложена различитим политичким (зло)употребама. С обзиром на то да је народ у форми нације постао основа модерног политичког легитимитета, свако ко утиче на његово саморазумевање може да рачуна на политичку моћ. Национализам је тако постајао политичко средство које се користило у најмање два смера: подвлачење разлике у односу на друге нације (државе) и афирмација властитих достигнућа (Цветковић, 2017, стр. 28). Националистичка идеологија се схвата и вреднује на различите начине, а њена оцена највише зависи од ефеката политичке и социјалне праксе коју је подстицала и производила. Национализам као политичка идеологија је теорија политичког легитимитета која успоставља посебан однос између етницитета и државе, те захтева државу у име етничке групе. Такав национализам своди целокупну људску и друштвену еманципацију на националну еманципацију, иако су друштво и нација различите категорије.

Оцене о националистичкој идеологији, када изуземемо емоције које су својствене сваком припаднику нације, не могу се другачије доносити него као и за све друге идеологије, у зависности од начина употребе ове идеологије од стране политичких покрета у конкретним друштвено-историјским околностима. Националистички покрети су имали и имају, често, веома различите и супротне циљеве: национал-социјалистички и фашистички у Европи након Првог светског рата; ослободилачки покрети у окупираним земљама у Другом светском рату; антиколонијални покрети за националну независност у Африци и Азији; сепаратистички у Западној Европи (Баскија, Корзика, Северна Ирска), такви

покрети су присутни и на простору бившег СССР-а и широм Источне Европе; хегемонистички као покушај стварања државне заједнице свих припадника нације (посебно карактеристични за Балкан) и др.

Националистичка идеологија је настала као идеологија грађанске класе у њеној борби против касног феудалног политичког, економског и културног партикуларизма. Националистичка идеологија особито се јавља у периодима великих друштвено-политичких криза (збивања која су пратила распад СФРЈ потврђују ову чињеницу). Захваљујући њој политичке елите остају на власти, користећи се њиме придобијају подршку маса и скрећу пажњу грађана са социјалних проблема.

Упоришне тачке сваке националистичке идеологије су: тумачење и највише могуће вредновање националне заједнице као крвне и интересне заједнице, до чије се потврде важности стиже искључиво статусом посебне, националне државности; ауторитаризам испољен у култу вође и захтеву за потпуним потчињавањем: а) појединца националном интересу апстрактног колективитета и б) државног апарата апсолутној контроли владајуће националне странке; инсистирање на нужности припадања сваког појединца некој нацији; прецењивање значаја националне хомогенизације у врло различитим етапама друштвеног развоја; изразита мобилизациона моћ услед окренутости ирационом (вођа говори срцу); митски садржаји политике и историје као добро конструисан основ пријемчивости те идеологије за масе; елементи утопије; схватање о увек могућој ексклузивности позиције сопствене нације у односу на друге (ова тврдња нема негативну конотацију јер се може говорити и о ексклузивности не само надмоћне него и лоше позиције, за шта је типичан тзв. јеврејски пример); давање великог значаја вери, националној издаји и лојалности вођству; развијање склоности за персоналну идентификацију са успесима или неуспесима читаве нације;

лакоћа радикализације спољне и унутрашње политике. Не заборавимо и да национални фанатизам своју енергију црпи из романтизоване прошлости, а својствено му је и неговање бруталне моћи (ратничког духа и херојског начина живота), укидање свих политичких, грађанских слобода и насилно подређивање појединца апстрактним интересима нације и култу вође (Тадић, 1986).

Огромна снага и манипулативна вредност националистичке идеологије лежи управо у томе што је она у данашње време најпоузданије и најефикасније средство и начин супституисања реално постојећих унутрашњих социјалних тензија и сукоба опречних интереса, истицањем конфликтног интереса на спољном плану – међу нацијама (националним државама) које наводно, угрожавају једна другу у погледу остваривања њихових „историјских права“, и виталних развојних потреба. Овде се ради о принципу хомогенизовања нације, који је по својим стварним циљевима у суштини перфидна бирократска подвала. У питању је покушај да се формално признати и прихваћени плуралистички демократски начин смањења нагомиланих социјалних тензија и решавање интересних конфликата замени другим, бржим и за политичку елиту безболнијим начином постизања тог истог циља. Алтернатива која се нуди јесте успостављање апсолутног националног јединства (с тим што се сваки вид његовог нарушавања третира као чин националне издаје), национално окупљање око историјски проверених и неприкосновених националних вредности, завета, симбола и око популарних народних избавитеља којима се мора поклонити безусловно поверење да би могли да обезбеде остваривање прокламованих високих циљева. Борба за хомогенизацију нације око апсолутизованог националног интереса служи јачању неконтролисане и апсолутизоване власти националне политичке елите над

нацијом (опширније видети у: Енциклопедија политичке културе, 1993, стр. 719).

„Мит национализма", истиче М. Матић, „постаје лажни излаз за различита друштвена стања и односе који се иначе не би могли правдати и одржати у својој отвореној и препознатљивој социјалној и класној суштини" (Енциклопедија политичке културе, 1993, стр. 719). Националистичку идеологију одликује способност иницијације и умеће одржања духа колективизма као основе националне солидарности. З. Голубовић напомиње да је национализам један облик колективне идентификације, а који ће се од облика национализма јавити зависи од тога да ли је национална идентификација само један од облика идентификације међу осталима, или постаје ексклузивна и експанзивна форма идентификације. Национализам као ексклузивна идеологија јавља се као нова религија, која захтева веровање, а не рационално расуђивање, и замагљује представу о стварности стварајући привид јединства у класно, расно и етнички подељеном свет (Голубовић, 1999, стр. 86, 89).

Нација је кључни појам ове идеологије и њој је све подређено (опстанак нације је највиши циљ). Зато се политичке елите у свакој националној држави такмиче ко је боље национално одређен и ко ће показати више умешности у остваривању националних циљева. Националистичка идеологија доприноси настанку нових националних држава тако што агресивније националне елите инспиришу и оснажују и мање амбициозне елите суседних нација да склоне или затворе „своје" нације у „своју државу" од нарастајућих нација које се налазе у истој геополитичкој сцени. (Симеуновић, 1995, стр. 39).

Свака врста угрожености најбоље се отклања јачањем онога ко је угрожен, стога свака нација која је „угрожена" тежи јачању на војном, економском и политичком плану. То јачање најбрже и најделотворније се постиже на пољу

духа, зато најважнији задатак науке, уметности и образовања постаје јачање националног бића и националне самосвести (а то се остварује кроз величање значаја сопствене нације). Владајуће политичке елите ове моменте користе и за учвршћивање свог положаја и у први план стављају наводну угроженост опстанка нације и себе представљају као њене спасиоце и заштитнике. А пошто је у питању опстанак нације, то је свети циљ који захтева покорност маса и давања апсолутног поверења елити на власти. Националистичка идеологија тада обећава статус „небеског народа", свете вредности и прокламује националну мисију. Она је и традиционалистичка идеологија јер се у својој мисији ослања се на прошлост и историјске митове, користи митове и митологију као идеолошко средство да би утврдила света права нације, према којима се сопствена нација подизе на пиједестал изабраног народа.

Националистичка идеологија у кризним временима постаје оруђе у рукама интересних група и захваљујући њој горући друштвени проблеми бивају потиснути у други план, а мисли грађана скренуте са социјалних на тзв. националне проблеме. Захваљујући томе те групе опстају на власти, а и саме не верују у истинитост идеологије коју пласирају. Или како је то С. Басара закључио: „Идеологије овде традиционално служе као параван интересним групама. Мало ко овде заиста верује у оно што прича и то је наш велики проблем. Поетике, политике, идеологије, животни ставови, све је то углавном симулирано. Ствари се спуштају и до бизарних нивоа. Идеологија је техника за неполитичке интересе, на пример за обезбеђивање посла за тетку и стана за брата од стрица" (Басара, 2006).

ЗАКЉУЧАК

О политичком карактеру национализма владају различита мишљења. На једној страни, на национализам се гледа

као на напредну и ослобађајућу снагу која пружа наду у национално јединство или назависност. На другој страни, упозорава се да национализам може бити ирационална и реакционарна доктрина која даје могућност политичким вођама да у име нације воде политику рата и насиља. Национализам, у ствари, показује све знаке да је политички пандан синдрома подељене личности.

У различитим периодима био је и прогресиван и реакционаран, демократски и ауторитаран, ослобађајући и потчињавајући, левичарски и десничарски. Карактер национализма одређен је у великој мери условима у којима настају националистичке тежње, али и политичким циљевима за које се везује. Отуда, као одговор на искуство стране владавине или колонијалне власти, национализам је обично ослобађајућа снага повезана са циљевима слободе, правде и демократије. Национализам, негативно схваћен и употребљен, повлачи за собом мржњу, сукобе, ратове, нарушава људска права и слободе (грађански рат у бившој СФРЈ је пример шта негативно политички интрепретирана улога национализма може узроковати и учинити).

Национализам ће још дуго бити најрелевантнија политичка идеја и друштвена тема, а посебно на нашим просторима. Потомци бивших Југословена биће и даље разапети између властитог национализма и модела којим ће живети Европска унија.

ЛИТЕРАТУРА:

Бодрожић, Ђ. (2012). Нација на западу: Порекло и суштина западноевропског национализма. *Политичка ревија*, *24*(1) 81-96.

Басара, С. (2006). *Идеологије овде служе као параван интересним групама*. Београд: лист *Данас*, 04.03.2006., стр. 8. Преузето 10.10. 2020. са http://web.arhiv.rs/develop/vesti.nsf/fe aee540dc011162c1256e7d0032cb98/b 9c9fac8cf49b89dc1257128005d54a8? OpenDocument

Велер, Х.У. (2002). *Национализам.* Нови Сад: Светови.

Вукоичић, Ј. (2015). Етничка и политичка димензија идеологије национализма. *Politeia*, *5*(10), 161-179.

Голубовић, З. (1999). *Ја и други: антрополошка истраживања инди-вуалног и колективног идентите-та*. Београд: Република.

Ђурковић, М. предговор за: Тамир, Ј. (2002). *Либерални национализам*. Београд: Филип Вишњић.

Ериксен, Т.Х. (2004). *Етницитет и национализам*. Београд: Библиотека ХХ и књижара Круг.

Енциклопедија политичке културе. (1993). Београд: Савремена администрација.

Кедури, Е. (2000). *Национализам*. Подгорица: ЦИД

Lakoff, S. (2000). Национализам и демокрација. *Политичка мисао*, *36*(1), 56-83.

Новаковић, А. (2009). Национализам и транзиција – о једном методолошки смисленом појму национализма. *Српска политичка мисао*, *24*(2), 111-134.

Орвел, Џ. *„Белешке о национализму"* у Симеуновић, Д. (2002). *Теорија политике – ридер*. Београд: Удружење „Наука и друштво".

Пешић, М. (2012). Национални идентитет и интеркултурни дијалог. *Национални интерес*, 2/2012, 165-197.

Политичка енциклопедија (1975). Београд: Савремена администрација.

Симеуновић, Д. (2002). *Теорија политике – ридер*. Београд: Удружење „Наука и друштво".

Симеуновић, Д. (1995). *Нови светски поредак и национална држава*. Београд: Ферко.

Smith, D.A. (2003). *Национализам и модернизам. Критички преглед сувремених теорија нација и национализма*. Загреб: Факултет политичких знаности.

Smith, D.A. (1998). *Национални идентитет*. Београд: Библиотека XX век.

Тадић, Љ. (1986): *Да ли је национализам наша судбина*. Београд: Мултипринт.

Тамир, Ј. (2002). *Либерални национализам.* Београд: Филип Вишњић.

Цветковић, В. (2017). Политичке идеологије – посредујући облици и паразитски садржаји. *Годишњак Факултета безбедности,* 1/2017, 9-36.

A POLITICAL CHARACTER OF NATIONALISM

Danijela Lakić

Slobomir P University, Faculty of Law, Pavlovića put 76, 76 300 Bijeljina, Bosnia and Herzegovina, danilalakic@yahoo.com

SCIENTIFIC REVIEW

Corresponding Author:
Danijela Lakić, Slobomir P University, Faculty of Law, Pavlovića put 76, 76 300 Bijeljina, Bosnia and Herzegovina, danilalakic@yahoo.com

ABSTRACT

The collapse of communism in the 1990s resulted in the escalation of nationalism in Europe. Nationalism has until the present day remained the only political idea which is judged on the basis of its abuses and occurrences such as, chauvinism or nazism. The injustice is that much greater, because nationalism, according to its original meaning, disapproves of those negative forms into which it can evolve. The war in the former Yugoslavia, the conflicts in the countries of the former Soviet Union, greater desire for independence, both within the European Union itself and its member states (Great Britain, Wales, Scotland, Catalonia, etc.) are the examples of what a political character of nationalism can be, and in which direction it can develop depending on the interests of the political authority which created and governed it.

Keywords: nationalism, national state, ideology.

ПРОЦЕСНИ ПРИСТУП КОД КРЕИРАЊА МОДЕЛА ЗА МЈЕРЕЊА ПЕРФОРМАНСИ ПРЕДУЗЕЋА

Здравко Тодоровић[1], Борис Тодоровић[2], Слађенко Галић[3]

[1]Универзитет у Бањој Луци, Економски факултет, Мајке Југовића 4, 78 000 Бања Лука, Босна и Херцеговина, zdravko.todorovic@ef.unibl.org
[2]Универзитет за пословне студије, Јована Дучића 23а, 78 000 Бања Лука, Босна и Херцеговина, boris.todorovic@gmail.com
[3]Верано Моторс д.о.о., Суботичка бб, 78 000 Бања Лука, Босна и Херцеговина, gale@verano-bih.com

АПСТРАКТ

Промјене окружења, нова тржишта и стратегије захтијевају стално унапређивање система мјерења перформанси предузећа. Ефективно мјерење перформанси је од кључне важности за успјешну имплементацију стратегије предузећа, његов развој и опстанак у савременој економији. Данас је нагласак на мјерењу свих области дјеловања предузећа, за шта је потребан широк обим финансијских и нефинансијских индикатора. Како савремено управљање организацијом подразумијева управљање њеним процесима, остварење циљева организације зависи од успјешности њених процеса. Успјешност процеса, односно способност процеса да испуне циљеве организације се мјери помоћу дефинисаних кључних индикатора перформанси.

Кључне риечи: циљеви, перформансе, процеси, индикатори, заинтересоване стране

УВОД

Проблем истраживања се односи на нефлексибилност постојећих система за мјерење перформанси, јер системи за мјерење перформанси не успјевају да се мијењају са промјенама циљева организације и постају нерелевантни. Највећи недостатак постојећих модела за мјерење перформанси је што ни један директно не повезује циљеве, процесе и индика-торе.

Практични избор адекватних перформанси и њихових индикатора је врло компликован задатак за менаџмент предузећа. Циљеви предузећа зависе од садашњих и будућих циљева њених заинтересованих страна. Заинтересоване стране су бројне, а најчешће то су: купци, власници предузећа, запослени, добављачи и држава. Предузеће треба да испуни циљеве заинтересованих страна и да настоји да пружи и више него што заинтересоване стране очекују чиме се постиже ниво ”изврсности”. Купац је најзначајнији корисник и његове жеље и захтјеве првенствено треба да задовољи

предузеће. Циљеви предузећа се остварују кроз процесе у организацији. Излаз из процеса су резултати процеса, односно производи и услуге. Резултати процеса се мјере и анализирају помоћу кључних индикатора. Мјерењем перформанси се утврђује ефективност предузећа.

У раду се полази од тезе да су јасно постављени циљеви заинтересо-ваних страна и делегирањем циљева појединим процесима, те мјерењем, анализирањем и побољшањем процеса могу задовољити циљеви заинтересо-ваних страна. Представљен је процесни модел организовања предузећа који је усаглашен са принципима управљања квалитетом дефинисаним у међунаро-дним стандардима ISO 9001:2015. Практично истраживање је рађено у предузећу „Верано Моторс" Бања Лука.

Посебно је представљен флекси-билни модел мјерења перформанси предузећа „Верано моторс" који се односи на постпродајне услуге, а који повезује циљеве са процесима и индикаторима.

ТЕОРИЈСКИ АСПЕКТИ ИСТРАЖИВАЊА

Перформансе односно учинак, резултат или успјех могу се односити на предузеће или процесе. Перформансе предузећа односе се на учинак или успјех предузећа, а перформансе процеса односе се на учинак или успјех процеса. Перформансе процеса морају бити усаглашене са перформансама предузе-ћа.

Перформансе успјешности предузе-ћа настоје да повежу захтјеве корисника са стратешким циљевима предузећа и његовим процесима, те да интегришу финансијке и нефинансијске мјере у циљу оцјене задовољства корисника (Lynch & Cross, 2005).

Циљеви предузећа и њених заинтересованих страна мијењају се у времену и како се мијењају циљеви морају се промијенити и перформансе предузећа и процеса, а такође се требају мијењати и индикатори који мјере перформансе (Striteska & Spickova, 2012).

Мјерење перформанси врши се помоћу индикатора. Индикатори су квантитативни или квалитативни показатељи помоћу којих се, директно или индиректно, може процијенити или измјерити ниво или степен остваривања одређеног циља, као и брзина, односно вријеме или рок остваривања циља (*Business Process management - PocketGuide*). Индикатори перформанси треба да су (Harmon, 2010): тачни, лако разумљиви, правовремени, оријентисани на акцију и да њихова имплементација не буде скупа.

Модели мјерења перформанси помажу у процесу изградње система за мјерење перформанси, појашњавањем граница мјерења, спецификацијом димензија или аспеката мјерења перформанси и они такође могу дати увид у везе између димензија перформанси (Rouse & Putterill, 2003).

Постоји *16 модела за мјерење пер-форманси* који су најчешће цитирани у литератури (Симеуновић, Словић, & Радаковић, 2015):

1. *Командна табла* (De Guerny, Guiriec, & Lavergne, 1990) успоставља хијерархију међусо-бно повезаних мјера и степенује мјере на различите организаци-оне нивое, форсирајући функци-је и дивизије организације да се позиционирају у оквиру контек-ста укупне стратегије компаније (Kennerley & Neely 2002).
2. *Обрачун трошкова према активностима* (Activity Based Costing – ABC) (Cooper, & Kaplan, 1991) мјерни је систем користан за рачунање процесних трошкова. Према овом моделу, трошкови организационих активности се додијељују производима и процесима (Kueng, 2000).
3. *Метод обавијања података* (Data envelopment analysis – DEA) (Charnes, Cooper, & Rhodes, 1978)

је развијена за мјерење ефикасности у непрофитном услужном сектору, где се излази не мјере у новчаним јединицама већ ефикасност зависи од обима и квалитета пружене услуге и где је веза између улаза и излаза система веома комплексна и често ју је скоро немогуће формално описати.

4. *Теорија ограничења* (Theory of Constraints – TOC) (Goldratt, 1984) приказује систематичан процес који организације користе да би успијешно наставиле текуће побољшавање. У оквиру теорије ограничења, користе се три глобалне мјере перформанси (нето профит, поврат на капитал и готовински ток) за процијену могућности организације да оствари свој циљ (Tangen, 2004).

5. *Матрица за мјерење перформанси* (Keegan, Eiler, & Jones, 1989) испитује екстерне/ интерне и трошковне/нетрошковне мјере перформанси. Ово је једноставан и флексибилан модел, који не приказује све атрибуте мјера перформанси, али може да уклопи сваку мјеру (Neely, Gregory, & Platts, 1995).

6. *Пирамида перформанси* (Judson, 1990) има за циљ да кроз организацију повеже стратегију са њеним операцијама, превођењем циљева одозго на доле (на основу приоритета корисника) и мјера перформанси одоздо на горе (Tangen, 2004).

7. *Модел „Резултати – детерминанте"* (Fitzgerald, Johnston, Brignall, Silvestro, & Voss, 1991) разликује мјере резултата и мјере детерминанти резултата. Модел истиче чињеницу да су добијени резултати у функцији прошлих пословних перформанси (Neely et al., 2000).

8. *Листа усаглашених циљева* (Balanced Scorecard – BSC) (Kaplan, & Norton, 2005) је пројектована да преводи визију и стратегију у циљеве и мјере перформанси кроз четири уравнотежене перспективе: финансијске, корисници, интерни пословни процеси и учење и раст.

9. *EFQM модел* који је предложила Европска фондација за управљање квалитетом, слу-жи за процијену напретка орга-низације ка постизању пословне изврсности. Модел је заснован на девет критеријума. Пет критеријума представља „могу-ћности", а остала четири кри-теријума резултате (Franceschini, Galetto, & Maisano, 2007).

10. *DOE/NV модел* је предложио U.S. Department of Energy Nevada Operations Office (Bellman, Droemer, Lohmann, & Miller, 1994), као методологију од 11 корака за мјерење перформанси на свим нивоима у организацији и процијену њихове ефективности.

11. *TQM модел* система за мјерење перформанси (Sinclair & Zairi, 1995) заснива се на концепту тоталног квалитета. Модел се састоји од пет нивоа и осмишљен је тако да се на сваком нивоу врши мјерење и процијена перформанси, и то по тачно одређеном поступку.

12. *Бровнов модел* за мјерење перформансиb представља макро-процесни модел организације који приказује везе између пет фаза у пословном процесу и мјере њихових перформанси. Ове фазе се дефинишу као: улази, систем обраде, излази, резултати и циљеви (Kennerley & Neely, 2002, pp. 147).

13. *SCOR модел* је креирао Савет за управљање ланцима снабдије-вања, 1997. године, он пружа теоријски оквир који повезује пословни процес, мјере перформанси, најбољу праксу и технолошке карактеристике.

Састоји се од три процесна нивоа и темељи се на пет кључних процеса (Sikavica & Hernaus, 2011, p. 369).

14. ***Модел захтева за мјерењем*** (Demand to measure model – DtM) (Ljungberg, 2002) класификује мјере процеса у двије главне групе – мјере активности, као дијелова процеса, и мјере ресурса, као дијелова процеса. Сврха овог модела, који се састоји из седам корака, је да идентификује и изведе проактивне мјере процеса.

15. ***Кањијев модел*** мјерења пословне изврсности (KBEMS) (Kanji, 2002) модел је изграђен на основу критичних фактора успијеха за организациону изврсност. Модел се заснива на Кањијевом моделу пословне изврсности и Кањијевој пословној табели резултата.

16. ***Декомпозиција пројектовања пословног система*** (Business System Design Decomposition – BSDD) (Taticchi, Cagnazzo, Santantonio, & Tonelli, 2010). BSDD се ослања на снаге Аксиоматског пројектовања, модела Декомпозиције пројектовања производних система, као и Аналитичког хијерархијског процеса хијерархије.

Анализирајући литературу из области мјерења перформанси предузећа (Fitzgerald, et al., 1991; Kaplan, Norton, 2005; Keegan, Eiler, & Jones, 1989; Neely, Richards, Mills, Platts, & Bourne, 1997; Schreurs & Moreau, 2006; Wade & Recardo, 2001) као и описане моделе бројни аутори су почели истицати опште незадовољство традиционалним мјерилима организацијских перформанси која представљају искључиво финансијске показатеље организацијских перформанси наглашавајући њихове недостатке.

С обзиром на карактеристику мултидимензионалности, савремени модели за мјерење перформанси предузећа обезбјеђују интегрисаност функција у организацији и ниво организације подстичући усаглашеност циљева и активности, те пружају могућност за надзирање прошлих и будућих перформанси. Заједничко свим савременим интегрисаним моделима утврђивања перформанси предузећа је покушај да мјерење перформанси предузећа приближе и повежу са стратегијом и визијом предузећа. Међутим, њихов заједнички недостатак је непокривање свих димензија пословања.

Ради отклањања овог недостатка, потребно је креирати флексибилни моделе мјерења перформанси успјешности предузећа који ће повезати циљеве пословања са процесима предузећа и индикаторима и показати да ли циљеви задовољавају све заинтересо-ване стране уз могућност измјене циљева и индикатора.

МЕТОДОЛОГИЈА И МЕТОДЕ ИСТРАЖИВАЊА

У раду је примјењена комбинована методологија истраживања, односно комбинација квантитативне и квалитативне методологије научног истраживања. Квантитативном методологијом прикупили смо бројчане податке, у циљу објашњења, истраживања веза између варијабли и успостављања узрочно посљедичних веза између посматраних појава. Квалитативним истраживањем прикупили смо небројчане податке чији је примарни задатак да се објасни значење посматране појаве.

За прикупљање података користили смо методу анализе публикованих садржаја о мјерењу перформанси организације, организационој структури предузећа, индикаторима за мјерење перформанси, пословним системима и процесима.

Код идентификације проблема користили смо методе научног посматрања, мерења и бројања. Код дефинисања проблема и утврђивања варијабли користили смо методу Brainstorming. Код прикупљања података користили смо методу анализе садржаја,

анкете и фокус групе. Код анализе и обраде података користили смо статистичке медоде за утврђивање узрочно-посљедичне зависности.

Приједлог процесног приступа код креирања модела за мјерење перформанси предузећа представили смо графички. Практични дио рада рађен је у предузећу *Верано Моторс, д.о.о.* Бања Лука и анализиринае су постпродајне услуге.

РЕЗУЛТАТИ ИСТРАЖИВАЊА

Да би креирали флексибилни и примјењиви модел мјерења перформанси успјешности предузећа који повезује циљеве, процесе и индикаторе потребно прећи са класичне организационе структуре на процесно оријентисану организациону структуру предузећа.

Пословни систем за услужна предузећа, имају функцију процеса пословања и сљедећи скуп радних система:

$$ПОС=f\ (ИТ,Р,П,Н,ТР,М,ТЕ,QЦ,Д,Е,\ РУ, ПК,Ф,ОИ)$$

Гдје су радни системи:

1. ***ИТ***-истраживање тржишних потреба за услугама на тржишту,
2. ***Р***-развој или пројектовање истражених услуга,
3. ***П***-планирање и припрема услуживања,

4. ***Н*** - набавка сировине и опреме за услуживање,
5. ***ТР***-спољни и унутрашњи транспорт сировина и опреме,
6. ***М***-складиште за сировину и опрему,
7. ***ТЕ***-услуживање,
8. ***QC***-управљање квалитетом при услу-живању,
9. ***Д***-паковање, продаја и дистрибуција услуга,
10. ***Е***-експлоатисање услуга код куп-ца или корисника.
11. ***РУ***-руковођење,
12. ***ПК*** правни и кадровски послови,
13. ***Ф***-финансије и рачуноводство
14. ***ОИ***-обезбјеђење имовине и информа-ционе технологије.

Процеси ***РУ***- руковођење, ***ПК*** - правни и кадровски послови, ***Ф*** - финансије и рачуноводство и ***ОИ*** - обезбјеђење имовине и информационе технологије остварује се кроз одгово-рност руководства, мјерење, контро-лисање и управљање ресурсима и нису уграђене директно у шему пословног сутема у стварању квалитета услуге.

Реализација услуге настаје у сљедећим нивоима: налажење идеја, пројектовање, планирање и припрема, услуживање и контролисање, испоручи-вање.
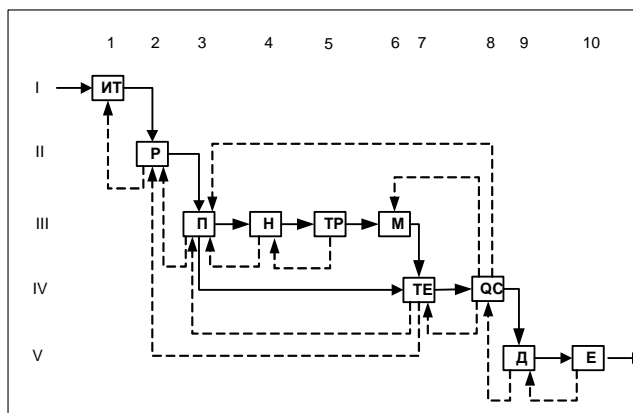

Слика 1. Шема пословног система у стварању квалитета услуга (Тодоровић, 2009).

Модел процесног приступ за мјерење перформанси предузећа за услуге захтјева одређена проширења и прилагођавања процесног модела менаџмента квалитета који је развијен у стандардима ISO 9000:2015 и приказан је на слици 2. Модел је прилагођен предузећима који се баве услугама, а практични примјер је рађен на предузећу Verano Motors, Бања Лука у дијелу који се односи на постпродајне услуге.

Допуне се односе на идентификовање корисника који могу поставити захтјеве или циљеве предузећу. У моделу смо навели пет корисника или заинтересованих страна, а то су: купци, власници, запослени, добављачи и држава. Сви они постављају циљеве и мјери се њихово задовољство. Највећи приоритет имају циљеви купаца.
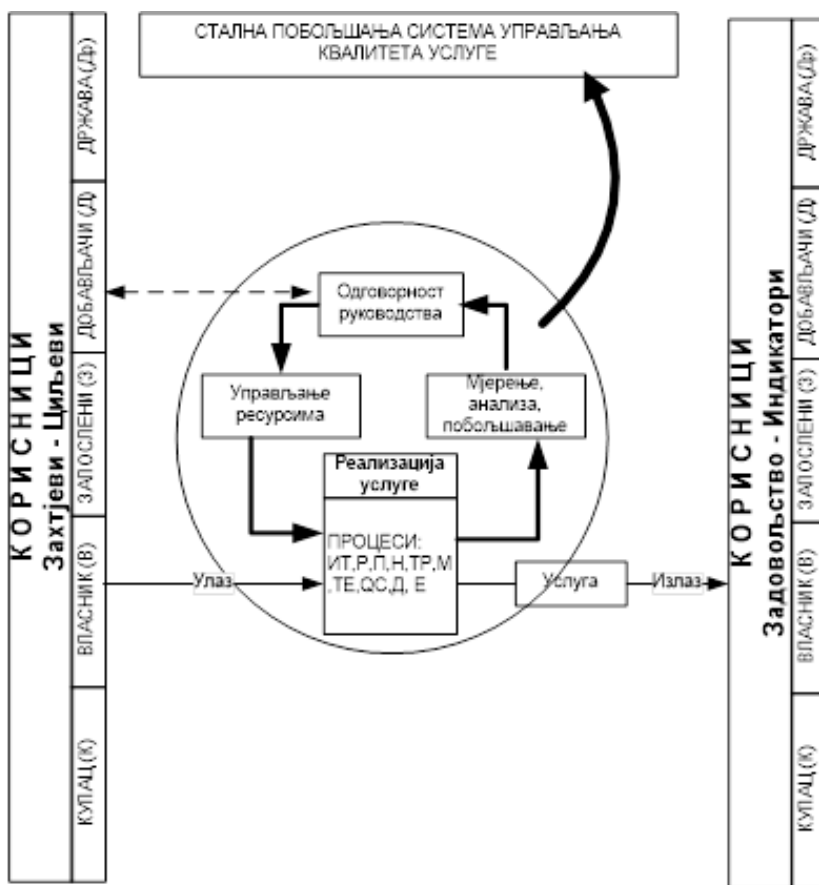
Слика 2. Допуњени и прилагођени процесни приступ менаџмента квалитета за услуге (ISO 9001:2015 и допуна аутора).

Било да га зову Shewhart-ов или Демингов-ов круг или PDCA циклус то је један функционалан круг који може бити развијен у сваком процесу организације али и за пословни систем у цијелини са циљем континураних побољшања, имплементације нових

пројеката, дефинисања одвијања процеса и управљања пројектима. На основу индикатора процјенујемо задодољство заинтересованих страна у складу са постављеним циљевима предузећа и додјељеним циљевима појединим процесима.

Табела 1. Процесни приступ мјерења перформанси успјешности у предузећу *Verano Motors d.o.o.* Бања Лука

Заинтересоване стране захтјеви	КУПАЦ	ВЛАСНИК	ЗАПОСЛЕНИ	ДОБАВЉАЧИ	ДРЖАВА
Циљеви	КК=задовољавајући квалитет услуга и уградња оригиналних резервних дијелова КЦ=Цијена услуге не виша од конкуренције КУ= скратити вријеме услуживања КР=брзо рјешавање рекламација	ВП=повећање прихода за 7% ВТ=смањење трошкова за 10% ВЛ=Одржавање ликвидности ВК=побољшање квалитета (задовољавање интерних стандарда)	ЗУ= бољи радни услови ЗП=редовна исплата плата ЗО=континуирано обучавање	ДН=Повећање броја наруџби ДИ=Исплата уиспоручене робе ДС=Поштивање произвођачевих стандарда	ДрП=плаћањепореза и доприноса ДрЗ=повећање броја запослених
Нивои организације	Налажење идеја	Пројектовање	Планирање и припрема	Израда и контролисање	Испоручивање
Задовољство **(Скала задовољства)** **1=задовољава** **0,5=дјелимично задовољава** **0=не задовољава**	КК=задовољавајући квалитет услуга и уградња оригиналних резервних дијелова КЦ=Цијена услуге не виша од конкуренције КУ= скратити вријеме услуживања КР=брзо рјешавање рекламација	ВП=повећање прихода за 7% ВТ=смањење трошкова за 10% ВЛ=Одржавање ликвидности ВК=побољшање квалитета (задовољавање интерних стандарда)	ЗУ= бољи радни услови ЗП=редовна исплата плата ЗО=континуирано обучавање	ДН=Повећање броја наруџби ДИ=Исплата уиспоручене робе ДС=Поштивање произвођачевих стандарда	ДрП=плаћањепореза и доприноса ДрЗ=повећање броја запослених
	Укупно:	Укупно:	Укупно:	Укупно:	Укупно:

ДИСКУСИЈА

Сви модели за мјерење перформанси имају одређену вриједност и намјену и на основу њих менаџмент може доносити пословне одлуке. Проблем је парцијалног посматрања процеса, статичност у мјерењу перформанси, нефлексибилност и примјењивост.

Неки модели не специфицирају индикаторе перформанси, већ дају само назнаке како до њих доћи, што у моное отежава њихову практичну примјену. Велики недостатак већине модела за мјерење перформанси што не разматра циљева различитих гупа заинтересованих страна. Посебан недостак је тај што је већина модела усмјерена само на власника или менаџмент као заинтереосвану страну. Купце који су најважнија заинтересована страна често и не спомињу, а да не говоримо о запослиним, добављачима, држави и другим заинтересованим странама.

Уочено је да два модела мјерења перформанси имају задовољавају флексибилност, а то су: EFQM модел који је предложила Европска фондација за управљање квалитетом и Теорија ограничења (Theory of Constraints – TOC). Њихова слабост је та што EFQM модел има високе захтјеви за постизањем перформанси, а TOC нема развијен комплетан систем за мјерење перформанси што су значајни недостаци.

Примјењивост већине модела је проблематична јер неуважавају промјене циљева заинтересованих страна и промјена у окружењу. Иако анализирани модели полазе од циљева или стратегија они их не доводе у директу везу. Индикатори се најчешће постављају само на нивоу предузећа, а изостају циљеви и индикатори на нивоу процеса. Ради тога није могуће мјерити, анализирати и побољшавати процесе и управљати процесима и предузећем у цјелини.

Окружење се неприкидно развија и мјења и утиче на измјеу циљева заинтересованих страна. Већина модела не уважава ове промјене, па можемо говорити да су нефлексибилни и статични.

Ова запажања нису изненађење, с обзиром на то да су још прије двије деценије бројни аутори наглашавали потребу за преиспитивањем мјера да би осигурали да су ажурне и да одржавају ове континуалне промене (Ghalayini, & Noble, 1996; Wisner, & Fawcett, 1991).

ЗАКЉУЧАК

Теоријском анализом модела за мјерење перформанси утврдили смо да постојање бројних модела и метода за мјерење перформанси предузећа. Међутим, њихов заједнички недостатак је непокривање свих димензија пословања и крута структура која се тешко мијења са промијеном циљева заинтересованих страна или са промијеном у окружењу. Посебан проблем је везан за лоша повезаност циљева, процеса и индикатора.

Ради тога је било потребно да покушамо разрадити модел мјерења перформанси заснован на процесном принципу, а који је флексибилан и прилагодљив свим предузећима. Процесни приступ је дефинисан међународним стандардима ISO 9000 – Системи менаџмента квалитета, а детаљно је објашњен у Упуству о појму и кориштању процесног приступа у систему менаджмента (документ ISO/TC176/SC2/N544).

Модел мјерења заснован на процесном приступу је креиран на начин да буде универзалан и флексибилан на промјене. Приликом промјене циљева предузећа мијењају се циљеви по појединим процесима, а самим тим и индикатори који мјере циљева. На основу резултата индикатора можемо оцјенити задовољ-

Todorović, Z., et al.. (2020). Procesni pristup kod kreiranja modela za mjerenje performansi preduzeća. *STED Journal, 2*(2), 87-97.

ство заинтересованих страна и оцијенити да ли смо остварили постављену стратегију предузећа.

Практични дио рада рађен је услужном предузећу, али постављени модел се лако може прилагодити и кориситит у прозводним предузећима, без обзира на величину предузећа. Највећи квалит овог модела је повезивање циљева, са процесима и индикаторима, те његова флексибилност и примјењивост

ЛИТЕРАТУРА

Bellman, R., Droemer, D., Lohmann, M., & Miller, C. (1994). *Performance Measurement Process Guidance Document.* Las Vegas: Department of Energy.

Charnes, A., Cooper, W., & Rhodes, E. (1978). Measuring the efficiency of decision making units. *European Journal of Operational Research, 2*(6), 429–444. doi:10.1016/0377-2217(78)90138-8

Cooper, R., & Kaplan, R. (1991). Profit priorities from activity-based costing. *Harvard Business Review, 69*(3), 130–135.

De Guerny, J., Guiriec, J.C., & Lavergne, J. (1990). Principes et Mise en Place du Tableau de Bord de Gestion. *Paris: J. Delmas.*

Fitzgerald, L., Johnston, R., Brignall, T. J., Silvestro, R., & Voss, C. (1991). *Performance measurement in service businesses*. London: Chartered Institute of Management Accountants. 34-36.

Franceschini, F., Galetto, M., & Maisano, D. (2007). *Management by measurement: Designing key indicators and performance measurement systems.* New York: Springer Berlin Heidelberg.

Ghalayini, A.M., & Noble, J.S. (1996). The changing basis of performance measurement. *International Journal of Operations and Production Management, 16*(8), 63–80. doi:10.1108/01443579610125787

Goldratt, E.M. (1984). *The Goal. Great Barrington: The North River Press.*

Harmon, P. (2010). *Business Process Change: A Guide for Business Managers and BPM and Six Sigma Professionals* Iss: 2. San Francisco: Morgan Kaufmann.

Kanji, G.K. (2002). Performance measurement system. *Total Quality Management, 13*(5), 715–728. doi: 10.1080/09544120220000002090

Kaplan, R.S., & Norton, D.P. (2005). The balanced scorecard: measures that drive performance. *Harvard business review*, *83*(7), 172.

Keegan, D.P., Eiler, R.G., & Jones, C.R. (1989). *„Are you performance measures obsolete?"* Management Accounting, 45-50.

Kennerley, M., & Neely, A. (2002). A framework of the factors affecting the evolution of performance measurement systems. *International Journal of Operations & Production Management*, *22*(11), 1222-1245.

Kennerley, M., & Neely, A. (2002). *Performance measurement frameworks: a review. In: A. Neely (ed.), Business performance measurement: Unifying theories and integrating practice (pp. 145–154).* Cambridge: Cambridge University Press.

Kueng, P. (2000). Process Performance Measurement System; a tool to support process-based organizations. *Total Quality Management*, *11*(1), 67-85.

Lynch, R.L., & Cross, K.F. (2005). *Measure Up!: How to Measure CorporatePerformance*. Oxford: Blackwell Publishers.

Ljungberg, A. (2002). Process measurement. *International Journal of Physical Distribution and Logistics Management, 32*(4), 254–287. doi:2048/10.1108/09600030210430642

Neely, A., Mills, J., Platts, K., Richards, H., Gregory, M., Bourne, M., & Kennerley, M. (2000). Performance measurement system design:

developing and testing a process-based approach. *International Journal of Operations and Production Management, 20*(10), 1119–1145. doi: 10.1108/01443570010343708

Neely, A., Richards, H., Mills, J., Platts, K., & Bourne, M. (1997). „Designing Performance Measures: A Structured Approach", *International Journal of Operations & Production Management,* 17(11), 1131-1152.

Neely, A.D., Gregory, M., & Platts, K. (1995). Performance measurement system design: a literature review and research agenda. *International Journal of Operations & Production Management, 15*(4), 80–116.

Rouse, P., & Putterill, M. (2003). An integral framework for performance measurement. *Management Decision, 41*(8), 791–805.

Schreurs, J., & Moreau, R. (2006). The EFQM self-assessment model in performance management. In proceedings *13th European concurrent engineering conference, Eurosis*, (99-103). Athene, Greece.

Sinclair, D., & Zairi, M. (1995). Effective process management through performance measurement: Part III – an integrated model of total qualitybased performance measurement. *Business Process Re-engineering and Management Journal, 1*(3), 50–65.

Striteska, M., & Spickova, M. (2012). Review and Comparison of Performance Measurement Systems. *Journal of Organizational Management Studies, 2012,* 1.

Tangen, S. (2004). Performance Measurement: From Philosophy to Practice. *International Journal of Productivity and Performance. 53*(8), 726-737.

Taticchi, P., Cagnazzo, L., Santantonio, M., & Tonelli, F. (2010). *A framework for performance measurement and management based on axiomatic design and analytical hierarchy process. In: P. Taticchi (ed.), Business performance measurement and management – new contexts, themes and challenges (pp. 229–240).* Berlin: Springer-Verlag Berlin Heidelberg.

Sikavica, P., & Hernaus, T. (2011). *Dizajniranje organizacije – strukture, procesi, poslovi.* Zagreb: Novi informator.

Wade, D., & Recardo, R. (2001). *Corporate Performance Management, How to Build a Better Organization Through Measurement-Driven Strategic Alignment.* Heinemann: Butterworth.

Симеуновић, Б., Словић, Д., & Радаковић, J.A. (2015). Анализа модела за мерење перформанси процеса. *Школа бизниса*, број 2.

PROCESS APPROACH TO CREATING A COMPANY PERFORMANCE MODEL

Здравко Тодоровић[1], Борис Тодоровић[2], Слађенко Галић[2]

[1]University of Banja Luka, Faculty of Economics, Majke Jugovića 4, 78 000 Banja Luka, Bosnia and Herzegovina, zdravko.todorovic@ef.unibl.org
[2]The University of Business Studies, Jovana Dučića 23a, 78 000 Banja Luka, Bosnia and Herzegovina, boris.todorovic@gmail.com
[3]Verano Motors d.o.o., Subotička bb, 78 000 Banja Luka, Bosnia and Herzegovina
gale@verano-bih.com

ABSTRACT

Changed circumstances, new markets and strategies require constant improvement of enterprise performance measurement systems. Effective performance measurement is crucial for successful implementation of enterprise strategy, the development and survival in the modern economy. Today, the emphasis on the measurement of the scope of the enterprise, requiring a wide range in addition to financial and nonfinancial indicators also. Since a contemporary management of the organization involves management of its processes, the achievement of organization's goals depends on the success of its processes. The success of the process is measured by using key performance indicators.

Key words: Goals, Performance, Processes, Indicators, Stakeholders

UTJECAJ SUVREMENIH KOMUNIKACIJSKIH TEHNOLOGIJA NA *ONLINE* UČENJE STUDENATA

Frane Marjanica*, Ante Projić, Tomislav Seser, Maja Marjanica

Visoka škola Aspira, Mike Tripala 6, 21 000 Split, Hrvatska fmarjanica@gmail.com

STRUČNI RAD

Frane Marjanica, Visoka škola Aspira, Domovinskog rata 65, 21 000 Split, Hrvatska, fmarjanica@gmail.com

APSTRAKT

U radu je obrađen utjecaj suvremenih komunikacijskih tehnologija na online učenje studenata. Komunikacijske tehnologije su centar istraživanja, posebno njihov utjecaj u učenju na način koji se prethodno trudilo izbjeći. Predrasude koje su stajale uz spominjanje mogućnosti online učenja su maknute. Nakon provedenog *lockdowna* uslijed pandemije Covid-19 virusom, online učenje postaje spas za desetke tisuća studenata koji imaju mogućnost nastaviti sa obrazovanjem u trenutku kada se činilo da je cijeli svijet oko njih stao. Prilikom pisanja članka korišten je sistematski pristup radu tako što su proučene prednosti i nedostatci koje online učenje donosi u XXI stoljeću te da li omogućuje korak naprijed u sveukupnom obrazovanju od strane studenata i profesora. Obrazovanje predstavlja glavni temelj i ključ uspjeha pojedinca. Razvojem komunikacijskih tehnologija to je omogućeno i osobama koje žive dalje od velikih gradova. Preko softverskih platformi za komunikaciju i suradnju učenje je pojednostavljeno putem razgovora, video sastanaka te pohrane podataka na jedno mjesto.

Ključne riječi: obrazovanje, komunikacijska tehnologija, internet, aplikacija, Covid-19.

UVOD

Obrazovanje pojedinca predstavlja veliki izazov u vremenu kada su promjene neminovne. Sa željom da cjeloživotno obrazovanje postane dio svakodnevnice naišlo se na mnogobrojne prepreke. Dok se svijet kretao naprijed, mnoge generacije su ostale stajati u mjestu, očekujući da se svijet prilagodi njima. To je dovelo do potrage za rješenjem čiji je rezultat poticanje obrazovanja za 40+ i 50+ osobe koje su se ponovno, a pojedini i po prvi puta našli u studentskim klupama. Sve veću važnost dobiva učinkovito korištenje informacija u društvu te potreba za osobni razvojem kroz cjeloživotno obrazovanje.

Prvo učenje na daljinu organizirano je 1858. godine u Londonu preko pošte i primarno je bilo namijenjeno marginaliziranim grupama kao što su žene koje su imale ograničene resurse za pristup obrazovnim sadržajima (Katavić, Milojević, Šimunković, 2018). Posljednje desetljeće ostati će zapamćeno zbog velikog razvoja tzv. booma komunikacijskih tehnologija. Analitičari su sve mlađe od 23 godine prozvali *Z* generacijom koja je taj razvoj doživjela kao nešto posve uobičajeno jer su

rođeni i odrasli s brzim internetom, pametnim telefonima, društvenim medijima i pristupom vijestima (Habek, 2019). Prema istraživanju agencije *Awesomeness*, tinejdžeri smatraju da će društvene mreže, tehnologija i internetsko nasilje imati najveći utjecaj na dotičnu generaciju. Usporedbom sa prethodnim generacijama brži internet, povezanost u ruralnim područjima, informacije na dlanu su svakodnevnica na koju su se prethodne generacije trebale naučiti. Prvenstvo u poznavanju procesa razvoja komunikacijski mreža nose društvene mreže. Početak su predstavljali *Facebook i MySpace* kao društvene mreže preko kojih su se spajali studenti za lakše učenje, te obitelji stotinama kilometara udaljene. Ipak u poslovnom, ali i privatnom povezivanju najviše su pomogli alati poput *Skypa, Zoom-a, Loomena te Outlookovog Teamsa* koji su se pokazali korisni i iznimno korišteni. Mnogi nisu ni znali za njihovo postojanje do Covid-19 pandemije koja je zahvatila svijet u proljeće 2020.

Škole i fakulteti posegnuli su za navedenim alatima kao slamkom spasa koja je nove generacije obrazovala na potpuno novi način. Online učenje prema kojem su mnogi do tada bili sumnjičavi zamijenilo je dotadašnji način obrazovanja. Studenti su postali povezani 24 sata na dan ne samo međusobno nego i sa profesorima. Nakon završetka *lockdowna* na području Republike Hrvatske te Bosne i Hercegovine profesori i studenti nastavili su komunicirati koristeći prethodno navedene alate kako bi olakšali proces prenošenja stečenog znanja i razvoja obrazovnog sustava u državi.

DEFINICIJA KOMUNIKACIJSKIH TEHNOLOGIJA

Pojava računala i razvoj interneta imali su najveću ulogu kad je riječ o učenju na daljinu jer se na taj način omogućilo pristupanje potrebnim materijalima za učenje, te se usprkos tome što se student i profesor nalaze na udaljenim lokacijama mogla ostvariti njihova međusobna komunikacija (Šain, 2017). Poznavanje područja suvremenih komunikacijskih tehnologija omogućuje lakše upravljanje i organiziranje tehnoloških procesa u području komunikacija, te upravljanja komunikacijskim mrežama. Među osnovne komunikacijske mreže spada Internet, mobilne mreže novih generacija (GSM, GPRS, EDGE, UMTS, HSPA, LTE, 5G), računalne mreže i sve njihove podvrste. Ključno je imati stručan kadar u vremenu brzih promjena koje uvjetuju procesi globalizacije, novih informacijskih i komunikacijskih tehnologija te novih ekonomskih tokova. Potrebno je razvijati sve aspekte pismenosti pojedinca te razvoj usmjeriti u onom smjeru koji najviše odgovar apojedincu jer ljudi su u svojoj suštini različiti te svakome nije primjerena ista vrsta pismenosti u novo tehnološki razvijenom dobu.

Internet je uobičajeno komunikacijsko sredstvo i za razliku od televizije, radija i novina, on je interaktivan i dvosmjeran, a osim toga omogućuje korisniku da sam stvara njegov sadržaj (Oreški, 2005). To je skup više desetaka tisuća računalnih mreža koje su povezane u jednu cjelinu koja nema nadzor, a sloboda objavljivanja i pretraživanja sadržaja donosi niz negativnih posljedica. Internet je svojim razvojem započeo jednu novu revoluciju koja omogućava neusporedivo veći broj načina dolaska do potrebnih informacija. Prednosti interneta uočili su izdavači stručnih, znanstvenih i drugih publikacija kojima se tržište proširuje na područja koja su se ne tak odavno bila nezamisliva. Pri tome je važno naglasiti kako upravo zbog mogućnost i objave različitih vijesti od svih korisnika interneta, to područje je podložno lažnim informacijama. Studenti sve češće koriste internet u svrhu istraživanja te često korištenjem neprovjerenih informacija dolaze do netočnih rezultata istraživanja. Uvijek postoje područja gdje je potrebna pretplata na kraći rok ili uplaćeni predujam da bi se došlo do materijala, online knjiga, rječnika, članaka i sl. Sami temelji za razvoj komunikacijskih tehnologija stvoreni su pojavom telekomunikacija i interneta. Na njihov razvoj utječe tržište, odnosno ponuda i potražnja za uslugama koje ti proizvodi omogućuju svojim korisnicima.

Komunikacijske tehnologije otvaraju nove mogućnosti učenja preko alata koji su sastavni dio istih. Upravo zbog sve većeg korištenja u radu se obrađuje njihov direktan i indirektan utjecaj na kompetencije studenata. Nastavnik više nije jedini izvor informacija, a propisana nastavna pomagala dobivaju konkurenciju u informacijama dostupnim putem interneta. Poteškoće koje se javljaju u e-učenju dijelom otpadaju na neuspjelu interakciju s elektroničkim informacijskim izvorima, odnosno na poteškoće povezane s pristupom, pronalaženjem, vrednovanjem i općenito uporabom informacija u svrhu učenja (Špiranec i Banek Zorica, 2008).

Internet predstavlja komunikacijski događaj ovoga stoljeća koji je utjecao na promjenu stila života i načina komunikacije. Smatra kako su glavni korisnici računala i interneta upravo djeca, a na to velik utjecaj imaju roditelji koji pitanje kupovine računala i omogućavanje djetetu korištenje interneta povezuju s pitanjem dobrostojeće i moderne obitelji (Rotar, Rotar 2005). Učenje je zbog lakšeg pristupa materijalima olakšano, komunikacija između kolega je brža, internetske mreže su raširene, te im je omogućen pristup internetu na svim područjima sveučilišta, ali i mimo (mreže caffe barova, trgovina, javnog prijevoza). U obrazovanju na daljinu mogu se vrlo djelotvorno koristiti nastavni materijali s vizualnim, auditivnim, audiovizualnim i multimedijalnim sadržajima. Korištenje multimedije je izuzetno važno u online obrazovanju, jer predavač nije fizički prisutan uz polaznike kako bi privukao njihovu pozornost, motivirao ih na učenje te objasnio ili pojasnio sadržaje koje polaznici teže ili nedovoljno razumiju (Matasić, Dumić 2012). Komunikacijske tehnologije unatoč navedenom velikom broju prednosti nose i određene manjkavosti. Velika dostupnost informacija je značajna prednost gdje se manje vremena gubi na fizičkoj pretrazi potrebnih informacija. Također audio i video materijali koji prije nisu bili dostupni uvelike olakšavaju učenje. Sve većim korištenjem dolazi se do manjka osobne komunikacije, knjige padaju u zaborav, za vrijeme učenja lakše je skrenuti sa stručnog sadržaja na zabavni odnosno na društvene mreže za zabavu, dopisivanje sa prijateljima, dečkom, curom (prijelaz između otvorenih prozora tzv. tabova na mobitelu, tabletu, laptopu). Na taj način dolazi do pada komunikacije i manje provedenog vremena nad materijalom. Kod korištenja knjige da bi se odvojili od učenja potreban je trud, možda minimalan, ali ako je mobitel smanjen, a laptop ugašen teže će koncentracija skrenuti sa učenja. Studenti učeći on line često posežu za skraćenim verzijama materijala za učenje te se oslanjaju na Google i Wikipediju koji nisu 100% provjereni informacijski mediji.

KOMUNIKACIJSKE TEHNOLOGIJE U ONLINE UČENJU

Osim potrebnih znanja i sposobnosti povezanih s obavljanjem određenog posla, razvijene kompetencije podrazumijevaju i adekvatno, moralno ponašanje pojedinca u užem i širem socijalnom kontekstu obogaćenom suvremenom informacijsko-komunikacijskom tehnologijom (Vrkić Dimić, 2014). Informacijska i komunikaci-jska, te osobito internetska tehnologija, imaju snažan utjecaj na promjenu ekonomske strukture kako nacionalnih gospodarstava, tako i cjelokupnoga svjetskoga gospodarstva. Različite informacijske tehnologije i komunikacija usko su povezani (Jurković, Marošević, 2013).

Kvalitetan učitelj mora postati poznavatelj suvremene tehnologije te mora neprestano kontinuirano raditi na samome sebi. Provedba obrazovanja na radnom mjestu u sve većoj mjeri provodi se uz pomoć informacijsko-komunikacijske tehnologije za učenje (Batarelo Kokić, 2011). Knjige i udžbenici nekada su bili glavni i najvažniji izvor znanja, a danas se jednako vrijedni sadržaji mogu pronaći u različitim izvorima znanja u internetu. Sadržaj na internetu vrlo je sveobuhvatan i dostupan svima pa je vrlo bitno za korisnike da ga znaju procijeniti i pravilno odabrati one izvore znanja koji su

provjereni (Novak, 2016). Studenti se uvelike oslanjaju na besplatne stranice koje nude informacije koji nisu toliko opširne odnosno detaljne kao na područjima koja zahtijevaju registraciju, članarinu, jednokratnu uplatu. Iako se nalazimo u naprednom informatičkom dobu gdje su brzina interneta i telekomunikacijskih mreža (4G i 5G) više nego dovoljne, mnogi su se zatekli nespremni za veliku potražnju online učenja i nastave nastale zbog Covid-19 pandemije. Za vrijeme lockdowna i virtualnih nastava mnogi sustavi nisu mogli podnijeti veliki broj korisnika (učenika/studenata), dolazilo je do blokiranja jer sustav nije mogao podnijeti da svi u isto vrijeme upale video, chat poruke su kasnile, audio bi se zablokirao itd.

Otvaraju se brojne nove perspektive i mogućnosti unutar obrazovnog procesa, a jedna od njih, ujedno i najsnažnija, je Internet koji se već dokazao kao izuzetno sredstvo u znanosti i obrazovanju. (Hutinski, Aurer, 2009) U primjeni ICT-a u edukaciji, između ostalog spada individualno učenje i poučavanje, vježbanje i ponavljanje, grupno učenje i poučavanje, komunikacija elektroničkom poštom (učenik, učitelj, roditelj), pedagoška dokumentacija, administrativni poslovi i drugo. Također, javljaju se i prednosti primjene računala u nastavi poput veće motiviranosti učenika, raznolikosti, boljeg pamćenja sadržaja kod učenika, suvremenosti i veće zainteresiranosti učenika. Unatoč tome da informacijska tehnologija može igrati ulogu u unapređivanju razumijevanja procesa učenja i u njezinoj primjeni za postizanje pedagoške kvalitete znanstvenici kognitivnog područja i pedagozi su ipak suočeni s primamljivim i teškim zadatkom da otkriju kako ispravno koristiti tehnologiju da potpomogne njihovu radu, te kako povećati prednosti, a istodobno zadržati nedostatke pod kontrolom (Bakić-Tomić, Dumančić, 2012). Slijedom istraživanja u području digitalne pismenosti

(PISA 2012, ICILS 2013 i EU Kids online 2014), a uzimajući u obzir sveprisutnost i nužnost uporabe tehnologije, posebna pozornost usmjerava se na odgovorno i samostalno služenje digitalnom tehnologijom. Studenti ovladavaju vještinama kreativne, učinkovite i odgovorne uporabe digitalne tehnologije. Informacijska i komunikacijska tehnologija pruža brojne mogućnosti stvaranja novih i preoblikovanja postojećih sadržaja, što potiče stvaralački duh i razvoj novih ideja. Neizostavno je pritom da se osvijeste pozitivne i negativne strane digitalne tehnologije te zamijete kako utječe na osobni, društveni i profesionalni razvoj ljudi, njihovo zdravlje i okoliš. Četiri domene ove međupredmetne teme međusobno su povezane te se nadograđuju jedna na drugu kako bi osigurale sustavni razvoj opće digitalne pismenosti. Prikazane su na slici 1 (Narodne novine, 2019). Na slici se vidi međusobna ovisnost domena te istovremeno nadopunjavanje bez kojeg nijedno područje nije potpuno. Čovjek od malih nogu uči istovremeno pisanje, čitanje i računanje. Oni zajedno sa informacijskom i digitalnom vještinama spadaju u same osnove pismenosti.

Usporedbom vještina prošlog stoljeća s onima potrebnim za sustavan razvoj društva u XXI stoljeću, navodi se niz vještina potrebnih za cjeloživotno učenje, vještine sposobnosti kroz rješavanje problema. Te vještine moraju biti sastavljene od samog pristupa zadatku preko analize, uočavanja i rješavanja problema te korištenja tehnologije i multimedije pri tome. Pravilno odnosno produktivno upravljanje različitim tehnologijama unaprijeđuje se učinak poslovanja poduzeća te se štedi i vrijeme i novac a ulaže se u osobni razvoj pojedinca.

Svaka od prethodno identificiranih vještina i sposobnosti predstavlja oblike mišljenja, načine obrade informacija i načine interakcije s drugim ljudima, kako bi se znanje izgrađivalo i kako bi moglo cirkulirati unutar umreženog društva.
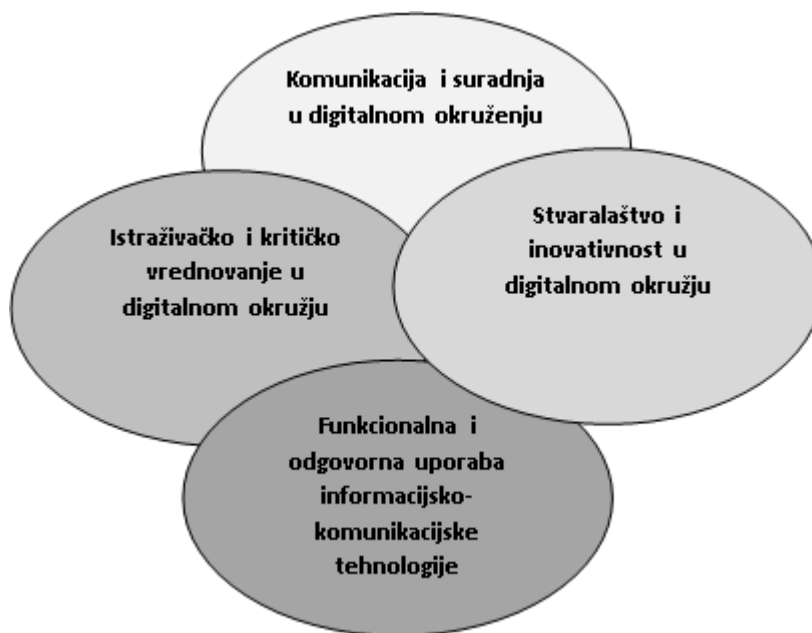
Slika 1. Struktura međupredmetne teme Uporaba informacijske i komunikacijske tehnologije
Picture 1. Structure of the interdisciplinary topic Use of information and communication technology

Takve vještine i slične poput evaluacije pouzdanosti i vjerodostojnosti različitih izvora informacija te improvizacije i otkrivanja, usvojene, ukratko, omogućuju učenicima da koriste simulacijske alate, informacijska sredstva i društvene mreže te potiču razmjenu informacija. Iako su neke od tih vještina već neko vrijeme bile poučavane u školama, pojava digitalnih medija stvara novi pritisak na škole. One trebaju pripremiti djecu i mladež za prilike, različite od onih dosadašnjih u cijelom društvu te ih pripremiti za njihove buduće uloge radnika i građana (Vrkić Dimić, 2013). Platforme za online učenje kao što su Zoom, Teams Skype, Webroom, Moodle, Google Hangouts i sl. nose mnoge prednosti, ali i nedostatke. U Tablici 1. prikazane su prednosti i nedostatci dvije trenutno najkorištenije platforme Zooma i Teams.

Kao što se može vidjeti iz tablice oba alata ima dosta sličnosti, dok su razlike s druge strane ostavljene da se poprave ili da ih korisnici ovisno o osobnim preferencijama izaberu. Microsoft Teams je specifičan što se lako na njega priviknuti te je dobra organizacija formiranja online Učionica. S druge strane rad na njemu je kompliciran za dio korisnika. Zanimljiva mogućnost koju Teams omogućava je zamućenje okoline tako kod video razgovora može se vidjeti samo osoba bez područja u kojem se nalazi. Loomen omogućava jednostavno organiziranje tečajeva, sadržaj je pregledniji i svaki profesor može organizirati svoje područje, ali nedostatak je kao i kod Teamsa što nastaje mnogo manjih prozora tj. smanjuje se preglednost.

Također, Zoom je imao problem sa upadanjem nepoznatih sudionika na konferencije koji se pokušao riješiti postavljanjem lozinke koju i dalje većina korisnika ne koristi. Na kraju odluke se svode na osobne izbore profesora kod organizacije predavanja, te studentaa kod komunikacije sa kolegama.

Tablica 1. Pregled osnovnih funkcionalnosti videokonferencijskih alata Zooma i Microsoft teamsa
Table 1. An overview of the basic functionalities of Zoom and Microsoft teams video conferencing tools

Alat	Zoom	Microsoft teams
Korištenje	Jednostavno, besplatno	Kompliciranije, besplatno
Razmjena poruka	Da	Da
Audio/video poziv	Da	Da
Razmjena datoteka	Da	Da
Grupni poziv	Da	Da
Dijeljenje zaslona	Da	Da
Zaštita podataka	Loša – u fazi poboljšanja	Dobra

Za online učenje više su motivirani izvanredni studenti. Ovaj podatak može se objasniti činjenicom da izvanredni studenti imaju posebno prilagođene termine i načine izvođenja studija pa im se online oblik nastave doima više blizak (Jukić, 2017). Predavanje putem interneta zasigurno smanjuje troškove studiranja, omogućuje studentima slušanje i praćenje predavanja iz udaljenijih krajeva, te obogaćuje nastavni program uključivanjem vanjskih predavača (Gabrilo, Rodek, 2009).

Što se *online* stručne prakse tiče, tu je situacija specifična zbog toga što neke struke to mogu relativno lako izvesti, npr. računarstvo ili društvene znanosti. Za neke smjerove poput medicine je stručna praksa izvediva samo uz fizičku prisutnost, tako da takvi slučajevi mogu odrađivati stručnu praksu kad se uvjeti za to ostvare ili uz pristanak studenata medicine da za vrijeme situacije kao što je trenutna pandemija odrađuju praksu i iz prve ruke se suoče sa onim što njihov budući posao nosi. Komunikacijske tehnologije su u slučaju stručne prakse opet omogućile bar djelomično izvođenje, tako da je preporuka da se stručna praksa u ekstremnim slučajevima poput Covid-19 lockdowna izvodi *online* gdje god je moguće, a u ostalim slučajevim da se odgodi dok se ne stvore potrebni uvjeti za to.

ZAKLJUČAK

Komunikacijske tehnologije predstavljaju širok pojam o kojem se unatoč godinama postojanja ne zna dovoljno. Društvo koristi dijelove komunikacijske tehnologije uvjereno da poznaje način djelovanja i kako to utječe na njihov život. U suštini od trenutka odluke o kupovini određenog uređaja koji koristi mrežu za povezivanje, biranja, donošenja istog kod kuće te korištenja komunikacijske tehnologije mijenjaju potrošačev život do temelja. Istraživanje je usredotočeno na obrazovanje kao ključni faktor koji je u doba pandemije dobio nagli skok u korištenju na razinama koje su do tada određenim genracijama bile potpuno nepoznate. Knjige iako i dalje važne u svakodnevnom učenju sve više su se počele pojavljivati u pdf obliku, reading mode je olakšao čitanja i učenje, aplikacije poput Skypea, Zooma i Teamsa olakšale su sastajanje studenata međusobno te sa profesorima. Zahvaljujući mobilnim mrežama studentni su povezaniji u svakom trenutku dana, izmjenjuju potrebne informacije, prate predavanja, rješavaju testove iz studenstskih soba. Utjecaj na njihov društveni život odnosno socijalizaciju je bio neminovan kako u pozitivnom tako i negativnom smislu. Online učenje nudi mogobrojene

pogodnosti za učenike svih vrsta, i pogotovo se pokazalo korisnim u Covid-19 pandemiji. Veliku ulogu u razvoju komunikacijskih tehnologija ima infrastruktura gradova, dostupnost i brzina interneta. Zbog toga se sve više ulaže u sveučilišta kako bi studentima omogućili što lakši pristup potrebnim materijalima za učenje i rad. Ono što treba je uvelike poboljšati stabilnost službenih sustava za Online učenje da se može podržati veliki broj paralelnih konekcija te adekvatnu tehničku podršku koja će omogućiti da sustav može raditi stabilno na dug period. Obrazovanje na daljinu se može realizirati na svim razinama obrazovanja, a najviše je zastupljeno u okviru visokog obrazovanja. Ono može postojati kao dopuna klasičnom obrazovanju (tzv. hibridno obrazovanje), ili potpuno samostalno. Prednost hibridnog obrazovanja leži u činjenici da se mogu iskoristiti najbolje osobine oba oblika obrazovanja. Ipak, ono se uglavnom koristi kao prijelazni model pri potpunom prelasku na obrazovanje na daljinu (Ćamilović, 2013). Online učenje zahtijeva od korisnika određena znanja i vještine kako bi se mogli njime koristiti, ali i prilagodbu profesora koji se njime koriste. Ono predstavlja budućnost obrazovanja u svhu unapređenja istog, a na svima je da ga koriste savjesno dok pružatelji usluga i sadržaja se trebaju pobrinti da kvaliteta i održavanje budu na visokoj razini.

LITERATURA

Bakić-Tomić, L., & Dumančić, M. (2012). *Odabrana poglavlja iz metodike nastave informatike.* Zagreb: Učiteljski fakultet u Zagrebu.

Batarelo Kokić, I. (2011). Razvoj ljudskih potencijala i učenje odraslih uz pomoć informacijsko-komunikacijske tehnologije. *Andragoški glasnik: Glasilo Hrvatskog andragoškog društva*, *15*(2.(27) 1/2).

Ćamilović, D. (2013). Visokoškolsko obrazovanje na daljinu. *Tranzicija. 15*(31), 29-39.

Gabrilo G., Rodek J. (2009). Učenje putem interneta–mišljenja i stavovi studena-ta, *Školski vjesnik: časopis za pedagogijsku teoriju i praksu, 58*(3), 281-299.

Habek, I. (2019). *Što dolazi nakon X, Y i Z: Kojoj generacijskoj grupi pripadaju današnji prvašići?*. Preuzeto 10.08.2020. sa https://www.srednja.hr/novosti/sto-dolazi-nakon-x-y-z-kojoj-generacijskoj-grupi-pripadaju-danasnji-prvasici/

Hutinski, Ž., & Aurer, B. (2009). Informacijska i komunikacijska tehnologija u obrazovanju: stanje i perspektive. *Informatologia*, *42*(4), 265-272.

Jukić, D. (2017). Tehnička pripremljenost i motiviranost studenata hrvatskih sveučilišta za online oblik nastave. *Život i škola: časopis za teoriju i praksu odgoja i obrazovanja*, *63*(1), 93-102.

Jurković, Z., & Marošević, K. (2013). Utjecaj informacijske tehnologije na poslovnu komunikaciju. *Ekonomski vjesnik: Review of Contemporary Entrepreneurship, Business, and Economic Issues*, *26*(2), 496-506.

Katavić, I., Milojević, D., Šimunković, M. (2018). Izazovi i perspektive online obrazovanja u Republici Hrvatskoj. *Obrazovanje za preduzetništvo – E4E 8*(1), 95-107.

Matasić, I., Dumić, S. (2012). Multimedijske tehnologije u obrazovanju. *Medijska istraživanja, 18*(1), 143-151

Narodne novine, Preuzeto 15.02.2020. sa https://narodne-novine.nn.hr/clanci/sluzbeni/2019_01_7_150.html

Novak, P. (2016). *Internet kao izvor znanja.* Diplomski rad. Sveučilite u Zagrebu, Učiteljski fakultet. Odsjek za učiteljske studije, Čakovec, Hrvatska.

Oreški, P. (2005). *Izvori znanja u internetu.* Čakovec: Visoka učiteljska škola u Čakovcu. 227-240.

Šain, S. (2017). *Učenje na daljinu.* Diplomski rad. Sveučilište Jurja Dobrile u Puli, Odjel za ekonomiju i turizam „Dr. Mijo Mirković", Pula, Hrvatska.

Špiranec, S., Banek Zorica, M. (2008). *Informacijska pismenost: teorijski*

okvir i polazišta, Zagreb: Zavod za informacijske studije Odsjeka za informacijske znanosti Filozofskog fakulteta.

Vrkić Dimić, J. (2013). Kompetencije učenika i nastavnika za 21. stoljeće. *Acta Iadertina*, *10*(1), 49-60.

Vrkić Dimić, J. (2014). Suvremeni oblici pismenosti. *Školski vjesnik: časopis za pedagogijsku teoriju i praksu*, *63*(3), 381-394.

Rotar, N.Z., & Rotar, N.Z. (2005). *Mediji– medijska pismenost, medijski sadržaji i medijski utjecaji.* Sarajevo: Media Centar, *Sarajevo*. Preuzeto 07.10.2020. sa **http://djelatnici.unizd.hr/~nrotar/Medpismed.pdf**.

IMPACT OF MODERN COMMUNICATION TECHNOLOGIES ON ONLINE LEARNING

Frane Marjanica*, Ante Projić, Tomislav Seser, Maja Marjanica

Visoka škola Aspira, Domovinskog rata 65, 21000 Split, Croatia, fmarjanica@gmail.com

PROFESIONAL PAPER

Corresponding Author:
Frane Marjanica, Visoka škola Aspira, Domovinskog rata 65, 21000 Split, Croatia, fmarjanica@gmail.com

ABSTRACT
This paper presents the impact of modern communication technologies on online learning of students. Communication technologies are in the center of research, especially their impact on online learning, which was trying to be avoided for so long. The prejudices that stood next to online learning were lifted. During Covid-19 lock-down online learning was salvation for tens of thousands of students who had the possibility to continue education when it seemed that the whole world around them seemed to have stopped. During preparation of this paper systematic approach has been used by studying pros and cons of online learning in 21st century and whether it provides an improvement in the overall education of students and teachers. Education is the main foundation and key to success of each individual. With the development of communication technologies this has been enabled for people living far away from big cities. Trough the usage of software platforms for communication and collaboration learning has been enabled via audio and video meetings and data storage, all in one place.

Keywords: Education, communication technology, internet, application, Covid-19.

GUIDELINES TO AUTHORS FOR WRITING PAPERS

Dejan Kojić[1]*, Marijana Žiravac Mladenović[1], Jelena Pavličević[2]

[1]University PIM, Technical Faculty, Despota Stefana Lazarevića, no number, 78000 Banja Luka, kojic.d@hotmail.com
[2]Universty in Novi Sad, Faculty of Technology, Bulevar cara Lyara 1, Novi Sad, Serbia

ABSTRACT

Guidelines to authors on preparing articles is formed pursuant to the world's best publishing practice and the Rulebook on publication of scientific publications (Official Gazette of the Republic of Srpska, No. 77/16). Guidelines are issued to ensure a uniform style of publication of articles in all issues of the scientific and professional journal of "STED JOURNAL". The Journal is published half-yearly (May- November) in print, with a circulation of 200 copies, and an electronic version of the edition is published on the site of https://stedj-univerzitetpim.com/. All articles must be designed in accordance with these Guidelines and sent to the email address of the editor in chief, and then they go into the process of anonymous review by two reviewers. Only papers that have at least two positive reviews shall be published in the Journal. The Editorial Board has adopted the List of reviewers that has been confirmed by the Senate of the University. The identity of reviewers is not revealed to the authors, and vice versa.

Keywords: STED Journal, review, publishing, scientific publications.

GUIDELINES TO AUTHORS FOR WRITING PAPERS

When preparing these guidelines, the editorial board of the journal places an emphasis on the APA standards of the academic writing. It means that applying them consistently we also bring the papers of our authors closer to the global audience, that is, to readers. The guidelines to authors consist of two parts. The first part is related to the content aspect of the paper, that is, its necessary basic elements, based on which the reviewers evaluate the content adequacy of the paper. The second part of the guidelines is related to the technical aspect of formatting the paper based on which the editorial board, after receiving the paper, decides whether to send the paper to be reviewed or return it to the author to be finished before reviewing.

STED JOURNAL, the journal of the PIM University on social and technological development publishes the papers which are subject to review and which are classified into the following categories:

- Original scientific article,
- Review scientific article,
- Short or preliminary communication,
- Scientific critique,
- Professional article,
- Presentations at scientific meetings.

Authors suggest the category of their papers, but the final decision is made by the Editorial Board and reviewers.

Original scientific paper is a paper which is basically organised according to the IMRAD scheme (Introduction, Methods, Results And Discussion) for experimental research or in a descriptive way for descriptive scientific fields, in which one for the first time publishes the text on results of their own research carried out applying the scientific methods,

which are described textually and which enable that the research is repeated in case of need, and the established facts are checked.

Review scientific article represents a review of the latest papers of a certain subject field, with the aim to summarise, analyse, synthesise and evaluate the information already published, and moreover it brings new syntheses which also necessarily include the results of the author's own research.

Short or preliminary communication is an original scientific paper, but of a less extent or preliminary character, in which some elements of the IMRAD can be omitted, and it is about summarised presenting the results of a finished original research paper or article which is still in development (Working Paper).

Scientific critique, that is, a polemic or overview is a discussion to a certain scientific topic based specifically on scientific argumentation, in which the author proves the correctness of a certain criterion of their opinion, that is, they confirm or reject other authors' findings.

Professional paper is a contribution in which experience useful for improving the professional practice is offered, but which is not necessarily based on a scientific method, that is, the emphasis is on the usability of the results of original research and on spreading knowledge, and the text has to be adjusted to the professional and scientific level of the professional community for who the paper is intended.

The papers classified into these categories are subject to review by two reviewers. Reviews are double-blind, the authors' identity is not revealed to the reviewers and vice versa. The paper shall be published only based on positive reviews about which the Editorial Board shall inform the author. The reviewers are selected among experts in the direct field of research to which the paper submitted for publication is related.

The STED JOURNAL can include contributions from conferences, congresses, consultations and symposia.

The author is fully responsible for the content of the paper. The Editorial Board assumes that before submitting the paper the authors regulated the issue of publishing the content of the paper pursuant to the rules of the institution or company where they work.

The speed of publishing the paper will depend on how much the manuscript (text) complies with the guidelines. The papers requiring major modifications and amendments shall be returned to the author to be revised before reviewing.

TECHNICAL GUIDELINES

The paper shall be sent to the Editorial Board of the journal by e-mail in the form of a text prepared specifically using the text processing program of Microsoft Word. The paper should include maximum 10 A4 pages and consist of the following elements in one of the official languages of Bosnia and Herzegovina or in English:

- Title of the paper;
- List of the authors and institutions;
- Abstract;
- Key words;
- Introduction;
- Theoretical framework;
- Experimental part;
- Results and discussion;
- Conclusion;
- Literature overview;
- Title in English, list of authors and summary in English.

The title of the paper should be centred and written in upper case, Times New Roman, 14 pt, bold, Caps Lock;

The authors should be written in the centre, without titles, Times New Roman, 12pt, normal, and the names of institutions centred, Times New Roman, 10 pt, normal.

The titles of a part of the paper– of the first level, left alignment, Times New Roman, normal, 12 pt, bold, Caps Lock;

The subheading – of the second level, left alignment, lower case, Times New Roman, 12 pt, bold;

The subheading – of the third level, left alignment, lower case, Times New Roman, 12 pt, italic.

Other parts of the paper should be written using the alignment on both sides (Times New Roman, 12 pt), one-sided spacing with one empty row above, between the subheadings and paragraphs, with margins of 2.54 cm (1"). The beginning of the paragraph should be typed at the beginning of the row.

The abstract should have 100-250 words, and it is positioned between the paper heading (consisting of the paper title and information on authors) and key words, which are followed by the text of the paper.

If the paper is written in one of the official languages of Bosnia and Herzegovina, the summary in English is given in an extended form, as a so-called resume and it should consist of up to 500 words.

Tables and charts

Tables should be prepared in the WORD, graphics in the EXCEL, except for some special cases when it is not possible technically. Tables and graphics should be clear, as simple as possible and transparent. The title, heading (text) and subtext in tables and graphics should be written in Times New Roman – normal, Font Size 10 pt. Tables should be placed at a certain place in the text. Tables should not include more than ten columns and more than fifteen rows. If the author assumes that data should be presented in a larger number of columns and rows, it is necessary to split the content of the table into two or more smaller tables or deliver it as a special attachment. They have to be drawn according to the computer template (Insert Table), and not using the spacing, dots and tabs. When citing tables and graphics, we write the title of the table or graphic in the initial capital letter and then we specify its ordinal number (e.g. as it is shown in Table 9 and Figure 6, the lowest value was...).

A table examples

Tabela 1. Karakteristike umrežavanja NR/CSM blendi sa različitim sadržajem recikliranog gumenog praha.

Sadržaj recikliranog gumenog praha WRP content (phr)	Karakteristike umrežavanja/Curing characteristics					
	M_l, dNm	M_h, dNm	ΔM, dNm	t_{s2}, min	t_{c90}, min	*CRI*
0	4	40	36	6	15	11.0
20	5	42	37	8	16	12.5
40	5	45	40	9	16	14.3
60	7	46	39	9	17	12.5
80	7	47	40	10	17	14.3
100	7	47	40	10	17	14.3

A chart examples
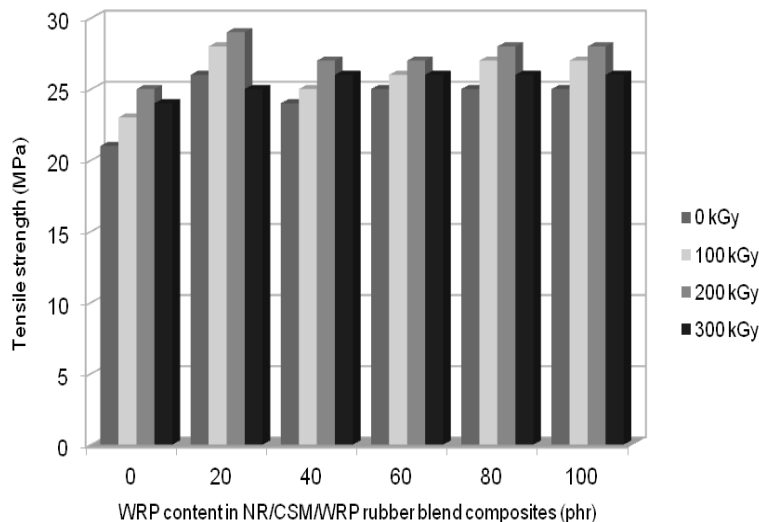
Slika 1. Uticaj različitog udjela recikliranog gumenog praha na prekidnu čvrstoću NR/CSM/WRP kompozita pod uticajem različitih doza zračenja
Figure 1 The effect of waste rubber powder content on tensile strength for the NR/CSM/WRP composites irradiated with different doses.

Equation

Equations should be written in the graphic editor for equations, specifically in the Microsoft Equation and they should be placed at the beginning of the text. On the right edge of the text in the row in which the equation is written one should indicate its number in parentheses beginning with number 1.

$$m_r = m_s \left(1 - e^{k_s t_{maks}}\right) - m_d \left(1 - e^{-k_d (t - t_{maks})}\right) \; za \;\; t > t_{maks} \tag{1}$$

Figures

Figures have to be prepared for black-and-white printing, that is, if the original figure is in colors which cannot be distinguished in black-and-white printing, the colors have to be replaced by "raster", that is, different graphic signs which need to be explained in the legend. We insert in figures only the most essential text necessary for understanding, such as measure variables with their dimensions, short explanation on curves and similar. The rest is stated in the legend under the figure. The maximum size of a figure is 13 cm x 17 cm.

Slika 2. SEM mikrograf NR/CSM/ERP kompozita sa dodatkom 20 phr recikliranog gumenog praha pri uvećanju od 7500 puta

Figure 2. The SEM micrograph of NR/CSM/WRP composites filled with 20 phr waste rubber powder at 7500X magnification.

Other notes

In order to include successfully the papers published in one of the official languages of Bosnia and Herzegovina into international information flows, parts of the manuscript should be written both in the author's language and in English, including: text in tables, figures, diagrams and drawings, their titles and symbols.

About authors

When sending the paper one should give their full official address, telephone number and email of all authors and emphasize the author with who the Editorial Board shall cooperate. These notifications should be submitted on a separate sheet.

Experimental technique, symbols and units

Experimental technique and devices are described in detail only if they deviate significantly from the descriptions already published in the literature. If techniques and devices are familiar, only the source of necessary notifications is stated.

Symbols of the physical quantities should be written in Italic (Times New Roman, 12 pt. – italic), and units of measurement in upright letters, e.g. V, m, p, t, T, but m3 , kg, Pa, °C, K. Quantities and units of measurement have to be used pursuant to the International System of Units (SI).

REFERENCES

The reference list at the end of the article has to include only the sources which the author referred to in the article text. The used literature items are listed in alphabetical order.

Examples of citing

An example of citing a scientific journal in the text:
  - one author: (Avramović, 2011);
  - two authors: (Žiravac-Mladenović i Đurica, 2018);
  - three to five authors: first citing in text: (Mitić, Nikolić, Cakić, Nikolić, & Ilić, 2007); second and every next citing in text: (Mitić et al., 2007);
  - six and more authors: (Špírková et al., 2009).

In the reference list:

Avramović, D. (2011). Metode i okviri rasta vrijednosti banke. Anali poslovne ekonomije, 5(1), 28-37.

Žiravac-Mladenović, M. i Đurica, F. (2018). Komparativna analiza trgovanja na Banjalučkoj i Sarajevskoj berzi. Anali poslovne ekonomije, 10(1), 25-35.

Mitić, Ž., Nikolić, G., Cakić, M, Nikolić, R., & Ilić, LJ. (2007). The investigation of Co (II)-dextran complexes. Hemijska industrija, 61(5), 257-262.

Špírková, M., Strachota, A., Urbanová, M., Baldrian, J., Brus, J., Šlouf, M., Kuta, A. & Hrdlička, Z. (2009). Structural and surface properties of novel polyurethane films. Materials and Manufacturing Processes, 24(10-11), 1185-1189.

An example of citing a book in the text:
  - one author: (Suzić, 2010);
  - two authors: (Peterlin i Mladenović, 2007);
  - three to five authors: first citing in text: (Đuranović, Todorović i Tešić 2016); second and every next citing in text: (Đuranović et al., 2016);
  - six and more authors : (Stefanović et al., 2008).

In the reference list:

Suzić, N. (2010). Prvila pisanja naučnog rada: APA i drugi standardi. Banja Luka: XBS. Peterlin, J. i Mladenović, M. (2007). Finansijski instrumenti i menadžment finansijskih rizika. Banja Luka: Univerzitet za poslovni inženjering i menadžment.

Đuranović, D., Todorović, S. i Tešić, R. (2016). Strategijski menadžment. Banja Luka: Univerzitet za poslovni inženjering i menadžment.

Stefanović et al. (2008). Kretanje šinskih vozila. Banja Luka: Društvo za energetsku efikasnost.

An example of citing a chapter of a book in the text:
  - (Harly, 1981)

In the reference list:

Harley, N. (1981). Radon risk models. U A. Knight, & B. Harrad (Eds.), Indoor air and human health (str. 69–78). Amsterdam: Elsavier.

An example of citing a paper published in the Scientific Conference Proceedings in the text:
  - one author: (Grgurević, 2014);
  - two authors: (Medić i Živadinović, 2014);
  - three to five authors: first citing in text: (Krstić, Skorup, Skorup, 2014); second and every next citing in text: (Krstić et al., 2014);
  - six and more authors : (Kojić et al., 2019).

In the reference list:

Grgurević, N. (2014). Kuba i Nikaragva (Revolucija i postrevolucionarni period). U M. Žiravac-Mladenović (Eds.), Conference proceedings, International Scientific Conference on Social and Technological Development (pp. 124-131). Banja Luka, B&H: University of Business Engineering and Management.

Medić, Z. i Živadinović, J. (2014). Neravnoteže i krize savremenog doba i ekonoska politika. U M. Žiravac-Mladenović (Eds.), Conference proceedings, International Scientific

Conference on Social and Technological Development (pp. 102-1112). Banja Luka, B&H: University of Business Engineering and Management.

Krstić, M., Skorup, A. i Skorup, S. (2014). Inovativnost – ključni element preduzetničke strategije rasta i razvoja privrednog subjekta. U M. Žiravac-Mladenović (Eds.), Conference proceedings, International Scientific Conference on Social and Technological Development (pp. 51-58). Banja Luka, B&H: University of Business Engineering and Management.

Kojić, D., Pavličević, J., Špírková, M., Aroguz, A., Jovičić, M., Bera, O., MarinovićCincović, M. (2019). THE IFLUENCE OF SILICA ON THE SOLVENT RESISTANCE OF POLYURETHANE HYBRIDE MATERIALS. In M. Gligorić, A. Došić, D. Vujadinović (Eds.), Proceedings VI International Congress "Engineering, Environment and Materials in Processing Industry" (pp. 568-572). Jahorina, BiH: University of East Sarajevo, Faculty of Technology.

An example of citing a master thesis or PhD thesis in the text:
- (Petrović, 2001)
- (Žiravac-Mladenović, 2009)

In the reference list:

Petrović, R. (2001). Dehidratacija etera na mordenitnim katalizatorima. Magistarski rad. Univerzitet u Banjoj Luci, Tehnološki fakultet, Banja Luka, BiH.

Žiravac-Mladenović M. (2009). Bankarski nadzor i regulative zemalja u tranziciji na Balkanu – globalizacija bankarskog sektora. Alfa Univerzitet, Beograd, Srbija.

An example of citing a publication of an institution as the author, downloaded from the Internet and citing a text from the web site
Citing internet sites should be avoided, but if it is necessary, then they should include names of the authors, if they are available, the title, internet site and access date.

In the text:
- institution: first citing in text (Zavod za statistiku Republike Srpske [ZSRS], 2009); second and every next citing (ZSRS, 2009);
- call to authors: (Degelman, 2000); - unknown author: (Compiere, 2017) (Purdue University, n.d)

In the reference list:

Zavod za statistiku Republike Srpske. (2009). Saopštenja. Preuzeto 10.02.2009. sa http://www.rzs.rs.ba/SaopstenjaRadLAT.htm

Degelman, D. (2000). APA Style Essentials. Retrieved May 18, 2000 from: http://www.vanguard.edu/psychology/apa.pdf

Compiere, (2017). Products. Preuzeto 11.10.2018. sa http://www.compiere.com/products/

Purdue University Writing Lab [Facebook page]. (n.d). Retrieved January 22, 2019, from https://www.facebook.com/PurdueUniversityWritingLab/

An example of citing laws, regulations, court decisions in text:
- laws and regulations: first citing in text (Zakon o krivičnom postupku [ZKP], 2014); second and every next citing (ZKP, 2014);
- court decisions: first citing in text (Vrhovni sud Srbije [VSS], Rev. 1354/06); second and every next citing (VSS, Rev. 1354/06);

In the reference list:

Zakonik o krivičnom postupku, Službeni glasnik RS, 72/2011, 101/2011, 121/2012, 32/2013, 45/2013, i 55/2014; Regulation (EU) No. 1052/2013 establishing the European Border Surveillance System (Eurosur), OJ L 295 of 6/11/2013, 1; Directive 2013/32/EU on common procedures for granting and withdrawing international protection (recast), OJ L 180 of 29/6/2013, 60.

Vrhovni sud Srbije, Rev. 1354/06, (6. 9. 2006). Paragraf Lex; Vrhovni sud Srbije, Rev. 2331/96, 3. 7. 1996, Bilten sudske prakse Vrhovnog suda Srbije 4/96, 27; CJEU, case C-20/12, Giersch and Others, ECLI:EU:C:2013:411, para. 16; Opinion of AG Mengozzi to CJEU, case C-20/12, Giersch and Others, ECLI:EU:C:2013:411, para. 16.

CONCLUSION

The papers not written strictly according to these guidelines shall not be accepted.

COBISS Kooperativni online bibliografski sistem i servisi COBISS

STED journal : journal of social and technological development

Vol 2, No. 1 (2020)
– bibliografija članaka-
Standard ISO 690

1. DUPLAKOVA, Darina, DUPLAK, Jan. Analysis of approaches to the material flow in the production process with the use of simulation. STED journal : journal of social and technological development. [Štampano izd.]. 2020, vol. 2, no. 1, pp. 36-44. ISSN 2637-2150. http://dx.doi.org/10.7251/STED2002036D. [COBISS.RS-ID 130064897]

2. ĐURIĆ, Miroslav. Paradoksalni odnos kognicije i nekognicije. STED journal : journal of social and technological development. [Štampano izd.]. 2020, vol. 2, no. 1, pp. 28-35. ISSN 2637-2150. http://dx.doi.org/10.7251/STED2002028D. [COBISS.RS-ID 130064641]

3. GALIĆ, Jovana. Personal Investments in Investment Funds Listed on Banja Luka Stock Exchange. STED journal : journal of social and technological development. [Štampano izd.]. 2020, vol. 2, no. 1, pp. 82-88. ISSN 2637-2150. http://dx.doi.org/10.7251/STED2002082G. [COBISS.RS-ID 130065921]

4. HUJIĆ, Nejra, SALIHIĆ, Fatima. Marketing in Tourism - Direct Marketing as Marketing Communications Technology. STED journal : journal of social and technological development. [Štampano izd.]. 2020, vol. 2, no. 1, pp. 89-105. ISSN 2637-2150. http://dx.doi.org/10.7251/STED2002089H. [COBISS.RS-ID 130066177]

5. OBENG APORI, Samuel, ATIAH, Kofi. Moringa Oleifera Seeds as a Low-cost Biosorbent for Removing heavy Metals from Wastewater. STED journal : journal of social and technological development. [Štampano izd.]. 2020, vol. 2, no. 1, pp. 45-52. ISSN 2637-2150. http://dx.doi.org/10.7251/STED2002045O. [COBISS.RS-ID 130065153]

6. RAHAYU, Vivi Mirna, SAPANJI, Virgana Targa. Development of Geographic Information System in Education by Using the Rational Unified Process in Bandung. STED journal : journal of social and technological development. [Štampano izd.]. 2020, vol. 2, no. 1, pp. 11-18. ISSN 2637-2150. http://dx.doi.org/10.7251/STED2002011M. [COBISS.RS-ID 130064129]

7. SAMARDŽIĆ, Snežana. Porodična afektivna vezanost kod suicidalnih pacijenata. STED journal : journal of social and technological development. [Štampano izd.]. 2020, vol. 2, no. 1, pp. 19-27. ISSN 2637-2150. http://dx.doi.org/10.7251/STED2002019S. [COBISS.RS-ID 130064385]

8. TAPERA, Masimba, WANJAU, Ruth. Phytochemical study to validate the ethnobotanical importance of Dioscorea steriscus tubers obtained from Zimbabwe. STED journal : journal of social and technological development. [Štampano izd.]. 2020, vol. 2, no. 1, pp. 1-10. ISSN 2637-2150. http://dx.doi.org/10.7251/STED2002001T. [COBISS.RS-ID 130063873]

9. UMMUL FITHRIYYAH, Mustiqowati, SUWITRI, Sri. Action-Collaborative Networks of the Regional Government on Land and Forest Fire Restraint in Pelalawan District, Riau Province. STED journal : journal of social and technological development. [Štampano izd.]. 2020, vol. 2, no. 1, pp. 64-81. ISSN 2637-2150. http://dx.doi.org/10.7251/STED2002064U. [COBISS.RS-ID 130065665]

10. YEBOAH ASIAMAH, Joshua, WILSON TACHIE-MENSON, Josiah. Pesticides; a necessary Evil in the Agricultural Value Chain- a Review. STED journal : journal of social and technological development. [Štampano izd.]. 2020, vol. 2, no. 1, pp. 53-63. ISSN 2637-2150. http://dx.doi.org/10.7251/STED2002053Y. [COBISS.RS-ID 130065409]

Registar naslova

Registar autora

Tapera, Masimba (autor) 8

Ummul Fithriyyah, Mustiqowati (autor) 9

Wanjau, Ruth (autor) 8

Wilson Tachie-Menson, Josiah (autor) 10

Yeboah Asiamah, Joshua (autor) 10

Izvor: lokalna baza podataka COBISS.RS/NUBRS, 29. 11. 2020